



~~For Public Comment: Proposed~~ Guidance for New York Domestic Insurers on Managing the Financial Risks from Climate Change

~~March 25~~November 15, 2021

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1. Introduction

1. As one of the most critical risk-management issues of our generation, climate change poses wide-ranging and material risks to the financial system. This is especially true for the insurance industry, where the physical and transition risks resulting from climate change affect both sides of insurers’ balance sheets—assets and liabilities—as well as their business models. Climate change also presents tremendous opportunities for insurers, which play a critical role in the management of climate risks ~~in their capacity~~ as risk managers, risk carriers, and investors, and are uniquely qualified to understand the pricing of risks. ~~Insurers can also help build resilience~~ These opportunities include helping communities be more resilient through inclusive and affordable insurance⁴, contributing to climate change adaptation and mitigation, and enhancing the insurability of climate-related risks. To continue to thrive in the face of global competition, it is essential that New York insurers ~~understand and both~~ manage the financial risks and take advantage of the opportunities arising from climate change.

2. The Sixth Assessment Report of the Intergovernmental Panel on Climate Change (“IPCC”) states that “[t]he scale of recent changes across the climate system as a whole and the present state of many aspects of the climate system are unprecedented nature-of-over many centuries to many thousands of years.”² Climate-related risks ~~presents~~ present unique challenges and ~~requires~~ require a strategic response by the insurance industry, including the acquisition of new knowledge, expertise, and tools. At the same time, general principles and approaches of good governance and risk management laid out in the New York Insurance Law and related regulations, and the guidance manuals of the National Association of Insurance Commissioners (“NAIC”), apply to climate risks in the same way as ~~they apply to~~ other risks that may be more familiar to insurers.

~~3. The New York State Department of Financial Services (“DFS”) prepared, and seeks comments on, this draft guidance that is intended³.~~ To support New York domestic insurers (“insurers”) in managing the financial risks from climate change (“climate risks”), the New York State Department of Financial Services (“DFS”) solicited comments on a proposed version of this guidance on March 25, 2021. DFS received detailed comments from 45 parties, including industry trade groups, insurance companies,

⁴ The International Association of Insurance Supervisors, the Sustainable Insurance Forum, Draft Application Paper on the Supervision of Climate-related Risks in the Insurance Sector, October 13, 2020.

² IPCC, Sixth Assessment Report – Headline Statements from the Summary for Policymakers, August 9, 2021.

consumer advocates, climate experts, rating agencies, financial regulators, and individual citizens. This final guidance reflects DFS's careful consideration of all comments received.

~~4. DFS expects this guidance to serve as a basis for supervisory dialogue and to help insurers familiarize themselves with climate risks and develop their capacity and processes for managing them. DFS will continue to develop its supervisory approach to managing and disclosing climate risks over time, considering U.S. federal and state regulatory developments as well as evolving practices in the industry and in the national and international supervisory community. DFS expects to develop, based on the industry's progress and the impact of climate risks to insurers, a timeframe by which insurers should have fully embedded their approaches to managing climate risks in their governance structures, risk management frameworks and processes, business strategies, metrics and targets, and disclosure methods, as outlined in more detail in this guidance.~~

54. This guidance is informed by DFS's ongoing dialogue with the insurance industry over the past year, analysis of the potential climate risk exposure of insurers' assets, and collaboration with international and other U.S. regulatory bodies. This guidance also reflects DFS's review of insurers' enterprise risk reports, Own Risk and Solvency Assessment ("ORSA") summary reports, NAIC Climate Risk Disclosure Survey responses, and other voluntarily filed disclosure materials, including Task Force on Climate-related Financial Disclosures ("TCFD") reports, sustainability reports, and disclosure questionnaires. Based on this review, there is a wide range of levels of maturatiomaturity and sophistication among insurers in terms of understanding and managing climate risks, with larger insurers typically more advanced than smaller ones, which in some cases have not yet ~~thought about the issue~~considered climate risks.

65. This guidance builds on relevant provisions of the New York Insurance Law, NAIC Financial Condition Examiners Handbook 2020 ("~~Handbook~~"), and NAIC ORSA Guidance Manual as of December 2017 ("ORSA Manual"). It is also modeled on publications, guidance, and supervisory statements issued by international regulators and networks, such as the Bank of England Prudential Regulation Authority ("PRA"), the International Association of Insurance Supervisors ("IAIS"), the Sustainable Insurance Forum ("SIF"), the European Insurance and Occupational Pensions Authority ("EIOPA"), the European Central Bank ("ECB"), the Network for Greening the Financial System ("NGFS"), and the Dutch Central Bank. DFS is profoundly grateful for their work.

76. At a high level, international regulators' expectations on managing climate risks are consistent, including similar components, a focus on proportionality and long-term analysis, and the expectation of an increasing level of sophistication over time. To ensure consistency across jurisdictions, international regulators have engaged in meaningful collaboration and coordination to develop international best practices. DFS intends to continue to work closely with international and other U.S. regulators ~~going forward~~ to reduce the compliance burden on insurers.

87. Although no one is spared from the impact of climate change, it ~~disproportionally~~disproportionately affects disadvantaged communities, including low-income communities and communities of color, and feeds into the vicious circle of social inequality. DFS is committed to supporting fair, safe, and stable insurance markets for the benefit and protection of all New Yorkers. While this guidance is focused on the financial stability of insurers in the face of climate change, it is also crucial for insurers to do their part to contribute to the low-carbon transition and climate adaptation ~~and mitigation~~ efforts;² support

Overview of DFS Supervisory Expectations

DFS expects insurers to take a strategic approach to managing climate risks that considers both current and forward-looking risks and identifies actions required to mitigate those risks in a manner proportionate to the nature, scale, and complexity of insurers' businesses. Specifically, an insurer should:

1. ~~Integrate the consideration of climate risks into its governance structure. The insurer's board should understand and be responsible for managing climate risks, which should be reflected in the company's risk appetite and organizational structure.~~
2. ~~When making strategic and business decisions, consider the current and forward-looking impact of climate-related factors on its business environment in the short-, medium-, and long-term.~~
3. ~~Incorporate climate risks into the insurer's existing financial risk management, including by embedding climate risks in its risk management framework and analyzing the impact of climate risks on existing risk factors. Climate risks should be considered in the company's ORSA.~~
4. ~~Use scenario analysis to inform business strategies and risk assessment and identification. Scenarios should consider physical and transition risks, multiple carbon emissions and temperature pathways, and short-, medium-, and long-time horizons.~~
5. ~~Disclose its climate risks and consider the TCFD and other initiatives when developing its disclosure approaches.~~

DFS intends to monitor compliance with these expectations as part of its supervisory activities.

communities' resilience to climate change, especially in disadvantaged communities that would be even more vulnerable to climate change if insurers stop insuring or investing in these communities; and work with the public sector to find ways to close the protection gap and ensure the availability and affordability of that insurance. is available and affordable throughout the State.

8. DFS expects this guidance to serve as a basis for supervisory dialogue and to help insurers familiarize themselves with climate risks and develop their capacity and processes for managing them in accordance with the timelines specified in the guidance. DFS intends to monitor insurers' progress in implementing the expectations in this guidance.³

³ To assist insurers that are in the early stages of this work, examples are provided to illustrate the expectations in this guidance, which should not be viewed as mandatory.

9. DFS will continue to develop its supervisory approach to managing and disclosing climate risks, considering U.S. federal and state regulatory developments as well as evolving practices in the industry and in the national and international supervisory community. Over time, DFS expects its approach to shift from supporting insurers' progress in implementing DFS's supervisory expectations in accordance with the timelines specified in this guidance, to active supervision against those expectations.

Overview of DFS Supervisory Expectations

10. As explained in more detail below, DFS expects insurers to take a strategic approach to managing 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. Specifically, an insurer should:

- I. Integrate the consideration of climate risks into its governance structure at the group or insurer entity level. The insurer's board should understand climate risks and maintain oversight over the management team responsible for managing them. The roles of the board and management should be reflected in the company's risk appetite and organizational structure.
 - II. When making business decisions, consider the current and forward-looking impact of climate-related factors on its business using time horizons that are appropriately tailored to the insurer, its activities, and the decisions being made.
 - III. Incorporate climate risks into the insurer's existing financial risk management, including by embedding climate risks in its risk management framework and analyzing the impact of climate risks on existing risk factors. Climate risks should be considered in the company's ORSA.
 - IV. Use scenario analysis to inform business strategies and risk assessment and identification. Scenarios should consider physical and transition risks, multiple carbon emissions and temperature pathways, and short-, medium-, and long-term horizons.
 - V. Disclose its climate risks and engage with the TCFD and other initiatives when developing its disclosure approaches.
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2. Financial Risks from Climate Change

2.1.9 Physical and Transition Risks

11. Physical risks arise from the increasing frequency, severity, and volatility of acute events, such as hurricanes, floods, and wildfires, as well as. They also stem from chronic shifts in weather patterns, such as rising sea levels resulting in more flooding and coastal erosion, droughts disrupting agriculture production, and intensifying heat waves which are responsible for more annual deaths than any other weather-related hazards.⁴ Climate change has increased heat and precipitation extremes across the globe, as well as the likelihood of multiple perils occurring at once (e.g., concurrent heat waves and droughts, flooding caused by storm surge and extreme rainfall).⁵ These risks directly affect property/casualty insurers' liabilities and the long-term viability of certain business lines. As the effects

⁴ Extreme Heat, Ready.Gov, accessed on October 19, 2021.

