



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

March 25, 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 through insurance.¹ To continue to thrive in the face of global competition, it is essential that New York insurers understand and manage the financial risks from climate change.

2. The unprecedented nature of climate-related risks presents unique challenges and requires 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 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 The New York State Department of Financial Services (“DFS”) prepared, and seeks comments on, this draft guidance that is intended to support New York domestic insurers (“insurers”) in managing the financial risks from climate change (“climate risks”).

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.

5. 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 maturation 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.

6. 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

¹ 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.

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.

7. 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 work closely with international and other U.S. regulators going forward to reduce the compliance burden on insurers.

8. Although no one is spared from the impact of climate change, it disproportionately affects disadvantaged communities, including low-income communities and communities of color, and feeds into the vicious circle of social inequality. While this guidance is focused on the financial stability of insurers in the face of climate change, it is also crucial for insurers to contribute to climate adaptation and mitigation efforts, support communities’ resilience to climate change, and work with the public sector to find ways to close the protection gap and ensure the availability and affordability of insurance.

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.

2. Financial Risks from Climate Change

9. Physical risks arise from the increasing frequency, severity, and volatility of acute events, such as hurricanes, floods, and wildfires, as well as chronic shifts in weather patterns, such as droughts disrupting agriculture production. These risks directly affect property/casualty insurers' liabilities and the long-term viability of certain business lines. Climate-related natural disasters can also cause business disruption, destruction of capital, increased costs to recover from disasters, reduced revenue, and migration. In turn, these can lead to lower residential and commercial property values, lower household wealth, and lower corporate profitability, translating into financial and credit market losses that affect insurers' assets.

10. Transition risks arise from society's transition towards a low-carbon economy, driven by policy and regulations, 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.

11. Physical and transition risks can give rise to climate-related claims under liability policies, such as directors' and officers' liability insurance policies,² as well as direct actions against insurers for failing to manage climate risks.³ 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.

12. Climate risks are unprecedented. Not only does climate change affect all aspects of our economy globally, its impact may be non-linear, correlated, and irreversible. Although the ultimate consequences of climate change on human society are not known with certainty, climate-driven change is inevitable. Society will either experience further physical risks, which could 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. 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 significant action is taken too late to achieve climate goals such as 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

² PRA, Supervisory Statement, SS3/19, [Enhancing banks' and insurers' approaches to managing the financial risks from climate change](#), April 2019.

³ IAIS, SIF, [Draft Application Paper on the Supervision of Climate-related Risks in the Insurance Sector](#), October 13, 2020.

challenges posed by climate change, insurers must adapt their traditional tools for identifying, monitoring, and managing risks.

3. Proposed Detailed Guidance

3.1 Proportionate Approach

13. 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 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.

14. 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 a quantitative approach. While a qualitative assessment may be based on simple models and a small set of risk factors, a quantitative assessment should rely on sophisticated models and a broader set of risk factors, which should include the following branded risk factors described in the Handbook: credit, legal, liquidity, market, operational, pricing and underwriting, reputational, and strategic risks.

15. 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 insurer should start by qualitatively analyzing the impact of climate risks on these branded risk factors for its business lines and assets. In addition, it should assess how its business (both assets and liabilities) will perform under various scenarios, such as: (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.

3.2 Materiality

17. This guidance includes several references to materiality or to material risks or exposure. DFS understands that 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, materiality assessments may be based on qualitative information, and on analysis of portfolio exposure to certain sectors or geographies in underwriting or investments. Over time, this assessment should become more quantitative and rely on methods such as scenario analysis and stress testing.

18. The Handbook provides guidance for determining materiality in the examination context.⁴ 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.⁵ These types of risks could include exposure to natural disasters that are strongly influenced by climate change for property/casualty insurers, and exposure to geographies and sectors that have high transition or physical risks for life insurers.

3.3 Risk Culture and Governance

3.3.1 Board Governance

19. The Handbook lays out the components of an effective corporate governance program.⁶ Consistent with the Handbook, DFS expects an insurer's board of directors (or an appropriate committee 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 within the insurer's overall business strategy and risk appetite. The board's approach should reflect an understanding of the unprecedented nature of climate risks as well as their long-term impact beyond the standard business planning horizon.

20. DFS expects insurers to designate a member or committee of the board, as well as a member of senior management most suited to the task within the insurer's organizational structure and given the insurer's climate risk profile, as responsible for the insurer's assessment and management of climate risks. As climate change could impact multiple business units and require expertise from multiple functions, one option is to have an internal risk committee of senior management charged with understanding the changing risk landscape and identifying potential ways to address climate risks.⁷

21. Some insurers may determine, after a thorough assessment, that climate risks are not material to their businesses. However, because of the changing nature of those risks, those insurers should still designate a member or committee of the board and a member of senior management to be responsible for 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 a meaningful national carbon tax (e.g., \$200/ton CO₂-equivalent) is

⁴ Handbook, SECTION 1 – GENERAL EXAMINATION GUIDANCE, III. General Examination Consideration, B. MATERIALITY, Page 61-63.

