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Climate Risk

Capital Modelling – Market Trends

July 2025

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Introduction

Overview & definitions

In 2024, Actuarial Oversight released the 'Climate Change Questionnaire' to syndicates.

We have used the responses to understand syndicates' modelling approaches and allowances in their capital models for climate change, spanning Physical, Litigation and Transition risks.

This exercise was exploratory in nature with the intention to understand market practice in relation to measuring, managing and modelling Climate Change risks. Your responses will shape our capital and validation guidance and Climate Risk oversight in 2026 and beyond.

Syndicates were expected to answer the questionnaire with respect to their existing exposures and their 2025 YoA premiums.

Climate Change is a key area of PRA oversight. Most notably in **Supervisory Statement SS3/19**. This report has largely been **produced before the CP10/25 consultation** and is to be taken as a report on the state of the market – not a detailed gap analysis against the requirements in CP10/25.

"Climate change (...) presents financial risks which are relevant to the PRA's objectives. While the financial risks from climate change may crystallise in full over longer time horizons, they are also becoming apparent now"

SS3/19 | Prudential Regulation Authority, p.4, line 1.2.

Lloyd's has defined the following terms:

Climate Risk — ***Risk relating to a change in the state of the climate that can be identified by changes in the mean and/or the variability of its properties and that persists for an extended period, typically decades or longer.***

Physical Risk — *These risks are resulting from the impacts of a changing climate on the frequency and/or severity of weather events and longer-term shifts in the climate*

Litigation Risk — *Risk of disputes that arise from, or are related to: (a) a party's contribution to climate change, (b) the physical consequences of climate change, or (c) laws, regulations, and legal duties related to climate change*

Transition Risk — *These risks arise as a result of societal adjustment to a low carbon economy*

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Introduction

Expected materiality criteria

To deliver useful insight, in places, we have **looked to isolate the responses of syndicates** to those where, at Lloyd's, our high-level assessment of risk profile may suggest material exposure to each type of Climate Risk.

The **Lloyd's expected materiality criteria** we've used is outlined below:

Physical Risk

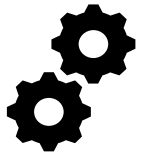
Syndicates with **more than 37.5% 1-in-200 gross losses from the weather perils of LCM5** as a % of syndicate ECA

38 syndicates fall into this category

Litigation Risk

Syndicates whose **proportion of GWP in D&O and GL classes is greater than 10%**

41 syndicates fall into this category



Transition Risk

Syndicates with an **investment exposure greater than 3% to sub-sectors most exposed to climate transition risks** *(listed below)*

3 syndicates only fall into this category

BoE sectors with GVA* loss > 30% in CBES scenarios:** Mining crude petroleum, natural gas, metal ores, manufacturing (textile, apparel leather, petcoke & refined petroleum products), minerals/ cement/ basic metals, electricity supply, gas & steam, sewerage & waste, air/ water transport.

***Gross Valued added ("GVA")** *represents the value of goods and services produced by each sector of the economy.*
****Climate Biennial Exploratory Scenarios ("CBES")** *is the BoE initiative designed to assess the financial risks posed by climate change to the largest UK banks and insurers.*

It is important to note here the exploratory nature of the exercise. Whilst the above has aided useful playback of syndicate responses, we have used syndicate submissions to further Lloyd's own understanding of market exposures to Climate Risk.

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Report on a Page

Market Trends - Overview and Key Findings

Across the Lloyd's market, we observe a range of levels of maturity in relation to how syndicates consider Climate Risk. Our report primarily focuses on Climate Risk as relevant to capital setting.

The market is **most developed in its exposure management, modelling and scenario testing of Physical Risk**. Notably, most syndicates develop a syndicate View of Risk which routinely **incorporates the latest scientific research** in terms of both the frequency and severity of material natural catastrophe perils.

For **Litigation Risk**, exposures are monitored by **tracking legal developments. Workshops** are used to develop **scenario tests** including **failure to disclose** emissions and **greenwashing** . Future exposures are managed through **policy wordings** and capital is set by uplifting **model volatility parameters**.

For **Transition Risk**, we see the least maturity. This is broadly in line with Lloyd's expectations given that **syndicates are managing their exposures using investment guidelines** limiting or prohibiting investments in assets with high carbon intensity. The best examples are **considering the impact of transition on underwriting portfolios** considering changes to the practices and behaviours of insureds as the economy transitions and also how syndicates expect to grow and contract different lines.

Generally, we are comforted that **the largest syndicates** and those identified as most materially exposed to each risk* **are more developed in their approaches** across each climate risk and each assessment area.

**As assessed by Lloyd's high-level materiality rating used, where relevant, in this report.*

Best Practice

Throughout the report, we highlight our views of best practice across Exposure, Modelling and Scenario Testing. We hope this will aid syndicates as they develop their current approaches to Climate Risk.

Some potential gaps were identified for a minority of syndicates.

Exposure

A small proportion of syndicates are **not able to quantify their exposure to Physical Climate Risk, and a larger proportion for Climate Litigation Risk**. These include some syndicates that, based on Lloyd's high-level assessment of their risk profile, may be materially exposed to these risks.

Modelling & Risk Management

For **Climate Litigation Risks, some syndicates are using less mature modelling methodologies** (e.g. broad uplifts), and Climate Litigation Risk in **not considered in risk management strategies** for others. This includes some syndicates that, based on Lloyd's high-level assessment of their risk profile, may be materially exposed to this risk.

Validation

Many syndicates are **not amending validation tools and processes** to explicitly consider allowance for Climate Change. Syndicates report that their current validation tools and processes are already robust enough to capture the impacts of climate change without needing additional adjustments.

Stress & Scenario Testing

Based on Lloyd's high-level exposure estimates, some syndicates expected to have material exposures to Physical and Litigation Risks are **not running relevant Stress and Scenario Tests**.

Lloyd's Oversight

- **We are working to understand these cases and their specific risk profiles further to ensure the approaches taken are appropriate. Any identified gaps will feed into Climate Risk oversight for 2026.**
- **Whilst some syndicates are not making modelling adjustments to catastrophe vendor models, this is not necessarily inappropriate. Lloyd's oversight of Principle 2a already considers the appropriateness of syndicate model adjustments (or lack of) to assess whether present day Climate Change is suitably captured within the modelling.**

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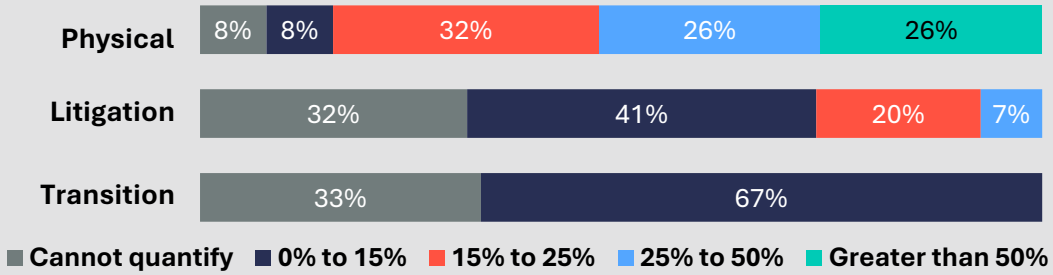
Exposure on a Page

Market Trends - Overview and Key Findings

Measuring Exposure

We asked syndicates for their own quantification of each Climate Risk based on their current and planned (2025) exposures.

No. of Syndicates (as %) vs. Quantification of Current Exposures



Those with material Lloyd's ratings only for each risk.

Syndicates report being **most exposed to Physical Risk** and least exposed to Transition Risk. Around 1/3rd of syndicates with material Lloyd's ratings are unable to quantify exposures to Litigation and Transition Risks.

Catastrophe models provide quantitative estimates of exposures to different region-perils**. The in-house View of Risk in each case is adjusted for Climate Risk.**

Formal collaboration across teams (e.g., Underwriting, Claims, Legal, Exposure Management) is used to better understand the potential impacts of **Litigation Risk** claims.

Many syndicates have **specific investment guidelines** that prohibit investment in assets with high carbon intensity. The low reported exposures (0% to 15%) above are consistent with this.

Managing Exposure

A **wide range of methods are** used to manage exposures.

Smaller syndicates tend to focus on managing exposures through their **business plans**, aiming to write **diversified books** of business and purchasing **outwards reinsurance**.

Best Practice

Larger syndicates have greater capabilities to implement more complex strategies. They utilise a more diverse range of management methods including **greater use of exclusions and pricing loadings**.

Lloyd's Oversight

8% of syndicates with material Physical Risk Lloyd's ratings and c. 1/3rd of syndicates with material Litigation Risk and Transition Risk Lloyd's ratings are unable to quantify their exposures. We are working to understand these cases and their specific risk profiles further.

Please note, the findings on this slide utilise Lloyd's high-level expectation of exposure. We do not necessarily disagree with syndicate's assessment of their own risk profiles. Rather, we will use this output to focus our oversight to best ensure that syndicates are considering these exposures sufficiently.

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Physical Climate Risk on a Page

Market Trends - Overview and Key Findings

Exposure

In the **short-term**, syndicates expect low impact from Physical Climate Risk. **Over time**, many syndicates expect moderate to significant impacts due to the materially **increased frequency and/or severity** across hurricanes, floods, and wildfires.

Syndicates manage exposure as part of **annual business planning** including implementing **reinsurance** and using adjusted catastrophe model outputs to monitor risk tolerances to impacted perils.

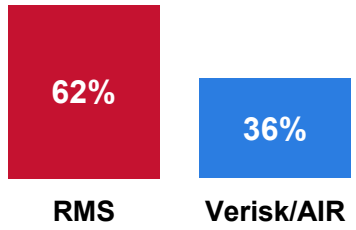
RDSs and geographical aggregations are monitored through regular reporting against internal thresholds. Catastrophe models provide quantitative estimates of exposures to multiple region-perils**.**

Modelling

Syndicates are typically using **RMS or Verisk/AIR** vendor models to generate claims events for material perils.

