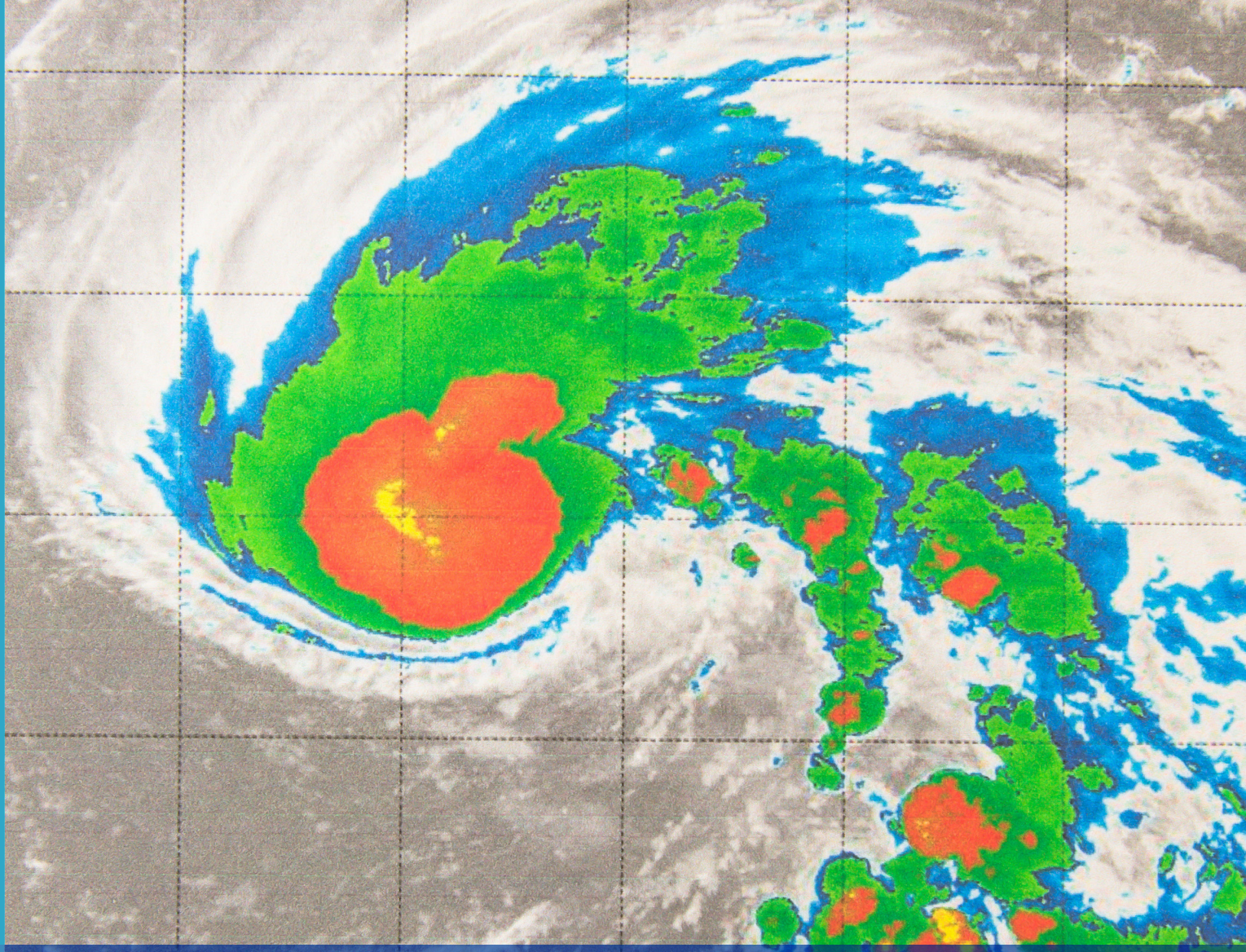

Climate Scenario Considerations for U.S. Own Risk Solvency Assessment (ORSA)

American Academy of Actuaries
Climate Related Financial Disclosure Subcommittee and
Climate Change Joint Committee

OCTOBER 2025

American Academy of Actuaries
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Climate Scenario Considerations for U.S. Own Risk Solvency Assessment (ORSA)

Introduction

With climate-related extreme weather events increasing in severity and frequency, addressing and capturing climate risk is becoming more material to companies over time.[1] It is becoming increasingly important for insurance companies to assess their climate risk due to materiality considerations in the National Association of Insurance Commissioners' (NAIC) Own Risk and Solvency Assessment (ORSA).