⁵ IPCC, Sixth Assessment Report – Headline Statements from the Summary for Policymakers, August 9, 2021. IPCC, The concept of risk in the IPCC Sixth Assessment Report: a summary of cross-Working Group discussions – Guidance for IPCC authors, September 4, 2020.

of climate change continue to unfold, physical risks will likely become more complex and harder to model, further challenging insurers' attempts to manage those risks. Climate-related natural disasters can also cause business disruption, destruction of capital, increased costs to recover from disasters, stress on infrastructure, reduced revenue, and migration. In turn, these can lead to lower residential and commercial property values, lower household wealth, and lower corporate profitability, and stress on social and economic systems, translating into financial and credit market losses that affect insurers' assets.

~~1012.~~ Transition risks arise from society's transition towards a low-carbon economy, driven by policy and regulations, (such as the potential introduction of a carbon tax or carbon allowances), low-carbon technology advancement, and shifting sentiment and societal preferences. This transition can lead to stranded assets in the fossil-fuel industry and carbon-intensive infrastructure, real estate, and vehicles. It can also result in costs to reinvest in and replace infrastructure, and increased litigation against fossil-fuel companies. Transition risks can lead to corporate asset devaluation, lower corporate profitability, lower property values, and lower household wealth. In turn, related financial and credit market losses will affect insurers' assets, while increased litigation will impact insurers' liabilities and the long-term viability of certain business lines. ~~Examples of~~ Sectors with high transition risks include: coal mining, oil and gas (including drilling, pipelines, refineries, and services), utilities, transportation, chemicals, trucking and leasing, auto manufacturing, cement, and mining. ~~Some companies in these sectors are actively transitioning their business lines into low carbon, such as oil and gas companies investing in renewable energy and auto manufacturing companies building electric vehicles.~~

~~1113.~~ Physical and transition risks can give rise to climate-related claims under liability policies, such as directors' and officers' liability insurance policies,⁶ as well as direct actions against insurers for failing to manage climate risks.⁷ These liability risks are not identified in this guidance as a separate risk factor, but rather are part of the discussion of physical and transition ~~risk factors~~ risks.

2.2.12. Distinctive Nature of Climate Risks

14. Climate risks present unique challenges and require a strategic approach to financial risk management. Climate risks are ~~unprecedented.~~⁸

- a. Far-reaching in breadth and magnitude: Not only does climate change affect all aspects of our economy globally, but its impact may also be non-linear, correlated, and irreversible. ~~Although the ultimate consequences of climate change on human society are not known with certainty;~~
- b. Uncertain but foreseeable: Climate-driven change is inevitable. ~~Society, even though its exact manifestations and timing are uncertain. The concentration of greenhouse gases in the atmosphere will either experience further~~ continue to increase in the short term, leading to more extreme and chronic weather events. Over time, certain physical risks, ~~which~~ could

⁶ PRA, Supervisory Statement, SS3/19, [Enhancing banks' and insurers' approaches to managing the financial risks from climate change](#), April 2019.

⁷ ~~IAIS, SIF, Draft Application Paper on the Supervision of Climate-related Risks in the Insurance Sector, October 13, 2020. IAIS and SIF, Application Paper on the Supervision of Climate-related Risks in the Insurance Sector, May 2021.~~

⁸ PRA, Supervisory Statement, SS3/19, [Enhancing banks' and insurers' approaches to managing the financial risks from climate change](#), April 2019.

become ~~drastic and potentially~~ uninsurable if the low-carbon transition happens too slowly or too late, ~~or undergo the low-carbon transition, which mitigates physical risks but creates transition risks.~~ Some insurers are already limiting coverage, or exiting the market entirely, in regions that experience frequent climate-related natural disasters. Governments and society more broadly are responding by ramping up efforts to mitigate climate change. The low-carbon transition could be orderly, with minimum negative impact on the economy, or disorderly, which would disrupt the economy and financial markets. ~~A “too little, too late” scenario could result in the most severe financial risks—for example, where~~ If significant action is taken ~~but~~ too late to achieve ~~climate goals such as the Paris Agreement goal of~~ limiting global warming to well below 2 degrees Celsius above pre-industrial levels, ~~which is the Paris Agreement goal and what is needed to keep the Earth habitable for humans. To address the unique challenges posed by the resulting financial disruption could be severe.~~

~~c.~~ Dependent on short-term actions: The ultimate impact of climate change, ~~insurers must adapt depends in large part on the nature and extent of the actions taken in the near term by governments, corporations, and individuals and communities around the world to fight climate change.~~

~~a-d.~~ Hard to predict based on past experience: Certain physical and transition risks are unlikely to be adequately captured in historical data given their traditional tools for identifying, monitoring, and managing risks. ~~unprecedented and long-term nature. Given the forward-looking nature of climate risks and the inherent uncertainty of both the physical impact of climate change and resulting societal responses, past experience will not necessarily be a good indicator of future conditions.~~

~~3. Proposed Detailed Guidance~~

3. DFS Expectations

3.1. Proportionate Approach

~~1315.~~ DFS expects each insurer to take a proportionate approach to managing climate risks that reflects its exposure to climate risks and the nature, scale, and complexity of its business. ~~DFS recognizes that~~ Climate change affects each insurer in different ways and to different degrees depending on the insurer’s size, complexity, geographic distribution, business lines, investment strategies, and other factors. Not all insurers have the same level of resources to devote to managing climate risks and ~~that~~ some insurers will take longer than others to develop and implement appropriate practices. However, all insurers, regardless of size, are expected to analyze their climate risks on both the underwriting and investment sides of their balance sheets. Small insurers are not necessarily less exposed to climate risks because they may have concentrated business lines or geographies that are highly exposed to climate risks without the benefit of diversification available to larger insurers.

~~1416.~~ As an insurer’s expertise and understanding of climate risks develop, DFS expects the insurer’s approach to managing these risks to mature. Over time, an insurer’s analysis of climate risks and assessment of their materiality for its business should shift from a qualitative approach to an approach

that is both qualitative and quantitative ~~approach for risks that can be quantified.~~⁹ While a qualitative assessment may be based on simple models and a small set of risk factors, a quantitative assessment should ~~rely seek to quantify those risks based~~ on increasingly sophisticated ~~model tools like geospatial data and climate modeling,~~ and a broader set of relevant risk factors, ~~which should include the following branded risk factors including those~~ described in the Handbook: ~~(i.e., credit, legal, liquidity, market, operational, pricing and underwriting, reputational, and strategic risks).~~

~~15.17.~~ An insurer that is developing a climate risk approach or model may need more time to incorporate it into its risk management function, or to establish an adequate control environment. ~~That~~The insurer should start by qualitatively analyzing the impact of climate risks on ~~these branded~~the risk factors described in the Handbook for its business lines and assets. In addition, it should assess how its business (both assets and liabilities) ~~will~~may perform under various scenarios, ~~such as and time frames.~~ Scenarios could include: (1) an orderly transition that phases out fossil fuel-based energy and transportation with minimum financial market disruption and a limited increase in natural disasters; (2) a disorderly transition with a large financial market disruption and a limited increase in natural disasters; (3) a disorderly transition with a drastic increase in natural disasters; and (4) no transition (as the economy continues to use the same amount of fossil fuel) with a drastic increase in natural disasters.

~~16. A strategic response to climate change requires a longer term view than the typical business planning horizon of three to five years. The time horizon for analyzing financial risks and opportunities related to climate change should gradually go beyond the standard three to five years to a medium term (e.g., ten years) and ultimately long-term (e.g., 30 years) view. DFS's expectation for the timing of this progression will depend on the situation of each insurer, with insurers with the most developed climate-related risk profiles expected to start experimenting with the long-term horizon now and other firms in the next two to three years.~~

18. An insurer that is part of a group can utilize policies, procedures, and processes developed at the group level for managing climate risks if: (1) the risks considered at the group level include those facing the insurer; (2) the policies, procedures, and processes developed at the group level are implemented at the level of the insurer and address the insurer's material climate risks; and (3) the insurer has appropriate access to relevant climate-related resources and expertise centralized at the group level. If these conditions are met, references in this guidance to an insurer's board can also mean the board of the group of which the insurer is a part. If an insurer's policies, procedures, or processes differ meaningfully from those of the group, the insurer should document and provide a justification for those differences in its risk management reports.

