ILIM

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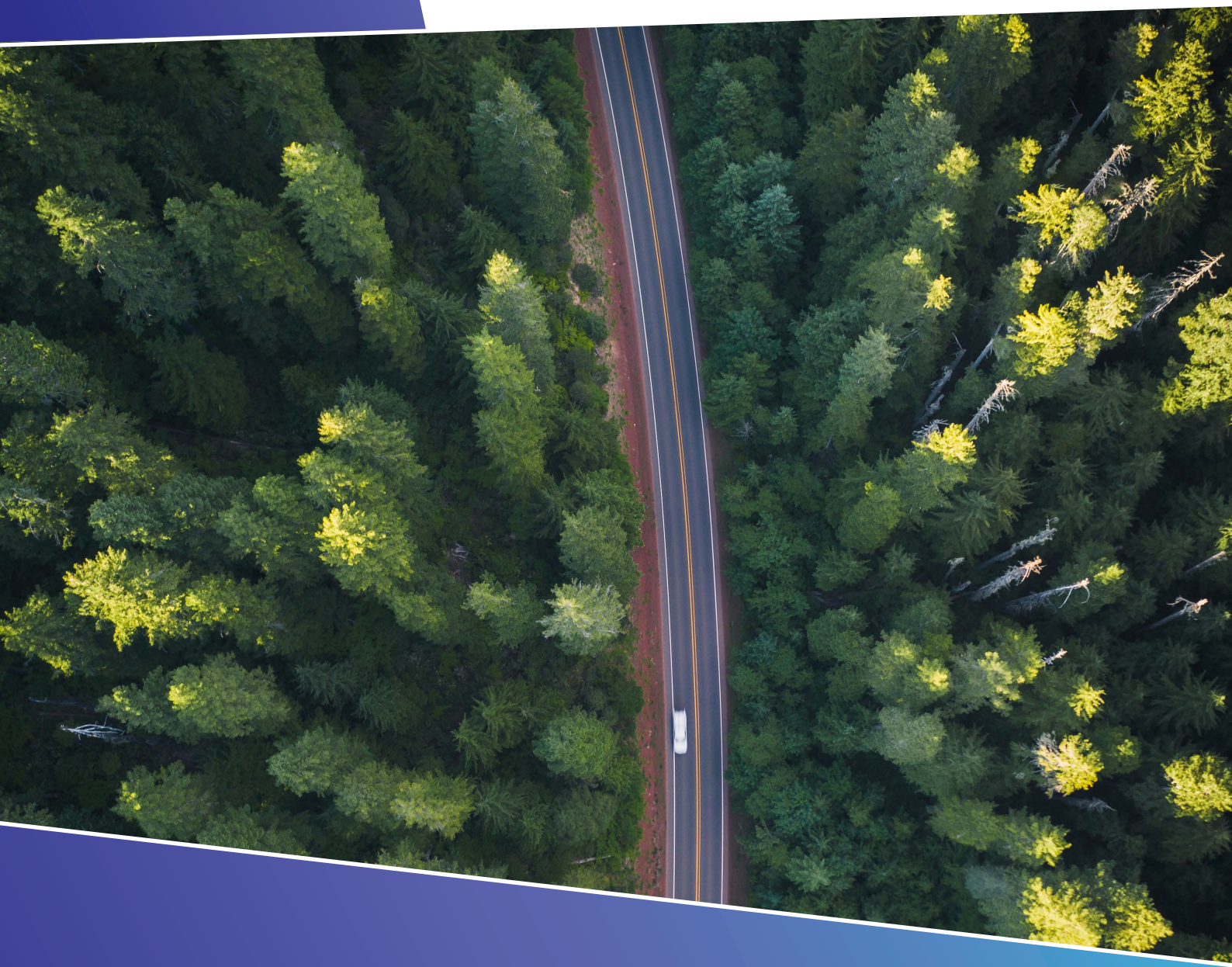

2022 Climate Report

In line with recommendations from the Task Force on Climate-related Financial Disclosures (TCFD)

Helping people build better futures

Contents

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Foreword

I am pleased to present the report on the Task Force on Climate-related Financial Disclosures (TCFD) recommendations from Irish Life Investment Managers (ILIM). The report details ILIM's climate-related strategy, management and oversight, according to the disclosure recommendations of the TCFD.

The past 12-18 months have been tumultuous, both economically and geopolitically, but significant progress has been made in areas such as the green transition, arguably propelled by events including Russia's invasion of Ukraine. Indeed, renewable energy expansion plans have been accelerated globally as the cost of brown fuels has risen. This has been led by policies like the Inflation Reduction Act in the US, with some $369bn of subsidies for green technology, while the European Commission also plans to invest €250bn in the sector. Similarly, Ireland's Climate Action Plan 2023 envisages a spend of €120 billion before 2030 in order to achieve the emission reduction targets it has committed to. Moreover, according to the International Energy Agency, 61% of global energy investment in 2022 was in clean energy, amounting to some $1.7 trillion, and investment in solar energy this year is projected to be greater than that in oil production[1]. Countries are also taking legislative action; Switzerland voted in favour of a new climate law – which will codify a 2050 net zero pledge – in a referendum in June. We view these developments as indicative of structural support for climate action across all stakeholders.

The infographic below illustrates how ILIM is implementing actions across the four pillars recommended by the TCFD.

Governance

ILIM's Responsible Investment Governance Committee reviews and monitors adherence to the responsible investment strategy and reports to the executive management team.

Risk management

ILIM's sustainability risks policy aims to mitigate ESG risks that are likely to cause material negative impacts on ILIM's clients' investments.

Strategy

ILIM is a signatory of the Net Zero Asset Managers initiative. We have enhanced our net zero strategy with specific net zero targets aligned with the PAII Net Zero Investment Framework.

Metrics and targets

Across ILIM's discretionary portfolios, there is ~30%[2] decarbonisation versus the respective parent benchmarks and there will be further improvements in the future relating to decarbonisation, including a planned coal phase-out in advance of the 2030 deadline.

[1] The world is finally spending more on solar than oil production | MIT Technology Review
[2] Scope 1 and 2 Greenhouse Gas emissions only.