Primary Catastrophe Vendor Model usage by Syndicate

Note that some syndicates license products from both vendors



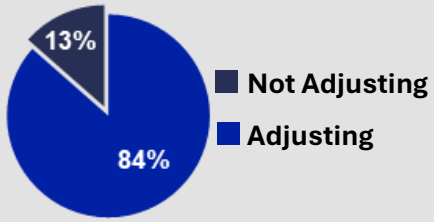
AON Reask MaxInfo Lambda T6

We see **supplementary use** of other vendor offerings to **validate the syndicate View of Risk,** inform **adjustments** to primary vendor models and facilitate **stress and scenario testing**.

Catastrophe Model Adjustment

Exposure Management and Research teams routinely validate the allowance for climate change in the latest versions of vendor models and, where relevant, apply **targeted adjustments to the syndicate View of Risk** via robust model completeness frameworks.

Proportion of Syndicates Adjusting Cat. Models



Syndicates with a material Lloyd's rating for Physical Climate Risk only

Typical adjustments made:

- Various use of **more recent data windows** and its impact on **frequency and severity**
- Frequency uplift **by specific storm categories** (e.g., CAT 3)
- Use of **warm sea surface temperature** setting
- Negative binomial frequency distribution to allow for **storm clustering**

Lloyd's Oversight

- **Whilst some syndicates are not making modelling adjustments to catastrophe vendor models, this is not necessarily inappropriate. Lloyd's oversight of Principle 2a already considers the appropriateness of syndicate model adjustments (or lack of) to assess whether present day climate change is suitably captured within the syndicate View of Risk.**
- **Vendors are continually developing their region peril models driven by climate change among other factors. We note recent and planned developments in market Wildfire and Severe Convective Storm models. Lloyd's expects syndicates to consider such developments as they review their View of Risk.**

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Climate Litigation Risk on a Page

Market Trends - Overview and Key Findings

Exposure

In the **short term**, syndicates expect minimal impact from Climate Litigation Risks. They reference the **largely unsuccessful outcomes** of cases brought to juries to date.

Over time, syndicates expect claims may begin to occur across:

Classes of Business

- **Director & Officers**
- **Errors & Omissions**
- **Professional Indemnity**
- **General Liability**
- **Financial Institutions**
- **Energy/Marine Liability**

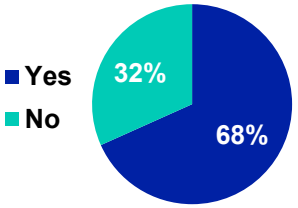
To this point, **60%** of syndicates anticipate Climate Litigation to be a source of **latent claims**.

Possible future claims could arise from insured parties being found liable in relation to misleading customers or investors. Claims could also arise from **failure to disclose** climate emissions or **greenwashing** claims.

Other syndicates consider the potential for claims from insureds being sued for their **direct, or even indirect, contribution to climate change**. Syndicates consider exposures here across their **Energy** and **Marine** books.

Exposures are monitored by **tracking legal developments. Workshops** are used to develop scenario tests and future exposures are managed through **policy wordings** (e.g. excluding oil & gas exploration/ production or particular pollutants).

Risk Management



Most syndicates with material Litigation Risk Lloyd's ratings (68%) are explicitly considering Climate Litigation Risk as a part of their **risk management strategy**.
Use of workshops evidence collaboration across the business to better understand the sources of claims and their potential impacts

Modelling and Validation

Allowances in Internal Models is typically via uplifts to **Premium Risk and Reserve Risk volatility** parameters. We also see some syndicates capturing Climate Litigation **ENID scenarios** for classes they expect to be materially impacted in the future.

Mature approaches develop **Litigation Risk scenarios** and use these either **directly** in model parameterisation or to **validate** models. The strongest scenarios we see show understanding of the **industries, jurisdictions, and classes of business** most exposed.

Lloyd's Oversight

- **The above shows that 32% syndicates with material Lloyd's ratings are not explicitly considering Climate Litigation Risks as part of their Risk Management Strategy. We are working to understand these cases and their specific risk profiles further.**

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Climate Transition Risk on a Page

Market Trends - Overview and Key Findings

Syndicates expect the impact from Climate Transition Risk to be felt gradually, over the next 5-10 years across both investment and underwriting portfolios.

Investment Exposure

Most syndicates are considering the impact of Climate Transition Risk on their investment portfolios. This includes the potential for stranded assets, impacts on specific sectors such as oil and gas, and emerging technologies.

Impact assessment scenarios are used such as **rapid & strict government regulation or change in carbon taxation**. Respondents largely report low materiality in this area due to **specific investment guidelines** that **prohibit investments in companies** with high carbon intensity.

ESG Models

All syndicates report using their ESGs without explicit adjustment for Climate Risk.

Syndicates considering Climate Change in their ESGs (%)

Although not making adjustments, some syndicates are **explicitly considering** the appropriateness of ESG calibrations in relation to Climate Risk in their **parameterisation and validation.**

Underwriting Exposure

For capital setting, allowances in models are largely **implicit in nature** with syndicates expecting the risk to be captured within parameter uncertainty uplifts. **This is in line with Lloyd's expectations given the longer-term, strategic nature of the risk** and that capital setting includes one year of future business only.

For long-term scenarios, syndicates claim the main **challenge** is **uncertainty** in the climate **transition path** and the actions of governments and regulators. Syndicates emphasise also the difficulty in predicting **changes in consumer behaviour and in public sentiment**.

The PRA, in **CP10/25,** outlines future requirements for scenario testing to cover **both physical and transition risks**. Syndicate Boards must consider that the consultation also outlines requirements that such scenario testing should **inform strategy**.

The best scenario tests we see in the market have considered the below: **Best Practice**

Existing Portfolio

- **Potential change in the risk profiles of existing products and insureds and failure to adjust pricing and policy terms.**
- **Changes in demand for products and sectors material to profitability e.g., Energy**

New products and/or risks

- **Writing new lines may bring short term volatility in profit resulting from lack of prior experience data and limited expertise.**

Examples

Motor insurers expect changes in claims profile with **increasing adoption of hybrid and electric vehicles**. **Marine & Energy** insurers recognise heightened risk as **practices and exposures in these sectors shift.**

However, in these cases, syndicates largely report implicit allowances through general parameter uncertainty and ENID volatility assumptions.

Some syndicates report utilising in-house underwriting and engineering experience **engaging with clients to support their transition** to low carbon or help identify areas of opportunities.

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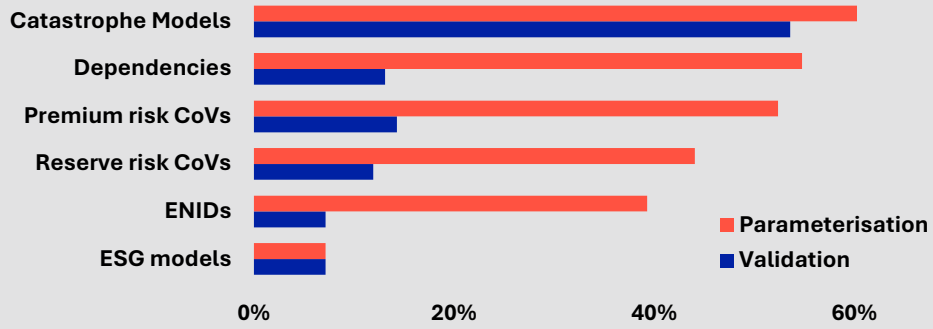
Other Climate Modelling on a Page

Market Trends - Overview and Key Findings

Syndicates (%) making adjustments for Climate Risk by Model Area



Model Parameterisation

With respect to the parameterisation of models, we see adjustments made broadly across Internal Models. We have seen the following example allowances and adjustments in model parameterisation:

- Dependency between classes exposed to Climate Litigation risks (D&O, PI, GL, Energy)
- Dependency between these classes (Litigation Risk) and Property classes (Physical Risk)
- Specific dependency between the largest natural catastrophe events and market investment returns
- Secondary impacts like civil disorder triggered by severe drought
- Adjustments to class-level volatilities (Litigation Risk-exposed classes)
- ENID loadings either applied to volatility inputs or input as specific scenarios to capture litigation and transition risks e.g., green washing

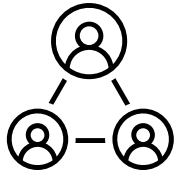
Model Validation

54% of syndicates are explicitly performing validation of Climate Risk allowances in **catastrophe models**. This increases to **71%** among syndicates identified with a material Lloyd's rating for Physical Climate Risk.

However, many syndicates have **yet to adapt validation frameworks** to explicitly incorporate Climate Risk considerations **beyond** those embedded in **catastrophe modelling outputs**. These syndicates report that their current validation tools and processes are robust enough to capture the impacts of climate change.

Feedback loops

Syndicates cite the importance of feedback loops to ensure capital modelling is comprehensive and accurate and represents a consistent view of risk across the organisation.



79% of larger syndicates (uSCR > £100m) report formal feedback loops in place between Capital Modelling and all of Risk, Exposure Management, Underwriting, Claims and Validation.

Lloyd's Oversight

We will consider the above, including the limited explicit validation conducted beyond that of vendor catastrophe models, as we develop Climate Risk elements of our Capital Guidance and Validation Guidance documents in 2026.

Catastrophe models & ESGs are further considered separately in this report

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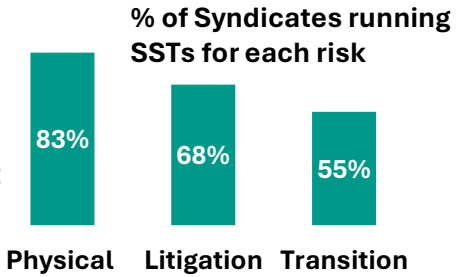
Stress & Scenario Testing on a Page

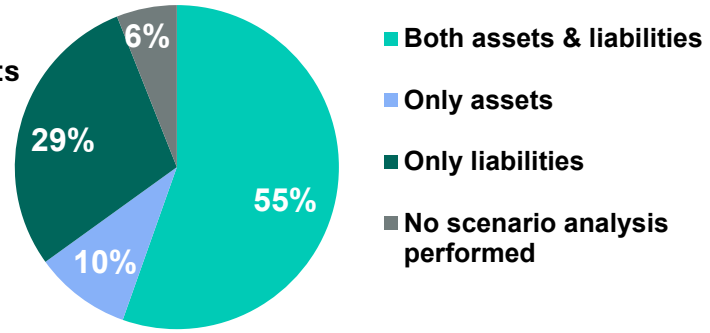
Market Trends - Overview and Key Findings

Most syndicates incorporate Climate Risk-specific stress and scenario testing into their modelling of all three types of Climate Risk.

