It's getting hot in here!

Climate risk scenarios for insurers in an ESG world

ESG is a rapidly evolving topic in the insurance industry, and the pressure is on for U.S. companies to develop and incorporate climate risk scenarios into ESG programs.

Background

Climate risk is one of the most significant emerging challenges facing the financial services market, with potential impacts which are widespread and complex. These risks require companies to acquire new knowledge, expertise, data, and tools to manage and anticipate the physical and transition risks that affect both sides of a company's balance sheet, while also challenging the environment in which the company operates. However, with new risks there are also new opportunities for companies to prepare and adapt. Risk experts are ready to build and design scenarios to give companies a path forward to manage and mitigate exposure as well as enhance their resilience and response to climate change.

The now of climate risk

Why now? International entities have historically been ahead of the U.S. in developing a framework for climate risk. It wasn't until a push by the Biden administration to codify standards that agencies have been reviewing them to develop a relevant U.S. framework. Specifically, the Biden administration is asking for clear, consistent, intelligible, comparable, and accurate disclosure of climate-related financial risks. Mitigation strategies for risks and drivers should be disclosed as well. Other regulators reacted by refining the expectations, often consistent with those outlined by the Biden administration and formalizing climate risk frameworks. This included either required disclosures of assumptions and methodologies where public statements indicate climate risk scenario analysis is performed, or adoption of climate risk scenario analysis as part of management's overall risk management framework.

Below summarizes key U.S. regulators' specific reactions.

	Securities and Exchange Commission (SEC)	National Associations of Insurance Commissioners (NAIC)	New York Department of Financial Services (NYDFS)	Department of the Treasury, Federal Insurance Office (FIO)
Current Actions	Climate Disclosure updates proposed	Climate Risk Disclosure issued	Climate Risk Management guidance issued	Request for Information (RFI) issued
Expected Developments	The SEC proposed new mandatory disclosures for climate risk and have been evaluating public comments.	Original 2010 Survey grew to cover 80% of U.S insurance market by 2021. The NAIC adopted a new disclosure standard requiring submission by November 30, 2022.	NYDFS-regulated entities expected to incorporate financial risks from climate change into governance, risk management, business strategy, and disclosures.	Issued to solicit public input on FIO's future work relating to the insurance sector and climate-related financial risks (physical, transition, and liability risks).
Implications	Mandatory disclosures and metrics are forthcoming as of the writing of this paper.	Alignment with Task Force on Climate-related Financial Disclosures (TCFD).	Potential for similar expectations in other jurisdictions.	Federal collection of climate-related financial data specific to the insurance sector.

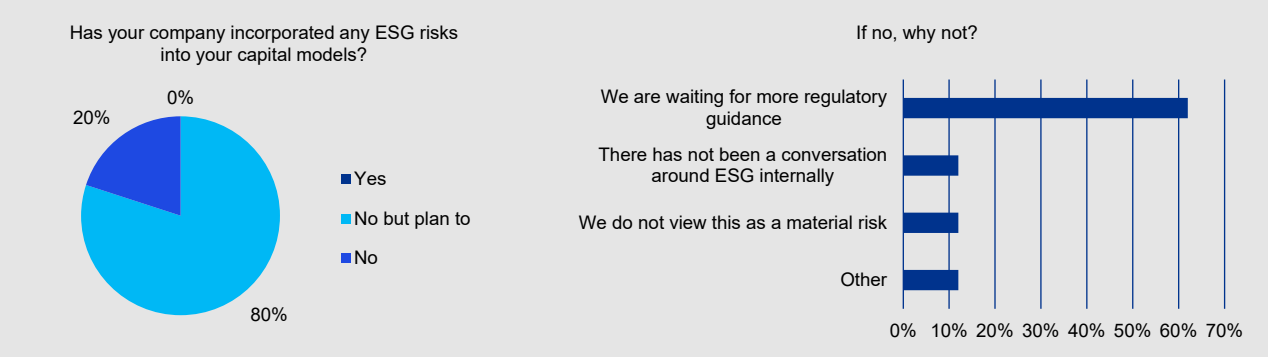
While U.S. regulators have proposed new climate disclosure guidance, company activities to prepare are still in early stages, as indicated by KPMG LLP (KPMG) 2022 Survey (discussed below). In an illustrative timeline shown below, the U.S. would predominantly still be in Stage 1, while other countries such as New Zealand are in Stage 4 as of the writing of this paper, and generally 9 months ahead of the U.S. in this process.