Key ILIM highlights include:

- **Enhanced climate action pledge:** ILIM joined the Net Zero Asset Managers initiative.
- **Net zero engagement strategy:** ILIM's engagement strategy targets heavy emitters through collective and direct engagement. The aim is to target companies that represent 70% of financed emissions by 2025 and 90% of financed emissions by 2030.
- **Engagement with investee companies:**
  - ILIM directly engages with investee companies on the climate agenda, including topics such as transition alignment, renewable energy strategy, coal involvement, physical climate risks, net zero strategy, and say on climate votes.
  - ILIM also engages collaboratively with other institutional investors on the climate theme, such as the CDP Non-Disclosure Campaign and the Climate Action 100+.
- **Advocate for climate action with policymakers:** ILIM joined with 532 investors ($39 trillion in AUM) to sign the 'Global Investor Statement to Governments on the Climate Crisis'.
- **Engagement with industry bodies:** ILIM is a member of the IIGCC 'Net Zero Stewardship Working Group' and the 'Net Zero Benchmark Development Group', helping to advance net zero implementation methodologies for asset managers. ILIM is also part of the Net Zero Proxy Advisor engagement workstream.
- **Climate incorporated into Bespoke Voting Policy:** ILIM has enhanced its bespoke proxy voting policy to incorporate guidelines that reflect its expectations for investee companies regarding the assessment and management of climate-related risks, climate strategies, alignment to net zero and enhancement of climate-related disclosures.
- **Property portfolio:** ILIM has made significant inroads across its property portfolio to achieve net zero before 2050, developing Paris-aligned energy-use intensity targets both at fund level and at asset level up to 2050. Targets have been set for key dates of 2025, 2030, 2040, and 2050.
- **Proprietary portfolios solution design:** ILIM's strategy is also aligned with our net zero commitments in:
  - Decarbonisation: for 'ring-fenced assets', ILIM targets a minimum required reduction in weighted average carbon intensity (WACI) of 25% by 2025 and of 50%[3] by 2030 (from our identified base year of 2019).
  - Coal policy: phase out of unabated coal by 2030 in developed markets and by 2040 in emerging markets.
  - The carbon performance of the ILIM Equity ESG portfolio is characterised by a lower relative carbon footprint and a lower WACI as compared to the benchmark. The portfolio outperforms the benchmark in terms of Relative Carbon Footprint by 34.8% and WACI by 35.6% respectively.
- **Climate Solutions range:** ILIM released the 'Climate Focused Strategy' and 'Low Carbon Equity Income Strategy' solutions, designed with a more stringent set of sustainable criteria. These strategies include an expanded set of exclusions, aimed at minimising exposure to the fossil fuel value chain, and an improved tilting mechanism to maximise exposure to sustainable activities, such as renewable energy, green buildings, and green transportation.
- **Knowledge sharing:** ILIM delivered masterclasses on the topics of net zero and climate transition for the insurance sector and financial institutions in Ireland.
- **Training and education for clients:** ILIM worked with UNEP-FI to design and deliver the first ever net zero course in Ireland for institutional investors and trustees in Q4 2022.

As at year end, c.50% of ILIM's AUM, including close to 100% of portfolios where ILIM has discretion, are classified as Article 8 per the EU SFDR classification. ILIM's route to further progression is incorporated in our education and encouragement of clients to alter their mandates towards enhanced sustainability goals.

ILIM will continue to engage with investee companies and to advocate for sustainability with policymakers, investors, and industry groups.

ILIM looks forward to working with all its stakeholders on this agenda in 2023 and beyond.

Yours sincerely

Patrick Burke

[3] Scope 1 and 2 Greenhouse emissions only initially.

Executive summary

This report details Irish Life Investment Managers' (ILIM) climate-related strategy, management and oversight, according to the disclosure recommendations of the Task Force on Climate-related Financial Disclosures (TCFD)[4]. It is ILIM's third TCFD Report and the objective of this document is to be transparent about the current status of our climate-related strategy, management, and oversight across the four pillars recommended by the TCFD. Plans for progress in 2023 and beyond are also reflected in the report.

Governance

The ILIM board signs off on all responsible investment policies. The executive management team receives formal quarterly reporting, which includes climate metrics and policy actions. ILIM's Responsible Investment Governance Committee (the "Committee") is responsible for reviewing and monitoring adherence to the responsible investment strategy, including climate metrics and policy implementation. Sustainability, including climate, is incorporated into performance-related goals for all executive leaders in ILIM.

Risk Management

In accordance with Sustainable Finance Disclosure Regulation (SFDR) requirements, ILIM has a sustainability risks policy; the objective of this policy is to mitigate ESG risks that are likely to cause material negative impacts to ILIM's clients' investments. Climate-relevant exclusions are applied to all proprietary equity and corporate credit strategies. ILIM has a comprehensive engagement programme combining direct and collaborative engagements with industry associations, led by ILIM's responsible investment team. ILIM commits to continue its engagement and voting activities to ensure companies are mitigating climate risks and embracing the opportunities of the transition.

Strategy

ILIM is a signatory of the Net Zero Asset Managers initiative. ILIM has initially committed all assets within our discretionary pool – c.20% of total assets under management (AUM) at the time of the commitment – to net zero. We have enhanced our net zero strategy with specific net zero targets aligned with the PAII Net Zero Investment Framework. That includes targeting heavy emitters through collective and direct engagement that represent 70% of financed emissions by 2025 and 90% of financed emissions by 2030.

Metrics and targets

Across ILIM's discretionary assets, there is ~30%[5] decarbonisation versus the respective parent benchmarks and there will be further future improvements relating to decarbonisation, including a planned coal phase-out in advance of the 2030 deadline. For the 'ring-fenced assets' of our net zero commitment, ILIM targets a minimum required reduction in weighted average carbon intensity of 25% by 2025 and of 50% by 2030 from 2019 levels.[6]

[4] Task Force on Climate-Related Financial Disclosures | TCFD) (fsb-tcfd.org)
[5] Scope 1 and 2 Greenhouse emissions only.
[6] Scope 1 and 2 Greenhouse emissions only initially.

Introduction & background

Irish Life Investment Managers

Irish Life Investment Managers (ILIM) is a global asset management firm managing over €100 billion (as at 30 June 2023) for a range of institutional clients based principally in Europe and North America; it is the leading fund manager in Ireland, and the primary asset manager for Irish Life Assurance Company. Its core investment capabilities extend across multi-asset solution design with internal expertise in indexation, quantitative active strategies, active fixed income and property.

As universal owners with broad exposure across global markets, overall economic performance will influence the future value of client portfolios more than the performance of individual companies or sectors, incentivising ILIM to support sustainable growth and well-functioning financial markets. The Irish Life Group has incorporated sustainability as a core pillar of its future business strategy at a policy, entity and strategy level. ILIM is committed to managing assets responsibly and believes that investing client money in a responsible way is more likely to create and preserve long-term investment growth. ILIM has been a member of UNPRI since 2010 and joined the Net Zero Asset Managers Initiative in 2022.

ILIM's total assets under management (AUM) includes equity (61%), fixed income (26%) – split into sovereign fixed income (19.5%) and corporate fixed income (6.5%) – and property (2.5%). The remaining 10.5% is attributed to assets managed by third parties, and cash and equivalents.

With a business built on putting clients first and delivering high-quality and innovative investment solutions, ILIM understands that climate change can represent material risks and opportunities. As an asset manager, the topic of decarbonisation is particularly relevant. As a passive manager, ILIM is striving to align its passive management with decarbonisation goals by applying indices that utilise positive weightings based on alignment criteria and climate solution revenue metrics. ILIM is keen to work in partnership with asset owner clients to increase the overall climate ambition and to construct a portfolio more aligned with decarbonisation goals across its AUM.