⁵ Anderson, N., [IFRS® \(International Financial Reporting Standards\) Standards and climate-related disclosures](#), November 2019.

⁶ Handbook, SECTION 2 – RISK-FOCUSED EXAMINATION PROCESS, Phase 1, B. Part 2: Understanding the Corporate Governance Structure, Page 184.

⁷ IAIS, SIF, [Draft Application Paper on the Supervision of Climate-related Risks in the Insurance Sector](#), October 13, 2020.

adopted and more companies are considered vulnerable to transition risks, that threshold could easily be met. Ensuring that the board and senior management stay abreast of evolving climate risks is critical.

3.3.2 Risk Appetite

22. DFS expects an insurer to have a written risk policy adopted by its board describing how the insurer monitors and manages 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:

- a. long-term financial interests of the insurer, and how decisions today affect future financial risks;
- b. results of scenario analysis and potentially stress testing for short-, medium-, and long-term horizons;
- c. uncertainty around the timing and channels through which climate risks may materialize; and
- d. sensitivity of both sides of the balance sheet to changes in key climate risk drivers and external conditions.⁸

23. 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 Organizational Structure

24. DFS expects insurers to:

- a. Create an organizational structure that includes risk assessment, compliance, internal control, internal audit, and/or actuarial functions⁹ (collectively, "control functions") to manage climate risks.
- b. Ensure that the structure clearly defines and articulates roles, responsibilities, and accountabilities, as well as a risk culture that supports accountability in risk-based decision making,¹⁰ in setting climate risk limits and overseeing their implementation.
- c. Modify the control functions and relevant roles and responsibilities as necessary to account for the evolving nature of climate risks.
- d. 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. 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. Conduct objective, independent, and regular reviews of the functions and procedures for managing climate risks and report the findings of the reviews to the board. Adapt the functions, procedures, roles, and resources for managing climate risks as necessary.

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

⁹ IAIS, SIF, [Draft Application Paper on the Supervision of Climate-related Risks in the Insurance Sector](#), October 13, 2020.

¹⁰ Handbook, SECTION 1 – GENERAL EXAMINATION GUIDANCE, XI. REVIEWING AND UTILIZING THE RESULTS OF AN OWN RISK AND SOLVENCY ASSESSMENT ORSA Review, Page 157.

- g. 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 should support resource allocation to this effort.
- h. Consider implementing remuneration policies to align incentives with the strategy for managing climate risks.

3.4 Business Models and Strategies

25. Insurers are already exposed to climate risks, which are expected to have a material impact on the business environment in which they operate, 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; the materiality of the risk; whether affected areas should be continued, scaled back, or adapted; and whether climate risks require consideration across all business areas and processes on the basis of their materiality, or only those business areas and processes that are particularly exposed.¹¹

26. Insurers should ensure that their business strategy is effectively communicated to, and operationalized by, all of their relevant entities, individual business units, and product lines. 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, insurers are encouraged to set and monitor clear key performance indicators.

27. DFS expects to an insurer to document how its business environment analysis, scenario analysis, and stress testing (if applicable) is considered in its strategy-setting process, risk appetite framework, and risk management and compliance processes.

3.5 Risk Management

3.5.1 Risk Management Framework

28. The Handbook describes the key principles of an effective risk management framework¹² that should be applied when assessing climate risks. Insurers and other entities that are required to have enterprise risk management (“ERM”) functions¹³ are expected to:

- 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;

¹¹ NGFS, [Guide for supervisors: integrating climate-related and environmental risks into prudential supervision](#), May 2020.

¹² 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

¹³ 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.

- 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;¹⁴
- document in their written ERM and board risk reports the climate risks considered, including their transmission channels,¹⁵ and their impact on existing risk factors, and where appropriate, update existing risk management policies to reflect climate risks;
- manage and monitor these risks over a sufficiently long-term horizon and review their analysis on a regular basis.¹⁶

3.5.1.1 Risk Identification and Prioritization

29. 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 climate.¹⁷ As discussed in more detail in Section 3.6, insurers should use scenario analysis and stress testing to inform the risk identification and prioritization process and understand the short- and long-term climate risks to their business models. Insurers are also expected to go beyond using historical data to inform their risk assessment and consider future trends.

3.5.1.2 Risk Appetite, Tolerances, and Limits

30. Insurers should consider climate risks in setting their risk appetite, tolerance, 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.¹⁸ 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 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

¹⁴ Section 82.2(a) of 11 NYCRR 82 (Insurance Regulation 203).