Legislation passes	1. Project design	2. Impact pathways	3. Scenario development	4. Training & dissemination	5. In-house modeling	6. Scenario analysis & disclosure
Example activities	• Project charter	• Impact pathway maps • High level materiality assessment	• Orderly scenario • Disorderly scenario • Hot house world scenario	• Understanding of the role and utility of scenario analysis in climate-related risk	• Models providing outputs in desired metrics for sector risk analysis	• Compliance with disclosure standards • Leadership in climate risk analysis

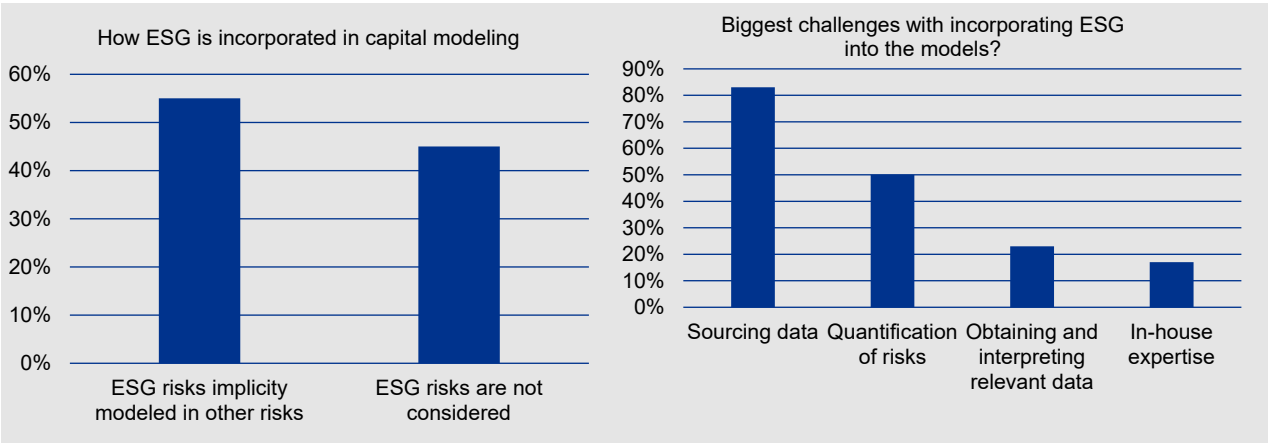
KPMG 2022 Survey

In 2022, KPMG LLP conducted a survey of insurers asking about ESG considerations, especially as it relates to reflecting ESG risks in capital models. Below highlights where our sample of insurers stand regarding ESG risk modeling.

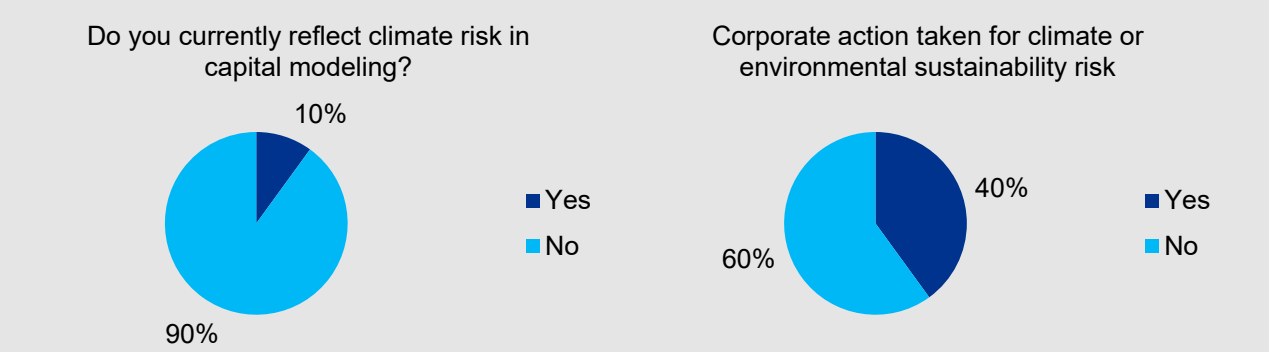
While no survey respondent incorporated ESG risks into their capital models, 80% plan to do so in the future. For those that have not yet incorporated ESG risk into models, the most common reason cited was that they are still waiting for regulatory guidance.



