

Climate-related financial disclosures

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Swiss Re's climate-related financial disclosures aim to improve investors' and other stakeholders' ability to assess climate-related risks and opportunities in Swiss Re's re/insurance business, investment activities and own operations.

Summary

Swiss Re's climate-related financial disclosures aim to improve investors' and other stakeholders' ability to assess climate-related risks and opportunities in Swiss Re's re/insurance business, investment activities and own operations.

Swiss Re has a long-standing commitment to sustainable, long-term value creation. The Group Sustainability Strategy 2023–2025 applies to all its business activities, with targets seeking to support the achievement of Swiss Re's ambitions for the short and medium term (the next ten years), as well as for the long term (until 2050). The first ambition of the Group Sustainability Strategy centres on climate mitigation and decarbonisation, while the second focuses on climate adaptation and disaster resilience complemented by financial inclusion and healthcare protection. Swiss Re has committed to net-zero greenhouse gas (GHG) emissions by 2050.¹ The company aims to contribute to accelerating the transition to a low-carbon

economy by de-risking transition projects and infrastructure, scaling up sustainable investments, decarbonising its operations and working with suppliers, clients and investees to support them in doing the same.

To advance the net-zero GHG transition in the re/insurance industry, global standards are needed for measuring and disclosing GHG emissions and for setting related targets. As a founding member of the Net-Zero Asset Owner Alliance (AOA) and the Net-Zero Insurance Alliance (NZIA), Swiss Re is actively engaged in these discussions. In 2022, Swiss Re chaired the development of the first version of the NZIA Target-Setting Protocol (TSP) and

the Partnership for Carbon Accounting Financials (PCAF) Working Group that developed the Accounting and Reporting Standard for Insurance-Associated Emissions. The results of these collaborations support Swiss Re's ambition to reach net-zero GHG emissions by 2050.

Swiss Re's Group CEO Christian Mumenthaler is Co-Chair of the WEF Alliance of CEO Climate Leaders, which aims to accelerate climate action across value chains. The Alliance consists of over 120 CEOs from the world's largest corporations who have committed to net-zero GHG emissions in their own operations and across their value chains by 2050.

Managing risks related to climate change

- **Property re/insurance for natural catastrophe risks** is one of Swiss Re's core business areas and is exposed to **physical risk** from climate change. As policy terms and pricing are renegotiated annually, Swiss Re continuously adapts its pricing models to the most recent loss experience and scientific evidence relating to all major risk factors. This includes the impact of climate change, however, this is only one of many risk factors. The results of a scenario analysis for tropical cyclones (Swiss Re's largest weather-related exposures) suggest that in the long term (ie 2050), the projected increases in annual expected losses will not exceed the increase in insured weather-related losses over the past three decades.
 - **Other re/insurance portfolios**, such as life & health or agriculture, are also exposed to physical risk from climate change. However, only certain sub-segments of the **agriculture** reinsurance book are affected. These are controlled through an annual review of assumptions, pricing and policy terms.
 - In **life & health**, more frequent and intense heatwaves, air pollution from wildfires and vector-borne diseases are likely to increase mortality, while climate change is expected to lead to fewer deaths linked to cold temperatures. Climate change is only one of many risk drivers, some of which can contribute to lower mortality and morbidity rates. The risks in life & health are mitigated through systematic review processes for mortality assumptions based on the latest available scientific evidence.
 - In Swiss Re's view, **the transition to a low-carbon economy** is not likely to present a material financial risk for its **re/insurance activities**. Swiss Re is continuing to reduce its exposure to carbon-intensive business and expects that the associated risks can be managed effectively, primarily through the annual renewal of contracts and assumptions based on the most recent historic loss experience and scientific evidence. Furthermore, the climate-related policies of Swiss Re's ESG Risk Framework
- ensure that risks associated with transactions are identified, assessed and addressed.
- Swiss Re's approach to managing **investment-related climate risk** involves the systematic monitoring of the carbon intensity of its corporate bond, listed equity and government bond portfolios, and parts of the real estate portfolio. For the corporate bond and listed equity portfolios, Swiss Re also tracks temperature scores.
 - Swiss Re continues to assess the **impact of different climate change scenarios on underwriting and investment activities**. The results for investments indicate that Swiss Re's portfolio runs a more limited transition risk in the short to medium term when it comes to an orderly scenario. Under a disorderly scenario, the implications, especially for climate-sensitive industries, are expected to be more severe. Analytics further suggest physical risks to be relevant in the long term but manageable for the real asset holdings.

¹ Net-zero GHG emissions means that for every tonne of CO₂e that cannot be avoided, a tonne must be permanently removed from the atmosphere through so-called carbon-removal approaches.

Opportunities related to climate change

Climate-related **physical and transition risks** also present opportunities for underwriting and investment activities:

- Swiss Re’s natural catastrophe re/insurance business is expected to grow strongly over the coming decades due to economic growth, urbanisation and climate change.
- Its proprietary natural catastrophe loss modeling framework helps Swiss Re to provide innovative products and services to deal with the physical risks of climate change. In 2022, for example, Swiss Re

helped corporate clients to quantify their physical climate risk exposure with its proprietary Climate Risk Scores.

- The **transition to a low-carbon economy** offers business opportunities across a range of sectors such as power and energy, materials and processes, logistics and transport, as well as agroforestry and food. Swiss Re is well positioned to support this transition with re/insurance cover, and is particularly active in the renewable energy sector. In 2022, Swiss Re underwrote direct and

facultative re/insurance for more than 12 000 renewable energy generation facilities, which have the potential to avoid around 41 million tonnes of CO₂ emissions annually.

- Green, social and sustainability bonds contribute to **financing the transition to a low-carbon economy**. By the end of 2022, Swiss Re had achieved around 95% of its target of USD 4 billion by year-end 2024 for such bonds.

Aim to reach net-zero GHG emissions

In line with the Paris Agreement, Swiss Re aspires to reach net-zero GHG emissions by 2050:

- Swiss Re will publish absolute GHG emissions associated with selected direct and facultative re/insurance portfolios, as well as a respective target by July 2023 based on NZIA’s Target-Setting Protocol and the PCAF Standard.
- Swiss Re prepared the implementation of the Thermal Coal Policy extension for reinsurance treaties that became effective at the beginning of 2023.
- In 2022, Swiss Re further **tightened its Oil and Gas Policy** for direct and facultative re/insurance.
- Swiss Re is currently developing an approach for oil and gas in treaty reinsurance and will communicate on progress later in 2023.

- For its **corporate bond and listed equity portfolio** as well as parts of the **real estate portfolio**, Swiss Re has set intermediate carbon intensity reduction targets. Swiss Re also aims to fully exit from coal-based assets for its listed equity and corporate bond portfolios by 2030, and limit maturities for fossil fuel-related investments for its infrastructure debt and corporate private placement portfolios.

- **In 2019, Swiss Re committed to net-zero GHG emissions in its operations by 2030.** To achieve this target, the company follows the motto “Do our best, remove the rest”. The internal Carbon Steering Levy incentivises greenhouse gas emission reduction. In 2022, this levy was USD 112 per tonne of CO₂e. It is set to increase to USD 200 by 2030 and provides the funds to **fully compensate residual emissions through carbon removal solutions by 2030.**

Task Force on Climate-related Financial Disclosures of the Financial Stability Board (TCFD)

Swiss Re has played an active role in the TCFD since its creation by the Financial Stability Board, and began to reflect the [TCFD recommendations](#) in the 2016 Financial Report. Since then, Swiss Re has continued to expand its climate-related reporting structured along the TCFD’s four pillars and eleven recommended disclosures.

Governance	Strategy	Risk management	Metrics and targets
A) Board oversight	A) Description of climate-related risks and opportunities	A) Processes for identifying and assessing climate-related risks	A) Metrics to assess climate-related risks and opportunities
B) Management’s role	B) Impact of climate-related risks and opportunities	B) Process for managing climate-related risks	B) Scope 1, 2 and 3 greenhouse gas (GHG) emissions
	C) Resilience of strategy in climate-related scenarios	C) Integration into overall risk management	C) Targets to manage climate-related risks and opportunities

Source: TCFD

Climate governance

Swiss Re's governance for climate-related risks and opportunities.

Climate-related governance is embedded in the [Sustainability Governance Framework](#). This framework includes developing, enhancing, implementing and monitoring the Group Sustainability Strategy. In 2022, Swiss Re focused on adjusting the strategy based on a materiality assessment (see Sustainability Report 2022, pages 12–15).

For a detailed overview of the Board of Directors' oversight and management's role with regard to sustainability-related risks and opportunities, including climate change, see the Corporate Governance section of the Financial Report on page 76. Sustainability, and climate-related governance in particular, is covered on page 80.

Climate-related topics are discussed at various governance levels. See pages 81–83 of the Financial Report for the Board of Directors and Group Executive committees' climate-related focus areas in 2022. Key climate-related topics addressed during the year included:

Board of Directors level:

- The Board of Directors continued to oversee the progress of Swiss Re's sustainability-related initiatives, including climate, and approved the Group Sustainability Strategy 2023–2025.
- The Finance and Risk Committee reviewed sustainability-related risks and governance, with an in-depth look at the ESG Risk Framework and its

implementation across the Group. The Committee continued to monitor ESG-related claims trends as well as the impact of climate change on secondary perils.

- The Investment Committee received an update on the Responsible Investing climate action approach including the Engagement Framework for actively managed listed equity, the application of the revised Group-wide Oil and Gas Policy and the carbon intensity status for Swiss Re's investment portfolio, for which targets have been set.

Group Executive Committee (Group EC) level:

- The Group EC discussed and submitted the Group Sustainability Strategy 2023–2025 to the Board of Directors for approval. It also discussed Swiss Re's overall approach to sustainability and approved the enhanced Oil and Gas Policy.

Group Sustainability Council (GSC):

- The GSC prepared and endorsed the Group Sustainability Strategy 2023–2025 and the respective KPIs. It also assessed Swiss Re's year-end sustainability performance. The GSC endorsed, among others, Swiss Re's carbon accounting approach, governance for sustainability commitments, memberships and publications, as well as updates to the ESG Risk Framework.

Climate change and sustainability KPIs linked to compensation

Climate criteria are taken into account when distributing Swiss Re's Group Annual Performance Incentive pool.



Find out more on pages 122 and 136 in the Compensation chapter of the Financial Report.

Climate strategy

Swiss Re regularly assesses the actual and potential impacts of climate-related risks and opportunities on its business, strategy and financial planning.

Swiss Re recognises that climate change, if not mitigated, will potentially have very significant effects on society and the global economy. Swiss Re has therefore committed to net-zero GHG emissions by 2050.

Climate risk mitigation and the energy transition have been core pillars of Swiss Re's sustainability strategy since 2019. Advancing the net-zero transition and building societal resilience are the two ambitions in the Group Sustainability Strategy 2023–2025.¹ The first ambition centres on climate mitigation and decarbonisation, while the second focuses on climate adaptation and disaster resilience complemented by financial inclusion and healthcare protection. The company aims to contribute to accelerating the transition to a low-carbon economy by de-risking transition projects and infrastructure, scaling up sustainable investments, decarbonising its operations and working with suppliers, clients and investees to support them in doing the same.

The ambition to “advance the net-zero transition” is implemented with a focus on the following activities:

- Committing to a decarbonisation pathway and setting emission reduction targets for assets, liabilities and operations.
- Providing risk transfer solutions and investments to advance the net-zero transition across different sectors.
- Engaging with clients and stakeholders, building on Swiss Re's risk knowledge.

This chapter describes risks and opportunities Swiss Re has identified in the short term (over the next five years), in the medium term (up to ten years) as well as in the long term (2050).

Re/insurance activities and own operations are covered in the first sub-section, while information about investments is in another section (see page 163).

Swiss Re's net-zero transition

For details on Swiss Re's climate targets and activities, see page 173 for underwriting, page 163 for investments and pages 180–181 for Swiss Re's own operations.

¹ See [Sustainability Report 2022, pages 12–15](#) for further background on the Group Sustainability Strategy.

Re/insurance activities and Swiss Re's own operations

Swiss Re deems the impact of climate-change on its underwriting portfolios to be limited, manageable and therefore not material. Portfolios where climate change could have a limited impact are weather-related re/insurance covers, life & health and selected segments of casualty re/insurance.

Swiss Re's re/insurance businesses are potentially exposed to physical and transition risks related to climate change. Such risks could impact demand for re/insurance products as well as the profitability in the short, medium and long term (ie the next five years, the next decade and in 2050, respectively). In this report, these risks are disclosed for portfolios where the impact could be financially material for the Swiss Re Group.

The financial materiality of climate-related risks is determined based on a combination of quantitative and qualitative factors. The quantitative threshold for the identification of potentially relevant portfolios is 5% of total premium, reserves or expected profits. Annual expected losses are used additionally for natural catastrophe-related business. In a second step, the projected trends for climate-related risks relevant for the respective portfolios are evaluated on a qualitative basis and – if possible – on a quantitative basis. In addition, climate-related risks are disclosed for portfolios where weather-related perils are the dominant loss driver. This covers the following insurance portfolios¹:

- Property (weather-related, including agriculture business)
- Liability
- Life & health: mortality and critical illness

The financial materiality of climate risks for Swiss Re's own operations is assessed for its main office locations.

Physical risks

Although the physical risks arising from climate change can have significant economic consequences over time, especially from a wider societal perspective, they represent a limited, manageable and therefore not material risk for Swiss Re's underwriting portfolios.

Physical risks posed by climate change could potentially affect the following areas of Swiss Re's re/insurance activities and own operations. They can:

- Impact loss experience and thus influence modelling and costing of weather-related natural perils in property insurance and other lines of business.
- Impact the insurability of property risks exposed to extreme weather events.
- Reduce/disrupt operations.

Physical risks related to climate change could also impact other business areas but overall, the impact of physical risks is not deemed to be financially material for Swiss Re at this stage, based on the models and scenarios used.¹

Costing of weather-related perils in property re/insurance

Climate change is impacting the frequency and severity of weather-related natural catastrophes such as tropical cyclones, convective storms, floods or windstorms. Swiss Re therefore adjusts the costing of such risks on a regular basis using its proprietary loss-modelling framework.

This framework allows Swiss Re to calculate the annual expected losses (AEL) and loss-frequency distributions for its natural catastrophe businesses. With the AEL, Swiss Re identifies the financially most material weather-related portfolios that may be impacted by climate change. In 2022, the AEL for tropical cyclone North Atlantic, US convective storm, European windstorm, Japanese tropical cyclone and European flood remained the five largest weather-related perils and above the 5% threshold

of total weather-related AEL. The table on page 172 contains the respective data, including a regional breakdown by peril.

Swiss Re's models show that the effects of natural climate variability dominate over climate change impacts for Swiss Re's weather-related risk exposure, affecting both the frequency and severity of extreme events in all regions. This is expected to remain the case both in the short and medium term, in line with the most recent scientific findings from the Intergovernmental Panel on Climate Change (IPCC).²

Since most property re/insurance contracts have a duration of one year, updated risk views are quickly reflected in the costing of natural catastrophe risks. Overall, Swiss Re considers the natural catastrophe re/insurance market a healthy risk pool, and a growth opportunity subject to risk-commensurate pricing (see Opportunities, page 159).

Swiss Re closely monitors climatic trends and other macro risk factors that are potentially material for its business over various time horizons. Physical climate change risks that affect the assessment and management of weather-related risks are:

- Confidence about observed and future climate trends is highest for risks related to the **increase in global mean surface temperatures**. For example, melting glaciers and ice caps as well as the thermal expansion of water in warmer temperatures are leading to **rising sea levels**. In turn, this can directly **increase the magnitude of storm surges**, a long-term risk for coastal regions. To date, the rise in sea levels has been relatively slow and will likely remain so in the short and medium term, allowing time for measures to mitigate the risk of coastal flooding.
- Swiss Re mitigates this risk by managing its exposure to sea level rise with up-to-date risk models and by limiting its risk accumulation in the most exposed areas to ensure a well-diversified underwriting portfolio on an annual basis

¹ In addition to property, liability, and life & health, motor also accounts for more than 5% of Swiss Re's total re/insurance portfolios. Increased precipitation could lead to more accidents in motor, but this is unlikely to have a substantial impact. While hail risk is an important risk factor in motor insurance, no clear trends due to climate change are projected for this hazard in the short, medium or long term.

² Climate Change 2021: The Physical Science Basis, [Chapter 4: Future global climate: scenario-based projections and near-term information](#), IPCC, 2021.

(see also "Swiss Re's strategy to ensure the resilience of its property business in a changing climate", page 162).