This report details ILIM's climate-related performance, strategy and metrics, according to the disclosure recommendations of the TCFD.

What is the TCFD?

a. Overview

The Task Force on Climate-related Financial Disclosures (TCFD) was launched after the 2015 Paris Agreement by the Financial Stability Board (FSB). Considering climate transparency as a crucial factor for the stability of financial markets, the goal of the TCFD is to improve climate disclosure through specific recommendations. These recommendations, released on 29 June 2017, are meant to provide a *"consistent framework that improves the ease of both producing and using climate-related financial disclosures"*[7]. In a context where more than 400 disclosure frameworks for corporates and 20 for investors exist, the objective of the TCFD is to create a harmonized standard for both corporate and investment-related climate disclosure, taking into account that domestic and local regulatory frameworks may require different levels of compliance.

The TCFD's core recommendations are split into four pillars:

1. **Governance**
2. **Strategy**
3. **Risk Management**
4. **Metrics & Targets**

Each pillar has sub-categories with specific approaches for assessment and disclosure of the associated climate risks and opportunities. Since its 2021 recommendations update, the TCFD has not modified its four overarching Recommendations on Governance, Strategy, Risk Management, Metrics & Targets or the 11 associated recommended disclosures.

Additional guidance was provided on two pillars – Strategy and Metrics & Targets – for all sectors, as well as supplementary guidance for the financial sector.

b. Supplementary guidance for investors

A key FSB proposal was for the development of climate-related disclosures that *"would enable stakeholders to understand better the concentrations of carbon-related assets in the financial sector and the financial system's exposures to climate-related risks."*[8]

The TCFD divides the financial sector into four major industries:

- Banks (lending)
- Insurance companies (underwriting)
- Asset owners (including public + private pension plans, endowments and foundations)
- Asset managers (asset management)

All are expected to report, and all have at least one set of supplementary guidance in the core elements (Governance, Strategy, Risk Management, Metrics & Targets). All four areas are covered in TCFD Final Report Annex D 'Supplemental Guidance for the Financial Sector' (pp.22-44).

[7] Task Force on Climate-related Financial Disclosures, Overview of Recommendations, June 2017 (**https://www.fsb-tcfd.org/wp-content/uploads/2017/06/TCFD-Recommendations-Overview-062717.pdf**)
[8] **https://assets.bbhub.io/company/sites/60/2020/10/FINAL-TCFD-Annex-Amended-121517.pdf**

Governance

"Disclose the organisation's governance around climate-related risks and opportunities"

(a) Board oversight

The board of directors is ILIM's decision-making body and is accountable for the company's sustainable investment strategy, which includes climate change. On a group level, ILIM has adopted policies and procedures from its parent, Great-West Lifeco. The mandate of Great-West Lifeco's board includes the oversight of climate-related risks, including monitoring, risk mitigation and opportunistic strategies.

ILIM's responsible investment strategy includes a set of policies that consider climate change among a broader set of ESG topics – including the responsible investment policy, sustainability risks policy, engagement policy, voting policy and Principal Adverse Impacts (PAI) disclosure statement, which are approved by the ILIM board, at least on an annual basis. The board is responsible for the governance of risk in the firm and for establishing mechanisms and structures to control and manage the risk.

Table 1: ILIM's board and executive oversights of climate-related risks and opportunities

Governing Body	Sustainability Related Responsibilities	Frequency of Review/Meeting
Board of Directors	Engages with senior leaders on near and long-term business strategy and reviews management's performance in delivering the sustainability investment strategy that includes climate change as one of its priority topics, and approval of key sustainability-related policies.	Quarterly
Responsible Investment Governance Committee	Responsible Investment Governance Committee is responsible for oversight of ILIM board approved Responsible Investment policies, and reviews, among other items, active ownership activities and Investment Risk Sustainability Reports.	Quarterly
Board Risk Committee	Reviews levels of risk, risk assessment, risk management and related policies	Quarterly

Figure 1 – Governance model

Sustainability, including climate, is incorporated into performance-related goals for all executive leaders. Dedicated ESG resources are present within the teams while firm-wide responsible investment training has also been made available across the business.

Figure 2 – Dedicated resources within the business

There is an Executive Leadership in each business unit, responsible for leading and implementing ESG integration and new product innovation. Sustainability-related goals are embedded in all executives' objectives.

Figure 3 – Dedicated resources and accountability within Fund Management teams

(b) Senior management's role

ILIM has established the Responsible Investment Governance Committee (RIGC). The Committee meets quarterly and is comprised of the Chief Investment Officer (CIO), the Head of Responsible Investment (Chair), the Head of Indexation, Fixed Income and Credit Solutions, the Head of Irish Commercial Property, the Director of Wealth and Corporate Distribution, and the Asset Servicing Manager.

The Committee is responsible for reviewing and monitoring adherence to the responsible investment (RI) policy. The Head of Responsible Investment is responsible for the development of the RI strategy and oversees ESG integration methodologies, engagement, voting and portfolio screening activities. The CIO is also responsible for approving any decisions or actions regarding active ownership, screening or integration of ESG or climate metrics into portfolios that may have a material impact on the valuation of investments.

Stewardship, including engagement and proxy voting programmes, is led by ILIM's responsible investment team. The team, with the input of various engagement service providers, oversees and monitors engagement activities and reports on activity to the RIGC, which is chaired by ILIM's Head of Responsible Investing. The engagement policy is owned and reviewed annually, or more frequently if required, by the responsible investment team, and approved by the Committee in advance of approval by the ILIM board of directors. The Committee is responsible for reviewing and monitoring adherence to this policy. The responsible investment team also reports on voting activity to the RIGC. ILIM's responsible investment team reviews and monitors adherence to this policy, including the consistency with this policy to votes cast by Institutional Shareholder Services (ISS) on behalf of ILIM.

Strategy

"Disclose the actual and potential impacts of climate-related risks and opportunities on the organisation's businesses, strategy, and financial planning where such information is material."

(a) Identifying climate-related risks and opportunities

Decarbonisation is a global macro trend, and ILIM is committed to contributing to a lower carbon economy as set out in the Paris Agreement. As universal owners, overall economic performance will influence the future value of client portfolios more than the performance of individual companies or sectors, incentivising ILIM to support sustainable growth.

ILIM recognises that the path to achieving net zero is a long-term and challenging commitment requiring ILIM to set targets for a clearly defined set of initial assets (ring-fenced assets), adopt a decarbonisation pathway and engage with investee companies through voting and engagement to ensure their alignment with net zero.