3.2. Materiality

~~1719.~~ This guidance, which includes several references to materiality or to material risks or exposure. ~~DFS understands that, is intended to address material climate risks faced by insurers.~~ The quantification of climate risks is still a developing area with uncertain or, in some cases, unavailable data and models. However, this does not preclude insurers from making informed judgments about the significance of climate risks to their businesses. For insurers early in the process of managing climate risks or with ~~more~~limited resources, a materiality ~~assessments~~assessment may be based on qualitative information, and on an analysis of portfolio exposure to certain sectors or geographies in underwriting or

⁹ Examples of quantitative metrics can be seen in Section 3.8.1.2 ("Risk Appetite, Tolerances, and Limits").

investments. Over time, when qualitative analyses demonstrate the probability of material climate risks, this assessment should ~~become more include~~ quantitative analyses and rely on methods such as scenario analysis and stress testing that include relevant sectors and geographies.

1820. The Handbook provides guidance for determining materiality in the examination context.¹⁰ When assessing the materiality of climate risks, insurers may use the Handbook's materiality benchmarks (e.g., 5% of surplus or one-half of 1% of total assets), subject to adjustment based on professional judgment and circumstances. ~~However, insurers should recognize that certain risks may be material, regardless of their numerical impact, based on external factors such as the industries in which an insurer operates or investor expectations~~A risk may also be considered material where knowledge of the risk could influence the decisions or judgment of an insurer's board, management, regulators, or other relevant stakeholders.¹¹ These types of risks could include exposure to natural disasters that are strongly influenced by climate change for property/casualty insurers, and investment exposure to geographies and sectors that have high transition or physical risks for life insurers.

21. Insurers should regularly assess their materiality assumptions.¹² Depending on the nature, scale, and complexity of its business, an insurer should conduct this assessment at least annually, and in the event of a significant change, such as a material regulatory development or material change to its internal climate modeling.

3.3. Time Horizon for Consideration of Climate Risks in Business Decisions

22. A strategic response to climate change requires a longer-term view than the typical business planning horizon of three to five years. The time horizon for analyzing financial risks and opportunities related to climate change should gradually go beyond the standard three to five years to a medium-term (e.g., five to ten years) and ultimately long-term (e.g., ten to 30 years) view. DFS's expectation for the timing of this progression will depend on the situation of each insurer, with insurers with the most developed climate-related risk profiles or the most material climate risks expected to start experimenting with the long-term horizon now and other insurers in the next two to three years.

23. When making a specific business decision, each insurer should consider climate risks based on a time horizon that is tailored to its business and activities and the nature of that decision. For example, a property/casualty insurer's consideration of climate risks in underwriting and pricing policies, or determining an appropriate risk transfer strategy, may be based on a relatively short time horizon (one to five years).¹³ By contrast, given the long-dated nature of life insurers' liabilities, the impact of climate change on their investment portfolios may materialize over an extended period of time and therefore impact either the value of or expected cash flows from their financial assets only in the long-term.

¹⁰ Handbook, SECTION 1 – GENERAL EXAMINATION GUIDANCE, III. General Examination Consideration, B. MATERIALITY, PagePages 61-63.

¹¹ Anderson, N., IFRS® (International Financial Reporting Standards) Standards and climate-related disclosures, November 2019; EIOPA, Opinion on the supervision of the use of climate change risk scenarios in ORSA, April 19, 2021.

¹² One example of a tool that insurers can use for the assessment is the mapping of climate risks to existing risk factors as shown in Annexes 3 and 4 of EIOPA's Opinion on the supervision of the use of climate change risk scenarios in ORSA, April 19, 2021.

¹³ PRA, A framework for assessing financial impacts of physical climate change – A practitioner's aide for the general insurance sector, May 2019.

However, as transition risks can materialize suddenly, all insurers should think about how climate risks and opportunities might affect their investment strategies now.¹⁴

24. When developing a new product, assessing a possible merger or acquisition, or determining the size or composition of their product portfolios for a region or business line, insurers may need to consider climate risks over the medium term (five to ten years). By contrast, other decisions, such as those relating to risk management, risk appetite setting, or financial reporting, may require a medium to an even longer (more than ten years) time horizon. Climate risks may not materialize within the traditional time horizon of insurers' risk appetite statements, which tends to be one to five years. Insurers should therefore formulate risk appetite statements that consider climate risks over a longer period.¹⁵

25. Similarly, when developing a public policy engagement strategy or preparing TCFD-aligned disclosures, a long-term view is necessary to consider potential adaptation measures that may mitigate issues of future insurability or affordability. For example, a 30-year time horizon, with interim science-based targets and milestones, may be appropriate for net zero investment or underwriting commitments made by some insurers.¹⁶ Decisions may be recalibrated over time as additional information becomes available or models and strategies change.

3.4. Uncertainty and Data Gaps

26. Many aspects of climate change, and governments' and society's evolving response to climate change, are still uncertain or unknown, but uncertainty and data gaps do not justify inaction.

27. To address the unique challenges posed by climate change, insurers must adapt their traditional tools for identifying, monitoring, and managing risks. Even when short-term average outcomes like the average loss from a natural peril over a year have not shifted significantly, climate change has increased the likelihood of extreme events.¹⁷ Prudent risk management requires that insurers look at the full range of potential future outcomes and consider forward-looking data. The risk to insurers is in underestimating extreme weather events or not fully capturing the connections between physical and transition risks that lead to higher losses from these events.

28. There has been significant advancement in areas like climate science, methodology, and disclosure as evidenced by the Sixth Assessment Report of the IPCC, the NGFS climate scenarios, and the increasing adoption of TCFD. Technology exists today – provided by rating agencies, asset managers, and specialty service providers – to quantitatively assess the resilience of investment portfolios to transition and physical risks under a range of scenarios.

29. Many expectations in this guidance are not affected by uncertainty or data gaps and can be implemented with relative speed and confidence. For example, insurers should establish board governance and an organizational structure that supports the effective management of climate risks and develop their expertise and capacity to assess and manage climate risks on both sides of their balance

¹⁴ IAIS and SIF, Application Paper on the Supervision of Climate-related Risks in the Insurance Sector, May 2021.

¹⁵ Bank of England Climate Financial Risk Forum, Climate Financial Risk Forum Guide 2020 – Risk Management Chapter, June 2020.

¹⁶ UN-convened Net Zero Asset Owner Alliance Member List, Net Zero Insurance Alliance Members.

¹⁷ For example, climate change has increased both the mean and variance of temperature, resulting in much more record hot temperature. IPCC, Climate Change 2001 – Synthesis Report, 2001.

sheets. By contrast, the implementation of other expectations, such as setting risk tolerance and limits, may require a more iterative approach, with insurers updating or refining their decisions as new information is obtained. Climate scenario analysis should be exploratory, focus on understanding potentially material climate risks, and avoid creating a false sense of security and precision in the results.

30. Insurers should also consider whether and how their model vendors and third-party investment managers manage uncertainty and data gaps. Insurers that rely on vendor models for underwriting or third-party managers for investments are still the ultimate owners of the risks and are encouraged to engage with their vendors and third-party managers to understand their assumptions and limitations, consider the potentially large uncertainty in those assumptions, and design business models and mitigation strategies (such as re-evaluation of risk appetite for certain perils, reinsurance retention and limits, or focus on customer engagement) accordingly.

31. Insurers can proactively contribute to reducing uncertainty and filling data gaps by collecting data from their customers, requesting or requiring climate disclosure from the companies in which they invest, and collaborating with peers, academics, and regulators on the subject of climate risks.

3.5. Timeline for Implementation

32. Implementing the expectations in this guidance involves varying levels of difficulty. DFS expects insurers to implement its expectations relating to board governance (Section 3.6.1), and to have specific plans in place to implement the expectations relating to organizational structure (Section 3.6.3), by August 15, 2022. More complex expectations, such as those relating to risk appetite, analysis of the impact of climate risks on existing risk factors, reflection of climate risks in the ORSA, scenario analysis, and public disclosure, may take longer to implement. DFS will issue further guidance on the timing for implementation of these more complex expectations and encourages insurers to start working on them now.