- Another outcome of climate change for which there is high confidence is **increased temperature extremes**, which will continue to bring longer and more frequent heatwaves, droughts and periods of water scarcity. Heatwaves affect agriculture, workforce productivity, infrastructure, water resources, health and mortality. In addition, hot and dry conditions exacerbate **drought and wildfire risk**, as seen in different regions in recent years, including California, Southern Europe and Australia. Convective storms and other frequency perils mostly affect direct insurers, as losses from such events often remain below the retention levels of property reinsurance programmes. Reinsurers are exposed to frequency perils mainly through aggregate excess of loss structures, event excess of loss structures that have a low attachment point and proportional treaties. Swiss Re further reduced exposure to such structures by increasing retentions by clients and underwriting fewer annual aggregate covers in the 1 January 2023 renewals.
- Rising temperatures allow the atmosphere to hold more moisture, thus increasing the severity and frequency of rainfall events, which in turn is expected to amplify flood risk. However, the **rainfall-flood link is complex**. Furthermore, flood risk is also impacted by other factors such as soil sealing, urban flood protection, land-use changes and seasonal dependencies such as snow melt and soil moisture. Regional trends are already observable, but the property insurance impact for flood-related losses is limited due to the large protection gap for this peril.
- There is lower confidence in the understanding of trends in **modes of climate variability**, which encompasses atmospheric and oceanographic circulation changes. Given their material impact on extreme weather events, Swiss Re performs internal research and collaborates with leading scientists to integrate the impact of observed climate change in its in-house loss models, with an additional forward-looking component to capture anticipated climate change impacts for the upcoming underwriting

seasons (see Resilience under different climate scenarios, page 161, and Climate risk management, page 167).

Impact on the insurability of property risks exposed to extreme weather events

Climate change could affect the insurability of risks exposed to extreme weather events through three main factors:

- Assessability
- Economic viability¹
- Randomness of risk

Assessability

In order to offer insurance protection, re/insurers need to be able to assess the frequency and severity of possible losses from extreme weather events. As climate change affects the risk landscape, Swiss Re regularly updates its loss models to such factors and expects extreme weather risks to remain assessable by scientific methods in the short, medium and long term.

Swiss Re's in-house development of risk models for weather-related perils ensures full modelling transparency and the ability to efficiently assess and update models if new scientific evidence becomes available.

Economic viability

An increase in the frequency and severity of extreme weather events requires a rise in premium. If large increases are required, insurance may no longer be economically viable for the owners of certain objects.

Coastal areas affected by tropical cyclones are particularly at risk. While there is substantial uncertainty in the projection of frequency and severity of tropical cyclones in the short and medium term, rising sea levels are expected to lead to non-linear increases in storm surge risk for coastal areas in the long term. Additionally, warmer temperatures will increase the severity of rainfall induced by tropical cyclones. In combination, these developments might push re/insurance prices in coastal areas affected by tropical cyclones beyond affordable limits, especially if counteracting climate adaptation measures were to remain insufficient.

If re/insurance became unaffordable for certain areas/risks, demand for re/insurance would decrease. However, this would likely be at least partly offset

by increasing demand in less exposed areas, as people relocate, risk awareness increases and premium rates rise.

Randomness

Finally, insurability depends on the random nature of a risk. If risks increase to a level at which losses are certain and predictable, then insurance is no longer the right instrument. For example, if there is permanent flooding due to rising sea levels, insurance is not the appropriate financing mechanism to protect assets.

Impact of weather-related perils on agriculture reinsurance

Agriculture re/insurance is a short-term cover against perils like hail, drought, excess rain and frost, however, the extent of covers provided diverges across markets. Climate change is impacting agriculture re/insurance, but this is limited to the sub-portfolios of crop and forestry, which are mostly exposed to hail and drought. Global climate models predict increasing trends for drought and frost in the short, medium and long term, but not in all regions. While hail is an important peril for Swiss Re's agriculture reinsurance book, constituting roughly 40% of respective premiums, there is low confidence, ie high uncertainty about future changes in hail activity driven by climate change in most regions. The same is the case for excess rain activity. As a result, less than half of Swiss Re's total agriculture book is considered susceptible to climate change.

The impact of climate change on Swiss Re's agriculture book is mitigated by several factors:

- Agriculture insurance is a short-tail business, which means that terms and conditions, as well as the portfolio composition are reviewed and adjusted annually.
- Climate change that has manifested to date is reflected in historical losses, which are the main basis for risk modelling, and Swiss Re is observing increasing prices in agriculture re/insurance markets.
- Swiss Re continuously enhances forward-looking modelling.
- Climate adaptation measures taken through agro-management practices such as new seeds, fertilizers, etc.

¹ In public discussions affordability is also used as a term for economic viability

Climate change's impact on life & health re/insurance

Swiss Re does not consider climate change to have a financially material negative effect on its life & health portfolios in the short, medium or long term.

Climate change can affect human health, and can therefore impact Swiss Re's life & health portfolios through several channels. The most pronounced risks are expected to be extreme heat, air pollution and increased exposure to infectious diseases spread by non-human vectors. Consequently, non-communicable diseases, especially cardiovascular diseases, respiratory illnesses, lung and skin cancers, among others, and increased spread and emergence of tropical infectious diseases could become more frequent for the more severe climate change scenarios.

More severe and frequent heatwaves have the potential to increase the incidence of heart attacks and strokes, thus affecting both mortality and critical illness portfolios. Heatwaves will extend to regions previously not affected, thereby increasing the share of the world's population impacted by such conditions. However, the extent of an individual's direct exposure to risk factors and access to mitigation tools will be the determinants of their overall risk.

A general rise in temperature and increased humidity enables vector-borne diseases to enter new areas. Climate change will extend the transmission season and geographical range for many infectious diseases, allowing them to spread into previously uninhabitable regions. Lyme disease, avian influenza, meningitis, dengue fever and other tropical bacterial and viral infections are therefore projected to rise.

Severe drought conditions can lead to more wildfires, which cause air pollution. Such air pollution can extend to regions far from the fire itself and last for weeks after the event, leading to deteriorating health conditions and increasing mortality experience.

The above risks will mostly impact clinically vulnerable individuals with pre-existing comorbidities, or groups such as the elderly and the disabled. Increasingly frail, ageing populations could push up annual deaths. Without mitigation action, mortality rates and healthcare costs could rise, leading to higher claims costs than anticipated by re/insurers.

Scientific evidence quantifying the impact of climate-related heatwaves, air pollution and vector-borne diseases on health and mortality outcomes is still limited. There is additional uncertainty around how climate change will play out in conjunction with other key adverse trends such as increases in unhealthy behaviours or obesity. Swiss Re follows the scientific discussion and incorporates new evidence into its mortality assumptions on a regular basis (see Climate risk management, page 167).

Current research suggests that in Swiss Re's main life & health markets, ie North America and Northern Europe, extreme cold is currently a more substantial driver of mortality than extreme heat.¹ Consequently, Swiss Re does not expect a financially material net adverse impact from climate change on mortality for these portfolios in the long-term. Reductions in deaths related to cold temperatures will outweigh the rise in deaths linked to heat. A modest impact at most would only arise in the more distant future, ie after 2050, and in severe scenarios (see Life & health re/insurance section in Resilience under different climate scenarios, page 162).

Southern Asia and Africa are estimated to see large upticks in heat-driven mortality by 2050, whether climate change is moderate or unmitigated. There may be a potential rise in critical illness claims in countries where extreme heat is most prevalent.

Several factors are expected to reduce the impact of climate-related risks on Swiss Re's Life & Health business:

- Policy holders can reduce severity and duration of exposure to the elements.
- Affordable mitigation measures such as air purifiers, air cooling or increased hydration will further limit the impact on insured lives.
- In some climate scenarios, anthropogenic air pollution, a driver of claims today, is expected to improve, as countries push for more stringent emissions limits.

Swiss Re's own operations

According to Swiss Re's in-house catastrophe loss models, severe weather risks are potentially of importance for some operations, mainly in Florida and on the north-eastern coast of the US. However, even assuming an extreme climate change scenario, Swiss Re does not expect any of its office locations to be exposed to risk levels that would undermine their economic viability. Additionally, robust and regularly tested business continuity plans covering all locations are in place to mitigate the risk of climate-related disruptions (see Climate risk management, page 167).

¹ See [The risk of a lifetime: mapping the impact of climate change on life and health risk](#), Swiss Re Institute, pages 19–20.

Transition risks

Swiss Re does not consider the transition to a low-carbon economy a material financial risk for its re/insurance business in the short, medium and long term. It expects to be able to manage the associated risks effectively thanks to the established processes for reviewing underwriting assumptions based on the most recent historic loss experiences and scientific findings, as well as the annual renewal of contracts.

Swiss Re has assessed the impact of the following transition risks on its property and casualty re/insurance business:

- Policy and legal risks
- Technology risks
- Market and reputational risks

Policy and legal risks

As the transition to achieving a net-zero emissions economy by mid-century or earlier gains momentum, material policy-triggered changes are expected for the real economy in areas such as power and energy, materials and processes, logistics and transportation, and agroforestry and land-use practices. Such policy changes may include regulations to increase energy and material efficiency, mandates to rapidly scale up renewable energy and clean mobility, the removal of fossil fuel subsidies, the introduction of carbon pricing, policies addressing land-use change and agricultural practices, as well as the scaling up of carbon removal technologies.

This requires a solid understanding of the associated policy and legal risks. Certain policy risks might also influence the risk quality of some insured assets in the medium to long term due to factors such as increased cost pressure and reduced asset maintenance. Swiss Re believes it can manage these risks effectively by frequently reviewing the underwriting assumptions using its formalised process.

Risks related to climate change litigation (CCL)

Swiss Re identified CCL as a potential risk over a decade ago. Since the adoption of the Paris Agreement in 2015, the number of CCL court cases has more than doubled to a total of more than 2000 cases worldwide in

2022. These activities are currently focused on the US, Europe and Australia, but they are spreading to other jurisdictions as well. Most of the cases are directed against governments and public entities, but private companies are also increasingly being targeted. For now, most of the cases brought up aim to change behaviour rather than asking for monetary compensation. The potentially insurance relevant cases fall mostly within one of the following four categories: contribution to climate change, improper disclosure, misleading product disclosures and mismanagement of climate-related risks.

To date, many of the CCL decisions in the cases that are potentially relevant for insurers were made in favour of defendants. They have therefore not led to significant claims for the re/insurance industry. However, CCL has the potential to cause moderate losses in certain segments of casualty insurance in the short to medium term.

While Swiss Re has not faced any significant CCL claims to date, it actively monitors and assesses CCL risks in its underwriting and research units. In particular, Swiss Re tracks advances in climate attribution science, CCL cases, regulatory changes and developments in legal concepts for different geographies, industries and lines of business in order to assess potential exposures under different scenarios. Swiss Re is currently also developing a methodology to monitor potential exposures from CCL. Potential CCL exposures are mitigated by a CCL-specific underwriting strategy (eg limited risk appetite for certain industries) in addition to the reduction of carbon exposures as early as 2018 (see General sustainability risks in Swiss Re's re/insurance business, page 168). However, cases might still arise from runoff for a number of years.

Technology risks

Swiss Re is likely to be impacted by the technological transition in two ways:

- New or rapidly developing technologies by definition do not have loss histories and thus may be challenging to price accurately. Possible loss scenarios and the related expenses need to be developed. Once these are ready and tested, new technologies are likely to present a sector with an opportunity

for growth. Offshore wind projects, for example, have developed into one such growth opportunity (see Opportunities related to transition risk, page 160). The shift of global motor vehicle fleets away from internal combustion engines and towards electric motors is another example. This development entails the implementation of a variety of new technologies, from new lightweight materials to advanced battery systems, which will also impact loss patterns.

- New low-carbon technologies are likely to gradually displace traditional, fossil fuel-based ones. For example, power generation will shift to wind and solar farms delivering intermittent power.

This could affect other elements of power systems that had originally been designed for stable base load electricity delivered by fossil fuel power plants.

While the pace of technological development in the underlying industries is high, the impact on re/insurance portfolios is expected to be incremental. It takes time for new technologies to fully replace old ones across entire portfolios. Dealing with such technology changes is business as usual for Swiss Re. As most re/insurance contracts are renewed annually, Swiss Re can develop the appropriate underwriting experience, loss adjustment and claims handling.

Market and reputational risks

With policy, legal and technological changes as a backdrop, consumer and investment preferences are expected to further shift toward less carbon-intensive products and services over time. Swiss Re continues to adapt to the related changes in re/insurance markets.

In addition, to support their decision-making, investors, regulators and other stakeholders have started to ask for greater transparency and more information regarding re/insurers' exposure to emission-intensive sectors as well as their contribution to low emissions-related risk transfer solutions.

Companies whose disclosures are misleading or overstate their climate efforts, which is referred to as greenwashing, can sustain reputational and legal damage.

Transition risks for the real economy and their relevance for re/insurance underwriting

	Transition risks	Financial impacts on real economy	Impacts on insurance liabilities
 <p>Policy and legal</p>	<ul style="list-style-type: none"> • Removal of fossil fuel subsidies and introduction of CO₂ taxes • CO₂ regulation and mandates • Exposure to litigation for historical and current CO₂ emissions • Emission disclosure requirements 	<ul style="list-style-type: none"> • Write-offs, asset impairment and early retirement of existing assets due to policy changes (ie stranded assets) • Increased operating costs (eg higher compliance costs, increased insurance premium) • Increased costs and/or reduced demand for products and services resulting from fines and judgments against CO₂-intensive sectors • Increased regulatory pressure for decarbonisation and disclosure 	<ul style="list-style-type: none"> • Climate policy-induced economic effects may lead to higher claims for certain lines of business (eg credit insurance) • Increased operating risk and lower risk quality for impaired assets may impact property insurance (eg due to increased cost pressure and reduced asset maintenance) • Increased litigation activity may become relevant for casualty insurance (eg general liability, directors & officers insurance) • Requirements to disclose climate-related impacts of insurance business activities
 <p>Technology</p>	<ul style="list-style-type: none"> • Substitution of existing products and services with lower emissions options • Costs to transition to lower emissions technology 	<ul style="list-style-type: none"> • Write-offs, early retirement of existing assets • Research and development expenditures in new and alternative technologies 	<ul style="list-style-type: none"> • Shift in predominant energy technologies could lead to a change in the liability structure and diversification for insurers • New technologies without established loss histories may increase uncertainties in property and engineering insurance
 <p>Market and reputation</p>	<ul style="list-style-type: none"> • Uncertainty in market signals and in client behaviour • Decarbonisation efforts required by business partners • Increased stakeholder concern 	<ul style="list-style-type: none"> • Reduced demand for certain goods and services due to shift in consumer preferences • Change in revenue mix and sources • Increasing costs for decarbonising business models • Reduction in capital availability • Increased reputational risk for high-emission sectors 	<ul style="list-style-type: none"> • Premium volume in engineering and property insurance will shift from CO₂-intensive assets and activities to CO₂-efficient ones • Reputational risk for insurers via insured emissions (eg insurance of thermal coal) may further intensify • Potential societal backlash due to transition in fossil fuel-dependent societies causing market decline (eg due to political unrest)

Source: Swiss Re, adapted from TCFD

Opportunities

Climate change also presents opportunities for Swiss Re in the short, medium and long term. Developing corresponding risk transfer products and related services is a core part of Swiss Re's Group Sustainability Strategy 2023–2025 (see Climate strategy, page 153).

Opportunities related to physical risks

Swiss Re's re/insurance products against natural catastrophes constitute one of its core businesses that help clients cope effectively with current climate risks. In 2022, premiums for natural catastrophe covers amounted to USD 4.8 billion, or 18% of corresponding Property & Casualty Reinsurance and Corporate Solutions premiums.¹

The natural catastrophe market as well as the broader property insurance market are expected to see strong growth in the long term. A recent *sigma* report by Swiss Re Institute projects that the global property insurance market is set to experience stronger growth than the overall economy until 2040.² While economic growth and increasing urbanisation in emerging markets will contribute 80% of additional premiums over the next two decades, 20% of additional premiums projected until 2040 are due to increased physical risk because of climate change. At the same time, the share of uninsured losses remains high, indicating further growth potential.³ Swiss Re also helps expand re/insurance protection to non-traditional clients (in particular in the public sector), underdeveloped markets and by offering innovative risk transfer instruments.

Products and services that tackle physical climate risk

Examples of recent deals that tackle physical climate risk include:



Providing natural catastrophe cover to protect public sector exposure:

Following a successful five-year pilot in which Swiss Re was the lead reinsurer for the Uganda Agriculture Insurance Scheme (UAIS), Uganda's government decided to extend the scheme for another four years. Today, this public-private partnership protects more than 350 000 smallholder farmers in Uganda with a range of products including parametric crop weather index insurance, multi-peril crop insurance, livestock insurance and poultry insurance. Additionally, farmers receive training to help them adapt their techniques to climate change. Thanks to the success of the insurance scheme, the government aims to expand the programme to more farmers, while Swiss Re is exploring the possibility of supporting the replication of the scheme in neighbouring countries.