Syndicates have **mature processes in place to develop and run Physical Risk scenarios**.
Where Syndicates run **Transition Risk** scenarios, this tends to focus on **investment impacts** with limited consideration to underwriting portfolios.



55% of syndicates are considering both Assets and Liabilities when running their SSTs.



Syndicates not considering asset portfolios report limited exposure due to investment guidelines in place. Others plan to expand existing testing to include assets.

40% of syndicates conduct Climate Risk stress and scenario tests on both a capital setting basis* and a longer-term basis.

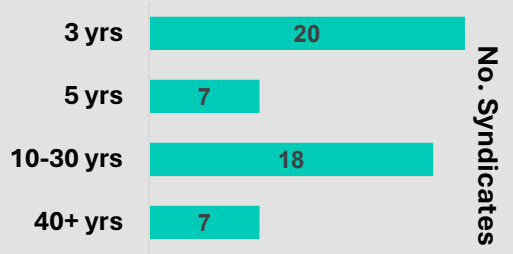
**Capital Setting Basis – recognition of one new year of business only.*

This figure rises to 53% for the largest syndicates (uSCR > £500m).

We see syndicates develop longer term scenarios utilising the following:

Long-Term Scenarios
Climate Biennial Exploratory Scenario
General Insurance Stress Tests
Network for Greening the Financial System
Intergovernmental Panel on Climate Change

Where a longer-term basis is used, we see a variety of different projection periods:



PRA Supervisory Statement SS3/19 already sets out expectations in these areas. Firms are expected to conduct scenario testing relevant to **the overall risk profile and strategy,** across both **short-terms and long-term time horizons.**

Consultation Paper CP10/25 proposes enhancements. Among other aspects, this encourage insurers to focus on the **use cases and objectives** of SSTs and for insurers to understand their calibration. Whilst a proportional approach is still be taken; this is in reference to **exposure to Climate Risks** rather than just size of insurer.

Lloyd's Oversight

Some syndicates with material Lloyd's ratings across Physical and Litigation Risks are not running relevant Stress and Scenario Tests. We are working to understand these cases and their specific risk profiles further. Where relevant, this will feed into 2026 Climate Risk oversight.

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Climate Change – Exposure

To what extent are syndicates exposed to climate change?

How is this measured?

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Exposure

Introduction

This section covers how managing agents measure, monitor and manage their exposures to Climate Risk.

Key questions
➢ What is the syndicate's exposure to Climate Risk and how is this measured?
➢ What metrics are you using to measure your exposure to physical, litigation and transition risks with respect to climate change? For each of these risk areas, please approximately quantify your exposure.
➢ What methods are you likely to use to manage exposure to Climate Risk?
➢ Given your syndicate's risk profile & exposure, do you believe there is a potential for latent claims arising due to litigation risks?

PRA Supervisory Statement SS3/19 sets out in various places expectations with respect to the measuring, monitoring, managing and reporting of exposures to Climate Risks.

3.5 - In a manner proportionate to their business, firms should identify, measure, monitor, manage, and report on their exposure to [climate] risks.

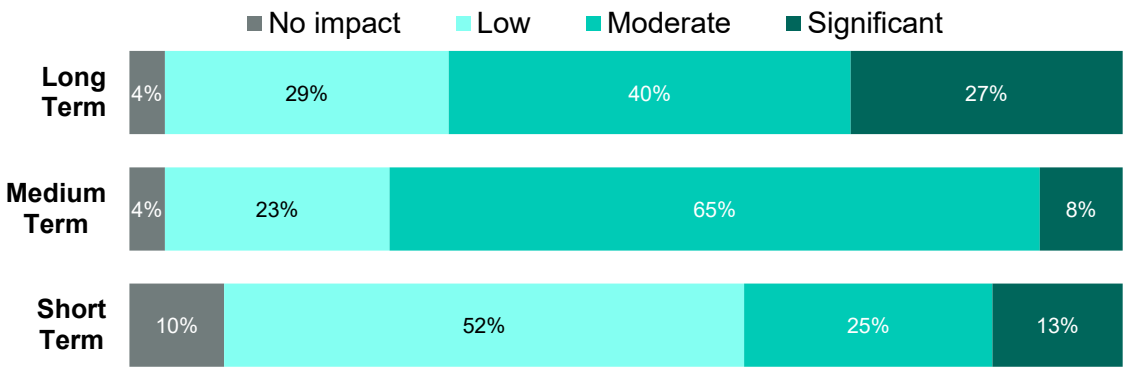
3.8 - Where appropriate, the PRA expects firms to consider a range of quantitative and qualitative tools and metrics to monitor their exposure to financial risks from climate change.

3.10 - Where the potential impacts of the financial risks from climate change are assessed to be material (for example as a result of scenario analysis), the PRA expects firms to evidence how they will mitigate these financial risks and to have a credible plan or policies in place for managing exposures.

SS3/19 | Prudential Regulation Authority

Exposure

Given your current risk profile, how significant do you think climate change will be?



Most syndicates expect **limited impact from climate change in the short term** but expect much **more material impacts looking further ahead**.

This particular question considered climate change in general. However, syndicate comments brought out specific points with respect to Physical, Litigation and Transition Risks.

The insurance industry is uniquely impacted by climate change. As the frequency & severity of natural catastrophes increase, (re)insurers must understand these changes to provide effective disaster resilience solutions & protect their balance sheets.

- In the **short-term**, syndicates are reporting low impacts from Physical Climate Risk. Syndicates manage exposure as part of **annual business planning** including implementing **reinsurance** and using adjusted catastrophe model outputs to monitor risk tolerances to impacted perils.
- **Over time**, many syndicates expect moderate to significant impacts due to the materially **increased frequency and/or severity** of natural catastrophes with syndicates citing hurricanes, floods, and wildfires.

- In the **short-term**, syndicates expect **little impact** noting that current **litigation** related to climate change liability has been largely unsuccessful.
- **Over time**, syndicates expect that claims related to failure to disclose climate impacts and emissions, or greenwashing could become more prevalent.
- Syndicates cite exposure from **Directors and Officers (D&O), Financial Institutions and other Casualty lines**. Those managing this risk are monitoring legal developments and adjusting their underwriting controls accordingly.

- Many syndicates are considering the risks associated with **transitioning** to a low-carbon economy on their investments. This includes the potential for **stranded assets**, impact on **specific sectors such as oil and gas**, and **emerging technologies**.
- On **underwriting**, some syndicates report **engaging with clients to support their transition** to low carbon or help identify areas of opportunities.
- Those **writing motor business** are considering the shift towards electric vehicles and its impact on their forward-looking risk profile.

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Measuring Climate Risk exposures

Quantifying exposures to Climate Risk

Of Climate Risks, the market reports being most exposed to Physical Climate Risk.

1-in-5 syndicates in the market are reporting that more than **50% of their in-force exposures are impacted by Physical Climate Risk**.

In addition to US Windstorm and Northern European Windstorm (considered in Lloyd's LCM5 perils) syndicates report material Physical Climate Risk exposures from:

- US Wildfire
- US Flood
- EU Winter Storms
- EU Flood

Approximately 50% of the market is reporting low (<15%) exposure to Climate Litigation Risk. Syndicates cite low exposures based on the lines of business they write and the sectors they write those lines in.

Similarly **low levels of exposure to Climate Transition Risk are reported**. Here, syndicates refer to the emerging nature of the risk and how they are looking develop their thinking and understanding.

Best Practice

- **Measurement and management of Transition Risk is largely focused on investments. For capital setting, outside of syndicates with material muti-year exposures, this is in line with Lloyd's expectations.**
- **As part of scenario testing and strategy, in line with PRA CP10/25, we encourage syndicates to assess their exposure to transition risks across both underwriting and investment portfolios.**

Some syndicates report being unable to quantify climate risks. These cases broadly fit into two categories:

- Syndicates have limited-to-no exposures based on the lines of business written and investments decisions made
- Syndicates are at early stage of developing their understanding with respect to setting risk appetites and measuring and managing exposures

Particularly with respect to **Litigation** and **Transition Risks**, responses are broadly in line with the PRA's feedback issued to the wider market:

Feedback indicates that while firms have made progress, their capabilities to identify and manage climate-related risk are still at an early stage.

- ***Most insurers have embedded some form of climate-related risk within their risk appetite statement [...] However, risk management processes are still at the early development stages.***
- ***Current metrics often do not directly quantify climate-related financial risks and, therefore, do not allow insurers to measure and monitor their climate exposures against risk appetite.***

CP10/25 | Supervisory Feedback on Climate Related Risk Management

A syndicate's reported exposure largely mirrors the lines of business written and the investment strategies adopted. In the next slide, we drill down into response, considering only syndicates expected to have material exposures based on Lloyd's high-level assessment.

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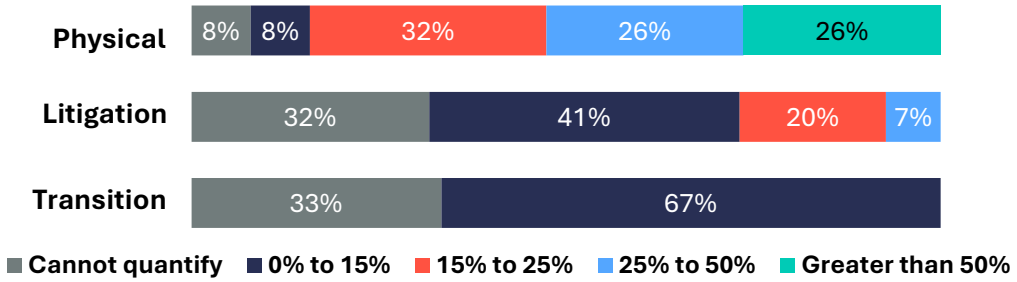
Measuring Climate Change exposures

Quantifying exposures to Climate Risk

The below considers syndicates expected to have material exposures based on Lloyd's high-level assessment.

No. of Syndicates (as %) vs. Quantification of Current Exposures



The responses suggest a material difference in the ability to quantify exposure to Transition and Litigation risks compared to Physical Climate Risk.