3.3.3.6. Risk Culture and Governance

3.3.1.3.6.1. 3.3.1 Board Governance

19.33. An insurer's board of directors is ultimately responsible for overseeing the management of risks, including climate risks. The Handbook lays out the components of an effective corporate governance program.¹⁸ Consistent with the Handbook, DFS expects an insurer's board of directors (or an appropriate committee(s) thereof) or, if there is no board, the governing entity ("board"), to understand and assess relevant climate risks, and to address and oversee these risks their management within the insurer's overall business strategy and risk appetite. The board's approach should reflect an understanding of the unprecedented distinctive nature of climate risks as well as their long-term impact beyond the standard three- to five-year business planning horizon. To ensure that the board can properly oversee the company's management of climate risks, an insurer may determine that having a board member with climate expertise is necessary.

2034. DFS expects insurer each insurer to designate a member or committee(s) of the its board, as well as a member of senior management most suited to the task within the insurer's organizational structure

¹⁸ Handbook, SECTION 2 – RISK-FOCUSED EXAMINATION PROCESS, Phase 1, B. Part 2: Understanding the Corporate Governance Structure, Page 184.

and given the insurer's climate risk profile, as responsible for the insurer's assessment oversight of the insurer's management of climate risks. If an insurer is a part of a group, this can be done at the group level, provided that the designated board member or committee(s) at the group level has appropriate access to the insurer's board or management and the risk appetite, processes, and framework developed by the group's board are implemented at the insurer level.

35. DFS also expects each insurer to designate one or more members of its senior management as responsible for the insurer's management of climate risks. For example, the insurer's chief underwriting officer may be charged with embedding climate risks in underwriting decisions. As climate change could impact multiple business units and require expertise from multiple functions, one option is to have an internal risk the designated member(s) of senior management may delegate responsibility to those business units and functions, provided that such member or members of senior management continue to oversee any such delegation of duty. Another option is to have a cross-functional committee of senior management charged with understanding the changing risk landscape and identifying potential ways to address climate risks.¹⁹

~~21. Some insurers~~ 36. An insurer may determine, after a thorough assessment, that climate risks are not currently material to ~~their businesses~~ its business. However, because of the ~~changing~~ evolving nature of those risks, ~~those insurers~~ the insurer should still designate a member or committee(s) of ~~the its~~ board and a member of senior management to be responsible for overseeing the insurer's management of climate risks. For example, the concentration of an insurer's investments in companies considered vulnerable to transition risks in the current regulatory environment might be below the materiality threshold set by an insurer. But ~~if that threshold could easily be met if there is a breakthrough in a low-carbon technology or the adoption of~~ a meaningful national carbon tax (e.g., \$200/ton CO₂-equivalent) is adopted and more companies are considered vulnerable to transition risks, that threshold could easily be met. ~~Ensuring that~~. The board and senior management should stay abreast of evolving climate risks is critical, and regularly assess the assumptions and materiality of, and the company's exposures to, those risks.

~~3.3.2-37.~~ The insurer's board should also oversee management's progress toward meeting any announced climate commitments and ensure that related strategies are being employed and evaluated for effectiveness. Material climate commitments that would meaningfully impact capital spending should be built into the insurer's risks and controls systems, clearly reflected in the insurer's financial statements, and overseen by the insurer's board or its audit committee.

3.3.2-3.6.2. Risk Appetite

~~22-38.~~ DFS expects an insurer to have a written risk policy adopted by its board²⁰ describing how the insurer monitors and manages material climate risks in line with its risk appetite statement. The policy should include the insurer's risk tolerance levels and limits for financial risks, and consider factors such as: ~~beyond market conditions, regulatory changes, and technological advancements, such as:~~

- a. long-term financial interests of the insurer, and how decisions today affect future financial risks;

¹⁹ ~~IAIS, SIF, Draft Application Paper on the Supervision of Climate-related Risks in the Insurance Sector, October 13, 2020. IAIS and SIF, Application Paper on the Supervision of Climate-related Risks in the Insurance Sector, May 2021.~~

²⁰ ~~Section 82.2(a)(2) of 11 NYCRR 82.2.~~

- b. results of scenario analysis and potentially stress testing for short-, medium-, and long-term horizons;²¹
- c. uncertainty around the timing and channels through which climate risks may materialize;²² and
- d. sensitivity of both sides of the balance sheet to changes in key climate risk drivers and external conditions.²¹

23The impact of climate change on the insurer’s risk tolerance levels and limits can be reflected in existing risk factors (Section 3.8.2).

39. While ~~DFS understands that~~ quantifying these factors is challenging in light of evolving methodologies and data, insurers should nevertheless start the process, beginning with qualitative assessments and moving towards quantitative assessments over time.

~~3.3.3.3.6.3.~~ 3.3.3 Organizational Structure

2440. DFS expects insurers to:

- a. ~~Create an organizational structure that includes~~ Manage climate risks through their existing enterprise risk management functions, including risk assessment, compliance, internal control, internal audit, and ~~/or~~ actuarial functions²² (collectively, “control functions”) ~~to manage climate risks.”).~~
- ~~b.~~ Ensure that ~~the~~their organizational structure clearly defines and articulates roles, responsibilities, and accountabilities, ~~as well as~~ and that such organizational structure is reinforced by a risk culture that supports accountability in risk-based decision-making,²³ in setting climate risk limits and overseeing their implementation.
- ~~c.b.~~ Modify the control functions and relevant roles and responsibilities as necessary to account for the evolving nature of climate risks.²⁴
- ~~d.c.~~ Implement reliable risk -management processes across lines of business, operations, and control functions, with clear steps to ensure the effectiveness and adequacy of climate risk integration.
- ~~e.d.~~ Explicitly consider climate risks (like other material risks) in risk management processes, including in enterprise risk reports and ORSA summary reports, and in the decision-making processes of senior management.
- ~~f.e.~~ Conduct objective, independent, and regular internal reviews of the functions and procedures for managing climate risks ~~and~~ report the findings of the reviews to the board. ~~Adapt the, and adapt insurers’~~ functions, procedures, roles, and resources for managing climate risks as necessary.

²¹ PRA, Supervisory Statement, SS3/19, [Enhancing banks’ and insurers’ approaches to managing the financial risks from climate change](#), April 2019.

²² ~~IAIS, SIF, Draft Application Paper on the Supervision of Climate-related Risks in the Insurance Sector, October 13, 2020. IAIS and SIF, Application Paper on the Supervision of Climate-related Risks in the Insurance Sector, May 2021.~~

²³ ~~Handbook, SECTION 1 – GENERAL EXAMINATION GUIDANCE, XI. REVIEWING AND UTILIZING THE RESULTS OF AN OWN RISK AND SOLVENCY ASSESSMENT ORSA Review, Page 157.~~

²⁴ ~~Handbook, SECTION 1 – GENERAL EXAMINATION GUIDANCE, XI. REVIEWING AND UTILIZING THE RESULTS OF AN OWN RISK AND SOLVENCY ASSESSMENT, C. Review of Section I – Description of the Insurer’s Risk Management Framework, Page 157.~~

- ~~g.f.~~ Develop the skill, expertise, and knowledge required for the assessment and management of climate risks at the level of the board and employees, including senior management. This can be done through new hires, internal training, and/or the use of external consultants. The board and senior management should support resource allocation to this effort.
- ~~h.g.~~ Consider implementing remuneration policies to align incentives with the strategy for managing climate risks and with performance against climate metrics.²⁵

3.4.3.7. Business Models and Strategies

~~41. Along with many other risks that~~²⁵~~insurers are already exposed to climate risks, which~~ are expected to have a material impact on the business environment in which they operate, insurers are already exposed to climate risks and can ~~already~~ take advantage of related opportunities. DFS expects insurers to be aware of potential changes in their business environment and to address these risks strategically. Insurers should consider questions such as: which business areas are exposed to ~~a climate-related~~ physical or transition ~~risk~~risks; the materiality of the ~~risk~~risks; whether affected areas should be continued, scaled back, or adapted; and whether climate risks require consideration across all business areas and processes based on the basis of their materiality, or only those business areas and processes that are particularly exposed.²⁶

~~2642. The time horizon for considering how climate risks affect business strategy should go beyond the standard three to five years to a medium-term (five to ten years) and ultimately long-term (more than ten years) view. Certain physical and transition risks are unlikely to be adequately captured in historical data given their unprecedented and long-term nature. Therefore, it is crucial for insurers to consider forward-looking risks in developing their business strategy.~~

~~43. Insurers should ensure that their business strategy is effectively communicated to, and operationalized~~implemented by, all ~~of~~ their relevant entities, individual business units, and product lines. Where qualitative analyses determine that climate risks are potentially material, insurers are expected to use scenario analysis and stress testing to help set business models and strategy. Further guidance on scenario analysis and stress testing is covered in Section ~~3.6. Where appropriate,~~^{3.9}. Insurers are encouraged to set and monitor clear key performance indicators for quantifiable risk factors.