More than half of the insurers surveyed indicated that ESG risks are implicitly modeled with other risks, but a large portion have not considered ESG risks at all. The biggest challenges with incorporating ESG into capital models were the sourcing of data and quantification of ESG risks. Some respondents indicated that interpreting ESG data could be a challenge, while others cited having relevant in-house expertise as a challenge.



For climate risk in particular, modeling its impacts is an emerging area of interest, but only 10% of the respondents implicitly reflect climate risk in models, as shown in the graph below. However, 40% of the insurers indicated they have taken some corporate actions related to their capital position to address environmental risks. Examples include energy transition from fossil fuels, green house gas emission investments, avoidance of tobacco investment, evaluation and mitigation of risks to coastal areas, flood zones, earthquakes, and wildfire exposures, as well as active monitoring of portfolio holdings.



As the 2022 survey illustrates, insurers operating in the U.S. are indeed still in the very early stages of incorporating climate risk into their models.

Around the Globe

International standards have been around for years. These standards have been the basis for other countries to develop frameworks for regulation. However, in the U.S. these standards have been voluntary with no means of enforcement. They lack standardization on the definitions, data requirements, and disclosures for companies to produce consistent and meaningful results.

Below describes the major global players and standards:

- **Task Force on Climate-related Financial Disclosures (TCFD)** (active since 2015): Released 11 disclosure recommendations which are structured around four thematic areas that represent core elements of how companies operate: governance, strategy, risk management, and metrics and targets.
- **Global Reporting Initiative (GRI)** (active since 1997): Modular system of Universal Standards, Sector Standards, and Topic Standards to help companies understand their outward impacts on the economy, environment, and society, including those on human rights.
- **Sustainability Accounting Standards Board (SASB)** (active since 2011): 77 globally applicable industry-specific Standards which identify the minimal set of financially material sustainability topics and their associated metrics for the typical company in an industry.
- **International Sustainability Standards Board (ISSB):** The Trustees of the IFRS Foundation announced formation of the ISSB in November 2021. The ISSB is developing standards for a high-quality, comprehensive global baseline of sustainability disclosures focused on the needs of investors and financial markets.
- **Corporate Sustainability Reporting Directive (CSRD):** This EU directive entered into force in January 2023 and is meant to modernize and strengthen the rules about the social and environmental information that companies have to report, effective for financial year 2024 (to be published in 2025).

Any country in the world may use these frameworks to develop their standards. Countries like New Zealand rely heavily on the TCFD. So far, the U.S. somewhat relies on the TCFD but is still open to the regulators' developments.

Climate risk scenario development

While climate risk scenario development is not yet a formal process (as standards and legislation are pending), insurers can get a headstart by engaging in the following activities, which should be conducted within the context of proper ESG governance and oversight.