To complement this, in 2022 the ILIM climate action pledge (CAP, published in 2021) was enhanced to include a formal commitment to help reach net zero greenhouse gas emissions by 2050 or sooner by joining the Net Zero Asset Managers initiative. The aim of the CAP is for ILIM to work in partnership with and on behalf of its clients, by using its influence – in investment decision making, risk management and public advocacy – to accelerate and play a positive role in the climate change agenda both within local markets and globally. ILIM's CAP initial target is to achieve at least a 25% reduction in weighted average carbon intensity by 2025, and a reduction of at least 50% by 2030, compared to base year 2019[9]. ILIM's decarbonisation target is consistent with the Paris Aligned Investor Initiative (PAII) and Net Zero Investment Framework (NZIF) guidelines.

ILIM's updated CAP sits within ILIM's ongoing commitment to sustainable investment and focuses on specific areas where it can meaningfully influence decisions and drive further change. The CAP sets out an action plan to deliver on ILIM's climate commitment, focused on six key areas:

- Advocacy and leadership for climate action
- Strengthening governance of the climate agenda
- Integrating climate risk into overall risk management
- Ensuring the robustness of climate-related exclusions policy
- Integrating climate alignment into our proprietary portfolios and wider solution set
- Using stewardship to accelerate the climate agenda at the companies in which we invest

Additionally, in 2022 ILIM released the 'Climate Focused Strategy' and 'Low Carbon Equity Income Strategy' solutions, designed with a more stringent set of sustainable criteria. These strategies include an expanded set of exclusions, aimed at minimising exposure to the fossil fuel value chain, and an improved tilting mechanism to maximise exposure to sustainable activities. The new tilting step builds on the previous criteria that targeted activities such as renewable energy, green buildings, and green transportation, in order to also include environmentally sustainable activities as defined by the EU's Taxonomy Regulation.

ILIM works extensively with third party service providers to attain market leading research to help identify climate-related risks and opportunities.

ESG and climate data: ILIM uses Sustainalytics to provide ESG and climate data across the investment universe. In 2022, ILIM expanded the datasets acquired from Sustainalytics substantially, and has integrated this data layer into its mainstream risk dashboard and fund management simulation engine. ILIM expanded the dataset access on the Sustainalytics platform to include:

- The 'Impact Metrics' research product, which combines the Sustainable Activities Involvement Research and Operational Metrics products. Impact Metrics groups environmental and social outcomes of company activities into distinct pillars (climate action, human development, resource security, basic needs, healthy ecosystems) which are also easier to map to SDGs. The Sustainable Activities Involvement Research product covers a broad range of around 80 economic activities in which companies engage, and which contribute to a more just and sustainable world; from the provision of credit for low-income or disadvantaged borrowers to manufacturing of low carbon technologies for pollution prevention.
- The Carbon Transition Risk Rating solution, which assesses a company's risk driven by both the material exposure to (and management of issues related to) the low-carbon economy transition.
- Broader emissions information as well as more granular, revenue-based product involvement to identify fossil fuel-derived revenues.

This enables ILIM to identify climate related risks and opportunities across liquid assets as well as enabling ILIM to construct portfolios with specific ESG and climate outcomes.

Stewardship: ILIM has appointed ISS, an expert in proxy voting, to provide advice on identifying climate related risks and opportunities within its voting activities. ILIM has appointed Glass Lewis, an expert in ESG research and stewardship services, to help identify and support its direct engagement activities with investee companies, including climate-related engagements. Part of the direct engagements conducted by ILIM are based on proprietary analysis conducted internally by ILIM's responsible investment team. The following data providers support collaborative engagement initiatives that ILIM participate in: Climate Action 100+, CDP (formerly the Carbon Disclosure Project) and Sustainalytics.

Also in 2022:

- ILIM enhanced the use of internal research for engagements. Examples of climate-related direct outreach engagements: Say-on-Climate engagements, environmental disclosures engagements.
- ILIM engaged South Pole, a renowned carbon-finance consultancy firm, to help us structure our future strategies in alignment with our net zero commitment. The project was finalised in H1 2022 with robust strategy plans covering all relevant asset classes. Full implementation of these strategies has been ongoing through 2022 and will continue into 2023.

[9] Scope 1 and 2 Greenhouse Gas emissions only.

(b) Incorporating climate-related risks and opportunities into investment strategies

ILIM's strategy in terms of incorporating climate-related risks and opportunities into investments is implemented across all investment functions. The following sections cover these themes in relation to 'liquid equity and fixed income', 'property assets' and 'alternative assets'.

Liquid Equity and Fixed Income

For listed equity and fixed income, ILIM utilises three levers: **screening management; investment integration; stewardship.**

Screening management: ILIM applies screening, using a set of filters to determine which companies, sectors or activities are eligible or ineligible to be included in a specific portfolio. ILIM identifies ineligible investments by applying the concept of "do no significant harm" (DNSH). This approach is driven by two considerations to exclude (1) companies whose products or services cause harm when used as intended, or (2) companies which persistently breach of international standards of company behaviour. Climate-specific screens are also used to exclude companies that are significantly involved in certain carbon intensive activities. Exclusions are applied to all equity and corporate bond funds under management over which ILIM retains full discretion. Furthermore, within specific climate funds, climate-specific screens are used to filter out companies that are significantly involved in fossil fuel related activities. For further details on these exclusion criteria, please refer to the risk management section (3b).

Investment integration: ILIM works with third-party data providers and has built ESG infrastructure to integrate ESG factors in portfolio construction and investment management systems. Specifically, ILIM has developed a proprietary model to incorporate ESG and climate metrics into its investment process across ILIM's sustainable corporate bond and equity funds. This approach incorporates a 'decarbonisation tilt' that combines a range of forward and backward-looking metrics to minimise exposure to higher-emitting entities (whether companies or assets) while increasing exposure to green solutions. The final tilt score considers carbon intensity, carbon risk, green revenues and brown revenues. Details on those components and tilt methodology are included in the risk management section (3b).

Stewardship: For its engagement activities, ILIM follows a systematic approach to identifying climate-related risks and opportunities by conducting a materiality assessment and a risk management assessment.

As previously noted in the strategy section (2a) under stewardship, the climate change thematic priority area sits under the decarbonisation megatrend. The various topics of dialogue that could be entered into depend on the materiality of each issue. The company's current performance against international standards and norms are:

- Management of climate change issues
- Commitment to climate change mitigation
- Management of GHG emissions
- Transition alignment
- Renewable/alternative energy strategy
- Coal involvement (extraction & generation)
- Identification & management of physical climate change risks
- Net zero strategy
- Say on climate votes

In addition to a targeted direct voting and engagement campaign, ILIM's stance on climate-related risks and opportunities is also reflected in **external initiatives**. ILIM engages collaboratively with other investors on specific ESG themes and is a member of the following initiatives:

- The Principles for Responsible Investment (PRI)
- CDP (formerly the Carbon Disclosure Project)
- Climate Action 100+ (CA 100+)
- Institutional Investors Group on Climate Change (IIGCC)
- Investor Policy Dialogue on Deforestation (Fixed Income)

ILIM takes part in the CDP Non-Disclosure Campaign, an initiative which aims to drive further corporate transparency around climate change, deforestation and water security by encouraging responses to disclosure requests. In the 2022 reporting cycle, ILIM was one of the 260 financial institutions – representing nearly US$30 trillion in assets – engaging companies to improve transparency on materially important environmental data. ILIM has co-signed letters to 1,210 distinct companies, out of which 847 letters are on climate change, with a response rate of 23.8%.