There is also rising interest in a company's climate risk assessment from other regulators, rating agencies, policyholders, company leadership, and investors. The NAIC threshold for materiality is 5% of pre-tax income or 0.5% of total assets.[2] For material risks, ORSA requires assessment, measurement, and an outline of key assumptions in both normal and stress scenarios. Creating and assessing climate scenarios can lead to more robust disclosures to regulators and rating agencies, as well as better management of a company's enterprise risk. See Appendix A for more information about how to include the climate analysis in the Task Force on Climate-Related Financial Disclosures (TCFD). Additionally, companies that effectively manage climate risks are in a better position to seize opportunities related to changing markets, such as attracting customers wanting climate-resilient insurance products.

This policy paper is intended to be a primer for actuaries who are asked to develop climate risk scenarios for ORSA, as well as provide a collection of background and other resources useful in incorporating climate scenarios into ORSA. This paper is not a promulgation of the Actuarial Standards Board (ASB), is not an actuarial standard of practice (ASOP), is not binding upon any actuary, and is not a definitive statement as to what constitutes generally accepted practice in the area under discussion. Events occurring subsequent to the publication of this paper may make the practices described in this policy paper irrelevant or obsolete.

1 "sigma 01/2024: Natural catastrophes in 2023"; Swiss Re; March 26, 2024.
2 "Auditing"; *The CPA Journal*; July 2000.

The paper is organized into the following sections:

- Terminology & Context: The paper references terms relevant to risk, including risk subtypes and global policy assumptions, and identifies points of impact.
- Scenario Considerations: After discussing how climate change is discussed and where it can impact companies, the paper explores a breadth of considerations for what a particular company may incorporate into their climate-scenario development. Company assumptions will depend on aspects such as industry (e.g., property/casualty versus life), time horizon, calibration, insured population, management actions, and more.
- Scenarios: The paper provides numerous resources for climate scenarios that have been previously published. Scenario sets are described in terms of how they may be valuable for a company.
- Appendix: Miscellaneous topics referenced throughout the paper are included in the appendix.

Terminology & Context

Definitions

This section focuses on how climate risk is discussed. Focus is specifically on where impact is seen, physical versus transition risk, and how impact depends on global policy assumptions, such as the cost of policies enacted to limit warming to a certain target temperature increase or the long-term cost of not enacting these policies.

Climate Risk & Climate Change Risk

These terms are conceptually useful in differentiating between the risk of climate stress events such as flood and heat wave (climate risk) and the risk of changes in the frequency and intensity of those events (climate change risk).

Climate risk is often assessed through experience analysis, as climate stress events are documented in historical records, and risk parameters have frequently been developed by the property/casualty industry. Climate change risk is forward-looking and, by this nature, has significant uncertainty which may require both quantitative and qualitative assessments. Climate change experience, especially in the last 50 years, may provide a starting point, but sophisticated modelling may become the norm.

Although ORSA risk assessment horizons are generally quite short term for climate change, climate change risk is still applicable. This is due to the fact that the progression of climate stress events is ongoing, and the impacts of recent changes may not yet be a component of experience, due to the historical infrequency of events of maximal stress.

The scenarios in this paper are forward-looking and incorporate plausible climate change pathways.

Physical & Transition Risk

It is important to distinguish between the two ways that climate change can impact insurance companies.