Climate Risk Scores: Helping corporate clients quantify their physical climate risk exposure:

Swiss Re's proprietary Climate Risk Scores help companies assess future risks resulting from weather-related hazards exacerbated by climate change. The scores indicate the effects of future climate risks by combining robust science-based data used by the Intergovernmental Panel on Climate Change (IPCC) with Swiss Re's in-house hazard layers, such as flood and storm surge zones.

Read more about these solutions in the Sustainability Report, pages 26 and 29.

¹ Estimated written premiums for losses exceeding USD 20 million. Net of external expenses such as brokerage and commissions. Property & Casualty Reinsurance and Corporate Solutions gross premiums written excluding external cost for brokerage and commissions.
² Swiss Re Institute sigma No 4/2021, [More risk: the changing nature of P&C insurance opportunities to 2040](#).
³ See [Swiss Re Institute, Resilience Index 2022: risks to resilience on the rise again after a year of respite](#); and [www.sigma-explorer.com](#).

Opportunities related to transition risks

The transition to a net-zero emissions economy offers business opportunities for Swiss Re across a range of sectors such as power and energy, materials and processes, logistics and transport, and agroforestry and food. In a study, McKinsey estimates that in order to achieve net zero by 2050, new capital spending for low-emissions assets will amount to around 3% of global GDP, or a cumulative USD 105 trillion. This is on top of current spending of USD 170 trillion.¹ For the power sector alone, the International Energy Agency estimates that achieving net-zero emissions could create a cumulative USD 27 trillion market opportunity for manufacturers of wind turbines, solar panels, lithium-ion batteries, electrolyzers and fuel cells.² Realising the potential will require a strong contribution from private capital providers.

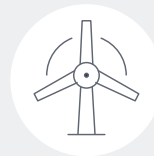
Swiss Re has developed an approach to benefit from transition opportunities in the short, medium and long term. This includes further developing existing business areas, such as renewable energy. In addition, new technological segments have been identified and assessed in terms of re/insurance market potential in the short, medium and long term. Based on this assessment, business areas have been prioritised for investments in research, and new business propositions will be developed.

Swiss Re is re/insuring renewable energy projects across all lines of business. In 2022, Swiss Re underwrote direct and facultative property and engineering re/insurance (construction and operation) for more than 12 000 renewable energy generation facilities, which have the potential to avoid around 41 million tonnes of CO₂ emissions annually.³

Swiss Re Corporate Solutions is a recognised market leader for offshore wind risks, but Reinsurance is also active in the renewable energy space. Reinsurance engineering premiums from renewable energy power generation have seen strong growth of 20% per year over the past decade and accounted for more than 60% of total engineering premiums for power generation in 2022.

Business solutions that tackle energy transition risks

Examples of recent deals that tackle energy transition risks include:



Expanding South Korea's offshore wind capacity: As the lead reinsurer for the construction of three offshore wind farm projects, Swiss Re has been supporting the development of renewable energy in South Korea. Once the final construction phase is complete in 2025, these projects will have a capacity of approximately 190MW. Swiss Re has also provided technical advice and risk management expertise for several additional projects whose construction is set to begin in 2025. With a total planned capacity of 5GW, these projects represent approximately one third of Korea's target to reach 12GW of offshore wind capacity by 2030.

Helping to unlock financing for the transition to renewable energy: In 2022, Swiss Re Corporate Solutions partnered with the German bank NORD/LB to establish a co-investment programme to facilitate the financing of renewable energy projects. This partnership combines NORD/LB's track record in

structuring renewable energy investments with Swiss Re Corporate Solutions' expertise in credit risk-management solutions for banks. As part of the co-investment programme, NORD/LB originates and arranges eligible loans, following which Swiss Re Corporate Solutions insures a portion of NORD/LB's credit risk, covering the bank in the event of non-payment by the borrower. By using pre-agreed eligibility criteria, the investment programme allows for more efficient deployment of financing to renewable energy projects by enabling the bank to reduce credit risk, optimise its portfolio and extend larger loans for such projects. At the end of 2022, Swiss Re had supported six renewable energy projects, which will contribute 1 300MW of additional power generation capacity once the assets are operational.

Read more about these solutions in the Sustainability Report, page 24.

¹ The net-zero transition. McKinsey & Company, 2022.

² World Energy Outlook 2021. International Energy Agency 2021, <https://www.iea.org/reports/world-energy-outlook-2021>.

³ Assuming the electricity produced by the renewable facility replaces currently produced electricity with average CO₂ emissions per kWh for advanced markets.

Resilience under different climate scenarios

Scenario analyses for natural catastrophe re/insurance as well as life & health confirmed Swiss Re’s view that climate change is only one of many risk drivers and it does not pose a fundamental threat to the resilience of Swiss Re for its re/insurance risk taking.

For natural catastrophe re/insurance, Swiss Re’s research has shown that for the peak exposures, the projected increases of the annual expected loss (AEL) do not exceed historic trends, even for the most severe scenario.

Quantitative scenario analysis focusing on climate only is therefore an inadequate instrument for driving today’s underwriting decisions. Regularly updating natural catastrophe models and diversification with regards to regions, lines of business, sectors and clients is more relevant.

Swiss Re uses qualitative and quantitative scenario analyses to assess the resilience of its strategy under different climate scenarios. The scenarios by the Network of Central Banks and Supervisors for Greening the Financial System (NGFS) serve as the common narrative for the analysis of investment and underwriting portfolios.¹ The NGFS scenarios incorporate different degrees of transition risks along different paths of global warming in the selected orderly, disorderly and hot house scenario:

- **Orderly:** Climate policies are introduced early and become gradually more stringent. Net-zero CO₂ emissions achieved before 2070, resulting in a 67% chance of limiting global warming to below 2°C. Physical and transition risks are both relatively low.
- **Disorderly:** Climate policies are delayed or divergent across countries and sectors. Emission reductions need to be sharper than in the orderly scenario to limit warming to the same target. The result is higher transition risk.

- **Hot house world:** Some climate policies are implemented in some jurisdictions, but global efforts to limit warming are insufficient. Emissions grow until 2080, potentially leading to 3°C+ of warming until 2100 and severe physical risks.

The NGFS scenarios are linked to Representative Concentration Pathway (RCP) scenarios, which Swiss Re uses for natural catastrophe re/insurance.² Differences of the projected physical impacts between RCP 2.6, RCP 4.5 and RCP 8.5 in the short to medium term (ie in the next ten years), but also in the long term (ie 2050) are minor, however, a considerable divergence is expected for the second half of the 21st century. Furthermore, there is significant uncertainty within a single scenario (eg RCP 8.5), mainly caused by different modelling assumptions used in various climate models.

Property natural catastrophe re/insurance

The scenario work revealed that the expected climatic changes for tropical cyclones in the US and in Japan over the next 30 years are manageable for Swiss Re. The projected increases of AEL are small with 0.3–0.6% per year for a constant market portfolio (RCP 8.5, medium impact). Under the most severe scenario AEL are

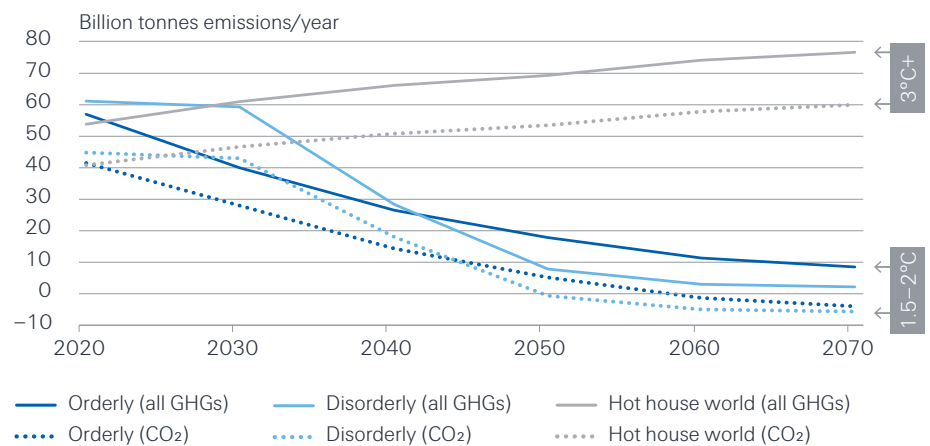
forecast to increase 1.6–2.2% (RCP 8.5, severe impact). This is less than the increase of normalised insured losses from weather-related natural catastrophes over the past three decades (3% per year).³

Looking at climate effects in isolation, as in the scenario pilot, means ignoring the other factors that will shape Swiss Re’s future re/insurance book and thus also future AEL. These factors include, but are not limited to, strategy and underwriting risk appetite which can be redefined during the annual renewal process of property re/insurance business, market conditions, capital costs, insurance penetration, socio-economic developments, resilience of buildings or infrastructure against storms, and other climate adaptation measures. Since Swiss Re’s re/insurance book and current AEL are the result of a complex interaction between all of these factors, any scenario analysis over the 2050 time horizon would have to consider them, in the process rendering the impact of climate change on the resulting AEL marginal.

The scenario work has provided limited steering insight. In view of the short-tail nature of property natural catastrophe business, there is no need for Swiss Re to

Emissions

Representative NGFS scenarios¹



Source: NGFS

¹ Swiss Re’s analysis is based on the representative scenarios of the [Phase I NGFS Climate scenarios](#).

² RCP scenarios represent possible future concentration trajectories of greenhouse gases. The scenarios are named after the resulting radiative forcing at the end of the 21st century, eg 8.5W/m² for RCP8.5, where no mitigation measures nor technical innovation will limit temperature increases. SSP narratives describe alternative pathways for future society.

³ See [Swiss Re TCFD report 2021, page 166–168](#) for details.

act today in anticipation of possible long-term future changes in the risk from extreme weather events while ignoring relevant factors, including adaptation and mitigation measures.

For decision-relevant analytics, it is important to understand today's risk landscape, including the current climate, irrespective of whether the changes are caused by climate change or natural variability, and whether current market prices reflect the risk level. Swiss Re has therefore made significant efforts over the past decade to embed climate change and other relevant risk drivers into key risk models and to model a present day/near future risk landscape rather than relying on an average of the recent past.

Swiss Re's strategy to ensure resilience of its property business in a changing climate

1. Diversification of insured natural hazards with regard to regions, lines of business, sectors and clients.
2. Flexible management and steering of weather-related exposure through limited duration of re/insurance contracts (typically one-year contracts for property insurance) as well as active portfolio steering (see Costing of weather-related perils in property, pages 154–155).
3. Regular updates of Swiss Re's in-house natural catastrophe models to ensure adequate costing of natural hazards for the current and near-term climate and socio-economic environment.
4. A qualitative scenario process to assess the most material impacts of climatic and socio-economic trends that affect insured risks. This is supported by quantitative assessments of the likely range of expected changes to determine their materiality over different time horizons and emission pathways.

Life & health re/insurance

Swiss Re does not expect any of the analysed climate scenarios to have a major impact on its life & health portfolio, as excess mortality from heat is likely to be offset by lower mortality due to cold temperatures in the regions with Swiss Re's largest life & health exposures.

For life & health, the scientific research on the impact of climate change on health and mortality is still too limited to reliably inform quantitative scenario work. Furthermore, when considering the impact of climate change on health outcomes, other key variables also play a significant role. These include, but are not limited to, age, gender, health comorbidities and socioeconomic status, and non-uniformity across regions (see Climate strategy, page 156). Qualitative approaches therefore remain the best method for assessing risks from climate change for Swiss Re's life & health businesses.

In the interests of providing directional vectors, Swiss Re derived excess mortality projections from academic literature and expert reports. The projections cover the effects related to air pollution, heat and cold, and provide some directional guidance on the expected long-term trends in mortality. However, the results apply to the general population, which has a different structure than Swiss Re's portfolio of insured lives, and the forecasts are subject to a very high degree of uncertainty.

Under the more likely climate scenarios RCP 2.6 and RCP 4.5, a low level of net excess mortality is anticipated globally until 2100. In North America and Europe, the regions where Swiss Re's portfolio is concentrated, no excess mortality is expected. Increased mortality from heat is expected to be offset by large reductions in mortality from cold temperatures attributable to causes such as respiratory viruses and fewer deaths due to old age, as climate change reduces the severity of winters.

A pessimistic scenario of unmitigated climate change (RCP 8.5) may result in global excess mortality of up to 5% in 2100. Again, the impacts will be concentrated in regions where Swiss Re does not currently have significant portfolio exposure.

Swiss Re expects that access to mitigation measures, less exposure to environmental factors compared to the general population and better health of the insured population would lead to better outcomes for Swiss Re's portfolio compared to the general population – and in some scenarios. Swiss Re could even see a modest mortality improvement.

Casualty re/insurance

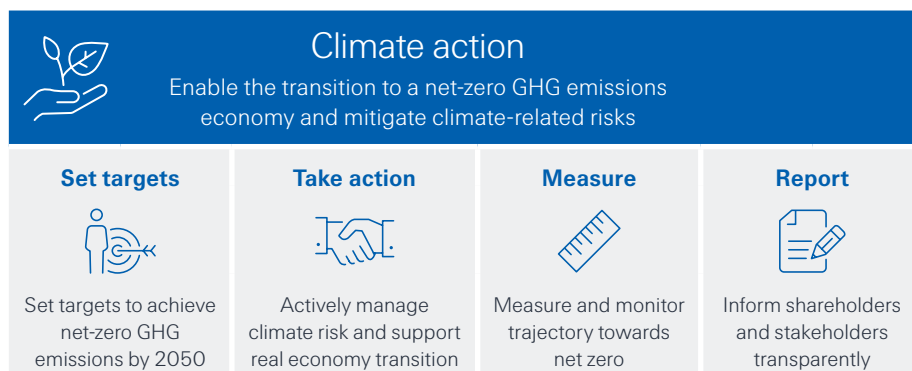
Swiss Re closely monitors the climate change litigation (CCL) landscape, potential claims scenarios and their impact on its casualty book (see page 157). Swiss Re also assesses the CCL activity and how such activity may develop under different scenarios. While it is probable that CCL activity will continue in all scenarios, it is likely to increase in the hot house and disorderly world.

Investments

Addressing the risks and opportunities arising from climate change, Asset Management has embedded its climate action approach into the Responsible Investing strategy in a structured manner. The climate action approach comprises four steps to align the portfolio with a 1.5°C world by 2050: set targets, take action, measure and report.

In alignment with Swiss Re’s commitment made as a founding member of the Net-Zero Asset Owner Alliance (AOA), it set intermediate climate targets in 2020, to be achieved by 2025¹ (see Climate targets, page 174), with the aim to transition the investment portfolio to net-zero GHG emissions by 2050. In this context, “sub-portfolio” refers to the current investment portfolio in scope to set emission reduction

Swiss Re Asset Management’s climate action approach:



targets in the table below. The actions to actively manage climate risk and support the real economy transition (“Take action”) are explained in this chapter, while the metrics

to monitor the trajectory towards net zero (“Measure”) can be found in the Metrics and targets section of this report (see pages 175–179).

Swiss Re Asset Management’s climate targets by 2025¹

Financing transition	Engagement
<ul style="list-style-type: none"> Green, social and sustainability bonds: USD 4 billion Social and renewable energy infrastructure debt: + USD 750 million vs 2019 	<ul style="list-style-type: none"> Topic: Alignment of business model with 1.5°C target
Sub-portfolio	Sector
<ul style="list-style-type: none"> Listed equity and corporate bond portfolio: –35% carbon intensity (Scope 1 and 2 emissions) vs 2018 Swiss and German real estate portfolio: –5% carbon intensity (Scope 1,2 and 3 operational emissions) vs 2018 	<ul style="list-style-type: none"> Listed equity and corporate bond portfolios: coal phase-out by 2030 Infrastructure debt and corporate private placements: maturity limitation for fossil fuel-related investments

In 2022, Swiss Re enhanced its climate action on the investment side with the following activities:

- Introduced reporting on absolute GHG emissions for the corporate bond and listed equity portfolio as well as for the company’s Swiss and German real estate assets (see pages 175 and 178)
- Strengthened fossil fuel-related thresholds to exclude companies that have more than 10% of their upstream production located in the Arctic AMAP² region (Norwegian production is exempt)

Transition and physical risks

Transition risks may arise from climate change mitigation and adaptation requirements to limit the global temperature rise. Swiss Re considers these transition risks to be mainly relevant in the short to medium term³ for the listed equity and corporate bond portfolios, as well as the Swiss and German real estate portfolio. The key risk faced by asset owners is that a changing policy and regulatory environment, such as increased taxes and/or new regulations, may impact asset values. The devaluation of investments can result in a specific company or a particularly exposed industry becoming a stranded asset in investment portfolios.