ILIM also uses an external engagement service offered by Sustainalytics on two bases:

i. Thematic engagement, focus on corporate engagement with companies that form part of the public equity and corporate fixed income holdings of its clients, ILIM participates in the theme 'Climate Change – Sustainable Forests & Finance'
ii. Global Standards Engagement, which includes Climate Change under its Environment theme

In terms of **voting:** ILIM has appointed ISS – an expert in proxy voting – to provide advice on identifying climate-related risks and opportunities within its voting activities. Climate change has been established as a critical long term and systemic risk to investment portfolios, and ILIM has observed an increase in shareholder proposals filed on this topic. For the 2022 proxy season, there was an increase of environmental shareholder proposals requesting reductions of GHG emissions and requesting targets across scope 1, 2 and 3 emissions.

As noted in section (a) of the strategy section, in 2022 ILIM extended its climate action pledge to include a formal commitment to help reach net zero by 2050 or sooner, by joining the Net Zero Asset Managers initiative. In alignment with this net zero commitment, ILIM has been working on expanding its net zero stewardship activities during 2022 through various programmes:

- Direct engagements: in 2022, ILIM conducted direct climate engagements with a total of 51 companies, with 25 of those being part of a specific net zero engagement programme supported by Glass Lewis, and the remaining 26 being engaged through other climate themes.
- As part of CA100+, ILIM is a participant investor in engagements with three companies on the topic of net zero.

In terms of engagement with policymakers and industry bodies, ILIM is a member of the IIGCC 'Net Zero Stewardship Working Group' and the 'Net Zero Benchmark Development Group', helping to advance net zero implementation methodologies for asset managers. ILIM is also part of the Net Zero Proxy Advisor engagement workstream to ensure ISS & Glass Lewis services align with net zero.

In 2022, ILIM delivered a masterclass on the topic of net zero strategy delivery for the insurance sector in partnership with United Nations Environment Programme Finance Initiative (UNEP FI) as part of Climate Finance Week Ireland 2022. ILIM also delivered a masterclass on financing the climate transition for financial institutions at Euronext Dublin. Additionally, ILIM worked with UNEP-FI to design and deliver the first ever net zero course in Ireland for institutional investors and trustees in Q4 2022.

ILIM also joined with 532 investors (US $39 trillion AUM) to sign the 'Global Investor Statement to Governments on the Climate Crisis', coordinated by the seven founding partners of The Investor Agenda, advocating for governments to enact ambitious policies that would leverage the private capital required to effectively address the climate crisis. This is the second year that ILIM has supported the statement, having previously signed it in 2021.

Property assets

For its **property assets**, the ILIM property environmental policy (most recently approved in December 2022) includes 'GHG emissions management' as one of areas covered within the 10 environmental objectives, with the expressed objective of "…minimising the impact of real estate operations on climate change, by reducing GHG emissions".

Further, ILIM reports GHG emissions using the GHG Protocol methodology, defining emissions within its operational control. Scope 1 & 2 data represents natural gas and electricity purchased by or on behalf of ILIM for use within its real estate equity investment portfolio. Where tenants purchase their own electricity or can be recharged based on actual meter reads, the emissions are reported as scope 3.

The GHG baseline is updated on an ongoing basis to define ILIM's GHG footprint at a portfolio and property level using the methodology set out in the GHG Protocol. ILIM company-wide targets are being established to support ILA's overall objective to reduce greenhouse emissions. Short-term targets are established by ILIM's Head of Irish Commercial Property and cover a three-year cycle, reviewed annually.

Biannually, the ILIM asset management team will update the property fund management team to present energy performance data at a portfolio and asset level, informing the latter team on the specific strategies to help manage energy consumption, where relevant. An annual review will also be presented to the ILIM ESG governance and steering group to review the company's overall GHG performance in the context of its targets and identify areas of improvements for the coming year.

ILIM has made significant inroads across its property portfolio to achieve net zero before 2050. Along with committing to significant reductions in scope 1, 2 and 3 carbon emissions across property funds, it has developed Paris-aligned energy use intensity targets both at fund level and at asset level up to 2050. Targets have been set for key dates of 2025, 2030, 2040, and 2050. These targets help ILIM in achieving 1.5-degree global decarbonisation pathways using the Science Based Targets Initiative (SBTi) in partnership with the Carbon Risk Real Estate Monitor (CRREM).

Different target reductions are being implemented on each of the funds regarding their age, profile and diversification. Fund-level targets are a useful way to monitor overall progress and are monitored on a quarterly basis and adjusted as the fund grows or shrinks, or as different types of assets are added. Consumption data concerning energy, water and waste is collected from every property, recorded and analysed. This allows for an in-depth understanding of each building and aids in the development of a carbon reduction plan. Where an asset is mixed use, weighted combinations of the targets are used.

Relevance assessment

Given the extent of scope 3 emissions within the portfolio, ILIM has undertaken a relevance assessment to determine the operational boundary of scope 3. This highlights the categories that have larger emissions and therefore greater potential for reduction, but importantly also provides a greater understanding of the categories in terms of both upstream emissions and downstream emissions. The output of this assessment has determined where our focus in the short and medium term should be to drive GHG reductions. It helps us consider the impact on ILIM properties and strategy, and the financial impact on the following areas:

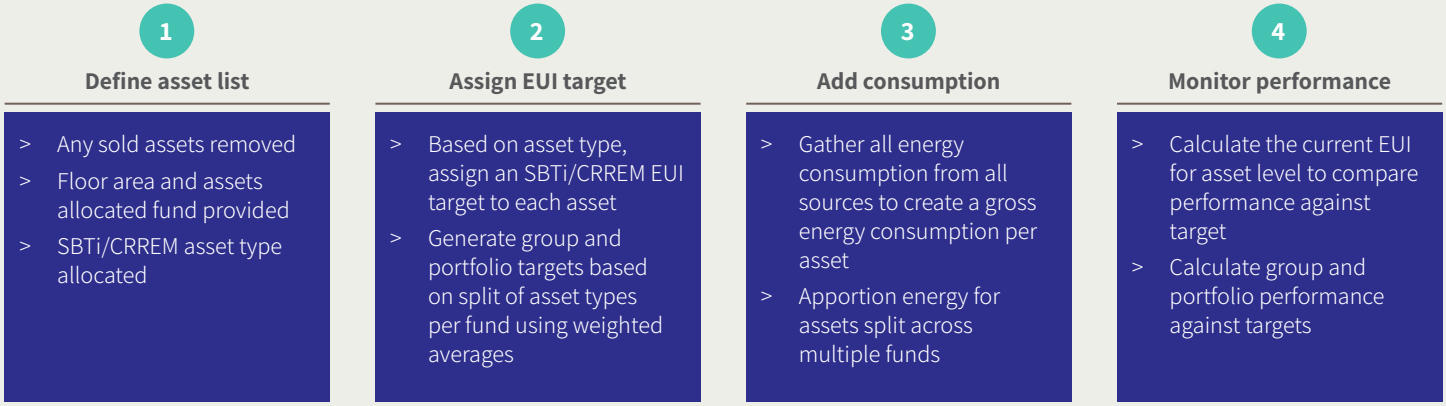
- Products and services
- Supply chain and value chain
- Adaptation and mitigation activities
- Investment in research and development
- Operations
- Acquisitions or divestments
- Access to capital