Physical risks are the direct and indirect impacts of climate-related events, such as extreme weather events (hurricanes, floods, wildfires), the rise in sea levels, and chronic shifts in weather patterns (heat, droughts).[3] Physical risks may result in property destruction, increased mortality or morbidity, disruptions in the global supply chain, and loss of consumer confidence, among others.

Transition risks are the financial implications associated with moving to a low-carbon economy, such as the costs of policy and regulation compliance, technological advancements, and shifting market or societal sentiment.[4] Transition risks may result in additional expenses, devaluation of assets associated with carbon-intensive industries, and changing customer preferences.

For purposes of the model presented in this paper, the assumptions behind the extent of physical and transition risks in the future depend on global policy. In future models, other drivers may affect the assumptions. Low physical risk is typically associated with policies that limit global temperature rise to between 1.5°C and 2°C. Low transition risk is typified by either quick and unified action or little to no action. The Scenarios section will delve into further detail around specific assumptions, but a general spectrum can be summarized by the following four quadrants, varying physical and transition risk: low/low, low/high, high/low, and high/high.

A physical representation is provided below:

	Scenarios to Test	
Physical Risk		
HIGH	Current Policy	DisFunctional (Non-Integrated / Non-Global)
LOW	Paris-Aligned (Swift/Global Scope)	Knee-Jerk Reaction (Delayed/Costlier)
Transition Risk	LOW	HIGH

3 "Glossary of Climate Change Terms and Definitions"; American Academy of Actuaries; May 2023.
4 Ibid.

1. Low physical and low transition risk: These scenarios assume that there is swift and globally integrated action to reduce carbon emissions, which is due to policy enactment or consumer behavior. For example, the policies aligned with the Paris Agreement, an international treaty on climate change adopted by 196 countries in 2015 with an objective to limit global warming rise to well below 2 degrees Celsius, would fall under this scenario category and might be called "Paris-aligned" or "Net Zero 2050."[5]

2. Low physical and high transition risk: These scenarios assume that there is a delay before the swift and globally integrated action of quadrant 1. Any policies enacted would consequently be both stricter and more costly to make up for lost time. These scenarios might be named with references to delays and more severe reactions, such as "Knee-Jerk Reaction."

3. High physical and low transition risk: These scenarios assume that not enough takes place in terms of impactful climate policies or consumer behavior. In addition, carbon production continues at its current pace or higher, leading to a rise in global warming above 2°C or even 3°C. Transition risk is low, but the physical impacts of climate change would continue to increase in frequency and severity. These scenarios might be called "Current Policy," in reference to business—as usual, or "Stated Policy," in reference to the most recent national pledges going into effect.

4. High physical and high transition risk: These scenarios assume that some of the world takes action, but the effort is not globally integrated and not sufficient. For example, the United States imposes strict carbon policies that increase the cost of business, but the rest of the world continues with current policies that maintain high carbon emission and increase the cost of physical climate impacts. These scenarios are considered worst-case and might be named with reference to global fragmentation, such as "Disfunctional" or "Crisis."

5 "Aligning with the Paris Agreement – Part 1: A Framework for Alignment with the Paris Agreement: Why, What and How for Financial Institutions?"; Institute for Climate Economics (I4CE); September 2019.

Modeling

Integrated Assessment Models (IAMs) are scientific models that represent the interaction between the economy, society, and the environment. They are integrated in the sense that they use information from a variety of disciplines. They are assessments in the sense that they generate useful information for policymaking and enterprise risk management (ERM). Examples include the GCAM (Global Change Analysis Model), REMIND (Regional Model of Investments and Development), and MESSAGE (Model for Energy Supply Strategy Alternatives and their General Environmental Impact) models.