Activities	Observations
Scope	• *Think: Which climate risks affect the company?* • **Physical** risks can manifest as either **Acute** or **Chronic**. • Physical risks, especially acute events, are well-documented as increasing due to climate change. However, it is the chronic risks that are, as of now, more impactful than acute events. - Examples: Acute physical risks → hurricanes and floods. Chronic physical risks → heatwaves and rising sea levels. • **Transition** risks arise from changes in policy and technology for moving towards a low carbon economy. They are typically market, regulatory, and reputationally driven. - Examples: carbon tax, moving to renewable energies, evolving stakeholder expectations.
Materiality	• *Think: Which climate risks matter?* • Initially, develop scenarios that are **small in scope** and **comprehensive in nature**. • Focus on tools that provide a foundation that can be expanded in the future and highlight the unique aspects of climate risk (such as geographical risks). • Formulate boundary cases, i.e., extremes that are within the realm of possibility, that can be narrowed in future iterations as you continue to revise and refine.
Financial impacts	• *Think: How and when do climate risks affect the bottom line?* • Impacts will manifest differently over various time horizons. • The **short term** (2-5 years) will be influenced by information that is pertinent now. • The **medium term** (7-10 years) will be influenced by emerging risks. • The **long term** (10+ years) will be focused on boundary cases.
Scenario selection	• *Think: What else characterizes a meaningful scenario for the company?* • Companies may wish to start with the most widely referenced scenarios published by organizations such as the Network for Greening the Financial System (NGFS), Intergovernmental Panel on Climate Change (IPCC), or International Energy Agency (IEA). • Climate risk scenarios selected should be **enterprise wide** and **foundational** ones to be expanded and refined in the future, as emerging risks may not be immediately apparent. • Scenarios should be over a longer time horizon, as most climate risks will likely emerge in medium to long term scenarios. - For example, water levels and temperature are unlikely to change significantly in the next month, quarter, or year, necessitating longer time frames for analysis.
Parameterization	• *Think: How should I calibrate the scenarios?* • Companies should incorporate the impact of transition and both acute and chronic physical risks, as well as the correlation between risks. • Companies may encounter data issues when forming parameters, as risks could be non-existent in historical data. • Risks also may behave differently under different time horizons and change over time.
Business impacts	• *Think: How can we learn and repeat the process better next time?* • Scenario development is an iterative approach, and a company may want to continually ask themselves questions to improve, such as: - Is the analysis appropriate? Are the right risks considered? Are these risks plausible? - Are the appropriate mitigation strategies in place and considered? - Do we have the right climate related expertise and data to make informed decisions?

Finally, the above activities and processes should be clearly documented and communicated to relevant parties and stakeholders.

In general, the incorporation of climate risk into scenario analysis may be an adjustment to a company's current thinking and modeling processes. Traditional risks in scenario analysis may include credit risk, liquidity risk, operational risk, legal risk, and other financial risks. These tend to be focused on strategic or capital planning and based on short-term horizons. Further, they may have a national level of geographical granularity, if any. The introduction of climate risks brings some unique features, such as a focus on climate, geography, and longer time horizons. However, to understand new climate risks, they can be compared or related to existing risks in the framework. As a credit risk example, a transition risk might be the incorporation of ESG ratings into credit ratings. From this perspective, climate risk can be understood as transversal, meaning that its impact may be transmitted through other traditional financial and non-financial risks.

Case study: New Zealand

In 2021, New Zealand's Financial Sector Amendment passed, requiring New Zealand's largest organizations to produce climate-related disclosures. Since then, the Insurance Council of New Zealand Standing Committee on Climate Change has partnered with KPMG New Zealand and 14 insurance companies to develop a set of Shared Climate Scenarios for New Zealand's General Insurance sector. The objective of this partnership was to address three focal questions:

1. How resilient and agile are General Insurers' strategies, business models and financial plans in relation to the **current** risks and opportunities from climate change they are already observing?
2. How resilient and agile are General Insurers' strategies, business models and financial plans in relation to the **potential future** risks and opportunities from climate change?
3. How can General Insurers' strategies, business models and financial plans become more resilient and more agile?

This partnership and guide led to the development of 3 common scenarios across insurance companies used to make informed decisions on climate related risks.

Net Zero 2050	An ambitious and coordinated transition aligned with a ~1.5°C warming trajectory.	**Year 2050: +1.6 degrees, 22cm rise in sea level.**
Delayed Transition	Delayed action, followed by sudden and uncoordinated transformation, landing at <2.0°C warming.	**Year 2050: +1.8 degrees, 25cm rise in sea level.**
Current Policies	Continuation of current policy settings, leading to uncontrolled warming of 3°C+ by year 2100.	**Year 2050: +2.0 degrees, 39cm rise in sea level.**

These comprehensive boundary cases were heavily based off the work of the TCFD. Although the U.S. is unlikely to adopt this exact approach, one benefit to leveraging TCFD scenarios would be the standardization across industries.

The findings from this collaborative process of developing climate scenarios were the following **key drivers** as those most likely to significantly impact the trajectory of the sector to 2050:

1. *Physical impacts of climate change*
2. *Government*

3. *People*
4. *Data & Technology*
5. *Duty of Care*

Each scenario is discussed in detail below.