Alternative assets

For alternative assets, ESG factors – including climate change – are included as part of the due diligence process for third-party managers, both as an annual assessment of existing investments and as a part of the selection process of potential investments. These annual assessments contribute to an overall rating at a firm and a fund level for these managers. ESG considerations are tailored to best suit individual strategies which include allocations to external managers, an Irish-focused private infrastructure fund, derivative strategies and client mandates:

- For investments in externally managed funds, both the fund strategy and the investment manager are given an ESG rating based on a number of metrics including but not limited to climate change, diversity and inclusion and integration of ESG within portfolio construction. These ratings are updated annually for invested funds and as a part of the due-diligence process for new funds.

Figure 4 – Roadmap for property portfolio energy use intensity reduction



(c) Using climate-related scenarios to inform investments

As per last year's TCFD disclosure, ILIM continues to use a single scenario approach based on the IEA Sustainable Development Scenario from the World Energy Outlook 2021 (WEO 21), which is in line with the Paris Agreement objective of limiting temperature rises to 'well below 2°C' compared to the pre-industrial era. The single scenario approach utilises a Transient Climate Response to Cumulative Carbon Emissions (TCRE) multiplier-based methodological approach to estimate global temperature rises due to additional cumulative anthropogenic carbon emissions.

According to the IPCC AR6 WGI Technical Summary, TCRE spans across the "0.27°C–0.63°C range with a best estimate of 0.45°C when expressed in units per 1,000 GtCO2" (IPCC AR6 WGI Technical Summary, 2021). The WEO 21 database contains emissions pathways for different sectors but only up until 2050. Yet, it is possible to extract from the report some indications on emissions pathways and temperature rise outcomes beyond 2050. In this scenario, the report says, "all current net zero pledges are achieved in full and there are extensive efforts to realize near-term emissions reductions and all other countries achieve Net Zero by 2070 at the latest," and that "without assuming any net negative emissions, this scenario is consistent with limiting the global temperature rise to 1.65 °C (with a 50% probability)". These indications are used to extrapolate the data provided by the IEA. See Appendix for a full methodological explanation of the calculation basis.

The 2022 World Energy Outlook (WEO) was published in October 2022 by the International Energy Agency (IEA). This edition of the WEO, published with the backdrop of a global energy crisis and macro-economic headwinds, brings to the fore the urgency of scaling up a range of clean energy technologies whilst reducing the use of fossil fuels. The report covers three main scenarios – net zero emissions (NZE), announced pledges (APS), and STEPS – reflecting the latest energy market data and costs. The NZE scenario starts from a higher level of fossil fuel demand and emissions compared to last year, whilst having one less year to achieve net zero by 2050. This in turn means steeper emissions reductions are compared to the previous issue.

Given that the Sustainable Development Scenario (SDS) is no longer provided by the IEA, ISS ESG has continued to apply scenarios from the WEO 2021 (which included SDS) as part of its fiscal year update this year. Company data such as emissions, revenue and production levels – as well as the most recent emission reduction targets – have continued to be updated as per usual. This has allowed users to assess their portfolios against a stable set of SDS-based scenario data, while taking latest company-level action into account. The GFANZ Portfolio Alignment Measurement (PAM) team completed a consultation amongst market participants, including ISS ESG, in 2022, with the aim of establishing 'best practice' for scenario alignment and implied temperature scores and elaborating further across the nine key design judgements. ISS ESG's current solutions are well aligned with the recommendations under seven of the nine key design judgements, notably offering within the climate impact report all four types of the main portfolio metrics: binary target measurement, maturity scale, benchmark divergence and implied temperature rise.

Future strategy developments aligned with net zero commitments:

1) Decarbonisation

- For 'ring fenced assets', ILIM targets a minimum required reduction in weighted average carbon intensity (WACI) of 25% by 2025 and of 50% by 2030[10] from our identified base year of 2019.

2) Coal policy

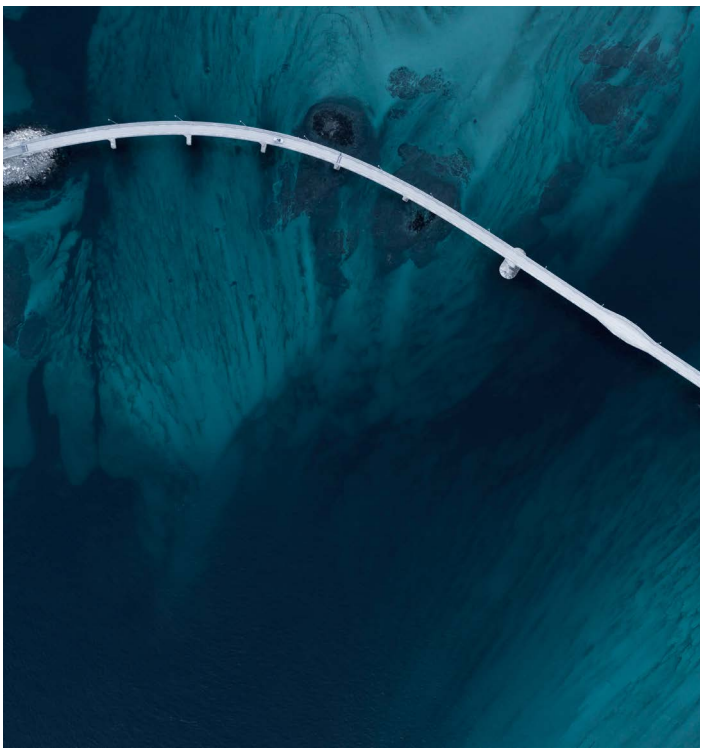
- Phase out of unabated coal by 2030 in developed markets and by 2040 in emerging markets.

3) Engagement strategy

- Increase engagement and target heavy emitters through collective and direct engagement.
- Target companies which represent 70% of financed emissions by 2025 and 90% by 2030 with respect to:
  - Alignment with a net zero pathway or
  - Subject to direct/collective engagement.