Impact Points

In order to create a climate risk scenario, a company identifies where climate change impacts the business. To various degrees, every business is potentially impacted by climate change in terms of pricing and underwriting, business operations, the macroeconomic environment, regulation, and/or reputation. While not an exhaustive list, these are some key impact points to consider:

- Pricing and underwriting: The physical impacts of climate change can affect pricing and underwriting of property/casualty, life, and health insurance products, through damage to property and harm to personal health.
- Business operations: Damage to a company's buildings or systems, as well as breakdowns of the global supply chain caused by climate events, can disrupt business operations and impose costs.
- Macroeconomic environment: The macroeconomic environment can be impacted by both physical and transition risks. Natural disasters exacerbated by climate change can damage buildings held as assets on balance sheets or disrupt global supply chains and operations, increasing defaults or inflation. Changes in costs, technology, or consumer sentiment can also devalue assets throughout a company's investment portfolio.
- Regulation: Changes in national or global policies regarding carbon emissions or other environmental, social, and governance (ESG) practices may result in higher compliance expenditures or legal fees.
- Reputation: The preferences of consumers for climate-resilient insurance products or climate-friendly brands may be a risk or opportunity for company sales. Additionally, there may be backlash against companies for action or inaction around climate-friendly strategy, depending on the political climate, leading to in-force attrition.

For more examples, see the list in Table A1.1 from "Implementing the Recommendations of the Task Force on Climate-related Financial Disclosures" by the TCFD[6] and Annex 3-4 from "Opinion on the supervision of the use of climate change risk scenarios in ORSA" by the European Insurance and Occupational Pensions Authority (EIOPA).[7]

Scenario Considerations

This section provides additional considerations, based on the particulars of a company, when choosing one or several global policy assumptions to determine the estimated impact.

Global Policy Assumption Considerations

A first step in developing a climate scenario is outlining a narrative that describes global policies and the resulting level of physical and transition risks. This narrative will vary by the scope of a company's ORSA analysis, including:

- Time Horizon: Narratives can vary widely by the time horizon, whether short-term (one to five years) or long-term (15-50 years). The majority of the scenarios described in the next section are long-term in scope. If a company focuses solely on the short-term, the NGFS (Network for Greening the Financial System) short-term scenario narratives[8] and UNEP (UN Environmental Programme) short-term scenarios[9] can provide additional information.
- Calibration: Narratives can also vary by severity, whether considered moderately adverse or extreme in nature. The majority of the scenarios described in the next section are not described in terms of probabilities but, once a scenario is selected, resulting impacts *may have* associated probabilities.

6 "Implementing the Recommendations of the Task Force on Climate-related Financial Disclosures"; Task Force on Climate-related Financial Disclosures; October 2021.
7 "Opinion on the supervision of the use of climate change risk scenarios in ORSA"; European Insurance and Occupational Pensions Authority (EIOPA); April 19, 2021.
8 "NGFS Scenarios Portal"; Network for Greening the Financial System (NGFS); November 2024.
9 "Scenarios for Assessing Climate-Related Risks: New Short-Term Scenario Narratives by UNEP FI and NIESR"; United Nations Environment Programme Finance Initiative (UNEP FI); July 9, 2024.

Company Impact Considerations

Once a company has picked a narrative, the specific impacts on the company can be estimated. In general, consider:

- Qualitative versus Quantitative: A qualitative assessment may be sufficient for those not significantly exposed, but quantitative assessments should be a long-term goal for those with material risk.
- Bottom Up versus Top Down: Impacts can come from both company-specific (bottom up) risks and systemic (top down) risks. In using company-specific experience, the challenges are separating it from the experience data and lower experience credibility. For top-down impacts, consider the broader market, concentration resulting from exiting competition, and reinsurer health and capacity.
- Insured Population: Impacts can be felt differently for a company's insured sub-population. For example, physical risks can be less impactful on an insurance company's higher income policyholders than on policyholders with lower incomes. Consider geography, infrastructure resilience, and wildlife encroachment, as well as the displacement or movement of people to "climate-proof" areas.
- Management Actions: Impacts can be mitigated by management response. Consider changes in product offerings, pricing, underwriting, asset-liability management, reinsurance, and market and regulatory constraints. Consider also benefits from seizing climate-related opportunities, such as portfolio investments.