Furthermore, governments and regulators have accelerated the development of (mandatory) reporting requirements and risk assessments to steer and transition climate change-related market activities towards more sustainable alternatives. Swiss Re also recognises that litigation risk for companies remains elevated. While Swiss Re considers these transition risks to be tilted to the short to medium term³, the carbon intensity reduction targets for the listed equity and corporate bond portfolio, as well as the Swiss and German real estate portfolio can also be seen as a way to manage these risks to a certain extent.

¹ The achievement of targets is measured at year-end 2024, and must be reported in 2025.

² Arctic Monitoring and Assessment Programme.

³ Short term: < 5 years, medium term: 5–10 years, long term: 10 years and more.

Physical risks are relevant where assets are exposed to natural perils, such as Swiss Re’s infrastructure debt and real estate holdings. In this context, most relevant are acute, event-driven impacts due to natural perils, eg tropical cyclones and floods, which result in direct damage to assets. For Swiss Re’s assets, physical risks are expected to mainly become relevant in the long term.

Swiss Re considers the collaboration with investee companies via “Financing transition” and “Engagement” key approaches in the global transition towards a low-carbon economy. However, divestments are used to reduce the risk of stranded assets.

Swiss Re no longer directly invests in coal mining, coal-fired power generating companies and oil sands-related companies that are above set thresholds. In line with the Group-wide ESG Risk Framework, Swiss Re avoids investments in the 10% most carbon-intensive oil and gas companies, and since 2022 in companies, that have more than 10% of their upstream production located in the Arctic AMAP region (Norwegian production is exempt).

Swiss Re Asset Management’s fossil fuel-related thresholds implementation timeline

2016	2018	2019	2020	2022
Coal production (relative)	Oil sands production (relative)	Coal production (absolute)	Coal production expansion	Oil and gas production (relative)
<ul style="list-style-type: none"> Companies that generate 30% or more of their revenues from thermal coal mining Companies that use at least 30% thermal coal for power generation 	<ul style="list-style-type: none"> Companies that generate 20% or more of their revenues from oil sands operations 	<ul style="list-style-type: none"> Mining companies that produce at least 20 million tonnes of coal per year Power generating companies with more than 10GW installed coal fire capacity 	<ul style="list-style-type: none"> Companies that have more than USD 100 million capital expenditure p.a. on coal exploration Power generating companies that plan coal-fired capacity expansion of more than 300MW p.a. 	<ul style="list-style-type: none"> Companies that have more than 10% of their upstream production located in the Arctic AMAP region (Norwegian production is exempt)
			Oil and gas companies	
			<ul style="list-style-type: none"> 10% most carbon-intensive oil and gas companies 	

For Swiss Re’s infrastructure debt and corporate private placement portfolios, the company applies dedicated fossil fuel guidelines, which are reviewed annually. In accordance with the guidelines, Swiss Re excludes any coal-related assets in these

portfolios. Furthermore, maturities are limited to 2030 for oil-related exposures and to 2035 for gas-related exposures.

Swiss Re further strengthened its fossil fuel guidelines for new private equity funds and

co-investments in 2022. The guidelines improve the risk mitigation strategy in these less liquid asset classes, which is particularly important given the longer-term investment horizon.

Swiss Re’s current fossil fuel guidelines for infrastructure debt and corporate private placements¹

	Coal	Oil	Gas
Upstream	● Full exclusion	● Full exclusion	● Full exclusion
Midstream	● Full exclusion	● Pipeline/distribution and storage	● Pipeline/distribution network and storage
Downstream	● Full exclusion	● Petrochemicals & refinery ● Power generation	● Power generation: peaking plant ● Power generation: base load plant
	N/A	Maximum maturity until 2030	Maximum maturity until 2035

- Only finance brownfield projects
- No financing for either brownfield or greenfield projects

¹ The guideline is compliant with Swiss Re Group’s overarching Oil and Gas Policy.

Opportunities

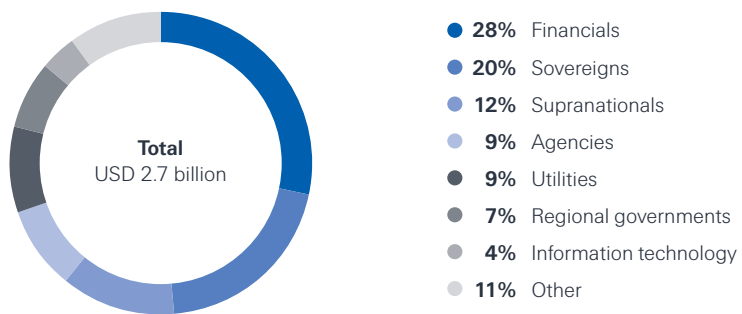
Climate change can also present diversification opportunities for asset owners. Swiss Re sees investment opportunities in activities that address specific sustainability topics such as climate change mitigation and enabling the transition to a net-zero emissions economy.

Green bonds

Green bond proceeds are used exclusively to finance projects that foster a low-emissions economy and/or protect the environment. These projects focus on areas such as renewable energy, circular economy, biodiversity, sustainable water or climate change adaption. Green bonds are

part of Swiss Re’s target to reach a green, social and sustainability bond portfolio of USD 4.0 billion by the end of 2024 (see Financing transition, page 174). As of 31 December 2022, Swiss Re held USD 2.7 billion of green bonds.

Green bonds per sector



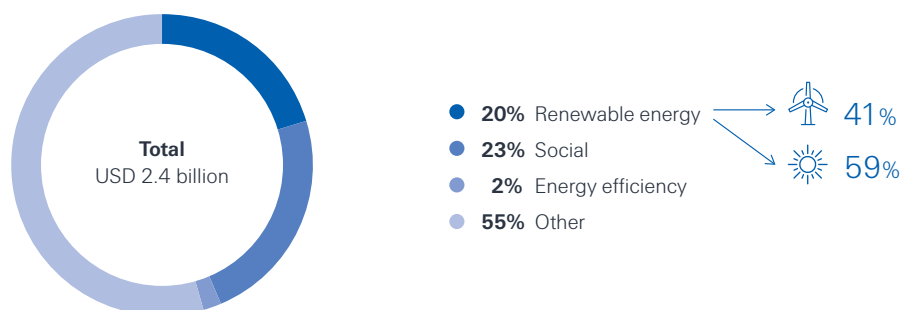
Social and renewable energy infrastructure debt

Swiss Re aspires to finance infrastructure projects that reflect its risk appetite and generate attractive long-term returns. This includes, for example, loans to finance infrastructure projects in renewable energy as well as loans to finance projects such as hospitals, student dorms or affordable housing.

As of 31 December 2022, Swiss Re held USD 0.5 billion in renewable energy debt¹, making up approximately 20% of the infrastructure debt portfolio, of which 59% was invested in solar energy generation and 41% in wind farms. Additionally, Swiss Re invested around USD 52 million in energy efficiency projects and USD 0.6 billion in social infrastructure projects.¹ In relation to

that, Swiss Re has achieved its target to deploy additional capital of USD 750 million² in renewable energy (including energy efficiency) and social infrastructure debt by the end of 2024 relative to year-end 2019 (see also page 174).

Infrastructure debt portfolio



¹ Based on US GAAP values. Amounts invested reflect the sale of ReAssure in 2020 and debt which has matured or been repaid since the base year 2019.

² Based on original face values.

Real estate

New real estate investments are evaluated regarding their current and future status with respect to energy efficiency and the use of sustainable materials. The management of properties already in the portfolio incorporate different ways to improve sustainability characteristics, as economically expedient.

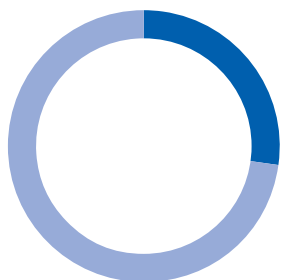
Swiss Re's real estate investment portfolio comprises commercial and residential buildings with a total market value of USD 5.5 billion as of 31 December 2022.

These are predominantly located in Switzerland, Germany, the US, the UK, Central and Eastern Europe (CEE) and remaining Western Europe (WE). For real estate investments in Switzerland, Swiss Re considers climate-related aspects such as the energy source (as a percentage of market value) and MINERGIE® certifications. MINERGIE® is a Swiss sustainability label for new and refurbished buildings. By the end of 2022, the combined market value of Swiss Re's MINERGIE®-certified buildings had reached

USD 0.7 billion, or 27% of the Swiss real estate portfolio by market value, which corresponds to an energy consumption floor area of 87 075 m².

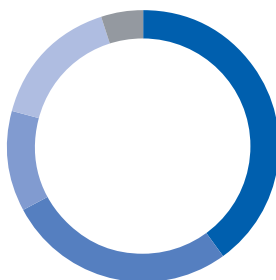
For the company's Swiss real estate portfolio, the preferred energy sources are either renewable energy (27%) or district heating (16%). Gas (40%) is currently the most prominent heating source in this portfolio and is favoured over oil (12%), given its smaller carbon footprint.

Swiss real estate portfolio: MINERGIE®-certified buildings



- 27% MINERGIE® certified
- 73% No certification

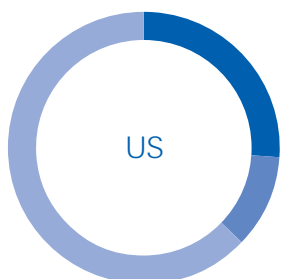
Swiss real estate portfolio: energy sources



- 40% Gas
- 27% Renewable energy
- 12% Oil
- 16% District heating
- 5% Other¹

US, CEE and WE, and UK real estate portfolios: certified buildings

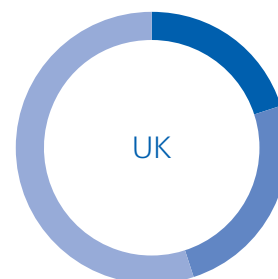
The externally managed real estate portfolio is predominantly invested in the US, CEE and the UK, and contains 38% certified buildings by market value. The UK portfolio is the most advanced with 45% BREEAM-certified buildings, followed by 38% certified buildings in CEE and remaining Western Europe (WE) and 37% LEED buildings in the US.



- 26% LEED "Gold"
- 11% LEED "Silver"
- 63% Not certified



- 21% BREEAM "Very Good"
- 17% DGNB "Gold"
- 62% Not certified



- 20% BREEAM "Excellent"
- 25% BREEAM "Very Good"
- 55% Not certified

¹ Includes wood pellets, projects under construction, land and non-heated assets.

Climate risk management

The processes used to identify, assess and manage climate-related risks are integrated into Swiss Re's risk management, underwriting and asset management activities.

Sound risk management, underwriting and asset management lie at the core of Swiss Re's businesses. This enables Swiss Re to use existing processes and instruments to address climate-related risks.

Re/insurance activities and own operations

Physical risks

Property re/insurance

Natural catastrophes are the key risk in Swiss Re's P&C re/insurance risk landscape, besides man-made risks. Climate change-related risks are not considered a risk category of their own, as their impact is reflected in the established risk categories where relevant.

Swiss Re has sophisticated risk models for all relevant natural catastrophe risks such as tropical cyclones, floods, winter storms and earthquakes. The models are based on the latest research and are updated both regularly and ad-hoc, if required. The updates make use of new scientific findings, including from research collaborations with academic institutions, and advances in computing and modelling capabilities.

Swiss Re's proprietary property natural catastrophe risk models are important tools for managing the business: they are used to determine the loss costs, the economic capital required to support the risks on Swiss Re's books as well as to allocate risk-taking capacity to different lines of business.

Secondary perils, which are smaller natural catastrophe scenarios such as flood, smaller storms or wildfire, have generated an increasing amount of property losses in recent years. This trend is expected to continue, fostered by asset growth in exposed areas, urbanisation and a warming climate. Swiss Re executes on a broad agenda regarding secondary perils to address these developments.

Life and health re/insurance

Climate change is one of many risk drivers for Swiss Re's life and health businesses. Mortality assumptions (base rates and trend) underlying the re/insurance business are formally reviewed at different intervals. Base mortality rates are updated at least once per year for major markets and less frequently for smaller markets, mostly based on recent experience data from Swiss Re's portfolio. The trend assumptions for the first 20 years are reviewed annually. For the longer term, they are reviewed once every four years.

The long-term trend assumption is where climate change impacts should be reflected, as the effects of climate change are slow moving and would manifest over a very long time horizon. In addition to external and internal data and analysis, the latest available scientific evidence regarding the impact of climate change on health outcomes is also considered. The results of this process are reviewed and approved by the Group Executive Committee. In its most recent adjustment in 2022, climate change was not considered a material enough factor to be incorporated into the revision.

Swiss Re's own operations

For Swiss Re's own operations, robust and regularly tested business continuity plans covering all locations are in place to mitigate the risk of climate-related disruptions. Strategies include transferring work and/or employees to unaffected Swiss Re locations and providing temporary alternative office space. Furthermore, the Own The Way You Work™ Programme, which was introduced in 2013, offers employees full flexibility in their work arrangements through the use of laptops and seamless access to a Swiss Re Virtual Workplace.

Transition risks

Swiss Re identifies, monitors and assesses transition risks as well as any relevant legal developments.

Swiss Re has risk monitoring in place for all types of transition risks described on pages 157–158. Technological developments are monitored through Swiss Re's respective underwriting units and the pricing of associated covers is reviewed annually.

To address some of the residual transition risks related to carbon-intensive industries, Swiss Re is developing a carbon risk steering mechanism. Its key component will be a carbon risk model designed to measure the carbon intensity and associated risks embedded in the re/insurance business. The related policies are described on this page. For further information about the mechanism, see Climate metrics and targets, page 173.

General sustainability risks in Swiss Re's re/insurance business

Swiss Re's ESG Risk Framework is a risk management instrument that enables the company to identify, assess and address environmental, social and human rights risks, as well as governance-related risks. This framework applies to Swiss Re's business activities, including re/insurance transactions and investments, where information granularity is available and a meaningful ESG risk assessment is possible. Two policies in the ESG Risk Framework are particularly relevant in the context of climate change: the Thermal Coal Policy and the Oil and Gas Policy.

Thermal Coal Policy

Since 2018, Swiss Re no longer provides direct insurance or facultative reinsurance¹ to businesses with more than 30% exposure to thermal coal utilities or mining. The policy applies to both old and new thermal coal projects and across all lines of business, and marked the first step towards the development of a carbon steering mechanism. For transactions in low- and middle-income countries that derive more than 70% of electricity from coal, existing power plants (ie operational before 2018) can be covered until 2025, if there is evidence that the insured is implementing an effective emission-reduction strategy.

Swiss Re has fully implemented the Thermal Coal Policy for direct insurance and facultative reinsurance business. In 2022, Swiss Re prepared the implementation of the Thermal Coal Policy extension for reinsurance treaties. The treaty policy extension defines thresholds for coal exposures in treaties across property, engineering, casualty, credit and surety, and marine cargo lines of business.

Thresholds for reinsurance treaty business came into effect at the beginning of 2023 and will then be gradually lowered until the final phase-out targets are reached; for OECD countries by 2030 and for non-OECD countries by 2040.

Oil and Gas Policy

Since July 2021, Swiss Re no longer provides direct insurance or facultative reinsurance¹ covers for those oil and gas companies that are responsible for the world's 5% most carbon-intensive oil and gas production. From July 2023, this threshold will increase to exclude the 10% most carbon-intensive oil and gas production companies.

Since July 2022, Swiss Re no longer provides direct insurance or facultative reinsurance¹ to companies and projects with more than 10% of their production located in the Arctic AMAP region (Norwegian production is exempt).



To learn more about the Swiss Re ESG Risk Framework and the thermal coal and oil and gas policies, please visit [the Swiss Re website](#).

From January 2023, Swiss Re no longer provides direct insurance or facultative reinsurance¹ for new oil or gas field projects.

Exceptions will apply such as for companies that are aligned with net-zero GHG emissions by 2050 as per SBTi validation or a comparable credible third-party assessment. Swiss Re continues to partner with energy clients on the net-zero transition and will align the company's re/insurance support to oil and gas companies according to the following ambitions:

- By 2025, half of Swiss Re's overall direct and facultative premium income are to come from oil and gas companies that are aligned with net zero by 2050 as per SBTi validation or a comparable credible third-party assessment.
- By 2030, Swiss Re's oil and gas re/insurance portfolios will only contain companies that are aligned with net zero by 2050 as per SBTi validation or a comparable credible third-party assessment.

Swiss Re is currently developing an approach for oil and gas in treaty reinsurance and will communicate on progress later in 2023.

¹ Under a facultative reinsurance contract, each risk or policy is negotiated and agreed on individually.

Investments

Climate-related risks can impact the value of Swiss Re’s investments and are therefore considered an important factor in its transition towards a low-carbon economy. By monitoring the portfolio GHG consumption and applying scenario analysis, Swiss Re assesses and manages

these risks using a structured approach. The table below shows an overview of the identified risks faced by Swiss Re (see Transition and physical risks, page 163) and how they are linked to the NGFS scenarios (see page 161). Swiss Re estimates the financial materiality¹ of transition risks as

low to medium for its largest asset classes (ie corporate bonds and sovereign bonds). Physical risks relating to smaller asset class holdings are currently considered as low in terms of materiality.