~~27-44. DFS expects to~~ an insurer to document how its business environment analysis, scenario analysis, and stress testing (if applicable) ~~is~~are considered in its strategy-setting process, risk appetite framework, and risk management and compliance processes. These processes and frameworks should evolve over time and be developed in a coordinated manner.

~~45. Insurers can also play an active role in supporting the low-carbon transition. DFS encourages insurers to develop strategies to engage with their customers and the companies in which they invest on climate and sustainability issues and to urge those customers and companies to develop transition plans~~

²⁵ Examples of climate metrics include progress on migrating investment portfolios to more climate-friendly holdings and the development of new products that expand the availability and affordability of insurance or enhance climate resilience and mitigation.

²⁶ NGFS, Guide for supervisors: integrating climate-related and environmental risks into prudential supervision, May 2020.

with science-based targets, adapt to climate-related risks, and move toward climate-resilient business models.

3.5.3.8. Risk Management

3.5.1.3.8.1. Risk Management Framework

2846. The Handbook describes the key principles of an effective risk management framework²⁷ that should be applied when assessing climate risks. Insurers and other entities that are required to have enterprise risk management (“ERM”) functions²⁸ are expected to:

- a. address climate risks through their existing ERM functions and in line with their board-approved risk appetites, including considering how climate risks affect the branded risk factors set forth in the Handbook;
- b. identify, assess, monitor, manage, and report on their exposure to these risks in a manner that is appropriate for the nature, scale, and complexity of the risk and their businesses;²⁹
- c. document in their written ERM and board risk reports the material climate risks considered, including their transmission channels,³⁰ and their impact on existing risk factors, and ~~where appropriate,~~ update existing risk management policies to reflect climate risks; if needed; and
- d. manage and monitor these risks ~~over a sufficiently long-term horizon~~ using time horizons that are appropriately tailored to the type of insurer, the insurer’s activities, and the business decisions being made, and review their analysis on a regular basis.³¹

3.8.1.1. 3.5.1.1 Risk Identification and Prioritization

2947. Insurers should have a process in place that identifies and prioritizes all reasonably foreseeable and relevant material risks, including climate risks. Information on these risks from internal and external sources should be systematically gathered and maintained, climate-related risks and opportunities should be documented and reported to senior management, and climate risk indicators and metrics should be periodically reviewed by the board that ~~is responsible for~~ oversees the insurer’s management of climate risks.³² As discussed in more detail in Section 3.63.9, where qualitative analyses determine that climate risks are potentially material, insurers should use scenario analysis and stress testing to inform the risk identification and prioritization process and should understand the short- and long-term

²⁷ Handbook, Section 1 – GENERAL EXAMINATION GUIDANCE, XI. REVIEWING AND UTILIZING THE RESULTS OF AN OWN RISK AND SOLVENCY ASSESSMENT, C. Review of Section I – Description of the Insurer’s Risk Management Framework. Pages 156–162.

²⁸ An insurer subject to § 82.2 of 11 NYCRR 82 (Insurance Regulation 203) and an entity, as defined in § 82.1(d) of Regulation 203, are expected to have ERM functions.

²⁹ Section 82.2(a) of 11 NYCRR 82 (Insurance Regulation 203).

³⁰ For example, transmission channels may include investments in real estate that are at high risk of climate-related natural disasters, and public policies that encourage the low-carbon transition and reduce the profits of insurers’ customers, etc.

³¹ Capital adequacy standards in relation to climate risks are not yet sufficiently developed to include in this initial guidance.

³² Handbook, Section 1 – GENERAL EXAMINATION GUIDANCE, XI. REVIEWING AND UTILIZING THE RESULTS OF AN OWN RISK AND SOLVENCY ASSESSMENT, C. Review of Section I – Description of the Insurer’s Risk Management Framework, Page 158.

climate risks to their business models. Insurers are also expected to go beyond using historical data to inform their risk assessment and to consider future trends.

3.8.1.2. ~~3.5.1.2~~ Risk Appetite, Tolerances, and Limits

~~3048~~. Insurers should consider climate risks in setting their risk appetite, ~~tolerance~~tolerances, and limits. Insurers may apply appropriate quantitative tools and metrics and qualitative statements to help establish clear boundaries and expectations for risks that are hard to measure.³³ For example, tools and metrics can be used to monitor exposures to physical or transition risks caused by changes in the concentration of an insurer's investment portfolios (such as the percentage of real estate investments exposed to climate-related flood risk or the amount of investments in fossil fuel companies that do not have a credible transition plan), or to measure the potential impact of physical risks on supply chains. Examples of quantitative tools and metrics include: a 200-year value-at-risk or probable maximum loss for a natural catastrophe peril region, ~~limits~~tolerances on investment and/or underwriting exposure to sectors or companies exposed to high climate risks, limits on investment exposure to geographies with high physical risks, and carbon footprints³⁴ of investment portfolios.³⁵ Insurers may use these metrics to compare and report actual assessed risk versus risk tolerances/limits, and track progress against their overall business strategy. DFS expects that these tools and metrics and qualitative statements will evolve and mature over time.

~~49~~. In light of the rapidly evolving nature of climate risks,~~31~~ an insurer's established risk appetite should be periodically examined and updated. An insurer should also identify circumstances that would trigger additional review of its strategy for addressing climate risks.

3.8.1.3. ~~3.5.1.3~~ Risk Management and Controls

~~3250~~. Managing ~~risk~~risks, including climate risks, is an ongoing ERM activity, operating at many levels within the organization, which requires a collaborative, enterprise-wide approach.³⁶ If the potential impacts of climate risks are determined to be material, DFS expects insurers to demonstrate how they

³³ Handbook, Section 1 – GENERAL EXAMINATION GUIDANCE, XI. REVIEWING AND UTILIZING THE RESULTS OF AN OWN RISK AND SOLVENCY ASSESSMENT, C. Review of Section I – Description of the Insurer's Risk Management Framework, Page 159.

~~³⁴ A portfolio's carbon footprint is the sum of a proportional amount of each portfolio company's emissions (proportional to the amount of stock held in the portfolio). For more information on carbon footprinting, see United Nations Principles for Responsible Investment, How measuring a portfolio carbon footprint can help, May 21, 2015. Carbon footprinting has limitations, including that it is backward-looking and a snapshot in time, and does not consider whether or how the companies invested in are reducing or increasing their carbon emissions going forward. See Rust, S., Carbon footprints: Only so deep, Investment and Pension Europe, November 2017; and Fraser, A., Are investment carbon footprints good for investors and the climate?, Policy Options, Institute for Research on Public Policy, November 6, 2017. Given these limitations, TCFD has a consultation paper on forward-looking financial sector metrics where a portfolio's implied temperature rise is listed as a metric for consideration. Another metric described in the consultation paper is climate value-at-risk. A portfolio's carbon footprint is the sum of a proportional amount of each portfolio company's emissions (proportional to the amount of stock held in the portfolio).~~

³⁵ Given that insurers are not large carbon emitters, Scope 1 and Scope 2 emission targets are helpful to set but do not address the most relevant climate risks that insurers face.

³⁶ Handbook, Section 1 – GENERAL EXAMINATION GUIDANCE, XI. REVIEWING AND UTILIZING THE RESULTS OF AN OWN RISK AND SOLVENCY ASSESSMENT, C. Review of Section I – Description of the Insurer's Risk Management Framework, Page 160.

will mitigate those risks and to develop a credible plan or policies for managing their exposure to those risks, including by reducing their concentration of those risks. These plans and policies should reflect the unprecedented and distinctive nature of climate risks, and how they differ from other. If climate risks are determined to be immaterial, insurers should document their assessment of immateriality, along with its qualitative and, if applicable, quantitative basis.

3351. To inform their risk management, insurers should seek to understand the potential current and future impacts of physical and transition risks on their customers, and counterparties, investees, and potential investees as well as the companies in which they are invested or considering investing. If an insurer does not have the necessary information to understand these impacts and that information is considered material to the insurer's own risks, the insurer is expected to engage with these entities and consider using data from publicly available sources or working with external experts to collect such the data.

3452. DFS expects an insurer's control functions, including risk management, information technology, compliance, internal audit, and actuarial functions, to be integrated for purposes of managing climate risks, to report climate risk issues in a coordinated manner, and to have the appropriate resources and expertise to support their consideration of climate risks. Insurers can use the "Three Lines of Defense" model described in the Handbook or a similar system of checks and balances that is effective and integrated into the insurer's material business processes.³⁷ The control functions should identify, measure, monitor, and report on the insurer's climate risks, assess the effectiveness of the insurer's risk management and internal controls, and determine whether the insurer's operations, business results, and climate risk exposures are consistent with the risk appetite statement approved by the board.³⁸ For example, the compliance function should consider the insurer's legal and reputational risks stemming from climate change (e.g., failure to appropriately disclose information on climate-related exposure) and ensure that internal policies and control procedures are compliant with the standards, directives, charters, or codes of conduct related to environmental, social, and governance principles that the insurer is committed to respect. The actuarial function should consider the availability, quality, and completeness of climate-related data, with the understanding that and, where historical data may not be sufficient to appropriately calibrate premiums or reserves to reflect climate risks, particularly rapidly evolving ones, consider forward-looking data in addition to historical data.