4) Climate solutions financing

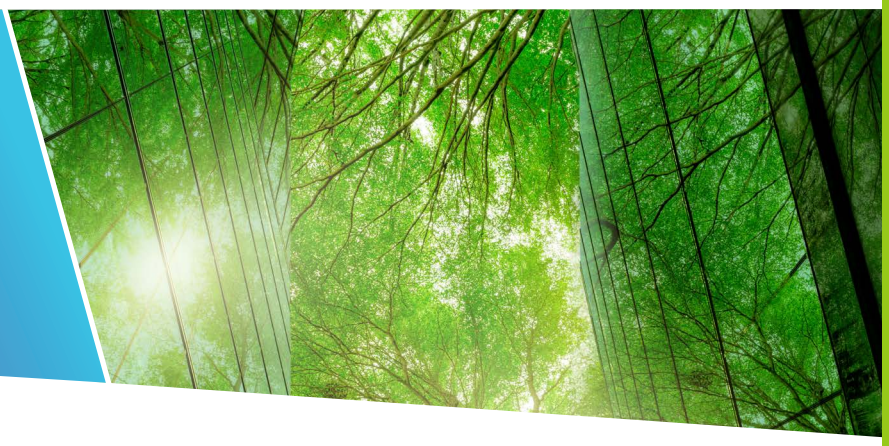
- Increase allocation to climate solutions.
- The share of renewables in the power generation mix should increase over time, in line with investment trajectories based on a net zero pathway.



[10] Scope 1 and 2 Greenhouse Gas emissions only initially.

Risk management

"Disclose how the organisation identifies, assesses, and manages climate-related risks."



(a) Integrating climate-related risks into overall risk management

ILIM's investment risk team, independent from fund management, identifies, measures and monitors climate metrics across its investments, as reflected in the risk management process schema in Figure 4. It then reports on the metrics, and any risks emerging from them, to fund management and the RIGC.

In accordance with SFDR requirements, ILIM has written a sustainability risks policy and has publicly disclosed our Principal Adverse Impacts (PAI) statement. To enable this, ILIM has built a risk/reporting framework which enables ESG and climate metrics to be used on all standard risk analysis and reporting documents.

The sustainability risks policy outlines the integration of sustainability risks in decision-making processes and is overseen by the board. The objective of this policy is to mitigate ESG risks that are likely to cause material negative impacts on ILIM's clients' investments. For that purpose, ILIM has implemented procedures to identify, measure, manage and monitor these risks, supported by third-party data providers.

Under SFDR, "sustainability risk" means an environmental, social or governance event or condition that, if it occurs, could cause an actual or a potential material negative impact on the value of an investment. The policy therefore approaches sustainability risk from the perspective of the risk that ESG events – including climate-related risks – that might cause a material negative impact on the value of ILIM's clients' investments. The objective of this policy is to mitigate ESG risks that could have such impacts. While the policy applies to all portfolio management services, the level of discretion varies by client mandate and investment strategy.

Complementing the sustainability risk policy, ILIM has the PAI disclosure statement in place, which outlines the framework for considering PAIs as defined in the SFDR regulations[11].

Figure 5 – Risk management process

[11] **C_2022_1931_1_EN_ACT_part1_v6 (1).pdf (europa.eu)** – Article 4 to Article 10 in the Regulatory Technical Standards

(b) Positioning the portfolio with respect to the transition to a lower carbon energy supply, production and use

EXCLUSIONS: ILIM's exclusions policy sets the baseline for investments. Below this baseline, companies are deemed ineligible for investment due to the company's products or behaviours causing harm. In addition to a baseline set of exclusions covering ESG-wide controversial activities, controversy involvement and UN Global Compact violations, climate-specific screens are also used to exclude companies that are significantly involved in carbon intensive activities. As referenced in Strategy section 2b, the following exclusions are applied to all proprietary equity and corporate credit strategies.

- **Thermal coal:** Coal combustion is responsible for the largest share of global CO2 emissions based on the IEA's studies[12], and it fundamentally contravenes climate goals[13]. As part of ILIM's coal phase-out strategy, ILIM excludes companies involved in thermal coal if they earn more than 10% of their revenue from its extraction, or more than 25% from power generation.
- **Unconventional fossil fuels:** Certain methods of oil and gas extraction pose additional social and environmental risks compared with conventional processes. Companies in this category are those that derive more than 10% of their revenue from oil sands and Arctic drilling activities.

Broader exclusionary screens exist based on environmental factors:

- **UN Global Compact violators:** These criteria will exclude companies that violate the UN Global Compact, which commits signatories to universally accepted principles including environmental protection (Principles 7-9), which include climate change as a consideration.
- **Companies undergoing severe controversies:** These include incidents that have a severely negative impact on the environment, society and the company itself.

As referenced in Strategy (section 2b), within specific climate funds, bespoke climate-specific exclusion screens are used to screen out companies that are significantly involved in coal and oil-related activities. For example, the ILIM Climate Focused Fund's existing exclusion policy covers:

- **Oil and gas production:** Companies with any involvement in oil and gas production, by means of either exploration, production, refining, transportation, or storage, are excluded.
- **Oil and gas supporting products and services:** Companies that provide supporting products or services to any of the above activities are also excluded if they derive more than 2.5% of their revenue from said supporting activities.
- **Thermal coal:** Thresholds for the exclusion of companies involved in thermal coal extraction and power generation are reduced to capture any level of involvement (above 0% of revenue).
- **Unconventional fossil fuels:** Thresholds for the exclusion of companies involved in oil sands and Arctic drilling are reduced to capture any level of involvement (above 0% of revenue).

The resulting exclusions helped create portfolios with a global market exposure that is better aligned with a 1.5°C pathway, while providing diversification across the developed equity market. These products were fully launched into the market between Q4 2021 and Q2 2022.

TILT: For its proprietary investment solutions, ILIM aims for greater exposure to companies with lower carbon intensity levels. Robust climate-related data is critical for effective investment decisions. Given the wide-ranging scope of climate change risks and opportunities across sectors and regions, extensive qualitative and quantitative metrics are required for investment decisions, including input from ILIM research and engagements. ILIM complements the backward-looking data (such as carbon emissions) with a forward-looking view. The following climate change metrics are considered in the investment process:

- The **Carbon Risk Rating** quantifies the company's exposure and management of material carbon issues in its own operations as well as its products and services. At each value chain stage, a company's vulnerability to carbon risks is assessed.
- The **Carbon Intensity** is a relative metric used to compare company emissions across industries. The figure is expressed in tonnes of carbon dioxide equivalent per million US dollars of total revenue, with absolute emissions divided by total revenue.
- The **Green Revenues** component measures the level of involvement (total percentage of revenue) across the following activities supporting the climate transition:
  - Energy efficiency
  - Green buildings
  - Green transportation
  - Renewable energy
  - Water
  - Pollution prevention & reduction
  - Resource efficiency technologies & services
- The **Brown Revenues** component, on the other hand, measures involvement across the following:
  - Thermal coal extraction and power generation
  - Oil & gas production, power generation, and supporting products / services.