Risks	Time horizon ²	Asset classes in scope	NGFS scenarios	Materiality	Tools
Transition risks: Policy and legal Technology Market Reputation	Short and medium term	Corporate bonds	Orderly Disorderly	Medium	<ul style="list-style-type: none"> • GHG consumption • Policy monitor • Trend identification • Management monitoring • Revenue mix analytics
		Listed equity		Low	
		Sovereign bonds		Low to medium	
Physical risks: Acute Chronic	Long term	Real estate Infrastructure debt Commercial mortgage loans US commercial mortgage-backed securities	Hot house world	Low	<ul style="list-style-type: none"> • Weather forecasting/natural catastrophe analytics • Physical exposures analytics

GHG consumption monitoring

Swiss Re aims to identify those industries and groups of companies that are most exposed to transition risks by assessing their GHG consumption. In that regard, Swiss Re systematically monitors the carbon intensity of its corporate bond, listed equity and government bond portfolios, as well as parts of its real estate portfolio.

Additionally, Swiss Re uses temperature alignment methods to track forward-looking indicators for the corporate bond and listed equity portfolios. Temperature scores can provide signalling and reflect how a company’s emissions translate into global warming, and thus, where it stands on its decarbonisation journey. At this stage, Swiss Re uses the temperature alignment outputs mainly for internal purposes such as to identify portfolio leaders and laggards (see Climate metrics and targets, page 179).

In order to proactively manage the increasing risk of stranded assets, Swiss Re has taken action by applying fossil fuel-related exclusions and guidelines (see Climate strategy, page 164).

¹ Materiality defined as estimated scenario outcome based on factors published in the 2021 special topic edition of the Global Insurance Market Report ([The impact of climate change on the financial stability of the insurance sector](#)), also taking into account the time horizon and ALM considerations (sovereigns being largely invested in an ALM context).

² Short term: < 5 years, medium term: 5–10 years, long term: 10 years and more.

Scenario analysis

Swiss Re assesses the transition and physical risks arising from climate change under different climate change scenarios. In 2022, Swiss Re enhanced its analytical capabilities by running scenario pilots on different portfolios for the three specific NGFS climate scenarios Orderly, Disorderly and Hot house world.

To derive the investment portfolio's sensitivity under the three scenarios, focus is placed on corporate bonds and listed equity for the Orderly and Disorderly scenarios, while real assets are in scope for the Hot house world scenario.

Orderly: The orderly transition assumes timely action taken by the real economy to reduce emissions consistent with the Paris Agreement. This transition typically involves the immediate introduction of binding carbon prices and the availability of carbon-removal technologies, leading to net-zero GHG emissions between 2050 and 2070. Swiss Re's emission reduction targets for corporate bonds and listed equity are based on the IPCC 1.5°C pathway scenarios. Reducing the carbon intensity according to the target trajectory puts these asset classes on a decarbonisation pathway consistent with an orderly scenario in the short to medium term. Swiss Re's investment portfolio therefore had a low transition risk at the end of 2022. In this case, the economic impact on the portfolio is estimated to be low in the short term but can be higher for certain (especially energy intense) sectors if carbon costs increase. The listed equity portfolio has been assessed as being more vulnerable than the corporate bond portfolio, due to its larger exposure in energy-intensive sectors, buildings and agriculture. The corporate bonds' vulnerability in an orderly transition is low, with utilities expected to be impacted most by the transition to a low-carbon economy.

Given the economy itself still has to align to a 1.5°C world, the exposure to transition risk may change over time, in particular for carbon-intensive industries. The investee companies need to further reduce their carbon intensities such that the portfolio remains consistent with an orderly 1.5°C trajectory post-2030/2035.

Disorderly: A disorderly (ie late, disruptive) transition is consistent with the same expected temperature increase as in an orderly scenario, but with higher transition risk and cost associated with the transition. In this scenario, the delayed introduction of a carbon price leads to a higher starting point of the same and to a shorter period of time until net zero has to be reached. The transition therefore happens in a more disruptive manner compared to an orderly transition, which also impacts companies beyond the energy-intensive sectors. For the listed equity and corporate bond portfolios, Swiss Re expects a significant economic impact for climate-exposed industries, with higher vulnerability for companies and industries that did not adapt to climate change early on.

Hot house world: A hot house world scenario is expected to materialise through physical risks as economies will be exposed to physical damages on a larger scale due to the absence of sufficient transition actions. The physical risk analysis for Swiss Re's portfolio was done for real assets with clearly identifiable locations within Swiss Re's private debt portfolio (infrastructure debt and commercial mortgage loans), commercial mortgage-backed securities and real estate holdings. Swiss Re used its proprietary modelling tool Swiss Re Climate Risk Scores (see page 159) to calculate stresses and to assess the impact of an increase in severity and frequency of climate-related risks on the portfolios. Furthermore, portfolio changes under the different warming scenarios were modelled and evaluated. The results of both analyses suggest a low exposure of Swiss Re's real asset holdings to natural perils in general and to climate-related perils in particular, which translates into low to medium risks in the next 30–50 years. The low climate impacts are primarily tied to the portfolio's exposure to low risk locations, and cannot be interpreted as physical climate risks being low in general.

Climate metrics and targets

Swiss Re uses several metrics and targets to assess and manage relevant climate-related risks and opportunities and deliver on its commitment to net zero.

Swiss Re uses metrics and targets to measure and monitor climate-related risks and opportunities for its re/insurance business, investments and own operations.

Physical risks

Premium income related to natural catastrophes (USD billion)

	2020	2021	2022
World	3.7	3.9	4.8

For losses exceeding USD 20 million. Net of external expenses such as brokerage and commissions.

Re/insurance activities

Swiss Re uses complementary metrics to identify, assess and manage climate-related risks in its underwriting portfolios. Gross premiums written, annual expected losses, expected profit, reserves and risk model metrics such as tail value at risk (tail VaR) or value at risk (VaR) are used to identify financially material portfolios.

Annual expected losses

Swiss Re uses annual expected losses (AEL) from weather-related perils by region and peak scenario to identify material portfolios that are potentially exposed to changes in the frequency and severity of extreme weather events due to climate change.

These AEL can also be used as an indicator for the average current underwriting exposure to natural catastrophes caused by extreme weather. However, AEL figures do not, by definition, provide an adequate measure for the loss potential of individual years with exceptionally intense natural catastrophes. Adequate metrics for the risk of individual rare natural catastrophes are VaR or tail VaR. For example, the 99.5% VaR measures the loss likely to be exceeded in only one year out of two hundred, see Financial Report page 69, where the results of insurance risk stress tests are provided for the peak insurance risks.

The AEL figures are the result of modelled extreme weather events, the vulnerability of insured assets and operations, their values and the volume and structure of insurance products. There are many drivers for changes of AEL, but the main factor is portfolio changes in the assumed insurance risk on the back of market dynamics. Furthermore, model adjustments for physical climate change risk, changes in the vulnerability of insured assets and operations, and their values or changes in the Group's business strategy are other drivers of change. AEL figures are updated on an annual basis and are used to identify the largest portfolios exposed to weather-related catastrophes that could be impacted by climate change.

The table on the next page shows the AEL by region and peril as well as the highest AEL for Swiss Re's business as of year-end 2022.



Download all the data in the TCFD and the Sustainability Report from the Swiss Re website (Excel).

Gross AEL for weather-related perils by region and for peak exposures, Swiss Re Group (2020–2022, USD million)

	2020	2021	2022
Total	2 170	2 010	2 470
North America	1 005	1 000	1 300
Latin America	220	185	200
EMEA	355	295	420
Asia	415	360	350
Oceania	175	175	190
Tropical cyclone	1 150	1 055	1 160
North America	615	580	700
Latin America	180	160	170
EMEA	0	0	0
Asia	310	280	250
Oceania	45	35	40
Convective storms	330	360	530
North America	240	255	390
Latin America	0	0	0
EMEA	45	40	70
Asia	0	0	0
Oceania	45	65	70
Flood	340	320	470
North America	80	85	140
Latin America	30	25	30
EMEA	110	105	140
Asia	85	75	90
Oceania	35	30	60
Windstorm	230	190	240
North America	50	50	30
Latin America	0	0	0
EMEA	180	140	200
Asia	0	0	10
Oceania	0	0	0
All other perils	120	90	80
North America	20	30	40
Latin America	10	0	0
EMEA	20	10	10
Asia	20	5	0
Oceania	50	45	20
Peak exposures			
Tropical cyclone North Atlantic	770	720	840
US convective storm	240	260	380
European windstorm	180	140	190
Tropical cyclone Japan	210	180	160
European flood	100	100	130

Regional figures may not add up to the world total due to rounding.

AEL from the following lines of business are covered: property, engineering, marine, liability, aviation, motor and multilines. The first two account for 95% of total AEL.

Transition risk

Since 2018, Swiss Re has been using weighted average carbon intensities as proposed by the CRO Forum to identify the most carbon-intense direct insurance portfolios. Gross premiums written is used as the weight for calculating revenue-based greenhouse gas (GHG) intensities.

Company data for Scope 1 and 2 emissions, as well as estimated sectoral data are used as a basis. There are, however, still significant limitations to data availability, and carbon footprint estimates for re/insurance underwriting are thus marked by considerable uncertainty.

To support its ambition of achieving net zero in underwriting, Swiss Re is developing a comprehensive carbon steering mechanism. This includes the quantification of Swiss Re's absolute GHG emissions and associated risks related to its re/insurance business. In 2022, Swiss Re assumed a leading role in various industry initiatives establishing standards for measuring GHG emissions associated with insurance portfolios (so-called insurance-associated emissions (IAE)), as well as on how to set related targets (see box on the right).

In light of the new standards, Swiss Re is updating its carbon accounting approach with new and enhanced data sources and estimates.¹ Swiss Re plans to publish the IAE of its direct and facultative re/insurance portfolios as well as a related interim target by July 2023 [on its website](#). Carbon intensities will continue to be used for internal risk analyses.

Swiss Re taking a leading role in the NZIA and PCAF working groups

The UN-convened Net-Zero Insurance Alliance (NZIA) is a group of 30 leading re/insurers who have individually committed to transitioning their underwriting portfolios to net-zero GHG emissions by 2050.

Swiss Re was one of the eight founding members of NZIA in 2021. In 2022, it assumed an important role, serving as the Chair of the NZIA Metrics and Targets Workstream. The NZIA collaborated with the [Partnership for Carbon Accounting Financials \(PCAF\)](#) to develop the Accounting and Reporting Standard for Insurance-Associated Emissions. Swiss Re chaired the PCAF Working Group and also led the work on the NZIA Target-Setting Protocol.

The PCAF Working Group started its work in October 2021. Following a targeted consultation with key stakeholders and a public consultation in July 2022, the [first version of the Global GHG Accounting and Reporting Standard for Insurance-Associated Emissions](#) was successfully launched in November 2022. This is the first methodology that provides guidance on measuring and disclosing GHG emissions associated with commercial lines and personal motor lines direct insurance and facultative reinsurance portfolios.

The first version of the Standard can be applied to more than 70% of the global property and casualty primary insurance market. It doesn't cover treaty reinsurance, the majority of Swiss Re's business, but, the working group aims to extend its scope further. The global, standardised methodology is intended to provide re/insurers with deeper insight

into the risk profile of their respective underwriting portfolios, stimulate innovative approaches to decarbonisation and create comparability for stakeholders.

In parallel, the NZIA has started working on a Target-Setting Protocol. This protocol sets out the NZIA's recommended approach to target setting and reporting. The goal was to support re/insurers in beginning to set science-based, interim decarbonisation targets for their respective insurance and reinsurance underwriting portfolios in line with a net-zero transition pathway that would limit global warming this century to 1.5° C. In November 2022, a public consultation on the draft protocol provided an opportunity for the wider insurance industry (eg other re/insurers, brokers, insurance associations and initiatives) and key stakeholders (eg insurance regulators and supervisors, rating agencies, policymakers, civil society organisations/NGOs) to provide feedback.

[Version 1.0 of the Target-Setting Protocol](#) was published in January 2023. It defines five different target types within the three categories "emission reductions", "engagement" and "other" (other currently only contains the target type re/insuring the transition). NZIA members have committed to publishing at least one individual and company-specific target by July 2023. A year later, they must publish at least three targets that cover all three categories.

Work in the NZIA Metrics and Targets Workstream will remain crucial in order to expand the scope of guidance on measuring and disclosing Insurance-Associated Emissions, and setting science-based interim and long-term targets.

¹ Due to the high uncertainty and in light of the recently established PCAF standard, Swiss Re has not updated the GHG emission intensity figures for 2022. For 2021, the value was 120 tonnes CO₂e/USD million revenue. This is below the carbon intensity of the corporate bond benchmark used for investments and also below the carbon intensity of Swiss Re's corporate bond portfolio (see page 176).

Investments

As part of its climate action approach and transition to a net-zero GHG emissions investment portfolio by 2050, Swiss Re sets intermediate targets every five years and regularly reports on them. Targets were set in 2020 for 2025 in accordance with the AOA Target Setting Protocol (TSP) version 1. The targets aspire to align Swiss Re's investment portfolio with a 1.5°C world, and include financing transition, engagement, sub-portfolio and sector targets.

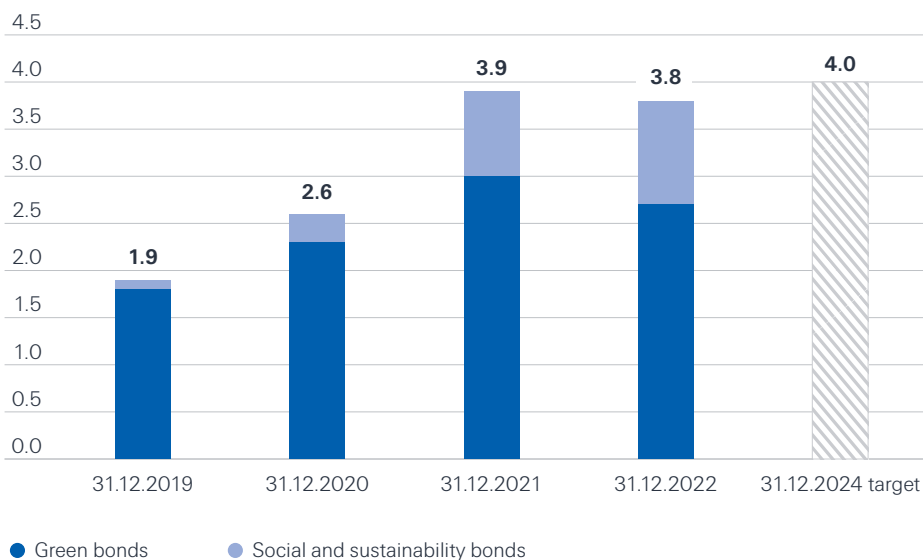
Climate targets

Financing transition

Green bonds contribute to the transition to a low-carbon economy. By the end of 2022, Swiss Re held USD 2.7 billion in green bonds. As part of Swiss Re's transition strategy, its mandate also considers social and sustainability bonds, which enable a company to support underserved groups or populations, thus having a positive impact on society. Swiss Re's ambition is to achieve an investment portfolio of USD 4 billion of green, social and sustainability bonds by the end of 2024. Swiss Re held USD 3.8 billion in green, social and sustainability bonds per year-end 2022. The decrease in the amount of green bonds compared with year-end 2021 is due to higher yields, which outweighed purchases (after offsetting matured bonds). Bonds are only counted for target achievement if they meet all four components of the International Capital Market Association (ICMA) Green or Social Bond Principles, or the ICMA Sustainability Bond Guidelines. In 2022, less than 7% did not pass the review and were therefore not included in the reporting of Swiss Re's green, social and sustainability bond holdings.

In alignment with the aspiration to finance the transition, Swiss Re has also set a target to deploy additional capital of USD 750 million¹ in social and renewable energy infrastructure debt, including energy efficiency, by the end of 2024 relative to year-end 2019. As of 31 December 2022, it invested a total of USD 751 million compared with the base year, thus reaching the target ahead of time.

Green, social and sustainability bond holdings since target inception (USD billion)



In 2022, Swiss Re evaluated the reporting requirements for its carbon-intensive energy infrastructure debt portfolio as defined in the AOA TSP version 2. As the direct holdings are close to nil, the position is considered as not material from a reporting perspective.

Engagement

Swiss Re believes that engagement with the real economy is an integral component for supporting the limitation of global warming to 1.5°C. In 2020, it therefore established an Engagement Framework supporting the aspired emission reduction described in the sub-portfolio paragraph below and the real-world transition to a low-carbon economy. For additional information on Swiss Re's stewardship activities, see the Sustainability Report 2022, pages 39–40.