3.5.1.4-53. Insurers can also consider developing plans to mitigate their climate risks. For example, an insurer can mitigate risks by setting limits for certain sectors or geographies, increasing its proportion of products with attractive risk return profiles under likely climate scenarios, or supporting the efforts of their customers or the companies in which they invest to contribute to the low-carbon transition. Property/casualty insurers can further mitigate risks by offering appropriate risk mitigation products to their policyholders.³⁹ Reducing financed and underwritten greenhouse gas emissions in line with

³⁷ Handbook, Section 1 – GENERAL EXAMINATION GUIDANCE, XI. REVIEWING AND UTILIZING THE RESULTS OF AN OWN RISK AND SOLVENCY ASSESSMENT, C. Review of Section I – Description of the Insurer's Risk Management Framework, Page 160.

³⁸ IAIS, SIF, Draft Application Paper on the Supervision of Climate-related Risks in the Insurance Sector, October 13, 2020. IAIS and SIF, Application Paper on the Supervision of Climate-related Risks in the Insurance Sector, May 2021.

³⁹ More examples can be found in the Bank of England Climate Financial Risk Forum Guide on Risk Management.

science-based targets is also a way to mitigate the financial and consumer risks that climate change poses to insurance markets.

3.8.1.4. Risk Reporting and Communication

~~3554.~~ DFS expects insurers to provide their boards with information regarding their exposure to material climate risks, mitigating actions, and the ~~timeframe~~time frame within which they propose to take these actions. The information should enable the board to understand, discuss, and challenge,~~and make decisions relating to~~ the insurer's management of climate risks as part of the board's oversight.

3.8.2. ~~3.5.2~~ Climate Change's Impact on Existing Risk Factors

~~3655.~~ The ERM function should address all reasonably foreseeable and relevant material risks.⁴⁰ To the extent material and relevant, DFS expects insurers and other entities that are required to have ERM functions to analyze how ~~the~~ physical and transition risks ~~from climate change~~ could materialize for the branded risk factors set forth in the Handbook, including credit risk, legal risk, liquidity risk, market risk, operational risk, pricing and underwriting risk, reputational risk, and strategic risk.⁴¹ Recognizing the rapidly evolving nature of climate risks, below are examples of how climate-~~related~~ risks might impact each of these factors.⁴²

3.8.2.1. ~~3.5.2.1~~ Credit Risk

~~3756.~~ Insurers should consider the effect of physical and transition risks on their counterparties' profitability and viability. For example, a reinsurer on which an insurer heavily relies for reinsurance could be adversely affected by physical risks from climate change. ~~DFS recognizes that~~ While climate change's impact on insurers' credit risk is likely~~may currently be~~ small relative to its impact on other risk factors, large-scale changes driven by developing physical risks may create a tipping point that triggers large-scale credit risks, including the failure of important counterparties during times of climate-related stress. Given the global and systemic nature of climate change, climate risks can be highly correlated, increasing the likelihood that climate-related stresses will materialize at the same time for an insurer and its reinsurers and other counterparties.

~~3857.~~ As described in more detail in Section ~~3.5.2.4~~3.8.2.4 ("Market Risk"), insurers should also consider the effect of climate risks on their current and future investments, especially the level and trend of non-investment grade, problem, restructured, delinquent and non-performing earning assets⁴³ in sectors and geographies most exposed to physical and transition risks.

⁴⁰ Section 82.2(a)(9) of 11 NYCRR 82 (Insurance Regulation 203).

⁴¹ ~~Reserve~~Reserving risk is likely minimally affected by climate risks and is therefore not discussed in this guidance.

⁴² For more information on mapping of climate risks to these branded risk factors, see IAIS's Application Paper on the Supervision of Climate-related Risks in the Insurance Sector, Sections 5.1 and 6, of the IAIS and EIOPA's Consultation Paper on the draft Opinion on the supervision of the use of climate change risk scenarios in ORSA, SIF Application Paper on the Supervision of Climate-related Risks in the Insurance Sector, May 2021, and Annexes 3 and 4 of EIOPA's Opinion on the supervision of the use of climate change risk scenarios in ORSA, April 19, 2021.

⁴³ Handbook, Section 4 – EXAMINATION EXHIBITS, Exhibit L – Branded Risk Classifications, Page 481.

3.8.2.2. ~~3.5.2.2~~ Legal Risk

~~3958~~. Insurers should monitor evolving climate-related regulatory requirements and consider the risk of litigation for failing to adapt to climate change or to avoid or minimize adverse impacts on the environment. Climate-related lawsuits are increasingly being pursued by investors, activist shareholders, cities, and states.⁴⁴ Insurers should also consider the potential of increased liability claims from parties who have suffered losses from physical and transition risks and seek to recover these losses from those they view as responsible. For example, legal action might be taken against institutions financing companies whose activities have negative environmental impacts.⁴⁵

3.8.2.3. ~~3.5.2.3~~ Liquidity Risk

~~4059~~. Insurers should consider the risks that a lack of reliable and comparable information on climate-sensitive exposures could create uncertainty and cause procyclical market dynamics, including fire sales of carbon-intensive assets, as well as reduced liquidity in these markets.⁴⁶

3.8.2.4. ~~3.5.2.4~~ Market Risk

~~41-60~~. Climate risks are unprecedented and often not contemplated by insurers in the context of their investments. Insurers should consider the effect of physical and transition risks on their current and future investments, including whether and how these risks could lead to potential shifts in supply and demand for financial instruments (e.g., securities and derivatives), products, and services, with a consequent impact on their values. Transition risk drivers may result in investment losses, whether realized or mark-to-market, and lower asset values due to stranded assets. For example, investments in companies with business models perceived as environmentally unsustainable, or located in areas prone to physical risks, might suffer a decline in value due to changes in policy measures, market sentiment, technology, severe weather events, or gradual adverse changes in climatic conditions.⁴⁷ ~~The introduction of a meaningful price on carbon may result in investment losses.~~ Insurers should consider whether climate risks could impact the correlation between investments and lower asset values due to stranded assets underwriting, or among investments. Insurers should also consider the potential impact of increasing climate-related litigation on the companies, regions, and countries in which they invest.

~~4261~~. DFS encourages insurers to monitor on an ongoing basis the effects of climate-related factors on their current ~~market positions~~ and future investments, and to develop stress-testing scenarios that incorporate climate risks.⁴⁸

⁴⁴ Setzer, J., *et al.*; [Global trends in climate change litigation: 2019 snapshot](#); July 2019, London: Grantham Research Institute on Climate Change and the Environment and Centre for Climate Change Economics and Policy, London School of Economics and Political Science.

⁴⁵ NGFS, [Guide for supervisors: integrating climate-related and environmental risks into prudential supervision](#), May 2020.

⁴⁶ NGFS, [Guide for supervisors: integrating climate-related and environmental risks into prudential supervision](#), May 2020.

⁴⁷ ECB, [Guide on climate-related and environmental risks: Supervisory expectations relating to risk management and disclosure](#), November 2020.

⁴⁸ ECB, [Guide on climate-related and environmental risks: Supervisory expectations relating to risk management and disclosure](#), November 2020.

~~4362.~~ Given that a large portion of insurers' investments are in fixed income products, insurers are encouraged to consider the ~~timeframe~~time frame in which climate risks might ~~manifest~~materialize relative to the maturity of their investments, including the possibility of sudden changes in asset values and credit ratings. As risk-based capital is influenced by the credit ratings of investments, insurers should follow credit rating agencies' work on incorporating climate and sustainability risks into their methodologies and related rating actions.

3.8.2.5. ~~3.5.2.5~~ Operational Risk

~~4463.~~ Insurers should consider how climate-related events could have an adverse impact on their assets (including property, equipment, information technology systems, and human resources) and business continuity (including outsourced activities), leading to increased operational costs and reputational ~~and/or~~ liability risks.