Lloyd's Oversight

8% of syndicates with material Lloyd's Physical Risk ratings and 32% of syndicates with material Lloyd's Litigation Risk ratings are unable to quantify their exposures. We are working to understand these cases and their specific risk profiles further.

Greater proportions of the market are able to quantify their exposures to **Physical** Climate Risk suggesting a greater level of maturity in this area.

Similar proportions of the market are unable to quantify their exposures to **Litigation and Transition Risks**. Across both risks, many syndicates report being in the process of developing quantitative models.

Subsequent slides consider the methods used to quantify and manage Climate Risk exposures.

Please note, the findings on this slide utilise a high-level expectation of exposure. We do not necessarily disagree with syndicate's assessment of their own risk profiles.
We are using our high-level metrics to focus our oversight to best ensure that syndicates are considering these exposures sufficiently.

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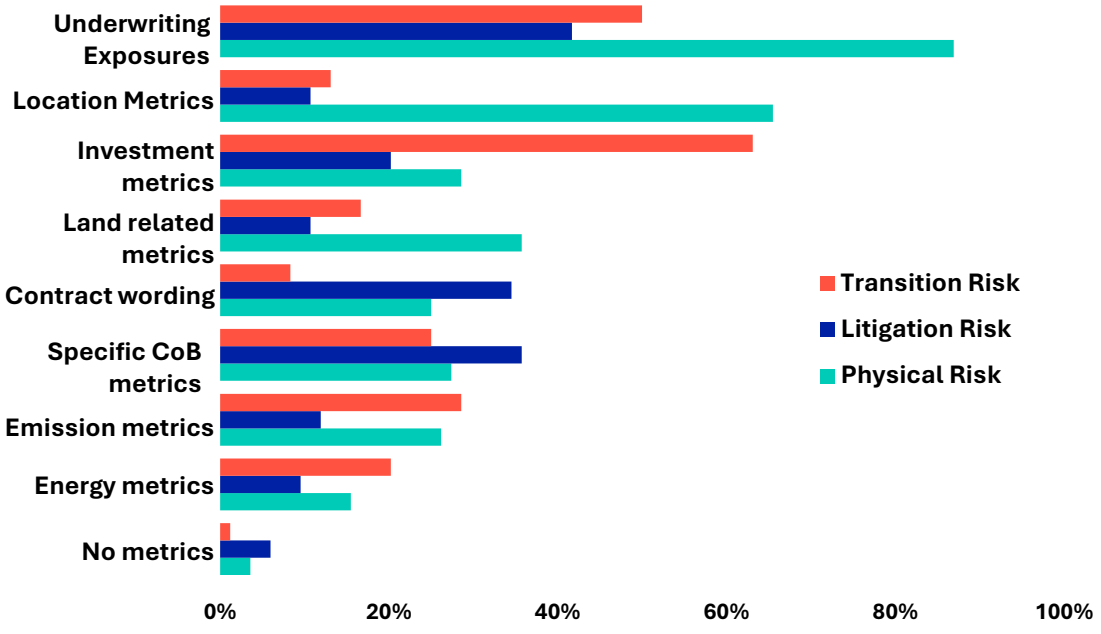
Measuring Climate Change exposures

Most common ways of measuring exposure



Almost all syndicates have reported using **Underwriting Exposure** and **Location Metrics** to monitor Physical Risk.

RDSs & geographical aggregations are monitored through regular reporting against internal thresholds. Vendor catastrophe models provide quantitative estimates of exposures to multiple region-perils.

For **Litigation Risks**, syndicates are using **Contract Wording and Specific Class of Business Metrics** to a greater extent.

Syndicates employ ***exclusions*** relative to their risk appetite. Examples include excluding oil & gas exploration/ production projects or pollutants.

*Syndicates describe **monitoring & amending** use of specific* wordings across Marine, Energy Liability & Financial Lines to monitor residual exposures.

To keep their methods up-to-date and reflective of the current environment, syndicates report **tracking** key indicators such as **levels of litigious activism (via civil unrest and cyber attacks) and increasing court awards.**

Other indicators agents could monitor are:
Regulatory changes, scientific/ technological advancements & public sentiment.

Investment Metrics are the most common way for syndicates to measure their exposure to **Transition Risks** .

Most syndicates cite **limited exposure** to transition risk due to their asset allocations and the types of policies they write.

We see **MSCI's* ESG ratings** being used to measure exposures.

Some of these syndicates have **specific investment guidelines** that **prohibit investments in companies** with high carbon intensity including thermal coal mining.

**MSCI is a global provider of investment decision support tools and services.*

Lloyd's is currently developing Climate Peril KRIs to be used in monitoring. These will also be used in Lloyd's Climate Scenario Analysis (CSA). For CSA, we are working with an external party to create narrative scenarios to inform business planning / short to medium term decision making. We will engage with the LMA via the EM Climate Change Risk Working Group on outcomes from the CSA work.

The LMA is supporting MGAs by developing several model contract clauses that can be adopted and/or amended for climate change exposures. The intention is that defining better coverage will improve contact certainty and allow syndicates to better assess their exposures.

London Market Association - LMA

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Managing Climate Change exposures

Most common* ways of managing exposure

Size	uSCR Range	Purchasing ORI	Diversification	Business Plan	Policy wording	Pricing	Specific Investment decisions
Small	<£100m	✓					
Medium	£100m - £250m	✓	✓	✓			
Large	>£250m	✓	✓	✓	✓	✓	✓

**Most common is defined as where a method is adopted by more than 70% of syndicates within that category.*

Smaller syndicates focus on purchasing **outwards reinsurance** to manage their exposure to Climate Risks.

Medium-sized syndicates manage their exposure as a key part of **business planning** and aim to write **diversified** books of business.

Best Practice

The largest syndicates are selecting a **diverse range of management methods**. This reflects their capabilities to implement complex strategies and respond to market changes.

NOTE

Specific investment decisions are used to manage Climate Transition Risk. We see such practices primarily in larger syndicates where greater resource can be deployed.

Investment decisions include setting net-zero emissions targets for corporate bonds and divesting from perceived high-risk assets and sectors.

Purchasing reinsurance is the most common method for managing Climate Change exposures with approx. 90% of the market adopting this method.

Syndicates are increasingly using these contracts to manage exposure to increased 'attritional' natural catastrophe experience across hurricanes, floods and wildfires.

Some large syndicates are adopting a dynamic approach and purchasing reinsurance ahead of hurricane seasons aligned to frequency forecasts.

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Climate Change exposures – Latent claims

Can litigation risks lead to latent claims?

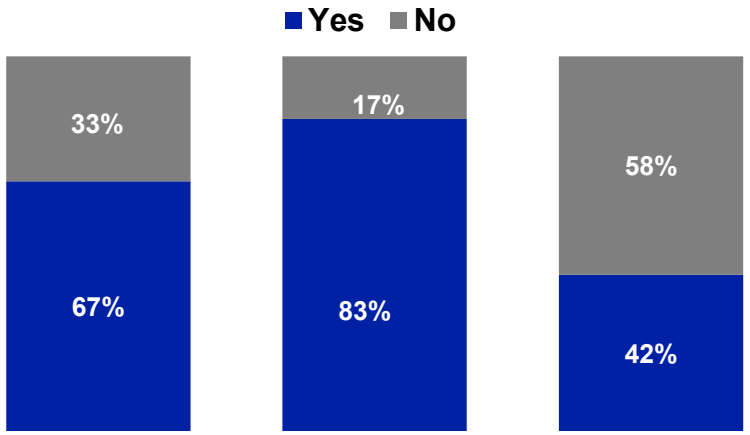
Most syndicates (67%) believe there is a potential for latent claims arising from Climate Litigation claims.

In the chart on the right, we analyse the responses for this question by major peer groups by broadly grouping syndicates into their exposure to Casualty business.

Most syndicates in Casualty & Mixed peer groups believe that Climate Litigation is a potential source of latent claims. From syndicate responses, this appears to be because:

- Casualty syndicates are proportionally most materially exposed, so take a fuller consideration of potential outcomes.
- Mixed syndicates are typically larger with more resource to dedicate to emerging risk investigations.

Is there a potential for latent claims arising due to Climate Litigation cases?



	Casualty	Mixed	Property
uSCR (£m)	275	675	214
Claims tail (Years)	3.4	2.7	2.6

The figures above are averages of the underlying syndicates in each peer group

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Climate Change exposures – Litigation claims

Are Climate Litigation risks considered as a part of your risk management strategy?

As a reminder:

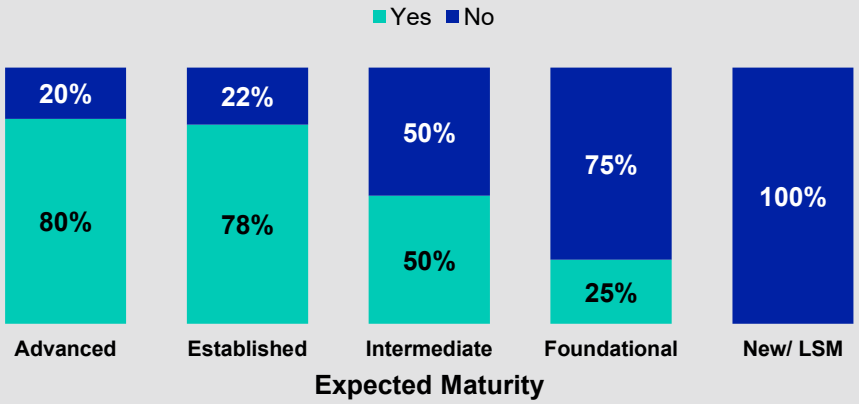
These are disputes that arise from or are related to: (a) a party's contribution to climate change, (b) the physical consequences of climate change, or (c) laws, regulations, and legal duties related to climate change.

As of 2022YE, over 2,180 climate lawsuits had been filed against global governments and corporations.

Since the inception of the Paris Agreement, the total number of climate change cases appearing before international courts/ tribunals has doubled.

Therefore, it's important for syndicates to assess how exposed their historic and future policies are and understand the implications for new policies.

Proportion of Lloyds market considering Litigation claims



Most syndicates (57%) are explicitly considering Climate Litigation Risk as a part of their risk management strategy. This increases when we consider the largest syndicates in terms of uSCR (Advanced, 80%) and/or those with greatest exposure to D&O and General Liability classes (67%).