Sub-portfolio

Swiss Re is committed to transitioning its investment portfolio to net-zero GHG emissions by 2050. Informed by IPCC's² pathways consistent with global warming of 1.5°C, Swiss Re introduced a target for the combined corporate bond and listed equity portfolio to reduce its carbon intensity by

35% to be achieved by the end of 2024 relative to 2018. Furthermore, Swiss Re set a target to reduce the carbon intensity for its Swiss and German real estate investment portfolio by 5% with 2018 as the base year, to be achieved by year-end 2024. For information on the progress made against these targets, see Climate metrics, pages 175–178.

Sector

Coal assets are particularly carbon intensive and susceptible to becoming stranded given the long life of these assets, as well as the evolving regulations on carbon emissions. Swiss Re aims to fully exit coal-related assets for the listed equity and corporate bond portfolios via normal portfolio reallocations by 2030. Further, Swiss Re does not invest in fossil fuel-related companies that are above certain thresholds, as described in the Climate strategy section, page 164.

¹ Based on original face values.

² IPCC (2018). Global Warming of 1.5°C: An IPCC Special Report on the impacts of global warming of 1.5°C above pre-industrial levels and related global greenhouse gas emission pathways, in the context of strengthening the global response to the threat of climate change, sustainable development, and efforts to eradicate poverty. <https://www.ipcc.ch/sr15/chapter/spm/>.

Climate metrics

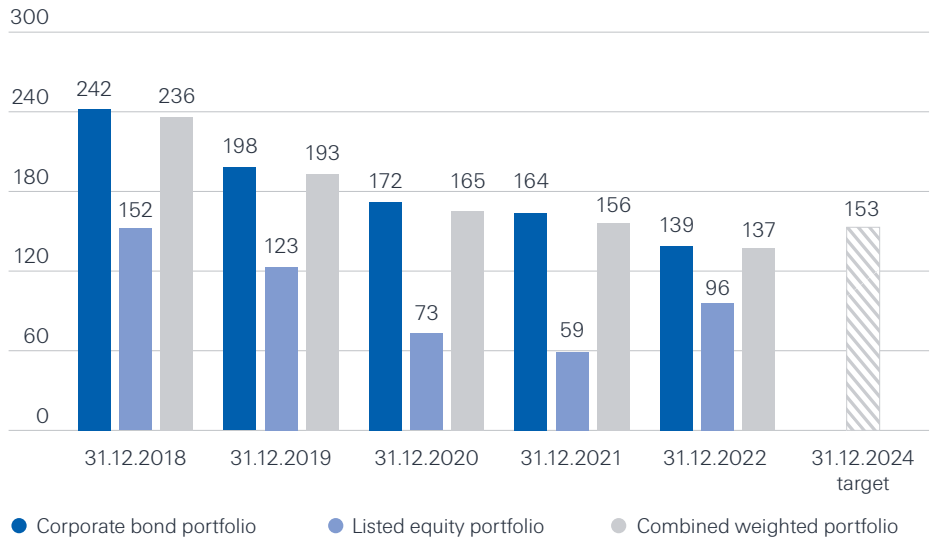
Carbon footprint of the corporate bond and listed equity portfolios¹

Swiss Re measures the carbon footprint of its corporate bond and listed equity (incl ETFs, excl strategic holdings) portfolios by using the weighted average carbon intensity (WACI, revenue-based taking Scope 1 and 2 CO₂e emissions² into account) and absolute financed CO₂e emissions. Carbon intensity is particularly useful to quantify the carbon consumption for multi-asset portfolios and a measure of choice for comparisons over time, between portfolios and against benchmarks. Swiss Re also sets its emissions reduction targets based on this metric.

The carbon intensity of Swiss Re’s combined corporate bond and listed equity portfolio decreased by 42% relative to base year 2018.

These assets cover 33% of the total investment portfolio. The increase in the listed equity carbon footprint versus 2021 depicted in the chart on the right was mainly driven by investment decisions: in 2022, the listed equity exposure was reduced in light of the cautious investment outlook, which led to a change in the equity portfolio’s composition.

Carbon intensity of the corporate bond and listed equity portfolios (tonnes CO₂e/USD million revenue)



At the end of 2022, the **absolute financed emissions (Scope 1 and 2) amounted to 1.1 million tonnes CO₂e (corporate bond and listed equity portfolio, excl ETFs)**. Moreover, Swiss Re conducted an analysis on Scope 3 emissions for listed equity and corporate bonds with the aim to improve understanding of data availability and quality.

The analysis revealed that at this stage and in contrast to Scope 1 and 2 emissions data, Scope 3 figures pose challenges regarding quality, consistency and stability over time. While full disclosure remains a target, further work on the availability and quality of underlying data must advance to derive meaningful Scope 3 outputs.

¹ All carbon intensities from MSCI ESG as of February 2023, based on holdings as of December 2022. Carbon intensity: weighted average carbon intensity = (company CO₂e emissions/company revenue) * (investment/portfolio).
² CO₂ equivalents (CO₂e), which include greenhouse gases as per the definition of the GHG Protocol (CO₂, CH₄, N₂O, HFCs, PFCs, SF₆, NF₃) as far as data is available.

Corporate bonds carbon intensity reduction since target base year (end of 2018)

The corporate bond emission reduction of 103 tonnes CO₂e/USD million revenue (or 43%) since the end of 2018 was driven by the change in reported intensities (–21 tonnes CO₂e/USD million revenue) and portfolio rebalancing activities (–82 tonnes CO₂e/USD million revenue). A lower carbon intensity was achieved by reducing the allocation to utilities, but also by overweighting companies with more favourable intensities within the same industry. Further, the change in reported intensities shows that there was a broader market trend across companies to reduce their carbon emission intensity. While Swiss Re’s preference is to achieve the target mainly through security selection, further rebalancing is required to achieve the envisaged carbon intensity profile by the end of 2024.

Drivers of carbon intensity reduction from 2018 to 2022: corporate bond portfolio¹

Investment portfolio	2018		2022		Sector perspective		
	Carbon intensity (tonnes CO ₂ e/USD million revenue)				Sector allocation	Security selection	
Carbon intensity (tonnes CO ₂ e/USD million revenue)	242		139		-59	-44	
Change in reported intensities		-21					
Rebalancing		-82					
Total		-103					
					Utilities		
					Energy		
					Financials		
					Transportation		

● Decrease ● Unchanged ● Increase

Corporate bond weighted average carbon intensity relative to benchmark

The lower corporate bond portfolio carbon intensity in 2022 was driven by selective reductions in high carbon-intensive names. It is well below the corresponding benchmark in terms of carbon intensity, which is largely driven by its underweight in carbon-intensive holdings.

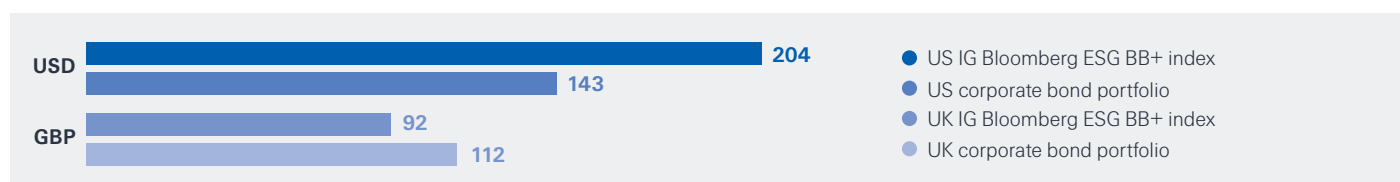
Carbon intensity as per year-end 2022: corporate bond portfolio vs benchmark¹

December 2022	Investment portfolio	Benchmark		Sector perspective		
		Corporates IG Bloomberg MSCI ESG BB+ ²		Sector allocation	Security selection	
Carbon intensity (tonnes CO ₂ e/USD million revenue)	139		194	-22	-33	
				Utilities		
				Energy		
				Financials		
				Transportation		

● Underweight ● In line with benchmark ● Overweight

Comparing the current investment portfolios against the US and UK market benchmarks, a lower carbon intensity versus the USD benchmark, but a higher one versus the GBP benchmark is apparent.

Corporate bond weighted average carbon intensity per year-end 2022 (tonnes CO₂e/USD million revenue)¹



¹ All carbon intensities from MSCI ESG as of February 2023, based on holdings as of December 2022. Carbon intensity: weighted average carbon intensity = (company CO₂e emissions/company revenue) * (investment/portfolio).

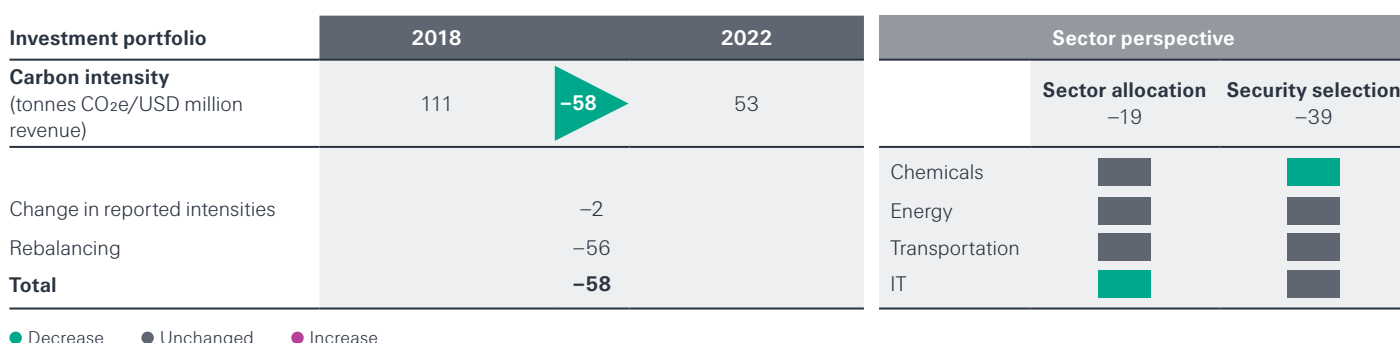
² This benchmark is a composite of main developed markets corporate credit indices.

Listed equity carbon intensity reduction since base year (end of 2018)

The chart below shows an intensity reduction of 58 tonnes CO₂e/USD million revenue (or 52%) relative to 2018. The scope differs from the one applied for Swiss Re’s emissions reduction target that includes equity ETFs.

Since the listed equity portfolio is actively managed and more concentrated than the credit portfolio, the majority of the decline was driven by portfolio rebalancing (–56 tonnes CO₂e/USD million revenue) and only a minor reduction is due to changes in reported intensities (–2 tonnes CO₂e/USD million revenue). Security selection was hence the main driver of change, while reduction of exposures in some key sectors had a relatively modest impact.

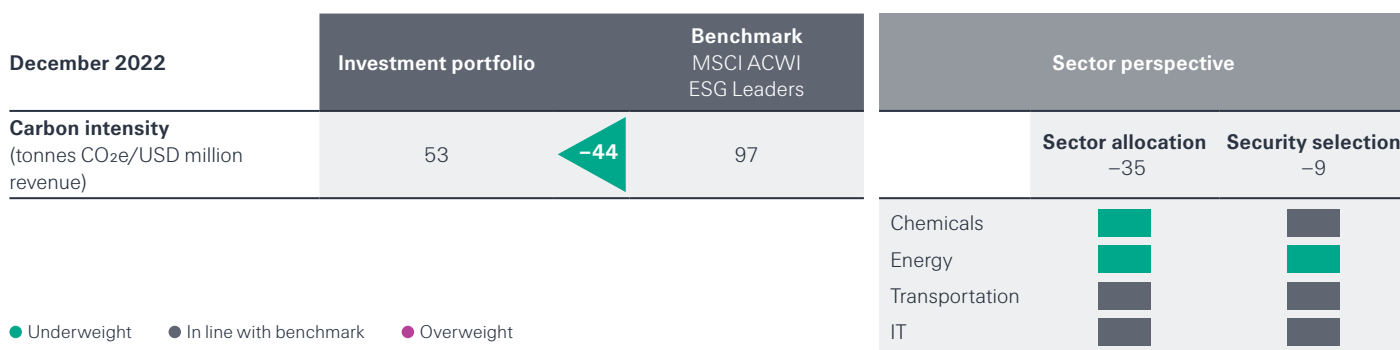
Drivers of carbon intensity reduction from 2018 to 2022: listed equity portfolio¹



Listed equity carbon intensity relative to benchmark

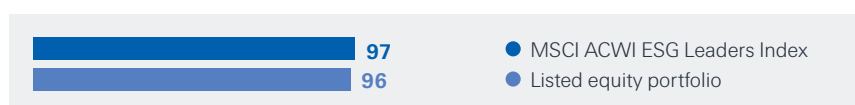
The comparison below shows that the lower carbon intensity of the actively managed listed equity portfolio versus the benchmark can be mostly attributed to the underweight in carbon-intensive industries, while the selection of companies within the index had a minor effect.

Carbon intensity as per year-end 2022: listed equity portfolio vs benchmark¹



The carbon intensity profile of Swiss Re’s listed equity portfolio including ETFs has a slightly superior carbon intensity profile compared to the market benchmark (ESG Leaders version of the MSCI ACWI Index).

Listed equity weighted average carbon intensity per year-end 2022 (tonnes CO₂e/USD million revenue)²



¹ All carbon intensities from MSCI ESG as of February 2023, based on holdings as of December 2022. Carbon intensity: weighted average carbon intensity = (company CO₂e emissions/company revenue) * (investment/portfolio). Excluding ETFs.

² All carbon intensities from MSCI ESG as of February 2023, based on holdings as of December 2022. Carbon intensity: weighted average carbon intensity = (company CO₂e emissions/company revenue) * (investment/portfolio). Including ETFs.

Carbon footprint of the Swiss and German real estate portfolio

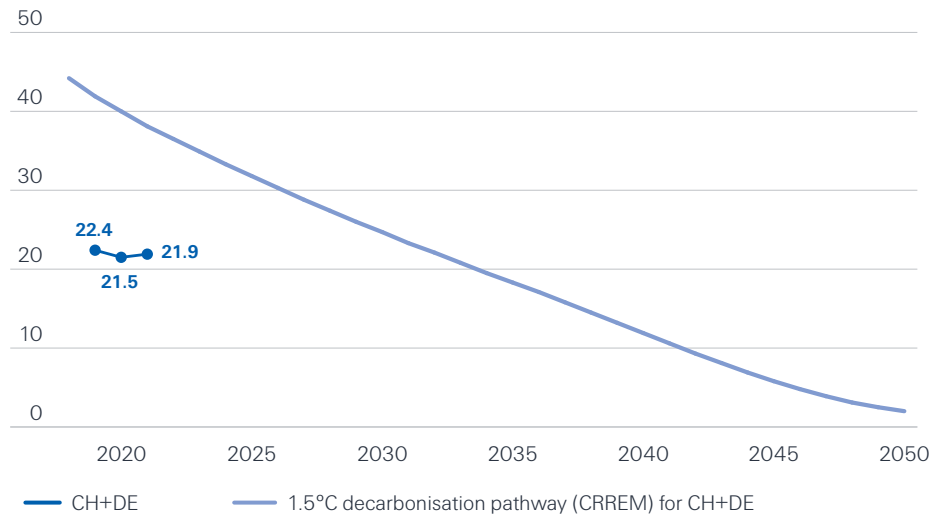
The analysis focuses on the combined Swiss and German portfolio, which made up 66% of market value of the total direct real estate holdings per year-end 2022. The weighted carbon intensity profile of this portfolio (WACI, m²-based taking annual Scope 1, 2 and 3 operational emissions into account) is benchmarked against decarbonisation pathways reflecting 1.5°C global warming provided by the Carbon Risk Real Estate Monitor (CRREM) tool. The

CRREM pathways are in line with the Paris Agreement and are based on the breakdown of the global GHG budget into individual country and property type-specific carbon budgets.

The **absolute financed emissions of the portfolio amounted to around 15 000 tonnes CO₂e in 2021**. The graph below shows that its carbon intensity decreased by 2% between 2019 and the end of 2021, and is well below the decarbonisation pathway of 1.5°C. The

decrease can be attributed to a less carbon-intensive energy source mix in the portfolio, which more than offsets a marginal increase (1%) in energy intensity over the same period. However, further improvements in energy efficiency will be needed post-2030.

Carbon intensity of the Swiss and German real estate portfolio (kg CO₂e/m²/year)

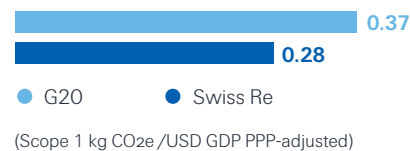


Note: Compared with last year's report, the scope of the data displayed in the chart has increased to cover Switzerland and Germany (from covering Switzerland only), and hence reflects the combined emissions.
Source: Swiss Re, CRREM

Government bond carbon intensity as per year-end 2022

Asset-liability management is at the core of the investment approach taken for the composition of Swiss Re's government bond portfolio. In 2022, the portfolio was less carbon intensive compared to the G20 due to its higher allocation to low-carbon intensity countries.