Net zero 2050 scenario

Under this best-case scenario, General Insurers immediately begin working side by side with government to enable effective climate action. Early and substantial investment is made by the central government, local councils, banks, and General Insurers in data development and data sharing platforms to inform adaptation decisions.

Government action → Data & technology

In this future, government sends a clear signal to society: now is the time for bold, ambitious action. As a result, investors immediately pile substantial resources into climate related technologies and data. This investment accelerates the availability of affordable technologies and data to better manage climate related risks.

Government action → People

Universities, students, and other jobseekers begin investing in the skills necessary to succeed in New Zealand's increasingly low emissions, climate resilient economy.

Outcomes

- Managed retreat is a specific and well understood requirement, as is climate's impact on the insurance sector.
- The General Insurance (GI) sector is a global testbed for new, climate smart insurance products and propositions.
- The GI sector is acknowledged and appreciated by stakeholders for having played a leadership role in decarbonizing our economy while ensuring inclusive, equitable insurance options for all.
- The transparent sharing of climate related data helps de-risk New Zealand's communities and financial sector.
- The GI sector is resilient to the risks that climate change poses to its portfolios and is highly valued by global reinsurers.

Key takeaways

In this best-case scenario, there is heavy and immediate investment from the government driving its success. Insurers are issuing climate smart products which enable them to stay in markets. The most impactful financial risk was leaving companies stranded in a market, those companies remaining going bankrupt and subsequently disappearing from other markets. In this scenario there is a great awareness of value chain partners such as reinsurers. Additionally, there is a growing social license to operate, with new hires choosing companies based on values.

Delayed transition scenario

Under this scenario, General Insurers (GI) can't wait for the government to provide leadership on effective climate action. Preoccupied with its own challenges, this scenario assumes the GI sector has a delayed response to climate change, not using the power of its portfolios to accelerate decarbonization or drive adaptation until the early 2030s, when its relationships with reinsurers and its social license to operate are pushed to a breaking point.

Physical impacts → People → Government action

The ‘Black Summer’ of 2029, followed by fierce winter floods and another scorching summer, finally galvanizes public opinion for ambitious climate action. Major political parties compete for the title of “Most Ambitious.” In the 2030s, previously unimaginable public resources are directed towards climate change mitigation and adaptation challenges.

Government action → Data & technology

Investors plough resources into climate related technologies and data needs. Many businesses must rely on costly, unproven technology and make life or death decisions based on limited information.

Government action → People

Universities, students, and other job seekers begin investing in the skills required, and by the late 2030s essential climate related skills are widely accessible by businesses and all levels of government.

Outcomes

- After a slow start and significant public backlash, the General Insurance (GI) sector is managing the retreat from sea level rise alone, with sporadic government support.
- The GI sector trails many of its peers in climate smart insurance products and propositions. Larger GI providers that can tap into international experience are better positioned in this future.
- The delayed sharing of climate related data has resulted in greater risks to communities, councils, and the financial sector.
- Customer churn is high and tied closely to perceptions of whether a GI is helping or hindering a now desperate response to the climate crisis.

Key takeaways

In this scenario, a greater focus is placed on transition risks. Insurers are mainly reactive to political pressures, so no value is gained by issuing climate smart products or from value chain partners. There is an uneasy attitude towards the insurance industry, with the public thinking it is slow to adapt and must be pushed by regulation to do so.

Current policies scenario

Under this worst-case scenario, General Insurers are highly reliant on central government leadership for effective adaptation action. The economy continues to stay afloat by the availability of cheap fossil fuels. General Insurers rely on sophisticated data and technology to tell them when to get out of insuring some communities, rather than how long they can stay in.

Physical impacts → People → Government action

Increasingly frequent and intense natural disasters as well as chronic sea level rise put the central government and local authorities under widespread public pressure to “do something… but nothing that would upset the status quo.” In response, the government implements a combination of incremental Emissions Reduction Plans alongside transformational Adaptation Plans.

Government action → Data & technology

Governments’ big bet on adaptation has entailed doubling down on the data and technology society requires to reduce and manage climate related risks. Adaptation-oriented data and technology improves rapidly as a result. Technologies to enhance energy security, energy efficiency, and food production also improve rapidly – primarily due to market forces.