Finally, impacts will vary by the type of company.

- Life Insurance/Pensions: Consider the geography and carbon intensiveness of assets backing long-term liabilities, chronic physical risk on mortality/morbidity, economic hardship on policyholders that may impact an ability to pay, and other uncertainties around long-term assumptions.
- Health Insurance: Consider increased frequency of pandemics, disaster exposures, water-borne diseases, heat-related illnesses, mental health challenges, health care supply disruption, and other rising health care costs.
- Property/Casualty Insurance: Consider increased frequency and severity of catastrophic events, changes in risk geography, the possibility of leaving higher-risk areas, the higher cost of reinsurance, and other direct impacts from physical damage. Also consider consumer habits (electric cars, car-pooling), building-code standards, and other climate adaptations.

Scenarios

Well-researched, predictive climate scenarios are available, all of which have unique backgrounds, objectives, and potential for ORSA. The most prominent of these are the Network for Greening the Financial System (NGFS) scenarios. Some of the other available scenarios also utilize NGFS with additional assumptions added. These scenarios may be updated, so it is strongly recommended that any actuary using them check for the most recent version before proceeding.

In summary:

Scenario Source	Useful For:
Network for Greening the Financial System (NGFS)	• Long-term scenario narratives, vary by physical and transition risk • Long-term scenario assumptions • Probability calibration for global temperature • Short-term narratives, vary by physical and transition risk • [Not yet available] Short-term scenario assumptions
Intergovernmental Panel on Climate Change (IPCC)	• Long-term scenario narratives, vary by challenges for mitigation and adaptation • Probability calibration for global temperature and resulting weather events
UN Environment Programme (UNEP) Financial Initiative (FI)	• Short-term scenario narratives • Short-term scenario assumptions
Bank of England Climate Biennial Exploratory Scenario (CBES)	• Three NGFS scenarios with additional assumptions • Considerations around counterparties, climate litigation, and management actions
Canada's Office of Superintendent of Financial Institutions (OSFI) Standardized Climate Scenario Exercise (SCSE)	• [Not yet available] Three NGFS scenarios with additional assumptions (sectoral impacts & financial risk impacts)
Inevitable Policy Response (IPR) Forecast Policy Scenario (FPS)	• Single "most likely" long-term scenario with investments focus
2° Investing Initiative (2°II)	• Delayed action (high-transition-risk) scenario impact on assets

Network for Greening the Financial System (NGFS) Scenarios

The Network for Greening the Financial System (NGFS) was founded by eight central banks and supervisors at the Paris "One Planet Summit" in December 2017 and has since expanded globally. The NGFS aims to strengthen the financial sector's role in addressing climate change by promoting best practices, managing environmental risks, and mobilizing capital for sustainable, low-carbon investments, aligning with the goals of the Paris Agreement.[10]

NGFS currently publishes assumptions and data behind seven long-term scenarios—also called transition pathways—that vary in level of physical and transition risk. The scenarios were created using IAMs, databases, and literature to model shifts in energy systems and land use (e.g., fossil fuel use), ensuing climate impact (e.g., global mean temperature), and resulting physical and macro-financial effects. These scenarios are being continuously improved and updated.

Long-Term Scenarios

- The seven long-term scenario narratives can be found at the NGFS Scenarios Portal.[11] A single scenario or several scenarios can be selected based on actuarial judgment of ORSA stress testing requirements and/or to assess a particular risk (e.g., physical risks are highest in the Current Policies scenario).
- After selecting a scenario(s), some physical impact indicators by country can be found using the Climate Impact Explorer from Climate Analytics.[12] Examples of indicators include annual expected damage from river floods or tropical cyclones, both expecting increases as a percentage increase from a 2015 baseline within a 5%–95% confidence interval.
- Additional indicators can be found in the NGFS Phase 4 Scenario Explorer,[13] including prebuilt graphs by scenario of indicators such as energy demand, CO_2 emissions, GDP, and population. The filter of the graphs can be changed to select other variables, such as "Price|Carbon."
- In Phase IV, NGFS did not include the impact to the financial sector. Phase 5 incorporates a new damage function, which tripled the damage impact on physical risk.[14] Focus remains on bank sector impacts.