3.8.2.6. ~~3.5.2.6~~ Pricing and Underwriting Risk

~~4564.~~ Insurers should consider the impact of climate change on their underwriting activities and pricing models. ~~The~~ increased frequency and concentration of high-impact natural catastrophes ~~around the world as a due to climate change will~~ result ~~of climate change, and the consequent increase in~~ more weather-related insurance claims. ~~However, pricing models may not properly reflect climate risks, which are not fully captured by historical data, and insurance underwriters and producers may not be sufficiently aware of climate issues to understand how those issues affect the pricing of and risks covered under the insurers' products. Insurers should also consider demand elasticity, including whether increasing climate-driven costs can be managed through premium increases and whether premiums might become so high that certain climate risks become uninsurable.~~ Insurers should assess the impact of climate change on casualty lines of business, such as directors' and officers' liability insurance and professional liability insurance in certain sectors. ~~Insurers should consider whether their pricing models properly reflect climate risks, and whether insurance producers are sufficiently educated on climate issues to understand how climate issues affect the pricing of and risks covered under the insurers' products.~~

3.8.2.7. ~~3.5.2.7~~ Reputational Risk

~~4665.~~ Insurers should consider the negative publicity that may be triggered by insurers' underwriting or investing in sectors perceived as contributing to climate change. This is exemplified by social movements calling for divestment from fossil fuels and the cessation of underwriting of coal-fired power infrastructure.⁴⁹ Furthermore, to the extent that individual insurers respond to climate risks by increasing rates or exiting markets, reductions in the affordability or availability of insurance coverage may also adversely impact insurers' reputations- with some stakeholders.

⁴⁹ ~~IAIS, SIF, Draft Application Paper on the Supervision of Climate-related Risks in the Insurance Sector, October 13, 2020. IAIS and SIF, Application Paper on the Supervision of Climate-related Risks in the Insurance Sector, May 2021.~~

3.8.2.8. ~~3.5.2.8~~ Strategic Risk

~~4766~~. Insurers should consider the challenges posed by physical or transition-related climate events, trends, and scenarios, which could adversely affect insurers' competitive position and financial condition. For example, an insurer's ~~inappropriate~~insufficient or ineffective strategy to mitigate physical risks or its poor response to transition risks that affect the insurance industry landscape could put an insurer at a competitive disadvantage.

~~4867~~. Insurers should also consider the possibility that, if risk-based pricing rises beyond demand elasticity and customer willingness to pay, their capacity to write insurance may be constrained by increasing physical risks to insured property and assets. In addition, if transition risks significantly change the products and services desired by consumers, an inability to appropriately design insurance products to meet changing needs could significantly affect an insurer's market share and pose a threat to its overall business viability.⁵⁰

~~4968~~. As climate change impacts both the liability and asset sides of insurers' balance sheets, DFS expects insurers to consider the correlation between the two in analyzing climate risks, and if necessary, mitigate risk due to the correlation. For example, if a property/casualty insurer is heavily exposed to hurricane risks along the coast in its underwriting, it should consider minimizing its exposure to real estate-related investments in similar geographies on the investment side. Insurers should also consider the relationships, if any, between risk categories, while keeping in mind that historical data may not ~~necessarily~~ accurately represent future relationships.⁵¹

3.8.3. ~~3.5.3~~ ORSA

~~5069~~. Certain insurers are required to regularly conduct an ORSA ~~consistent in~~ accordance with the process set forth in the ORSA Manual.⁵² Consistent with the ORSA Manual, DFS expects the ORSA to describe how the insurer identifies, categorizes, manages, and monitors climate risks, as well as the insurer's climate-related assessment tools and methods of incorporating new climate risk information ~~used by the insurer~~ to monitor and respond to changes in the insurer's risk profile due to economic changes, operational changes, or changes in business strategy⁵³.⁵⁴ Insurers should continuously refine their reporting to keep pace with the evolving climate risk landscape.

~~5170~~. If climate risks are not considered material, for example, because the insurer has minimal exposure to these risks, DFS expects the justification, including key assumptions made by the insurer, to be documented in its ORSA. If an insurer determines that ~~the climate~~ risks are material, DFS expects the ~~insurer to document its~~insurer's assessment process, including measurement approaches used, key assumptions made, and outcomes of any plausible adverse scenarios that were run, to be documented

⁵⁰ IAIS, and SIF, [Issues Paper on Climate Change Risks to the Insurance Sector](#), July 2018.

⁵¹ ~~NAIC ORSA Manual, III.~~ [NAIC ORSA Manual, III](#). Section 2 – Insurer Assessment of Risk Exposures, Page 10 (Page 18 of the full document).

⁵² Section 82.3(a) of [11 NYCRR 82](#) (Insurance Regulation 203).

⁵³ ~~NAIC ORSA Manual, II. Section 1 – Description of The Insurer's Enterprise Risk Management Framework, Page 8~~ (Page 16 of the full document).

⁵⁴ [NAIC ORSA Manual, II. Section 1 – Description of The Insurer's Enterprise Risk Management Framework, Page 8](#) (Page 16 of the full document).

in its ORSA.⁵⁵ When evaluating a risk, the insurer should analyze the results under both normal and stressed environments. Because each insurer's risk profile is different, an insurer should use assessment techniques applicable to its risk profile.⁵⁶ ~~For further information on scenario analysis and stress testing to be included in ORSAs, see Section 3.6~~ While the full effects of climate change will play out over decades, it is already affecting the financial system and insurers' assets and liabilities today. Insurers should therefore address material climate risks in their ORSAs with a focus on near-term solvency and how the insurers' current strategies and risk appetites are affected by long-term climate concerns.

~~5271.~~ The ORSA should be ~~proportionate~~ proportional to the nature, scale, and complexity of an insurer's business and risk, and should enable it to properly identify and assess the risks it faces in the short- and long- term. Qualitative assessment may suffice for insurers not significantly exposed to climate risks, but quantitative assessment should be the long-term goal for ~~all insurers filing ORSAs.~~⁵⁷ insurers facing material climate risks.⁵⁸ Insurers can use a range of quantitative metrics, from simple ones, such as investment exposure to carbon-intensive sectors, to more complex ones, such as potential loss in a given climate scenario. Insurers' use of quantitative metrics should evolve over time.

~~5372.~~ While enterprise risk reports and ORSA summary reports may be completed at the group level, insurers' climate-related policies and procedures should be implemented at the entity level. ~~Similarly, if climate-related expertise and resources are centralized at the group level, insurers in the group should have access to that expertise and those resources. Where the climate-related policies, procedures, or activities of an insurer differ meaningfully from those of the group, DFS expects the insurer to point out these differences and explain why they exist.~~ to address each insurer's material climate risks.

3.9. Scenario Analysis

~~5473.~~ Insurers' ERM ~~function~~ functions must provide for the identification and measurement of risk under a sufficiently wide range of outcomes, using techniques that are appropriate to the nature, scale, and complexity of the insurer's risks, and use prospective solvency assessments, including scenario analysis and stress testing.⁵⁹ Given the forward-looking nature of climate risks and ~~their~~ the inherent uncertainty of both the physical impact of climate change and resulting societal responses, past experience will not necessarily be a good indicator of future conditions. If climate risks are determined to be material, DFS expects climate change scenario analysis to be embedded in insurers' corporate governance structures, risk management practices, and ORSAs. Insurers should also conduct scenario analysis to inform their strategic planning and determine the impact of climate risks on their overall risk profile and business strategy. Scenario analysis should be used to explore the resilience and vulnerabilities of an insurer's business model to a range of outcomes.⁶⁰ Insurers are encouraged to

⁵⁵ Section 82.2(a)(4) of 11 NYCRR 82.2(a)(4) (Insurance Regulation 203).

⁵⁶ NAIC ORSA Manual, III. NAIC ORSA Manual, III. Section 2 – Insurer Assessment of Risk Exposures, Page 9 (Page 17 of the full document).

⁵⁷ For more information on considering climate risks in ORSA, see the IAIS Application Paper on the Supervision of Climate-related Risks in the Insurance Sector Sections 5.2.

⁵⁸ For more information on considering climate risks in ORSA, see Section 5.2 of the IAIS and SIF Application Paper on the Supervision of Climate-related Risks in the Insurance Sector, May 2021.

⁵⁹ Section 82.32(a)(3) and (5) of 11 NYCRR 82 (Insurance Regulation 203).

⁶⁰ PRA, Supervisory Statement, SS3/19, Enhancing banks' and insurers' approaches to managing the financial risks from climate change, April 2019.

consider the opportunities presented by climate change in the analysis as well. DFS expects an insurer's approach to scenario analysis to evolve and mature over time.

5574. Insurers should ~~expand their current scenario analysis practices, which tend to focus~~ consider the impact of climate risks on their investments, to also analyze impacts on their assets and liabilities. ~~as part of their~~ scenario analyses ~~should consider~~, including the following factors to the extent that they are material:

- a. the impact of physical and transition risks;⁷²
- b. the evolution of climate risks under various scenarios, including multiple carbon emissions and temperature pathways, different transition paths to a low-carbon economy, as well as a path where no meaningful transition occurs;⁷²
- c. the fact that climate risks may not be fully reflected in historical data;⁷² and
- d. how climate risks may materialize in the short-⁷² medium-⁷² and long-term depending on the scenarios considered.