Best Practice

- **These syndicates demonstrate a comprehensive approach to managing litigation risks including performing relevant SSTs, hosting regular litigation risk workshops, and collaborating with other business functions (e.g., underwriters, legal teams and exposure management teams) to better understand the potential impacts of these claims.**
- **Additional risk management techniques for these syndicates include trackers developed for explicitly monitoring specific litigation cases, exclusion clauses embedded into policy wording and explicitly uplifting model volatility parameters for litigation risks to set appropriate levels of capital.**

Of syndicates reporting as not considering Climate Litigation Risk explicitly, the following is seen:

These syndicates are generally in the process of considering litigation risks and actively monitoring their casualty classes. Some of these syndicates perform SSTS and annual deep dives to assess their exposure, however, **have not explicitly allowed for them in their capital models.**

Some syndicates refer to being **restricted by the limited historical precedents and relevant data**. These syndicates state that claims are at an emerging stage and some are currently developing internal risk tolerances and appetites.

Lloyd's Oversight

- **Some the largest syndicates at Lloyd's (20%) and/or some syndicates with material exposure to D&O and GL lines (33%), are not considering Climate Litigation Risks as part of their Risk Management Strategy. We are working to understand these cases and their specific risk profiles further.**

More information on cross business interactions and feedback loops can be found in the **'Modelling Assumptions' section*

Climate Change – Modelling Assumptions

What allowances are being made within Syndicate Capital models?

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Modelling Climate Risk

Introduction and Definitions

This section covers how managing agents capture Climate Risks within their models. This covers the use of Catastrophe models capturing Physical Risk and ESG vendor models capturing Transition Risk. This also covers adjustments made elsewhere in models such as Reserve Risk volatility uplifts to capture Litigation Risk.

Key questions
➢ What, if any, allowances are being made for Climate Risk within capital models?
➢ How are you currently allowing for correlations between climate-related natural catastrophe perils?
➢ What feedback loops are in place when looking at emerging risks and Climate Risk specifically?

Lloyd's Oversight

- **We will use syndicate responses to the above questions to develop the Climate Risk elements of our Capital Guidance and Validation Guidance documents in 2025 ahead of 2026 LCR submissions.**

In the questionnaire, Actuarial Oversight defined the following common model adjustments.

Over the next few slides, we will look at **where** and **how** syndicates are using these adjustments to model Climate Change risks.

To Note

Parameterisation adjustments are those that are made to the inputs of the various components in the capital model with respect to climate change.

Validation adjustments are changes made to the validation tests performed, or additional validation that syndicates have done for each of the components with respect to climate change.

Expert judgement adjustments are those made within a capital model utilising the views of relevant experts. These may be part of parameterisation exercises.

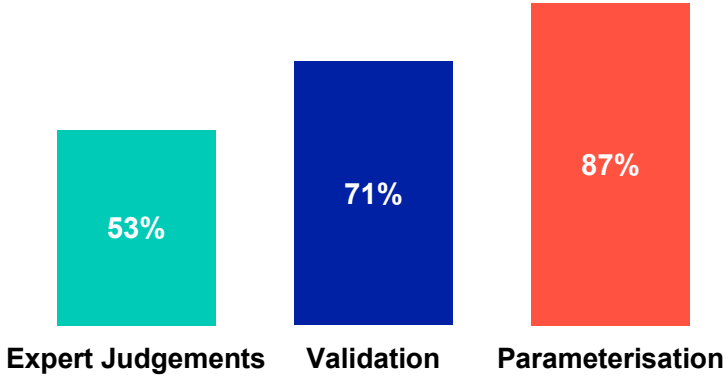
LLOYD'S

Modelling Climate Change

Catastrophe models

Most syndicates (c.70%) are adjusting their Catastrophe models and/or performing specific validation for Physical Climate Change Risk. This is in line with Physical risks being the most quantified Climate Change Risk.

Nearly 90% of syndicates that are materially exposed to Physical risks are adjusting the parameterisation of their Cat models.
Close to 50% of syndicates report using expert judgment in such adjustments.



Parameterisation adjustments seen include:

- Adjusting event frequencies and severities using WSST event sets ("Warm Sea Surface Temperatures") to account for increased hurricane activity.
- Larger syndicates are adjusting US wildfire models to reflect elevated losses and conditions in recent years
- Expert judgement driven loadings applied to post-simulated losses for key perils such as US Storm

Expert judgements are commonly used to supplement model outputs or the results of parameterisation exercises. One possible interpretation of the relatively low response rate (53%) for expert judgement-led adjustments, may be an **over-reliance on model output and/or available data to inform catastrophe model adjustments.**

Best Practice

We encourage agents to ensure that in-house expertise is sought in arriving at catastrophe model adjustments noting the inherent uncertainty in the underlying experience and the relative immaturity of modelling approaches in this area.

Syndicates frequently adjust their models to reflect the latest climate conditions. Following these adjustments, these models undergo validation.

54% of syndicates are explicitly performing validation of Climate Change allowance in Cat models. This increases to 71% among syndicates identified as having material exposure to Physical Climate Risk. We see the following:

- Scenario testing is used to ensure appropriate capture of losses within the model. For example, scenarios reflective of increased frequency of Severe Convective Storm events.
- Sensitivity testing of climate change allowances to understand the materiality to required capital.
- Validation teams are working with Exposure Management to evaluate the appropriateness of climate change allowance from a hazard & vulnerability perspective for material region perils.
- Reviews of model completeness processes which themselves lead to adjustment for Climate Change
- We see Climate Change being identified as an area for deep-dive validation within a typical 3-year cycle. This may include external reviews to provide a third-party opinion on best practices.

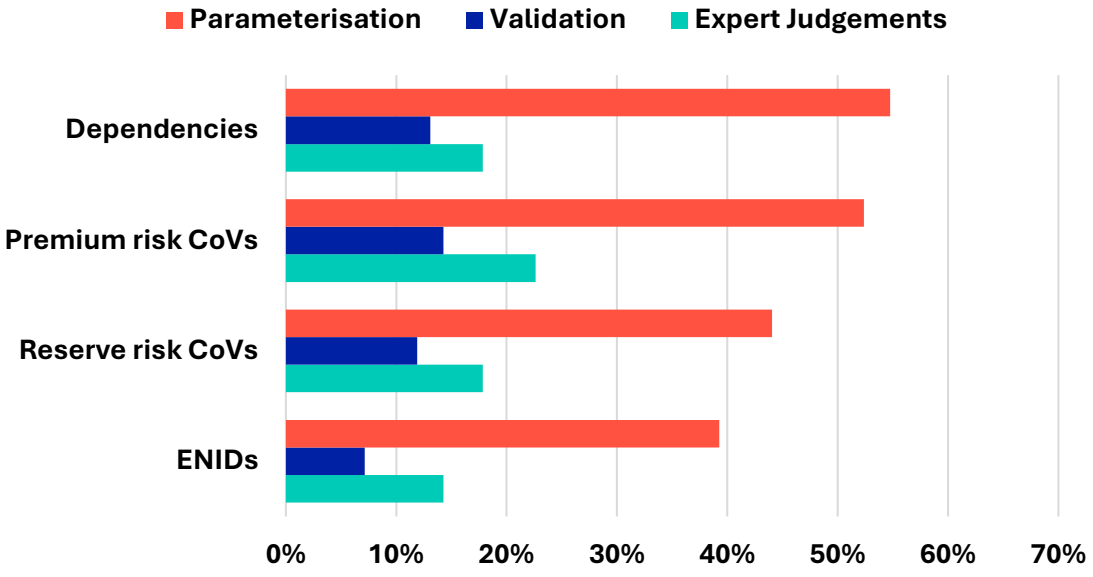
We look into the formal feedback loops syndicates have in place here and how they feed into capital models here: Formal Feedback Loops

LLOYD'S

Modelling Climate Change

Model dependencies, volatilities and ENIDs

Here, we bring out together the results for components of the Internal Model where Vendor Models are not used. There are areas where we see the greatest direct involvement from Capital teams and lesser involvement of Exposure Management and Investment teams.



Parameterisation is noted by syndicates in:

- Dependency between classes exposed to Climate Litigation risks (D&O, PI, GL, Energy)
- Dependency between these classes (Litigation Risk) and Property classes (Physical Risk)
- Specific dependency between the largest natural catastrophe events and market investment returns
- More sophisticated approaches consider secondary impacts like civil disorder triggered by severe drought
- Adjustments to class-level volatilities
- ENID loadings either applied to volatility inputs or input as specific scenarios to capture litigation and transition risks e.g., greenwashing

Expert Judgements are specifically referred to in relation to:

- ENID loads for potential climate litigation claims
- Qualitative descriptions of climate risk exposures provided as part of the parameterisation process
- Introduction of dependencies between natural catastrophe perils.

On **Validation**, we see that many syndicates are not amending validation tools and processes to explicitly consider allowance for Climate change. Syndicates report that their current validation tools and processes are already robust enough to capture the impacts of climate change without needing additional adjustments.

Best Practice

We encourage Validation teams to think more holistically around Climate Change validation, beyond allowance for Physical Risk within Cat Models. Best practice syndicates in this area conduct climate-specific validation and consider the appropriateness of allowances across the models spanning each of Physical, Litigation and Transition Climate Risks.

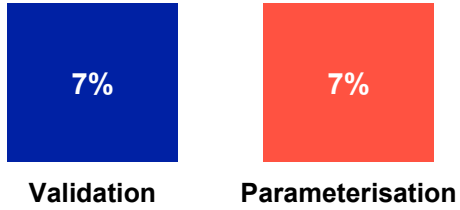
LLOYD'S

Modelling Climate Change

ESG models

All syndicates report using their ESGs without explicit adjustment for Climate Risk.

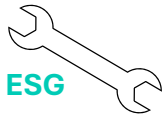
Syndicates considering Climate Change in their ESGs (%)



Although not making adjustments, some syndicates are **explicitly considering** the appropriateness of ESG calibrations in relation to Climate Risk in their **parameterisation and validation.**

Where we have seen adjustment, these are capturing general economic uncertainty with only implicit consideration of Climate Risk:

- *"The Equity index used is uplifted by x%"*
- *"Uplifts are applied to both price and wage inflation"*



Best Practice

In validating ESGs, syndicates should always consider their portfolio makeup and the degree to which this may materially differ from that assumed in the specific indices used. This should be true of exposures to industries and sectors identified as being more at risk from Climate Change.