Carbon intensity of government bond portfolio versus G20 per year-end 2022¹



¹ Based on holdings as of December 2022. CO₂ emissions (actual), GHG emissions (estimated) and GDP (actual) data as of 2021, with GDP PPP-adjusted in 2017 USD terms (sources: MSCI ESG, WDI, CIA, EDGAR). Carbon intensity: weighted average carbon intensity = (GHG emissions/GDP PPP-adjusted) * (investment/portfolio).

Temperature alignment assessment for the listed equity and corporate bond portfolios

Since 2021, Swiss Re has applied a temperature alignment view on the listed equity and corporate bond portfolios. The methodology is based on a company's aspired intensity reduction and the related emission projections. This metric has the benefit of providing an outlook element and thus a certain degree of signalling. The results and analytics of temperature alignment scores allow for a granular assessment of the carbon risks embedded in Swiss Re's holdings and help gain an in-depth understanding of the portfolio positioning. Nevertheless, comparability

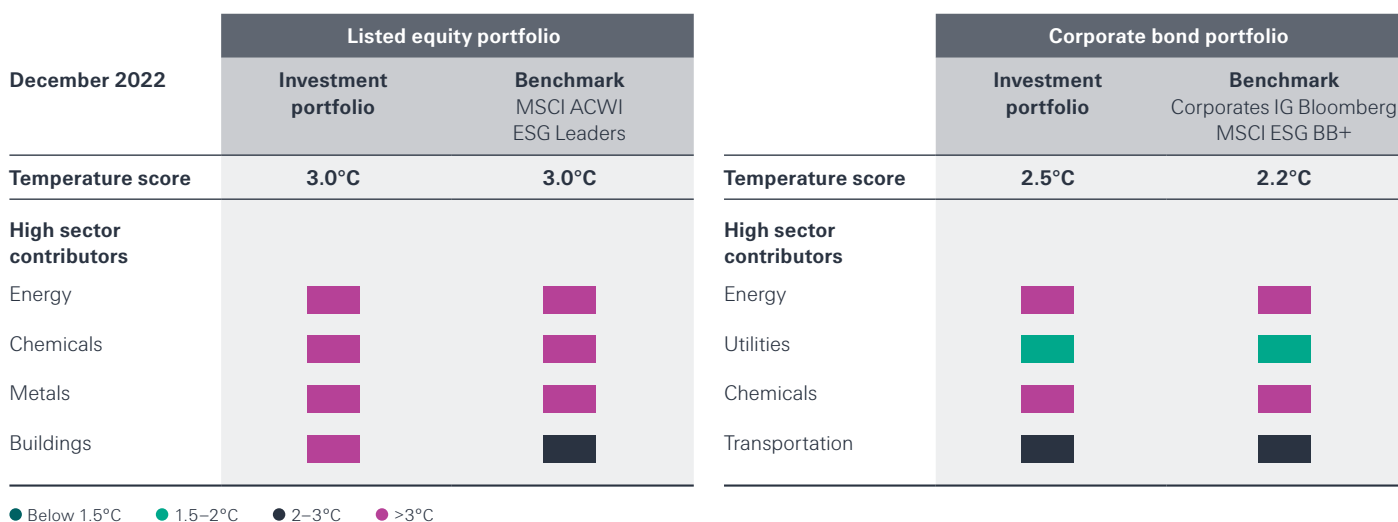
across methodologies and providers is limited in the absence of recognised global standards and given these methods are still evolving. Consequently, temperature alignment outputs from different providers are not comparable. Furthermore, the timeliness and quality of data remains a challenge: the latest available datapoint for the forward-looking projections relies on year-end 2021 company filings.

The two metrics carbon intensity and temperature score can lead to different outcomes as the carbon intensity describes where Swiss Re's portfolio is based on past emissions, while the temperature score shows where it is heading in the future.

Further, they also differ in terms of scope, coverage and timing.

The temperature alignment score for Swiss Re's listed equity portfolio is at 3.0°C, in line with the corresponding benchmark. The corporate bond portfolio's temperature score is at 2.5°C, which is higher than the benchmark score of 2.2°C. The higher score in the portfolio can be explained by security selection effects within some sectors. These scores highlight that more actions are required to align Swiss Re's investment portfolio and the broader economy with a 1.5°C pathway.

Temperature alignment comparison of portfolio vs benchmark¹



¹ Temperature-related data from Trucost as of February 2023, based on holdings as of December 2022.

Greenhouse gas emissions from Swiss Re's operations (Scope 1, 2 and 3)

In 2019, Swiss Re committed to reaching net-zero GHG emissions across its operations by 2030.¹

CO2NetZero Programme

Swiss Re has been placing a strong focus on reducing its own greenhouse gas (GHG) emissions and energy consumption for around 20 years. In 2019, Swiss Re committed to reaching net-zero GHG emissions across its operations by 2030. Following the standardisation work undertaken by SBTi in 2021 and 2022, Swiss Re has decided to embed these definitions and high-level principles in its CO2NetZero Programme for operational emissions, while voluntarily continuing to go beyond SBTi's minimum requirements and bearing in mind that net zero is still a concept under development for financial institutions.

Swiss Re's transition path to net zero consists of three elements:

- Swiss Re focuses on reducing GHG emissions within its operational value chain as much and as quickly as possible, setting both near-term and long-term science-based reduction targets that are aligned with a 1.5°C-compatible pathway. At the end of 2022, near-term targets for operational emissions were submitted to the SBTi for validation (see Sustainability Report 2022, page 17 for details on the targets). Long-term targets will be developed after the release of the applicable standard for financial institutions (see Sustainability Report 2022, Net zero for financial institutions, page 52 for further background).
- Swiss Re is keen to support the development of the carbon removal market through early engagement. The Group has set a voluntary target to purchase 100% carbon removal certificates as early as 2030, fully covering the remaining operational emissions that are in scope for compensation in that year.²

- Swiss Re will continue to compensate its remaining emissions with carbon avoidance and removal certificates³, linearly increasing the share of carbon removal certificates purchased annually from 0% in 2020 to 100% in 2030. Both certificate types will continue to meet Swiss Re's quality criteria in terms of integrity, durability, scalability and social co-benefits. This voluntary course of action is encouraged by SBTi and defined as "beyond value chain mitigation".

These three elements are encapsulated in the motto "Do our best, remove the rest". See Sustainability Report 2022, pages 54–57 for more information on the principal measures Swiss Re has recently taken under this motto.

The Carbon Steering Levy

In early 2021, Swiss Re became the first multinational company to introduce an ambitious triple-digit real internal carbon price on both direct and indirect operational GHG emissions. It covers all Scope 1, all Scope 2 (market-based) and a significant part of upstream Scope 3 emissions (ie business travel, fuel and energy-related activities, paper, water and waste) across all of the Group's Business Units, functions and locations.

In 2022, the internal price per tonne of CO_{2e} (Carbon Steering Levy) was set at USD 112 – up from USD 100 in 2021. This increase is part of the plan to gradually raise the levy to USD 200 per tonne of CO_{2e} by 2030, which reflects the expected market price for high-quality carbon removal certificates at that point in time.

¹ The commitment was based on the following definition of net zero: for every tonne of GHG that cannot be avoided, an equivalent amount of CO₂ needs to be removed from the atmosphere and stored permanently.

² Swiss Re's operational GHG emissions in the current scope for compensation are Scope 1, Scope 2 and a significant part of upstream Scope 3 (ie business travel, fuel- and energy-related activities, paper, water and waste).

³ Carbon removal certificates: emitters pay third parties for removing emissions from the atmosphere and store them durably (also known as "carbon removals"). Carbon avoidance certificates: emitters pay third parties to avoid or reduce someone else's emissions (commonly known as "carbon offsets").

The levy is the overarching element of Swiss Re's CO2NetZero Programme, as it helps the company to simultaneously meet both its "do our best" and "remove the rest" objectives:

- Placing an increasing price on carbon is expected to incentivise concrete actions on emissions reduction – hence the name Carbon Steering Levy.
- The Carbon Steering Levy will generate the funds required to cover the rising costs of the carbon certificates mix used for emissions compensation, as the share of carbon removals is planned to linearly increase to 100% in 2030.

Since the carbon removal industry is still in its infancy, carbon removal certificates are expensive at present. Prices will decrease over time as technologies and markets mature, but for high-quality removals they will likely remain above the level of Swiss Re's Carbon Steering Levy until the end of the decade. Meanwhile, conventional carbon offsets – including the high-quality ones Swiss Re has bought in the past and will continue to buy – are expected to remain available at prices well below its internal Carbon Steering Levy. Mixing higher-cost removals with cheaper offsets will make it possible to balance the Group's average carbon certificate price so it never exceeds the level of the Carbon Steering Levy in any given year.

Finally, with its ten-year time horizon the Carbon Steering Levy helps eliminate planning uncertainty. In particular, it allows Swiss Re to source certificates through long-term purchase agreements, thus sending a strong signal to the market.

Greenhouse gas emissions data disclosure

In 2022, Swiss Re's operational GHG emissions totalled 29 069 tonnes of CO₂e¹ – roughly a three-fold increase from the previous year, which was still strongly impacted by the COVID-19 pandemic. Compared with 2018 operational emissions have decreased by 69% in absolute terms.

Swiss Re has disclosed its operational environmental performance indicators, including GHG emissions and their relative performance over time since 2003, expanding the reporting scope with effect from 2013.

Its operational GHG inventory is based on the guidelines of the Greenhouse Gas Protocol – Corporate Standard, the most widely used international standard for the accounting and reporting of GHG emissions.

The full disclosure of the Group's operational GHG emissions and the underlying environmental indicators for 2022 can be found in the Appendix of the Sustainability Report 2022, pages 72–75.

While Swiss Re strives to continuously improve its calculation methodology for the GHG emissions within the current reporting boundary, it also acknowledges the existence of a large portion of operational Scope 3 categories with considerable measurement uncertainty. These emissions are reported only as initial estimates at present. Most of them stem from the activities in the Group's supply chain and are usually referred to as "embodied emissions" in the buildings, products and services needed to run the core business operations. For an overview of Scope 3 operational GHG emissions, including estimates, please see page 183.

These Scope 3 emissions are difficult to quantify accurately because their sources are beyond Swiss Re's direct operational control; the corresponding accounting methodologies and data collection systems are not yet mature or standardised. Swiss Re understands the need to engage with its vendors on the topic of climate change mitigation. The future objectives of this collaboration are: identifying and measuring material emissions; setting science-based emission reduction targets; and decarbonising the Group's supply chain in line with the ambition of achieving net zero globally by 2050.

¹ Emissions from Scope 2 electricity are market-based, see also the data table on the following page.

Data tables

All figures are reported on a hydrological year basis (ie 12 months from 1 October to 30 September), except for "Business travel" figures, which are reported on a calendar year basis (ie 12 months from 1 January to 31 December). 2018 is the base year used to measure progress against targets.

GHG emissions (absolute)	Unit	2018 (base)	2020	2021	2022
Scope 1	Tonnes CO₂e	4 186	2 901	2 665	2 902
Fossil fuels used for energy generation (heating and electricity)	Tonnes CO ₂ e	2 849	2 111	2 104	2 058
Technical gases	Tonnes CO ₂ e	922	537	494	679
Operational road travel ¹	Tonnes CO ₂ e	415	253	67	165
Scope 2 (electricity: market-based)	Tonnes CO₂e	1 359	81	61	64
Purchased electricity (location-based) ²	Tonnes CO ₂ e	11 687	8 494	7 188	7 868
Purchased electricity (market-based)	Tonnes CO ₂ e	1 241	0	0	0
Purchased district heating	Tonnes CO ₂ e	118	81	61	64
Scope 3³	Tonnes CO₂e	87 082	18 211	7 890	26 103
Purchased goods and services (Scope 3 cat. 1, currently including only paper and water)*	Tonnes CO ₂ e	351	189	125	80
Fuel- and energy-related activities (Scope 3 cat. 3) ⁴	Tonnes CO ₂ e	2 042	1 061	865	954
Waste generated in operations (Scope 3 cat. 5)	Tonnes CO ₂ e	311	166	133	289
Business travel (Scope 3 cat. 6) ⁵	Tonnes CO ₂ e	69 653	10 028	4 594	19 599
Commuting (Scope 3 cat. 7) ⁶	Tonnes CO ₂ e	14 726	6 767	2 173	5 180
Operational emissions⁷	Tonnes CO₂e	92 627	21 192	10 616	29 069
Operational emissions in scope for compensation⁸	Tonnes CO₂e	77 901	14 426	8 442	23 889

Carbon certificates	Unit	2018 (base)	2020	2021	2022
Total amount of retired carbon certificates	Tonnes CO₂e	69 343	27 249	9 409	25 034
Certificates retired for compensation of operational emissions ⁹	Tonnes CO ₂ e	69 343	27 249	8 387	23 889
Certificates retired as part of the NetZeroYou2 Programme ¹⁰	Tonnes CO ₂ e	n/a	n/a	1 022	1 145
Share of carbon avoidance certificates ("offsets")	%	100	100	65	76
Share of carbon removal certificates ("removals")	%	0	0	35	24

GHG emissions (intensity)	Unit	2018 (base)	2020	2021	2022
Scope 1	kg CO₂e/FTE	301	203	180	189
Scope 2 (market-based)	kg CO₂e/FTE	98	6	4	4
Scope 2 (location-based)¹¹	kg CO₂e/FTE	850	601	489	516
Scope 3²	kg CO₂e/FTE	6 271	1 275	532	1 700
Operational emissions⁷	kg CO₂e/FTE	6 670	1 484	716	1 893

¹ "Operational road travel" figures include emissions from Swiss Re's own or third-party operated road fleet (eg shuttle buses, pool cars and logistic vehicles).

² Figure for the year 2021 has been restated due to the update of emission factors for conventional electricity.

³ Operational Scope 3 emissions included in the current reporting boundary. Swiss Re acknowledges the existence of a large portion of operational Scope 3 emissions that is currently only estimated and therefore not reported in this table. For more information, see table "GHG emissions (absolute) – Scope 3" on page 183.

⁴ "Fuel- and energy-related activities" figures include upstream emissions from purchased fuels and electricity and from energy transmission and distribution losses, not included in Scope 1 or Scope 2.

⁵ Figures for the years from 2018 to 2021 have been restated due to the inclusion of upstream components (fuel well-to-tank and energy transmission and distribution losses) in the emission factors for cars and trains used in business ground travel.

⁶ Figures for the years from 2018 to 2021 have been restated due to the inclusion of upstream components (fuel well-to-tank and energy transmission and distribution losses) in the emission factors for cars, motorbikes, trains and electric cars used in employee commuting. "Commuting" figures are obtained by means of biannual surveys and have considerable measurement uncertainty. The survey was last performed in 2019 and results have been adjusted in 2020, 2021 and 2022 (normalised by employees entering company premises) to account for COVID-19 impact.

⁷ Total operational emissions are the sum of Scope 1, Scope 2 (market-based) and Scope 3.

⁸ Current emissions in scope for compensation include Scope 1, Scope 2 and part of upstream Scope 3 (business travel, fuel- and energy-related activities, paper, water and waste). Commuting is not included.

⁹ Carbon certificates retired in 2018, 2020 and 2021 do not match the corresponding "Operational emissions in scope for compensation" due to annual restatements of GHG emissions figures.

¹⁰ The NetZeroYou2 Programme started in 2021, therefore no certificates were retired in the previous years.

¹¹ Figures for the years from 2018 to 2021 have been restated due to the inclusion of upstream components (fuel well-to-tank and energy transmission and distribution losses) in the emission factors for operational road travel.