¹⁵ For example, transmission channels may include investments in real estate that are at high risk of climate-related natural disasters, public policies that encourage the low carbon transition and reduce the profits of insurers' customers, etc.

¹⁶ Capital adequacy standards in relation to climate risks are not yet sufficiently developed to include in this initial guidance.

¹⁷ 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.

¹⁸ 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.

carbon footprints¹⁹ of investment portfolios.²⁰ 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.

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.

3.5.1.3 Risk Management and Controls

32. Managing risk, including climate risks, is an ongoing ERM activity, operating at many levels within the organization, which requires a collaborative, enterprise-wide approach.²¹ If the potential impacts of climate risks are determined to be material, DFS expects insurers to demonstrate how they will mitigate those risks and to develop a credible plan or policies for managing their exposure, including by reducing the concentration of those risks. These plans and policies should reflect the unprecedented nature of climate risks, and how they differ from other risks.

33. To inform their risk management, insurers should seek to understand the potential current and future impacts of physical and transition risks on their customers, counterparties, investees, and potential investees. 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 data.

34. 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.²² The control functions should identify,

¹⁹ 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.

²⁰ 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.

²¹ 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.

²² 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.

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.²³ For example, the compliance function should consider the legal 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 committed to respect. The actuarial function should consider the quality and completeness of climate-related data, with the understanding that historical data may not be sufficient to appropriately calibrate premiums or reserves to reflect climate risks, particularly rapidly evolving ones.

3.5.1.4 Risk Reporting and Communication

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

3.5.2 Climate Change's Impact on Existing Risk Factors

36. The ERM function should address all reasonably foreseeable and relevant material risks.²⁴ 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.²⁵ Below are examples of how climate-related risks might impact each of these factors.²⁶

3.5.2.1 Credit Risk

37. 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 climate change's impact on credit risk is likely small relative to its impact on other risk factors.

38. As described in more detail in Section 3.5.2.4 ("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 assets²⁷ in sectors and geographies most exposed to physical and transition risks.

²³ IAIS, SIF, [Draft Application Paper on the Supervision of Climate-related Risks in the Insurance Sector](#), October 13, 2020.

²⁴ Section 82.2(a)(9) of 11 NYCRR 82 (Insurance Regulation 203).

²⁵ Reserve risk is likely minimally affected by climate risks and is therefore not discussed in this guidance.

²⁶ 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, and EIOPA's [Consultation Paper on the draft Opinion on the supervision of the use of climate change risk scenarios in ORSA](#), Annexes 3 and 4.

²⁷ Handbook, Section 4 – EXAMINATION EXHIBITS, Exhibit L - Branded Risk Classifications, Page 481.

3.5.2.2 Legal Risk

39. 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.²⁸ 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.²⁹

3.5.2.3 Liquidity Risk

40. 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.³⁰

3.5.2.4 Market Risk

41. 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. 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.³¹ The introduction of a meaningful price on carbon may result in investment losses and lower asset values due to stranded assets. Insurers should also consider the potential impact of increasing climate-related litigation on the companies, regions, and countries in which they invest.

42. 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.³²

43. Given that a large portion of insurers' investments are in fixed income products, insurers are encouraged to consider the timeframe in which climate risks might manifest 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

²⁸ 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.

²⁹ NGFS, [Guide for supervisors: integrating climate-related and environmental risks into prudential supervision](#), May 2020.

³⁰ NGFS, [Guide for supervisors: integrating climate-related and environmental risks into prudential supervision](#), May 2020.

³¹ ECB, [Guide on climate-related and environmental risks Supervisory expectations relating to risk management and disclosure](#), November 2020.

³² ECB, [Guide on climate-related and environmental risks Supervisory expectations relating to risk management and disclosure](#), November 2020.

agencies' work on incorporating climate and sustainability risks into their methodologies and related rating actions.

3.5.2.5 Operational Risk

44. 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.

3.5.2.6 Pricing and Underwriting Risk

45. Insurers should consider the increased frequency and concentration of high-impact natural catastrophes around the world as a result of climate change, and the consequent increase in weather-related insurance claims. Insurers should assess the impact of climate change on 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.

3.5.2.7 Reputational Risk

46. 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.³³ Furthermore, to the extent that 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.

3.5.2.8 Strategic Risk

47. 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 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.

48. 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.³⁴

³³ IAIS, SIF, [Draft Application Paper on the Supervision of Climate-related Risks in the Insurance Sector](#), October 13, 2020.

³⁴ IAIS, SIF, [Issues Paper on Climate Change Risks to the Insurance Sector](#), July 2018.