The syndicate view of risk should inform any required adjustments (or otherwise) which could span equity indices, corporate bond spread indices and rating transition probabilities.

Where syndicates use ESGs out of the box, we see the following reasoning:

- *"ESGs are calibrated using market data – this allows for Climate Risks implicitly – the market is not mispriced."*
- *"There isn't enough data to parameterise adjustments."*
- *"Market Risk is immaterial to us."*

Some responses show fuller consideration:

- *"We don't invest in thermal coal-fired power plants, thermal coal mines, oil sands or arctic energy exploration."*
- *"We have a corporate bond mandate aligned to Paris emissions targets."*

We see explicit consideration within scenario testing used to validate the model:

- *"Climate change scenario testing includes an equity market stress."*
- *"Moody's Climate Change Pathways is used in the validation of Climate Risk allowance."*
- *"Scenarios include devaluation of the syndicate's carbon heavy bonds."*

Responses highlight that whilst ESG indices themselves may not be adjusted, among more sophisticated approaches, there is consideration to how Climate Risk drives relevant dependency relationships:

- *"Climate change is considered as a dependency driver between Market Risk and Insurance Risk for each of asset returns, interest rates and inflation components of the ESG"*
- *"Specific dependency is imposed between the largest natural catastrophe events and market investment returns"*

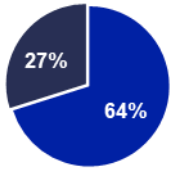
LLOYD'S

Modelling Climate Change

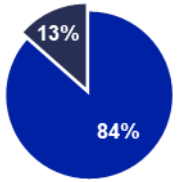
Adjusting models for weather events & their secondary events

27% of the market are not making model adjustments to vendor models to allow for climate change. **However, of those syndicates with material Lloyd's RAG Ratings for Physical Climate Risk, this figure is 13%.**

Market View



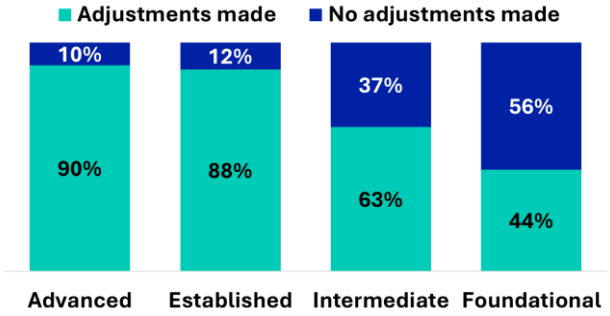
Material RAG - Physical risk



Syndicate justifications for not adjusting models include immateriality, implicit allowances within existing vendor models and the use of broad uncertainty allowances.

Lloyd's Oversight

Whilst some syndicates are not making modelling adjustments to catastrophe vendor models, this is not necessarily inappropriate. Lloyd's oversight of Principle 2a already considers the appropriateness of syndicate model adjustments (or lack of) to assess whether present day climate change is suitably captured within the syndicate View of Risk.



Larger syndicates are making more climate-specific vendor model adjustments.

We see various forms of adjustment across all material modelled perils to allow for the secondary impacts of Physical Climate Risk. In some cases, this is captured in a broad uncertainty uplift. In other cases, specific, targeted adjustments are made with consideration to allowances for Climate Change Risk in existing vendor models. For example:

- Various use of **more recent data windows** and its impact on **frequency and severity**
- Frequency uplift **by specific storm categories** (e.g., CAT 3)
- Use of **warm sea surface temperature** setting
- **Storm clustering** - use of negative binomial frequency distribution

Many allowances for secondary effects are not climate change specific. However, these will typically be directly linked to the occurrence of the underlying region-peril, which itself may be being adjusted. Here we see reference to demand surge and supply chain volatility, constructive total loss, fraud and business interruption.

Best Practice

Exposure Management and Research teams routinely validate the allowance for climate change in the latest versions of vendor models and, where relevant, apply targeted adjustments to the syndicate View of Risk through robust, embedded model completeness frameworks.

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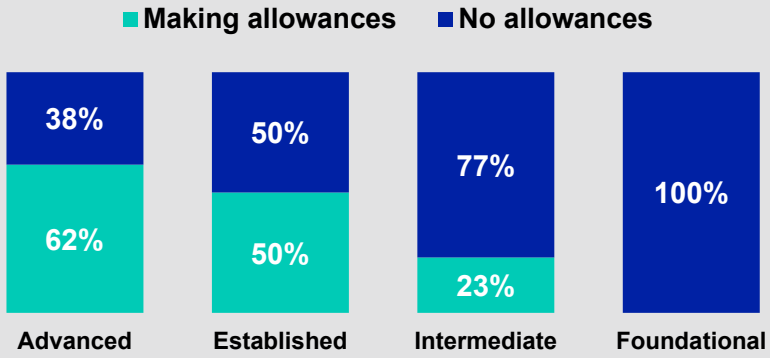
Modelling Climate Change

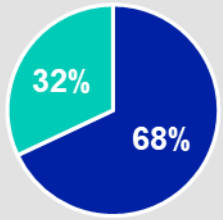
Allowance for correlations between natural catastrophe perils

Some syndicates report allowing for correlations between natural catastrophe perils.

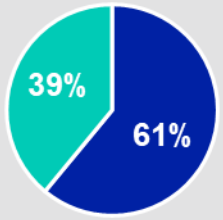


Such allowances are utilised to a greater extent in larger syndicates.

Market View



Material RAG - Physical risk



However, those we expect to have greatest exposure to Physical Climate Risk, largely do not report allowing for such dependency relationships.

No clear view of best practice has emerged from responses.

Where syndicates report including such allowances, the following areas are cited:

- **Region peril losses are tied through a common event set**
  - US Storm and US Flood
- **Secondary perils being included as a direct loading to the primary peril**
  - EU Storm and Coastal Flood
  - Earthquake and Tsunami
  - US Storm and Storm Surge and Precipitation Induced Flood
- **Allowance for clustering of US Windstorm events.**
  - We have seen the use of a Negative Binomial distribution to implement this
- **Direct correlation is imposed between material natural catastrophe perils**
  - We have seen a low level of dependence directly applied using a Gaussian Copula
  - We have seen this applied between all of US Windstorm, NA Winterstorm, NA Severe Convective Storm, US Flood and US Wildfire

Most syndicates are not including such allowances, and the following reasons are cited:

Relevant scenario testing is conducted considering a confluence of events consistent with our view of climate change

There is insufficient data to suggest any correlation between our modelled natural catastrophe perils.

We do not have sufficient understanding of how any such correlation could arise as a result of climate change.

Testing has indicated that imposing a moderate level of correlation would be immaterial.

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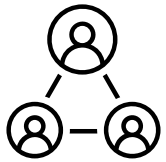
Modelling Climate Change

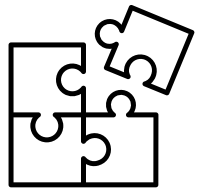
What formal feedback loops are in place?

Syndicates cite the important of feedback loops to ensure comprehensive, accurate capital modelling which represents a consistent view of risk across the organisation.

Across **larger syndicates** (uSCR > £100m), we see formal feedback loops in place between **Capital** Modelling and each of **Risk**, **Exposure Management**, **Underwriting**, **Claims** and **Validation**.
79% of all respondents report formal Climate Risk feedback loops in place with all the above teams.



For **smaller syndicates** (uSCR < £100m), we see **fewer instances** of formal Climate Risk feedback loops between **Capital** Modelling and **Validation**.
67% of smaller syndicates report such a feedback loop while this figure is **84%** for larger syndicates.



We see the following parties with formal Climate Change feedback loops to Capital Modelling:

Function	Feedback Loop to Capital
Risk	Leading the process' for identifying and assessing risk related to climate change.
Exposure Management	Analyse and model the potential impacts of climate change on the syndicate's portfolio including developing the syndicate View of Risk using catastrophe vendor models. They provide data and insights that feed directly into the capital model.
Underwriting	Provide qualitative and quantitative input for the parameterisation processes
Validation	Perform reviews and tests to ensure that capital models are appropriately capturing climate change risks.

Best Practice

The most mature syndicates in this area conduct climate-specific validation and the resultant views and findings of validators are used to improve the capture of Climate Risk in the Internal Model.

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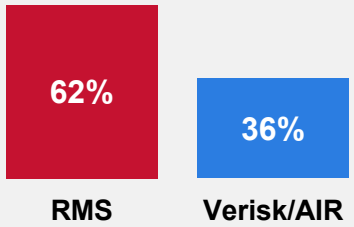
Modelling Climate Change

Catastrophe Vendor Model Usage

Syndicates are typically using RMS or Verisk/AIR vendor models to generate claims events for material perils.

Primary Catastrophe Vendor Model usage by Syndicate

Note that some syndicates licence products from both vendors



In a handful of cases, we also see the use of KatRisk for modelling US Inland Flood.

We see **supplementary use** of the below vendors. Their offerings make use of academic scientific research, their own in-house research and analytical tools to:

- Validate the syndicate view of risk (such as the appropriateness of Medium Term Rates)
- Consult to develop tailored medium-to-long term stress and scenario tests
- Provide tools to adjust the outputs of primary vendor models to develop stress and scenario tests

AON ***Reask*** ***MSCI**** ***MaxInfo*** ***Lambda T6***

These supplementary vendor models have facilitated some of the following stress and scenario tests seen:

Examples Stress Tests

- Increase US Windstorm Risk by +50%
- Increase the likelihood of Cat 4 and Cat 5 US Windstorm +20%
- Increase to damage ratios +15%
- Reduced elevation of insured locations by 40cm

Example Scenario Tests

- Strong El Nino/La Nina phases next year
- RCP6 pathways: 2072 (+2C warming) and 2095 (+2.5C warming)

Best Practice

- **Various tools and expertise are used to form a broad range of different types of stress and scenarios tests to more fully understand the impact of climate change on syndicate portfolios.**
- **Climate-adjusted event losses are used to develop risk appetite statements with risk-tolerance breaches reported at Board-level.**

***Used to model Transition Risk scenarios applied to assets.**

Climate Change – Stress & Scenario testing

What Stress and Scenario tests are being performed within Syndicate Capital models?