5675. An insurer's scenario analysis should include:

- a. A short- to medium-term assessment of the insurer's exposure to climate risks within its existing business planning horizon, including, ~~where appropriate~~, the quantification of those risks. For physical risks, there is strong evidence that climate change is affecting the frequency, severity, and distribution of extreme weather events and natural disasters.⁶¹ For transition risks, strong government policy or a technology breakthrough in the short-term could cause financial markets to adjust the pricing of fossil fuel-dependent industries.
- b. A long-term assessment of the insurer's exposure, based on its current business model, and for business decisions that require a long-term horizon in accordance with Section 3.3, to a range of different climate scenarios. to support its long-term strategic planning. DFS expects the time horizon of this ~~long-term~~ assessment to be in the order of decades. The long-term assessment can have a lower level of precision and be conducted more infrequently than short-term risk assessments. For example, the assessment could be updated not more than once a year in the absence of new material risk exposures, or partially updated when new material exposures are identified, or new methodologies or data become available.⁶²

5776. Like other types of scenario analysis, this is not intended to be a precise forecast, but rather a qualitative or ~~potentially quantitative exercise used to inform strategic planning and decision making.~~⁶³ quantitative exercise used to inform strategic planning and mitigation efforts to address the long-term impacts of climate change.⁶⁴ Given the early stage of climate scenario analyses, an insurer's analysis should be focused on understanding potentially material climate risks, exploratory in nature, and balanced between quantitative and qualitative data and observations. The goal of this exercise is to

⁶¹ EIOPA, Consultation Paper on draft Opinion on the supervision of the use of climate change risk scenarios in ORSA, October 5, 2020. EIOPA, Opinion on the supervision of the use of climate change risk scenarios in ORSA, April 19, 2021.

⁶² EIOPA, Opinion on the supervision of the use of climate change risk scenarios in ORSA, April 19, 2021.

⁶³ PRA, Supervisory Statement, SS3/19, Enhancing banks' and insurers' approaches to managing the financial risks from climate change, April 2019.

⁶⁴ PRA, Supervisory Statement, SS3/19, Enhancing banks' and insurers' approaches to managing the financial risks from climate change, April 2019.

produce reasonably reliable outputs that are useful to insurers' decision-making and avoid creating a false sense of security and precision in the results.

~~5877.~~ DFS expects insurers to use these scenarios to understand the impact of climate risks on their probable maximum loss, solvency, liquidity, and ability to pay claims. If an insurer relies on reactive actions to mitigate the financial risks ~~from~~ in a particular scenario, it should consider whether these actions are realistic. For example, an insurer ~~should~~ may not be able to rely on the existence of a liquid market to sell assets exposed to climate risks or the sufficiency or feasibility of rate increases to compensate for increased costs. Insurers should also consider whether precautionary actions should be taken in advance, or whether such actions would be relevant ~~or desirable~~ only if a specific scenario emerges.⁶⁵ Climate risks ~~are~~ may not always be reflected in asset prices,⁶⁶ which could experience abrupt adjustments ~~as a result~~ because of new policies, shifts in market sentiment, or other factors.

~~5978.~~ Insurers should utilize scenarios that are relevant to their business lines and anticipated exposures. In choosing appropriate scenarios, insurers should consider publicly-available information on climate risks – including guidance, such as TCFD's Technical Supplement,⁶⁷ and scenarios, such as those developed by NGFS,⁶⁸ – and customize ~~them~~ the selected scenarios based on their geographies and business lines. ~~Insurers are also encouraged to use~~ Through the exercise of developing and conducting scenario analysis and stress testing to, insurers are also encouraged to identify data, methodology, and talent gaps, and to raise their organization's awareness and sophistication ~~across the organization~~ with respect to managing climate risks.⁶⁹

~~6079.~~ Insurers that are not ready to conduct a comprehensive and quantitative scenario analysis should start with a qualitative assessment and consider how various scenarios might impact their businesses and balance sheets. While larger insurers have the benefit of diversified lines of business and geographic exposure, smaller insurers could have concentrated risk within the lines of business most important to them. As a result, scenario analysis is a valuable exercise for all insurers to understand their ~~financial risks from~~ climate changerisks.

3.10. Public Disclosure

~~6180.~~ Public disclosure ensures that market participants have adequate insight into financial institutions' risk exposures, risk assessment processes, and capital adequacy.⁷⁰ Publicly-traded insurers or companies with insurance businesses are subject to annual and other general disclosure requirements by the U.S. Securities and Exchange Commission. In addition, New York, along with fivefourteen other states ~~require~~ and the District of Columbia, requires insurers with annual country-

⁶⁵ PRA, Supervisory Statement, SS3/19, [Enhancing banks' and insurers' approaches to managing the financial risks from climate change](#), April 2019.

⁶⁶ The Economist, [Why are investors not pricing in climate change risk?](#), June 2, 2020.

⁶⁷ [The Use of Scenario Analysis in Disclosure of Climate-Related Risks and Opportunities](#), TCFD, June 2017.

⁶⁸ ~~NGFS has published a set of climate scenarios~~ NGFS has published a set of climate scenarios alongside its [Guide to climate scenario analysis for central banks and supervisors](#).

⁶⁹ For more information on climate-related scenario analysis in ORSAs and the current European industry practice, see [Consultation Paper on draft Opinion on the supervision of the use of climate change risk scenarios in ORSA- Opinion on the supervision of the use of climate change risk scenarios in ORSA](#).

⁷⁰ NGFS, [Guide for supervisors: integrating climate-related and environmental risks into prudential supervision](#), May 2020.

wide premiums above \$100 million to respond to the NAIC Climate Risk Disclosure Survey.⁷¹ DFS views public disclosure through the survey as acceptable if the responses satisfy the expectations in this guidance. For insurers not currently covered by the survey, the disclosure can be made on their websites or by augmenting public general-purpose financial reports with relevant climate risk information. Disclosure at the group level is acceptable if it specifically addresses practices at the insurer level.

~~6281.~~ In addition to ~~these~~ existing disclosure requirements, insurers should enhance the transparency of their approach to managing climate risks, consistent with the expectations set out in this guidance. Specifically, all insurers should publicly disclose how climate risks are integrated into their corporate governance ~~and~~, risk management, and business strategies, including the processes used to assess whether these risks are considered material. Information disclosed should go beyond operational issues and address how physical and transition risks (including liability risks) might ~~impact~~affect insurers' underwriting, investment, and strategies. Insurers are encouraged to highlight opportunities that arise from the transition to a low-carbon economy as well.

~~63.~~ ~~DFS expects insurers to develop an approach to disclosure that reflects the unprecedented nature of climate risks and the insurers' understanding of these risks. While DFS understands that the information disclosed is likely to be qualitative initially, the disclosure should become more quantitative, including key metrics and targets, over the next two to three years.~~⁸² As insurers would benefit from greater climate-related disclosure in the wider economy, they should encourage such disclosure ~~through their ownership of financial assets.~~ by engaging with their customers and the companies in which they invest.

~~6483.~~ DFS expects insurers to develop an approach to public disclosure that reflects the distinctive nature of climate risks and the insurers' understanding of these risks. While the information disclosed is likely to be qualitative initially, if climate risks are determined to be material, the disclosure should become more quantitative, including key metrics and targets for quantifiable risks, over the next two to three years. Insurers should also disclose any changes to targets and the rationale for those changes.

~~84.~~ Over the next two to three years, insurers should start specifying key considerations that inform their assessment of the materiality of climate risks for their businesses. They should pay attention ~~to~~ not only to internal factors, such as their business models, long-term strategies, and overall risk profiles, but also external factors, such as the economic and political environment, the different information needs of different users of the disclosure, and recent developments in risks and disclosure requirements. If an insurer ~~deems~~determines that climate risks ~~to be immaterial, the insurer is expected to disclose this assessment, along with its qualitative and quantitative basis. If an insurer deems climate risks to be~~ material, the insurer is expected to publicly disclose related figures, metrics, and targets as well as the methodologies, definitions, and criteria used to make that determination.⁷²

~~6585.~~ DFS expects insurers to engage with the TCFD framework and other similar initiatives, including the tools and case studies that they provide, in developing their approach to climate-related financial disclosures. The NAIC Climate Risk Disclosure Survey allowed a TCFD report to be submitted in lieu of

⁷¹ [NAIC Climate Risk Disclosure Survey](#) responses can be accessed at the California Department of Insurance website.

⁷² ECB, [Guide on climate-related and environmental risks: Supervisory expectations relating to risk management and disclosure](#), November 2020.

responding to the survey in its 2020 cycle. The CDP, Sustainability Accounting Standards Board, Climate Disclosure Standards Board, and others have also developed implementation guides and questionnaires on the TCFD framework.