Outcomes

- Underwriters are able to identify and price climate related risks. However, this places insurance beyond the reach of the most vulnerable households.
- General Insurers are heavily reliant on the government to radically reduce people's exposure and sensitivity to the physical impacts of climate change.
- In this high impact future, General Insurers' traditional business models and relationships are under profound stress and risk of rupture.

Key takeaways

In this worst-case scenario, there is low investment from the government, and insurers rely on governmental actions to operate. With a greater focus on physical risks, certain geographic markets are becoming uninsurable or unaffordable to consumers. There is a loss in faith from value chain partners, resulting in less reinsurance capacity and a hardened credit market.

Strategic options & actions

After climate risk scenario analysis is performed, the focus turns to business impacts and learnings for the next iteration. Here are a few lessons learned as well as strategic options and actions based on the case study.

- Climate risk's main risk is the disruption of the geographical risk profiles by either direct effects or indirect effects (such as legislative responses, increasing regulation, and loss of trust).
- Collaboration is key: activities such as sharing data and/or partnering with organizations may result in better outcomes for insurers as well as the general community.
- Perception from organizations and individuals is deeply rooted in the recent past (the "now" of climate risk) and is highly unpredictable. This may be problematic with climate change as new realities emerge.
- Consider how all proposed actions and strategies would perform under different future scenarios. This involves exploring possible strategies to implement that harness climate related opportunities and minimize risks and threats.
- Identify options: Consider the range of options available to you. Consider how strategies can be adopted, and when.
- Evaluate options: Prepare responses to high priority risks first. Prioritize by:
  - Existential risks
  - Impacts occurring across multiple scenarios
  - Low regrets or no regrets
  - Co-benefits
- Informed decision making: Once strategic options have been identified, convert these into decisions. Avoid locking in dependency on any one scenario.

The future of climate risk

Where do we go from here and how do we get there? Like climate risk scenarios, let's consider different time horizons.

Short-term	Medium-term	Long-term
• Develop a climate strategy and establish a governance structure. • Identify and assess climate-related financial and non-financial risks. • Identify data availability, potential needs, and data gaps in preparation for scenario analysis. • Develop initial capabilities to conduct climate scenario analysis using risk factors based on their significance, uncertainty, underlying drivers, and dynamic interplay. • Implement a framework for financial and non-financial climate risk reporting. • Incorporate climate risks into the insurer's existing financial risk management, including embedding climate risks in its risk management framework and analyzing the impact of climate risks on existing risk factors.	• Integrate climate strategy and governance enterprise-wide. The insurer's board should understand climate risks and set the tone for the management team to effectively manage them. The risk management program should fully incorporate climate risks. • Use climate risk scenario analysis to make business decisions. Consider the longer-term impacts climate related factors have on its business profile using the climate models to seek out unique opportunities. • Expand on current risk identification, monitoring, and modeling processes while further reviewing the relationship between climate risks drivers.	• Review climate strategy and governance to be adaptable and flexible for extreme climate-driven environments. • Continually improve risk assessments and modeling to quantify new risks and scenarios as they arise.

One big challenge to performing the above activities is filling the data gaps needed to properly assess risks. Insurers can proactively contribute to reducing uncertainty and filling data gaps by collecting data from their customers, requesting or requiring climate disclosures from the companies in which they invest, and collaborating with peers, academics, and regulators on the subject of climate risks.

Closing remarks

Climate scenario analysis can be a powerful tool for quantifying the impact of societal changes and human development on the Earth's climate system. In addition, climate scenario analysis can help insurers understand the long-term physical and transition risks to the economy and financial system at large across a range of possible climate futures. Going through the exercise of developing and analyzing climate risk scenarios is one way insurers can learn to quickly adapt and become more agile in an ever-changing global environment and business landscape.

How KPMG can help

KPMG has global experience developing climate risk scenarios for clients and brings the latest ESG insights from collaborating across companies and stakeholders. Our risk consulting professionals can help you:

- Analyze climate risk across various climate futures
- Navigate the complex and rapidly changing regulatory landscape
- Transform climate related risks into a lasting competitive advantage
- Develop custom solutions to fit your company’s needs

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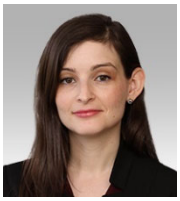

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