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Stress and Scenario testing

Introduction and Frequency of Testing

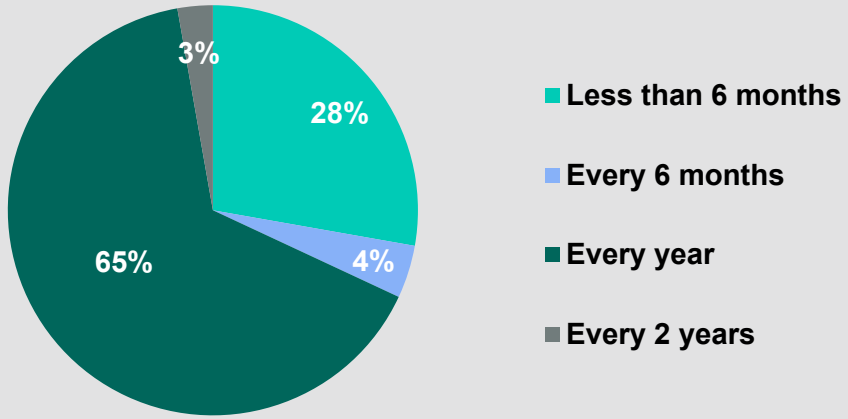
This section covers how managing agents have implemented relevant stress testing and scenario testing (or "SSTs) within their capital models in relation to climate change related losses.

Key questions
➢ How frequently are these updated and how do they inform business decisions?
➢ Do your SSTs consider assets &/or liabilities?
➢ Are your models run on a capital setting basis or longer term?

Firms are expected to conduct scenario analysis to inform their strategic planning & determine the impact of the financial risks from climate change on their overall risk profile & business strategy. There is an expectation that the approach to scenario analysis should evolve and mature over time.

SS3/19 | Prudential Regulation Authority, p.9, line 3.14.

How frequently are SSTs performed and updated?



Most syndicates update their SSTs at least annually allowing for continuous monitoring and ensuring that the latest data and insights are incorporated into their **risk assessments** and **business planning**.

Some syndicates update their scenarios more frequently. By updating **every 6 months**, syndicates can provide refreshed scenarios across both **ORSA and LCR submissions**.

Very few syndicates update their Climate Risk SSTs either less frequently than this (e.g., every 2 years) or on a **'ad-hoc' basis**. The latter will typically be in response to **specific business or regulatory needs** (e.g., contribution to PRA CBES or similar).

LLOYD'S

Stress and Scenario Testing

Where are you running SSTs for Climate Change risks?

83% **of syndicates are actively running stress and scenario tests for Physical Climate Risk.**
A wide range of scenarios are being run with consideration to, future temperature scenarios and consideration of reinsurance default.
Of those syndicates with a material Lloyd's Physical Risk rating, this figure is 92%.

68% **of syndicates in the market are running stress and scenario tests for Climate Litigation Risk.**

Some examples include:
- Failure to disclose climate emissions
- Claims of greenwashing

Considering only syndicates with a material Lloyd's Litigation Risk rating, this rises to 88%.

Lloyd's Oversight

Some syndicates with material Lloyd's Physical and Litigation Risks are not running relevant Stress and Scenario Tests. We are working to understand these cases and their specific risk profiles further. Where relevant, this will feed into 2026 Climate Risk oversight.

55% **of the market use stress and scenario testing in relation to Transition risk.**

For syndicates running Transition Risk SSTs, we see common scenarios like impact assessments on **investment portfolios** (e.g., **rapid & strict government regulation implemented**). Some agents are considering the impacts of policy changes (e.g., **Carbon tax**) on their investments & the potential it would have to **devalue corporate bond investments**.

On **insurance exposure to Transition Risk**, we have seen example scenarios such as increased **claims experience across Marine & Energy** lines reflecting the heightened risk as practices and exposures in these sectors shift.

Many syndicates cite limited exposure to Transition Risk leading them to **prioritise Physical and Litigation risks**. Other syndicates are in the process of developing transition risk scenarios and integrating these into their risk management frameworks.

Best Practice

The most mature approaches we see in the market use stress and scenario testing as an opportunity to think broadly around potential implications of climate change. We see climate-specific workshops being held, bringing experts together to brainstorm. The best approaches include an assessment of changes in risk profile of insureds due to changing behaviours and practices as part of the transition.

LLOYD'S

Stress and Scenario Testing

Utilisation - How are SSTs being used across the business?

Assessing the wider insurance market, the PRA have previously reported that use of Climate Risk scenarios is limited in nature.

"Most insurers run several climate scenarios covering a range of risks and different time horizons. However, beyond inclusion in the own risk and solvency assessment (ORSA), the PRA found limited evidence that results are being used in decision-making."

CP10/25 | Supervisory Feedback on Climate Related Risk Management

Across Lloyd's syndicates, responses to our survey suggest a **wider range** of direct Climate Risk Scenario **use cases**.

Direct Uses in the Lloyd's Market

- **Catastrophe model validation**
- **Supporting annual submissions *(LCRs, ORSAs)***
- **Risk appetite setting**
- **Reinsurance Purchase**

The uses from most agents involve **direct playback to key stakeholders** (i.e., Board Directors, Senior Executives and Risk owners). Agents describe how this provides **assurance that syndicates are able to withstand** financial losses incurred as a result of **extreme climate events**.

Many syndicates report the value of their Climate Risk scenarios in supporting, enabling, and encouraging effective exchange and discussion across functions.

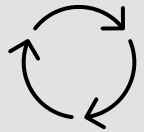
Wider business functions

- **Underwriting**
- **Pricing**
- **Exposure Management**
- **Investments**
- **Risk**

This is reported to be facilitating business decisions in the following areas:

Secondary Uses in the Lloyd's Market

- **Adjusting Policy wording**
- **Exiting high risk sectors**
- **Managing accumulations**
- **Portfolio optimisation**
- **Investment in sustainable assets**



Agents recognise that scenarios will improve iteratively in their accuracy and alignment to risk profile and that this will lead to improved understanding feeding into strategy and other business decisions.

Best Practice

Sophisticated approaches demonstrate that the objectives and purpose of the SSTs exercise are used to develop the insurer's understanding of climate risks and support business decisions and strategy. This is in line with proposed enhancements to PRA SS3/19 as part of CP10/25.

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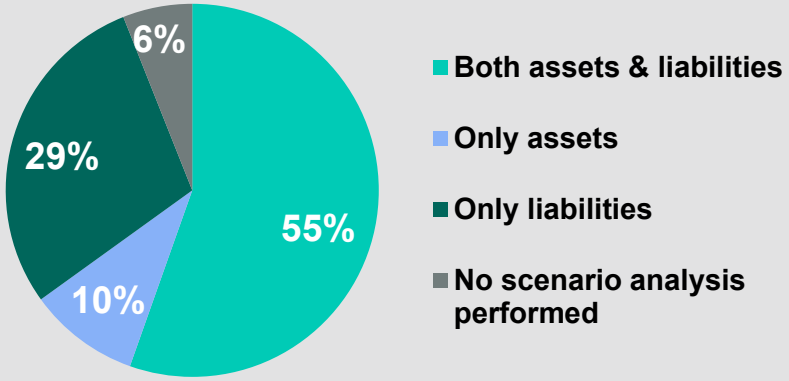
Stress and Scenario Testing

Consideration of assets and liabilities

55% of syndicates are considering both assets and liabilities when running their SSTs.



This aligns to the PRA's Supervisory Statement SS3/19 where there is an expectation that the overall risk profile is considered.

Firms are expected to conduct scenario analysis to inform their strategic planning & determine the impact of the financial risks from climate change on their overall risk profile & business strategy. There is an expectation that the approach to scenario analysis should evolve and mature over time.

SS3/19 | Prudential Regulation Authority, p.9, line 3.14.

29% of syndicates only consider stresses to their liabilities. We see the following explanations:

Asset portfolios are not materially exposed to Transition Risks

We plan to expand the scope of modelling to include assets in the future.

Best Practice

As syndicates begin to include asset stresses to a greater extent in the Climate Risk Stress and Scenario Testing, we consider below some of the best practices we see in the market.

Asset Stress Examples seen in the Market

- Asset stresses are conducted at individual asset or location or sector level (e.g., Oil and Gas).
- Stresses used as set out in the 2019 General Insurance Stress Test
- Physical Risk is considered at ZIP level in the US and this is tied to catastrophe model claims events
- Use of industry scenarios to provide a framework for scenario development – particularly for Transition Risk e.g., Moody's Climate Change Pathways

The portfolio is benchmarked against MSCI ESG ratings and this is used to develop Transition Risk stresses. The following are considered:

- Average ESG rating of the portfolio
- Holdings in 'ESG laggards' by percentage of overall
- Average Carbon Intensity, as tons of CO2 / $m sales

MSCI uses a rules-based methodology to identify industry leaders and laggards according to their exposure to ESG risks and how well they manage those risks relative to peers.

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Stress and Scenario Testing

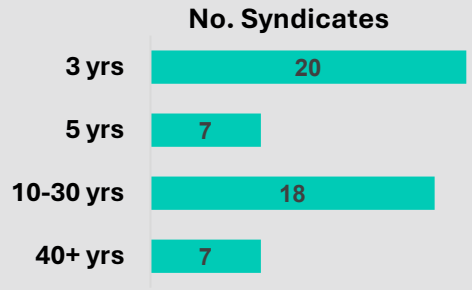
Basis for performing SSTs

40% of syndicates conduct Climate Risk stress and scenario tests on both a capital setting basis* and a longer-term basis.

**Capital Setting Basis – recognition of one new year of business only.*

This figure rises to 53% for the largest syndicates (uSCR > £500m).

Where a longer-term basis is used, we see a variety of different projection periods:



This aligns to the PRA's Supervisory Statement SS3/19.

There is an expectation that firm's scenario analysis address a range of outcomes. Where appropriate, SSTs should cover both short-term assessments within existing business planning horizons and longer-term assessments of the firm's exposure.

SS3/19 | Prudential Regulation Authority, p.9, line 3.14.

Where a Longer-Term basis is being used, this typically references alignment to the relevant PRA Supervisory Statement.

Syndicates report using scenarios outlined in both the **CBES** and **GIST** stress test exercises.