10 "The Paris Agreement"; United Nations Climate Change; Dec. 12, 2015.
11 NGFS Scenarios Portal: Explore; Network for Greening the Financial System; November 2024.
12 Climate Impact Explorer; Climate Analytics; Aug. 27, 2024.
13 "NGFS Scenario Explorer"; International Institute for Applied Systems Analysis; September 2024.
14 "NGFS Climate Scenarios for Central Banks and Supervisors – Phase IV"; Network for Greening the Financial System; November 2023.

Probability Calibration

An additional variable in the NGFS Phase 4 Scenario Explorer[15] is the exceedance probability of certain global temperatures under "AR6 climate diagnostics." These variables can be used to calibrate the scenario to the level of stress used in ORSA.

Short-Term Scenarios

NGFS does not currently include short-term scenarios, but a conceptual note of short-term scenario narratives was published in September 2023.[16] A new interpretation paper was released in December 2024.[17] The short-term climate scenarios technical documentation was released in 2025.[18]

IPCC Scenarios

The IPCC was established in 1988 as a joint effort between the United Nations Environmental Programme (UNEP) and the World Meteorological Organization (WMO). The objective is to provide scientific information for use in climate policy development, and it reports on climate change drivers, impacts, and mitigation in a series of assessment reports (ARs) that are created using data from a series of worldwide working groups.[19] The first AR was published in 1990, while the most recent, AR6, was released in 2021.[20]

Long-Term Scenarios and Probability Calibration

AR5, published in 2014, contains four of the latest Representative Concentration Pathways (RCPs), climate change scenarios that project future greenhouse gas emissions.[21] AR6 contains three additional RCPs. RCPs are labeled RCP1.9 up to RCP8.5, constituting a range of radiative forcing, which is a quantification of the change in energy balance in Earth's atmosphere that includes aerosols, sunlight reflection, and sun radiation in addition to greenhouse gases. This range is 1.9 to 8.5 W/m^2, as expected in the year 2100. Each of these RCPs then has a range of global warming and sea level increase. RCP1.9 represents the Paris Agreement warming limit to below 1.5 °C and sea level increase below 0.5 meters. RCP8.5 represents continuously rising emissions with a warming range of 2.6°C to 4.8 °C and sea level increase between 0.45 and 0.82 meters by 2100.

15 "NGFS Scenario Explorer";International Institute for Applied Systems Analysis; August 2025.
16 "Conceptual Note on Short-Term Climate Scenarios"; Network for Greening the Financial System; October 2023.
17 Ibid.
18 "NGFS Short-Term Climate Scenarios Technical Documentation"; Network for Greening the Financial System; May 2025.
19 "Intergovernmental Panel on Climate Change (IPCC)"; Intergovernmental Panel on Climate Change; 1988.
20 "Sixth Assessment Report (AR6)"; Intergovernmental Panel on Climate Change; 2015–2023.
21 "Fifth Assessment Report (AR5)"; Intergovernmental Panel on Climate Change; 2013–2014.

AR6 added five Shared Socioeconomic Pathways (SSPs), climate change scenarios of social responses that are used to derive greenhouse gas emissions. The five scenarios are SSP1 Sustainability (Taking the Green Road), SSP2 (Middle of the Road), SSP3 Regional Rivalry (A Rocky Road), SSP4 Inequality (A Road Divided), and SSP5 Fossil-fueled Development (Taking the Highway). The scenarios vary by challenges in mitigation and adaptation.

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AR6 combines SSP and RCP to create a range of global warming. For example, SSP1-1.9 is SSP1 and RCP1.9, with an estimated warming of 1.4 °C by 2100, and SSP5-8.5 is SSP5 and RCP8.5, with an estimated warming of 4.4 °C by 2100.