49. 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.³⁵

3.5.3 ORSA

50. Certain insurers are required to regularly conduct an ORSA consistent with the process set forth in the ORSA Manual.³⁶ 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 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 strategy³⁷

51. If climate risks are not considered material, for example, because the insurer has minimal exposure to these risks, DFS expects the justification to be documented in its ORSA. If an insurer determines that the risks are material, DFS expects the insurer to document its assessment process, including measurement approaches used, key assumptions made, and outcomes of any plausible adverse scenarios that were run.³⁸ 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.³⁹ For further information on scenario analysis and stress testing to be included in ORSAs, see Section 3.6.

52. The ORSA should be proportionate 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.⁴⁰

53. 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.

³⁵ [NAIC ORSA Manual](#), III. Section 2 – Insurer Assessment of Risk Exposures, Page 10 (Page 18 of the full document).

³⁶ Section 82.3(a) of Insurance Regulation 203

³⁷ NAIC ORSA Manual, II. Section 1 – Description of The Insurer's Enterprise Risk Management Framework, Page 8 (Page 16 of the full document).

³⁸ 11 NYCRR 82.2(a)(4).

³⁹ NAIC ORSA Manual, III. Section 2 – Insurer Assessment of Risk Exposures, Page 9 (Page 17 of the full document).

⁴⁰ 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.

3.6 Scenario Analysis

54. Insurers' ERM function 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.⁴¹ Given the forward-looking nature of climate risks and their inherent uncertainty, past experience will not necessarily be a good indicator of future conditions. 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.⁴² DFS expects an insurer's approach to scenario analysis to evolve and mature over time.

55. Insurers should expand their current scenario analysis practices, which tend to focus on their investments, to also analyze impacts on their liabilities. Scenario analyses should consider:

- a. the impact of physical and transition risks;
- 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;
- c. the fact that climate risks may not be fully reflected in historical data; and
- d. how climate risks may materialize in the short-, medium-, and long-term depending on the scenarios considered.

56. 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.⁴³ 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, to a range of different climate scenarios. DFS expects the time horizon of this long-term assessment to be in the order of decades.

57. 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.⁴⁴

⁴¹ Section 82.3(a)(3) and (5) of Insurance Regulation 203

⁴² PRA, Supervisory Statement, SS3/19, [Enhancing banks' and insurers' approaches to managing the financial risks from climate change](#), April 2019.

⁴³ EIOPA, [Consultation Paper on draft Opinion on the supervision of the use of climate change risk scenarios in ORSA](#), October 5, 2020.

⁴⁴ PRA, Supervisory Statement, SS3/19, [Enhancing banks' and insurers' approaches to managing the financial risks from climate change](#), April 2019.

58. DFS expects insurers to use these scenarios to understand the impact of climate risks on their solvency, liquidity, and ability to pay claims. If an insurer relies on reactive actions to mitigate the financial risks from a scenario, it should consider whether these actions are realistic. For example, an insurer should not 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.⁴⁵ Climate risks are not always reflected in asset prices,⁴⁶ which could experience abrupt adjustments as a result of new policies, shifts in market sentiment, or other factors.

59. Insurers should consider publicly available scenarios, such as those developed by NGFS,⁴⁷ and customize them based on their geographies and business lines. Insurers are also encouraged to use scenario analysis and stress testing to identify data, methodology, and talent gaps, and to raise awareness and sophistication across the organization with respect to climate risks.⁴⁸

60. 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 change.

3.7 Public Disclosure

61. Public disclosure ensures that market participants have adequate insight into financial institutions' risk exposures, risk assessment processes, and capital adequacy.⁴⁹ 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 five other states require insurers with annual country-wide premiums above \$100 million to respond to the NAIC Climate Risk Disclosure Survey.⁵⁰

62. 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, including the processes used to assess whether these risks are considered material. Information disclosed should go beyond operational issues and address how

⁴⁵ PRA, Supervisory Statement, SS3/19, [Enhancing banks' and insurers' approaches to managing the financial risks from climate change](#), April 2019.

⁴⁶ The Economist, [Why are investors not pricing in climate change risk?](#), June 2, 2020.

⁴⁷ NGFS has published a [set of climate scenarios](#) alongside its [Guide to climate scenario analysis for central banks and supervisors](#).

⁴⁸ 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](#).

⁴⁹ NGFS, [Guide for supervisors: integrating climate-related and environmental risks into prudential supervision](#), May 2020.

⁵⁰ [NAIC Climate Risk Disclosure Survey](#) responses can be accessed at the California Department of Insurance website.

physical and transition risks (including liability risks) might impact insurers' underwriting, investment, and strategies.

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. As insurers would benefit from greater climate-related disclosure in the wider economy, they should encourage such disclosure through their ownership of financial assets.

64. 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 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 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 disclose related figures, metrics, and targets as well as the methodologies, definitions, and criteria used to make that determination.⁵¹

65. 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 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.

⁵¹ ECB, [Guide on climate-related and environmental risks Supervisory expectations relating to risk management and disclosure](#), November 2020.