GHG emissions (absolute) – Scope 3		Status (as of 2022)	Annual emissions in metric tonnes CO _{2e} : value (2022) or estimated range	Emissions calculation methodology
Category (as per GHG Protocol)¹				
1	Purchased goods and services	Estimated ²	100 000–200 000	Estimate based on “ESCHER” assessment (PwC) in 2021. The Global Trade Analysis Project (GTAP) database is used to build an extended inter-regional input-output framework, through which the model calculates emission factors per monetary unit and estimates the emissions based on the total procurement spend for goods and services purchased for business operations.
2	Capital goods	Estimated	1 000–3 000	Estimate for buildings based on an average factor for the upfront embodied carbon (source: ARUP, WBCSD, Net-zero buildings: where do we stand?, 2021). This factor is multiplied by the floor area of owned buildings and amortised over a 60-year period (average life span of commercial buildings). This estimate currently does not include other minor capital goods. The methodology applied differs from the one that is currently recommended by the GHG Protocol guidance for Scope 3 category 2, which does not amortise or depreciate the emissions from the production of purchased capital goods, instead accounting for their total cradle-to-gate emissions in the year of purchase.
3	Fuel- and energy-related activities (not included in Scope 1 or Scope 2)	Reported	954	Emissions from upstream activities related to fuels (eg well-to-tank emissions) and energy (eg emissions associated with energy transmission and distribution losses). Scope 3 upstream components of the emission factors are applied to the corresponding activity data.
4	Upstream transportation and distribution	Estimated	included in category 1	Emissions are included in the estimate for purchased goods and services (Scope 3 category 1).
5	Waste generated in operations	Reported	289	Emissions are calculated by applying emission factors to waste amounts based on their final destination and on the location (country) in which they are produced.
6	Business travel	Reported	19 599	Emissions are calculated by applying emission factors (per unit of distance) to activity data (distance travelled for business trips by mode of transport).
7	Employee commuting	Reported	5 180	Emissions are calculated by applying emission factors (per unit of distance) to activity data (distance travelled for commute to work by mode of transport).
7	Employee homeworking	Estimated	8 000–10 000	Estimate based on UK BEIS average emission factors (kg CO _{2e} per homeworking FTE working hour) applied to activity data derived from building occupancy measurements. The methodology used by UK BEIS is taken from the document “Homeworking Emission Whitepaper” (EcoAct, 2020).
8	Upstream leased assets	Not relevant	–	Emissions from leased office spaces (where Swiss Re is the lessee) are included in Scope 1 and Scope 2.
13	Downstream leased assets	Not relevant	–	Emissions from leased office spaces (where Swiss Re is the lessor) are not relevant in 2022.
Total estimated Scope 3		Estimated	109 000–213 000	Sum of estimated Scope 3 categories

¹ Only applicable categories for operations are listed in this table.

² Reported for paper and water (see “GHG emission (absolute)” table on page 182).



Independent limited assurance report on Selected Sustainability Information in Swiss Re Management Ltd's Sustainability Report 2022 and TCFD reporting 2022

To the Board of Directors of Swiss Re Management Ltd, Zurich

We have undertaken a limited assurance engagement on Swiss Re Management Ltd's (hereinafter "Swiss Re") Selected Sustainability Information in the following sections of the Sustainability Report for the year ended December 31, 2022:

- Swiss Re's approach to sustainability (materiality assessment);
- Sustainability risk management (quantitative data only);
- Sustainability in underwriting (selected quantitative data: Natural catastrophe premiums across Swiss Re group; renewable energy generation facilities insured, potential emissions avoided due to renewable energy generation facilities; Women's World Banking microinsurance programme; life and health reinsurance policies in force and family members supported by life and health re/insurance policies);
- Responsible investing;
- Governance and compliance (quantitative data only);
- Sustainable operations (quantitative data only incl. restatements);
- Our people (quantitative data only);
- Appendix: 2022 Sustainability data (p.66 – 80)

In "Sustainable operations" the reporting period of GHG emissions and underlying data is October 1, 2021 to September 30, 2022 for all data, except for Scope 3 category 6 (business travel) which is reported January 1, 2022 to December 31, 2022.

Furthermore, we assessed data and information disclosed in the chapter "Climate-related financial disclosures (TCFD)" in the Financial Report for the year ended December 31, 2022 (TCFD reporting 2022), including:

- Climate strategy - Investments
 - USD amount invested in green bonds as per December 31, 2022 (p.165)
 - Sectoral allocation of green bonds (p.165)
 - USD amount of capital deployed in social and renewable energy infrastructure debt as of December 31, 2022, incl. respective shares (p.165)
 - USD amount invested in renewable energy as of December 31, 2022 (p.165)
 - USD amount invested in energy efficiency projects as of December 31, 2022 (p.165)
 - USD amount invested in social infrastructure projects as of December 31, 2022 (p.165)
 - USD amount of total real estate investment portfolio as of December 31, 2022 (p.166)
 - USD amount and share of MINERGIE® certified real estate portfolio (p.166)
 - Swiss real estate portfolio by energy source (p.166)
 - Share of certified buildings, based on local energy labels (p.166)
- Annual expected losses (AEL) of the weather-related perils reporting (p.172);
- Climate metrics and targets – Investments
 - USD amount invested in green, social and sustainability bonds as per December 31, 2022 (p.174)
 - Share of green, social and sustainability bonds fulfilling the ICMA GBP and SBP (p.174)
 - 2022 data in the graph 'Carbon intensity of the corporate bond and listed equity portfolios' (p.175)
 - Absolute financed emissions (corporate bonds and listed equity, excluding ETFs) (p.175)
 - 2022 data in the graph 'Drivers of carbon intensity reduction from 2018 to 2022: corporate bond portfolio' (p.176)
 - 2022 data in the graph 'Carbon intensity as per year-end 2022: corporate bond portfolio vs benchmark' (p.176)



- 2022 data in the graph 'Drivers of carbon intensity reduction from 2018 to 2022: listed equity portfolio' (p.177)
 - 2022 data in the graph 'Carbon intensity as per year-end 2022: listed equity portfolio vs benchmark' (p.175)
 - 2022 carbon footprint of the Swiss and German real estate portfolio (p.178)
 - Absolute financed emissions (Swiss and German real estate portfolio) (p.178)
 - Carbon intensity of government bond portfolio versus G20 per year-end 2022 (p.178)
 - 2022 data in the graph 'Temperature alignment comparison of portfolio vs benchmark' (p.179)
- Data tables: Greenhouse gas emissions from Swiss Re's operations (Scope 1, 2 and 3) (p.182 – 183)
In "Greenhouse gas emissions from Swiss Re's operations (Scope 1, 2 and 3)" the reporting period of GHG emissions and underlying data is October 1, 2021 to September 30, 2022 for all data, except for Scope 3 category 6 (business travel) which is reported January 1, 2022 to December 31, 2022.

Our assurance engagement does not extend to information in respect of earlier periods or to any other information included in the Sustainability Report 2022 and in the Financial Report 2022 or linked to from the Selected Sustainability Information or from the Financial Report 2022, including any images, audio files or embedded videos.

Our Limited Assurance Conclusion

Based on the procedures we have performed as described under the '*Summary of the work we performed as the basis for our assurance conclusion*' and the evidence we have obtained, nothing has come to our attention that causes us to believe that Swiss Re's Selected Sustainability Information in the above-mentioned sections of the Sustainability Report and the Financial Report for the year ended December 31, 2022 are not prepared, in all material respects, in accordance with the reporting criteria described under '*Understanding how Swiss Re has prepared the Selected Sustainability Information*'.

We do not express an assurance conclusion on information in respect of earlier periods or to any other information included in the Sustainability Report 2022 and in the Financial Report 2022 or linked to from the Selected Sustainability Information or from the Financial Report 2022, including any images, audio files or embedded videos.

Understanding how Swiss Re has prepared the Selected Sustainability Information

The Selected Sustainability Information needs to be read and understood together with the following reporting criteria:

- Relevant references in GRI Sustainability Reporting Standards;
- Swiss Re's Group Risk Framework;
- Greenhouse Gas Protocol Initiative of the World Resources Institute and the World Business Council for Sustainable Development;
- BEIS 2021 Government Greenhouse Gas Conversion Factors for Company Reporting, Methodology Paper;
- IEA Emissions Factors 2020 Database Documentation;
- Internal Environmental Performance Indicators for the Financial Industry' published by the Verein für Umweltmanagement in Banken, Sparkassen und Versicherungen e.V. (VfU);
- The GHG Protocol Scope 2 Guidance, effective since January 2015;
- Further internal policies and guidelines applied regarding the subject matter.

Inherent limitations

Due to the inherent limitations of any internal control structure, it is possible that errors or irregularities may occur in disclosures of the Selected Sustainability Information and not be detected. Our engagement is not designed to detect all internal control weaknesses in the preparation of the Selected Sustainability Information because the engagement was not performed on a continuous basis throughout the period and the audit procedures performed were on a test basis.

The Sustainability information disclosed in the Sustainability Report 2022 and TCFD reporting 2022 include retired carbon certificates for the year ended December 31, 2022. In total the retired carbon certificates amount to 25'034 tCO₂ emissions and include both carbon avoidance certificates (76%) and carbon removal certificates (24%). We have performed procedures as to whether these retired CO₂ emissions relate to the current period, and whether the



description of them in the Sustainability Report 2022 and TCFD reporting 2022 is consistent with their related documentation. We have not, however, performed any procedures regarding the assumptions used in the calculation methodology for these certificates, and express no opinion about whether the retired carbon have resulted, or will result in, carbon emissions being avoided or removed.

Swiss Re's Responsibilities

The Board of Directors of Swiss Re is responsible for:

- Selecting or establishing suitable criteria for preparing the Selected Sustainability Information, taking into account applicable law and regulations related to reporting the Selected Sustainability Information;
- The preparation of the Selected Sustainability Information in accordance with the reporting criteria described under 'Understanding how Swiss Re has prepared the Selected Sustainability Information';
- Designing, implementing and maintaining internal control over information relevant to the preparation of the Selected Sustainability Information that is free from material misstatement, whether due to fraud or error.

Our Responsibilities

We are responsible for:

- Planning and performing the engagement to obtain limited assurance about whether the Selected Sustainability Information is free from material misstatement, whether due to fraud or error;
- Forming an independent conclusion, based on the procedures we have performed and the evidence we have obtained; and
- Reporting our conclusion to the Directors of Swiss Re.

As we are engaged to form an independent conclusion on the Selected Sustainability Information as prepared by management, we are not permitted to be involved in the preparation of the Selected Sustainability Information as doing so may compromise our independence.

Professional Standards Applied

We performed a limited assurance engagement in accordance with the International Standard on Assurance Engagements 3000 (Revised) "Assurance Engagements other than Audits or Reviews of Historical Financial Information" and in respect of greenhouse gas emissions, with the International Standard on Assurance Engagements (ISAE 3410), "Assurance Engagements on Greenhouse Gas Statements", issued by the International Auditing and Assurance Standards Board.

Our Independence and Quality Control

We have complied with the independence and other ethical requirements of the International Code of Ethics for Professional Accountants (including International Independence Standards) issued by the International Ethics Standards Board for Accountants, which is founded on fundamental principles of integrity, objectivity, professional competence and due care, confidentiality, and professional behavior.

Our firm applies International Standard on Quality Control 1 and accordingly maintains a comprehensive system of quality control including documented policies and procedures regarding compliance with ethical requirements, professional standards, and applicable legal and regulatory requirements. Our work was carried out by an independent and multidisciplinary team including assurance practitioners and sustainability experts. We remain solely responsible for our assurance conclusion.



Summary of the Work we Performed as the Basis for our Assurance Conclusion

We are required to plan and perform our work to address the areas where we have identified that a material misstatement of the Selected Sustainability Information is likely to arise. The procedures we performed were based on our professional judgment. Carrying out our limited assurance engagement on the Selected Sustainability Information included, among others:

- Assessment of the design and implementation of systems, processes and internal controls for determining, processing and monitoring sustainability performance data, including the consolidation of data;
- Inquiries of employees responsible for the determination and consolidation as well as the implementation of internal control procedures regarding the selected disclosures;
- Inspection of selected internal and external documents to determine whether qualitative and quantitative information is supported by sufficient evidence and presented in an accurate and balanced manner;
- Assessment of the data collection, validation and reporting processes as well as the reliability of the reported data on a test basis and through testing of selected calculations;
- Analytical assessment of the data and trends of the quantitative disclosures in the scope of the limited assurance engagement;
- Assessment of the consistency of the disclosures in the scope of the assurance with the other disclosures and key figures in the Sustainability Report 2022 and the TCFD reporting 2022;
- Assessment of the overall presentation of the disclosures through critical reading of the Sustainability Report 2022 and the TCFD reporting 2022.

The procedures performed in a limited assurance engagement vary in nature and timing from, and are less in extent than for, a reasonable assurance engagement. Consequently, the level of assurance obtained in a limited assurance engagement is substantially lower than the assurance that would have been obtained had we performed a reasonable assurance engagement.

KPMG AG

Silvan Jurt
Licensed audit expert

Theresa Tiersch

Zurich, March 15, 2023

Cautionary note on forward-looking statements

Certain statements and illustrations contained herein are forward-looking. These statements (including as to plans, objectives, targets, and trends) and illustrations provide current expectations of future events based on certain assumptions and include any statement that does not directly relate to a historical fact or current fact.

Forward-looking statements typically are identified by words or phrases such as “anticipate”, “target”, “aim”, “assume”, “believe”, “continue”, “estimate”, “expect”, “foresee”, “intend” and similar expressions, or by future or conditional verbs such as “will”, “may”, “should”, “would” and “could”. These forward-looking statements involve known and unknown risks, uncertainties and other factors, which may cause Swiss Re’s (the “Group”) actual results of operations, financial condition, solvency ratios, capital or liquidity positions or prospects to be materially different from any future results of operations, financial condition, solvency ratios, capital or liquidity positions or prospects expressed or implied by such statements or cause the Group to not achieve its published targets. Such factors include, among others:

- macro-economic events or developments including increased volatility of, and/or disruption in, global capital, credit, foreign exchange and other markets and their impact on the respective prices, interest and exchange rates and other benchmarks of such markets, and historically high inflation rates;
- the frequency, severity and development of, and losses associated with, insured claim events, particularly natural catastrophes, man-made disasters, pandemics, including the coronavirus (“COVID-19”), social inflation litigation, acts of terrorism or acts of war, including the ongoing war in Ukraine, and any associated governmental and other measures such as sanctions, expropriations and seizures of assets as well as the economic consequences of the foregoing;
- the Group’s ability to comply with standards related to environmental, social and governance (“ESG”), sustainability and corporate social responsibility (“CSR”) matters and to fully achieve goals, targets, or ambitions related to such matters;
- the Group’s ability to achieve its strategic objectives;
- legal actions or regulatory investigations or actions, including in respect of industry requirements or business conduct rules of general applicability, the intensity and frequency of which may also increase as a result of social inflation;
- central bank intervention in the financial markets, trade wars or other protectionist measures relating to international trade arrangements, adverse geopolitical events, domestic political upheavals or other developments that adversely impact global economic conditions;

- mortality, morbidity and longevity experience;
- the cyclical nature of the reinsurance sector;
- the Group's ability to maintain sufficient liquidity and access to capital markets, including sufficient liquidity to cover potential recapture of reinsurance agreements, early calls of debt or debt-like arrangements and collateral calls due to actual or perceived deterioration of the Group's financial strength or otherwise;
- the Group's inability to realise amounts on sales of securities on the Group's balance sheet equivalent to their values recorded for accounting purposes;
- the Group's inability to generate sufficient investment income from its investment portfolio, including as a result of fluctuations in the equity and fixed income markets, the composition of the investment portfolio or otherwise;
- changes in legislation and regulation or the interpretations thereof by regulators and courts, affecting the Group or its ceding companies, including as a result of comprehensive reform or shifts away from multilateral approaches to regulation of global operations;
- matters negatively affecting the reputation of the Group, its board of directors or its management;
- the lowering, loss or giving up of one of the financial strength or other ratings of one or more companies in the Group, and developments adversely affecting its ability to achieve improved ratings;
- uncertainties in estimating reserves, including differences between actual claims experience and underwriting and reserving assumptions;
- policy renewal and lapse rates;
- the outcome of tax audits, the ability to realise tax loss carryforwards and the ability to realise deferred tax assets (including by reason of the mix of earnings in a jurisdiction or deemed change of control), which could negatively impact future earnings, and the overall impact of changes in tax regimes on the Group's business model;
- changes in accounting estimates or assumptions that affect reported amounts of assets, liabilities, revenues or expenses, including contingent assets and liabilities as well as changes in accounting standards, practices or policies;
- strengthening or weakening of foreign currencies;
- reforms of, or other potential changes to, benchmark reference rates;
- failure of the Group's hedging arrangements to be effective;
- significant investments, acquisitions or dispositions, and any delays, unforeseen liabilities or other costs, lower-than-expected benefits, impairments, ratings action or other issues experienced in connection with any such transactions;
- extraordinary events affecting the Group's clients and other counterparties, such as bankruptcies, liquidations and other credit-related events;
- changing levels of competition;
- the effects of business disruption due to terrorist attacks, cyberattacks, natural catastrophes, public health emergencies, hostilities or other events;
- limitations on the ability of the Group's subsidiaries to pay dividends or make other distributions; and
- operational factors, including the efficacy of risk management and other internal procedures in anticipating and managing the foregoing risks.

These factors are not exhaustive. The Group operates in a continually changing environment and new risks emerge continually. Readers are cautioned not to place undue reliance on forward-looking statements. Swiss Re undertakes no obligation to publicly revise or update any forward-looking statements, whether as a result of new information, future events or otherwise.

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