IPCC does not assign probabilities to the scenarios, but it does describe the probability of physical outcomes (e.g., temperature rise, sea level rise) by scenario using terms such as "likely" (66-100% probability) or "very likely" (90-100% probability).

Scenario narratives and confidence statements can be found in Section B of the AR6.[23]

Physical-risk-related variables (heat, precipitation) by scenario can be calculated using the Climate Change Knowledge Portal.[24]

22 "Shared Socioeconomic Pathways (SSPs)"; ResearchGate; May 2021.
23 "Climate Change 2021: The Physical Science Basis"; Intergovernmental Panel on Climate Change; Aug. 7, 2021.
24 "United States – Climate Data Projections"; World Bank Climate Change Knowledge Portal; October 2025.

UN Environment Programme Financial Initiative Scenarios

The UN Environment Programme (UNEP) Financial Initiative (FI) collaborated with the National Institute for Economic and Social Research (NIESR) to develop a report and accompanying short-term climate scenarios tool.[25] The objective was to fill the gap of short-term scenarios that explore near-term risks, economic volatility, and potential systemic vulnerabilities.

Short-Term Scenarios

The climate scenarios tool includes three scenarios or shocks to each of macroeconomic events, transition risks, and physical risks, and each of these scenarios can be explored in combination or independently, can vary by stress level (low/medium/high), and can be considered globally or for individual countries. Available assumptions include GDP, inflation, interest rates, and equity prices. The report and the scenario explorer spreadsheet can be found at the UNEP FI website.[26]

Bank of England Climate Biennial Exploratory Scenario

The Bank of England (Bank) assesses the resilience of the largest U.K. banks and insurers through annual solvency stress tests and biennial exploratory scenarios. In 2021, the Bank introduced the first exploratory scenario exercise on climate risk, the CBES.[27] The CBES' objectives are to assess banks' and insurers' vulnerability to physical and transition risks, support economic policy for a net-zero economy, and ensure the financial system can manage these risks. The Bank's climate scenario analysis aids in policy development, collaboration between government and regulators, and clarifying roles in navigating climate uncertainty. The climate exploratory scenario exercise is a learning exercise and not used to set capital requirements related to climate risk.

25 Scenarios for Assessing Climate-Related Risks: New Short-Term Scenario Narratives by UNEP FI and NIESR; United Nations Environment Programme Finance Initiative; July 9, 2024.
26 Ibid.
27 Climate Biennial Exploratory Scenario (BES) Briefing; Bank of England; June 29, 2022.

Long-Term Scenarios

CBES is built on three NGFS scenarios (Net Zero 2050, Delayed Transition, and Current Policies), taking place over 30 years and not representative of the most likely future outcomes. Specific transition risk, physical risk, and macroeconomic impact assumptions can be found in Section 4 of the Bank's outline of CBES key elements.[28] These are U.K.-specific but can be helpful in coming up with assumptions that are missing from the NGFS scenario portal.

Additional Considerations

CBES required four things of participants: to report the impact on invested assets for life insurance and insurance claims for property/casualty insurance; to make a granular assessment of their largest counterparts; to explore climate litigation risk; and to outline management actions in response to climate risk.[29]

Canada's Office of Superintendent of Financial Institutions Standardized Climate Scenario Exercise

In 2024, the Office of the Superintendent of Financial Institutions Canada (OSFI) will finalize and issue the Standardized Climate Scenario Exercise (SCSE), which is a set of climate risk scenario criteria for Federally Regulated Financial Institutions (FRFIs).[30] The objectives are to raise awareness and increase the understanding of the potential risk of and exposures to climate change, encourage the FRFIs to improve their ability to assess climate-related catastrophes and conduct climate scenario analysis exercises, and establish standardized methodology to quantitatively assess climate-related physical and transition risks.