PRA / Bank of England
Supervisory Statement SS3/19
Climate Biennial Exploratory Scenario
General Insurance Stress Tests

Syndicates are considering wider resources in developing their long-term scenarios with many syndicates utilising the **IPCC's RPC scenarios** and scenarios developed by the **NGFS**.

Other
Network for Greening the Financial System
Intergovernmental Panel on Climate Change

Syndicates report utilising their Longer-Term Basis scenario across **Solvency UK ORSAs**, **Profitability Projections** and in **Strategic Planning** exercises.

Best Practice

Mature approaches conduct both Capital Setting Basis and Longer-Term Stress and Scenario Testing and actively consider scenarios developed by various external organisations to ensure these reflect the latest scientific consensus and are tailored to the syndicate risk profile.

Note – The IFoA has produced a summary of relevant guidance and market practices.

Climate Scenarios in General Insurance

22/02/2024 | Institute and Faculty of Actuaries

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Stress and Scenario Testing

Limitations and Challenges

Syndicates report various limitations and challenges when conducting Stress and Scenario Tests (SSTs) across each type of Climate Risk.

These are most relevant to SSTs where long-term assumptions are made and so there is greatest uncertainty. However, these observations are largely relevant for consideration on a capital setting basis also, particularly where exposures to these risks are material to the syndicate.

We bring out these examples so that syndicates may consider these as they develop their Climate Risk modelling over time.

Physical Risk – Limitations and Challenges

- There is potential for **correlation between region perils** however vendors largely do not capture this.
- There is uncertainty with respect to exposure - **terms and conditions** in policy wordings evolve over time and **building regulations** and **flood defences** may change.
- The **event spread of region perils** may extend beyond that considered by vendor models.
- New **sources and locations of extreme weather** events may exhibit differently behaviours.
- There is understood to be a **lack of transparency** in vendor methodologies for **non-peak perils.**
- Modelling is still in its **infancy** with respect to particular perils such as **Wildfire and Severe Convective Storm.**

Litigation Risk – Limitations and Challenges

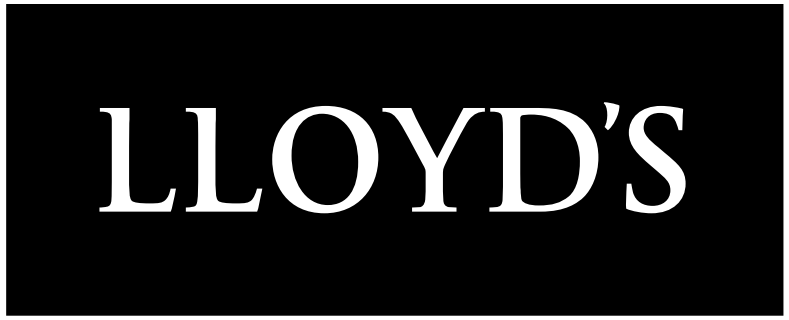
- **Lack of historic claims** leading to significant expert judgement in relation to key aspects such as forward-looking frequency/severity assumptions and the split of fees vs. indemnity.
- The **legal landscape is constantly evolving**, and the sources of claims from future successful legal cases is uncertain.
- Legal outcomes may differ significantly by **jurisdiction and country**.

Transition Risk – Limitations and Challenges

- Relative to other Climate Risks, there is potential for impact in a shorter timeframe. Changes in **regulation** may cause **immediate impacts**.
- There is potential for new types of claims arising from **new transition technologies and new assets.**
- The impacts from a **disorderly transition** may be far reaching and uncertain. For example, there may be increased risks of **Strikes, Riots & Civil Commotion** events.

Best Practice

Sophisticated approaches demonstrate a deep understanding around the limitations & uncertainties across each type of Climate Risk consistent with the risk profile of the syndicate. The materiality of these limitations are understood and, where relevant, capitalised for.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Climate Change Appendix

2022 Lloyd's Thematic Review

Catastrophe Modelling & Climate Change

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2022 Catastrophe Modelling & Climate Change

In 2022, the Portfolio Risk Management Team conducted a thematic review to understand how managing agents incorporate past and anticipated climate changes into their catastrophe models and risk assessments.

Key focus areas:
➢ *CAT model validations*
➢ *What climate triggers would cause a review of their CAT models*
➢ *The basis on which CAT models are conditioned*
➢ *How outputs inform business decisions*
➢ *Future considerations*

The following 8 insights and 3 findings from this review **remain appropriate for our 2025 thematic review.**

These have been summarised across the next few slides

1. Parameterising & validating Cat models

Agents should not simply be responding to events and reconsidering their view of risk <u>after the fact.</u>

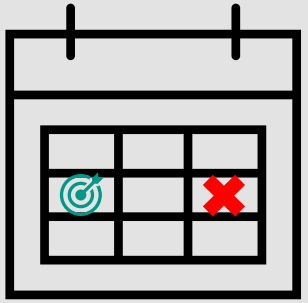
Managing agents should **stay on top of** high-quality literature and publications. Sources should include peer-reviewed scientific work from trusted sources.
It is not sufficient to simply validate models based on historical data or as a part of an annual cycle.

2. Review triggers

It is noted that **Managing Agents are typically reactive** when assessing whether their view of risk accurately reflects current climate conditions, doing so after:

- a major event **e.g., California wildfires,**
- version updates from Vendors, or
- The release of academia e.g., journals or papers from the IPCC

While not entirely inappropriate, **best practice would be to review key driver perils annually before their peak season** e.g., such as during renewal periods for the NAHU wind season.



3. Reporting

Both model validation policy and model validation analysis documentation must make explicit reference to, or contain a section on, current climate.

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4. Long-term conditioning vs natural variability

Lloyd's does not have preference as to whether adjustments are attributed to long-term climate change or natural variability.

Agents are expected to provide model validation documents that explicitly reference the current climate, including an attestation from the managing agent on whether the model vendor has adequately represented the current climate.

5. Adjusting the view of risk

Adjustments to risk assessments are expected when the model vendor baseline does not reflect the current climate.
Lloyds acknowledges the challenges due to scientific constraints and uncertainties but expects this process to become easier as knowledge and expertise grow.

Lloyd's expects model validations to explicitly consider whether current climate conditions are represented in the syndicate's risk view and decide if adjustments are necessary.

6. Forward looking approaches

Lloyd's recommends re-designing model change and validation cycles to ensure that the most significant climate-related physical hazard risks are reviewed annually.
The review should assess whether the latest data, trends, and climate conditions are appropriately considered.
For managing agents using 3rd party models, Lloyd's advises regular interaction with the model vendor to ensure they maintain their own review program of current climate conditions.

7. Informing business decisions

Lloyd's expects Boards to explicitly reference and discuss climate change in their approval of the syndicate's view of risk.

The best catastrophe risk cultures consider climate change along with all other risk factors at the point of underwriting and this attention to detail disseminates throughout the organisation with feedback loops through the lifecycle of the risk.

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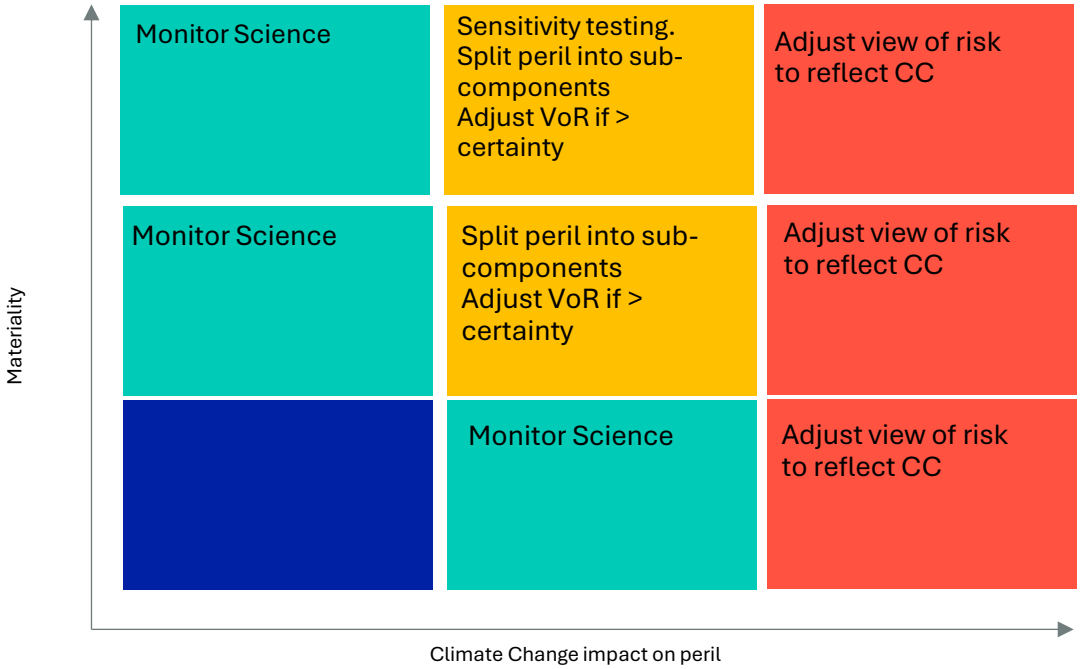
8. Action planning

Lloyds expects all managing agents to develop and monitor a plan to address climate impacts on their natural catastrophe exposed portfolio by region peril.

To assist with this Lloyds recommends developing a framework relating action to materiality and climate change science. The climate change impact on peril axis is a function of confidence/scientific consensus and expected magnitude of impact.



The following were published by the exposure management team as in relation to Climate change and CAT modelling

1. Syndicate must demonstrate explicit reference to and discussion of climate change in board discussions

Lloyds expects that meeting minutes will clearly demonstrate that Boards are confident that an appropriate view of risk has been used.

2. Syndicate must explicitly reference climate change in validation of climate related perils

As outlined in Lloyd's new "Principles for doing business", view of risk should be appropriate to current conditions, including climate.
Lloyds now requires a clear section in model validations(for climate related perils) which demonstrates that the syndicate's view of risk is appropriate for current climate conditions

3. Syndicate should develop a framework to address potential current & future climate impacts by region-peril

As outlined in Lloyd's new "Principles for doing business", view of risk should be appropriate to current conditions, including climate.
Lloyds now requires a clear section in model validations(for climate related perils) which demonstrates that the syndicate's view of risk is appropriate for current climate conditions