Long-Term Scenarios

The SCSE requires independent assessment of the impact of climate transition for commercial exposures (based on NGFS scenarios) separately for both market and credit risks, climate transition real estate exposure assessments, and physical risk exposure assessments (based on IPCC scenarios). For commercial exposures, unlike NGFS, SCSE includes sectoral impacts (e.g., net incomes) and financial risk impacts (e.g., credit spreads) in addition to climate scenario data (e.g., carbon prices).[31]

28 "Key Elements of the 2021 Biennial Exploratory Scenario: Financial Risks from Climate Change"; Bank of England; June 8, 2021.
29 "Results of the 2021 Climate Biennial Exploratory Scenario (CBES)"; Bank of England; May 24, 2022.
30 Standardized Climate Scenario Exercise; Office of the Superintendent of Financial Institutions; Sept. 10, 2024.
31 Ibid.

Inevitable Policy Response (IPR) Forecast Policy Scenario (FPS)

The Principles for Responsible Investment (PRI) is an investor initiative started in 2005 to encourage incorporating ESG issues into investment analysis, processes, policies, and reporting.[32] In 2018, the PRI commissioned climate transition forecasting, called Inevitable Policy Response (IPR), supported by expert research partners. The objective is to prepare institutional investors for portfolio risks and opportunities stemming from policy responses to climate change.

Long-Term Scenario

The IPR forecasts the most likely scenario, called the Forecast Policy Scenario (FPS), with assumptions around climate policy ambitions across 10 policy levers covering energy, land use, and nature. The forecast covers 21 major economies, reflecting 74% of global CO_2 emissions. Global progress and impediments to the FPS can be found in an IPR summary from 2023.[33] Detailed assumptions on energy and land use in the short and long term can be found in IPR's scenario explorer. [34]

2° Investing Initiative (2°II) Scenario

2° Investing Initiative (2°II) is a not-for-profit think tank that engages a global network of over 50 partners and members. The objective of 2°II is to integrate long-term risks and societal goals into financial markets.

Asset Impact

In 2019, 2°II released a report that quantifies a "too late, too sudden" scenario's impact on equities, corporate bonds, and real estate at the sectoral level, using an IAM. "Too late, too sudden" assumes a 10-year delay to the low-carbon economy transition. The data can be found in Section 1 of the report.[35]

32 "What are the Principles for Responsible Investment?"; Principles for Responsible Investment; accessed Oct. 1, 2025.
33 "IPR 2023 Policy Forecast and Forecast Policy Scenario Summary Results"; Inevitable Policy Response; September 2023.
34 IPR Scenario Explorer; Inevitable Policy Response; October 2025.
35 "Storm Ahead: A Proposal for a Climate Stress-Test Scenario"; 2° Investing Initiative; April 2019.

Appendix

Appendix A: Task Force on Climate-Related Financial Disclosures (TCFD) Standards

In the TCFD survey, discussion of climate scenarios can be incorporated into three of the four pillars: Strategy, Risk Management, and Targets & Metrics.

1) Strategy

For part C of Implementation Guidelines, section 2, the TCFD requests a description of the resilience of the insurer's strategy, financial performance (e.g., revenues, costs), and financial position (e.g., assets, liabilities), taking into consideration the risks and opportunities of different climate-related scenarios, including a 2°C or lower scenario and, where relevant to the company, scenarios consistent with increased physical climate-related risks. Companies should consider discussing the climate-related scenarios and associated time horizons considered.

II) Risk Management

For part C of Implementation Guidelines, section 3, the TCFD requests a discussion of the climate scenarios utilized by the insurer to analyze both its underwriting and investments risks, including which risk factors are utilized, what types of scenarios are used, and what timeframes are considered.

III) Metrics & Targets

For part C of Implementation Guidelines, section 4, the TCFD requests consideration of the alignment of metrics with climate scenarios.

Appendix B: ORSA Requirements Outside the U.S.

EIOPA (European Insurance and Occupation Pension Authority) Application Guidance on Climate Change Materiality Assessments and Climate Change Scenarios in ORSA.

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