The Green Tilt component assigns more capital to companies with higher green revenues, best placed to benefit from the transition to a low carbon economy. The Brown Tilt component reduces exposure to companies with risks of stranded assets by underweighting companies with large fossil fuel revenues.

[12] **https://www.iea.org/reports/global-energy-review-co2-emissions-in-2021-2**
[13] **https://reclaimfinance.org/site/en/end-of-coal/**

(c) Active engagement with investee companies and proxy voting

As mentioned in Strategy (section 2b), the ILIM stewardship strategy utilises and combines both engagement and proxy voting levers under various topics of dialogue that could be entered into, depending on the materiality of each issue and the company's current performance, including: management of climate change issues, commitment to climate change mitigation, management of GHG emissions, transition alignment, renewable/alternative energy strategy, coal involvement (extraction and generation) and identification and management of physical climate change risks.

Engagement: The engagement programme is led by ILIM's responsible investment team. The team, with the input of various engagement service providers, oversees and monitors engagement activities and reports on activity to the RIGC which is chaired by ILIM's Head of Responsible Investing.

In terms of **direct engagement**, ILIM follows a two-stage approach to identify targets for climate change engagements, involving an examination from a materiality and risk management perspective. Companies are assessed to have a highly material climate change impact if they have annual emissions of over 10,000,000 tCO2 equivalent, or if they derive more than 10% of their total revenue from coal-fuelled power generation. Each company is also assessed and ranked according to how well its business model is prepared for the transition towards a low-carbon economy. For net zero engagements, priority companies are those that are not undergoing intensive engagement through any other of our direct or collaborative initiatives. Companies are selected via a materiality assessment based primarily on the company's contribution to ILIM's financed emissions and to ILIM's overall AUM.

Additionally, ILIM has taken into account the increased frequency of extreme weather events such as droughts, floods and forest fires. Companies are assessed and ranked according to how well their business models identify and disclose the potential consequences on business activities caused by physical impacts of climate change.

For each engagement, specific objectives are set. The various topics of dialogue that could be entered into, depending on the materiality of each issue and the company's current performance, include management of climate change issues, commitment to climate change mitigation, management of GHG emissions, transition alignment, renewable/alternative energy strategy, coal involvement (extraction and generation), identification and management of physical climate change risks, net zero strategy and say on climate votes.

Collaborative engagement: ILIM takes part in the CDP Non-Disclosure Campaign, which aims to drive further corporate transparency around climate change, deforestation and water security by encouraging companies to respond to CDP's disclosure request. In the 2022 reporting cycle, ILIM was one of the 260 financial institutions, representing nearly US$30 trillion in assets, engaging companies to improve transparency on materially important environmental data. ILIM has co-signed letters to 1210 distinct companies, out of which 847 letters on climate change, with a response rate of 23.8%.

ILIM is also a participant investor in the Climate Action 100+ initiative that aims to ensure the world's largest corporate GHG emitters take necessary action on climate change. ILIM has joined the global standards and thematic collaborative engagements led by Sustainalytics, increasing the alignment of its collaborative engagement programme through its priority themes which included climate change considerations.

Proxy voting: ILIM is an engaged asset manager, voting the shares of companies for which it has proxy voting authority, with the exception of those countries where voting is logistically difficult or where the costs are disproportionate relative to the size of the holding, typically small-cap holdings. The stewardship program is led by ILIM's responsible investment team, which is responsible for overseeing and implementing the voting policy, including monitoring voting implementation undertaken on ILIM's behalf by ISS and updating the ILIM global proxy voting guidelines where appropriate.

Within its **global proxy voting guidelines**, and as part of its Climate Action Pledge, ILIM commits to continue its engagement and voting activities to ensure companies are mitigating climate risks and embracing the opportunities of the transition. ILIM believes that investee companies should demonstrate a progressive and achievable approach to managing climate change risk.

ILIM's global proxy voting guidelines detail its considerations and expectations in relation to ESG matters and related voting decisions, including climate change. ILIM seeks to use its voting power to align its voting policy to support the just transition to a low carbon economy. These guidelines set out the criteria by which ILIM's proxy voting advisor, ISS, will consider resolutions and make voting recommendations on ILIM's behalf. ILIM has created custom proxy voting policy guidelines which are created by taking into consideration best practices, ILIM's engagement efforts, the Net Zero Asset Management initiative and guidelines from the ISS SRI policy and climate change module. ILIM is annually reviewing the application of the proxy voting guidelines and updates them appropriately, and where necessary, based on engagement outcomes, market trends, and upcoming legislations.

The criteria considered in relation to the management of climate change risks by investee companies are: commitment to climate change mitigation, management of GHG emissions, transition alignment, renewable/alternative energy strategy and coal involvement (extraction & generation). Voting will be supported by engagement in a targeted approach. Where appropriate, ILIM will escalate its stewardship approach, including through collaborative initiatives such as utilising ILIM's membership of CA100+ and IIGCC.

ILIM's global proxy guidelines utilise ISS's **Climate Awareness Scorecard** methodology to better identify climate-related risks and opportunities through publicly disclosed data and reporting of companies' climate change-related disclosures, performance, GHG emissions intensity and exposure, as well as their climate risk profile. Data is collected by ISS from company publications including mainstream filings, sustainability and CSR reports, integrated reports and publicly available policies and information on company websites. Additionally, ISS reviews company-reported data to the CDP, when available.

The scorecard uses a range of climate-related factors to indicate a company's disclosure practices and performance record, including its industry risk group. Companies are evaluated on overall disclosure (governance, strategy, risk management, metrics & targets) and performance factors (norms, GHG emissions, performance rating). This showcases the company's understanding of its risks associated with climate change, along with its preparedness to face and mitigate them; ultimately, this will increase its responsibility and accountability. Disclosure is core to shareholder expectations as it informs investment decisions and several initiatives have converged around thematic disclosure. The Scorecard also evaluates the number and severity of violations of international norms on climate change.

Metrics and targets

The TCFD Recommendations' Metrics and Targets pillar includes the following disclosures:

a. *Disclose metrics used to assess climate related risks and opportunities*
b. *Disclose scope 1, 2 and 3 GHG emissions*
c. *Describe targets used to manage climate related risks and progress towards targets*

Analysis within this TCFD disclosure section relates to the six specific portfolios (with net asset value as of 31 Dec 2022).

Equities

ILIM IP	EUR 15,138m
ILIM ESG Other	EUR 19,268m
ILIM Non ESG (Indexed)	EUR 20,141m

Corporate Fixed Income

ILIM IP	EUR 4,043m
ILIM Non ESG (Indexed)	EUR 1,759m

Sovereign

ILIM ESG Other (Indexed)	EUR 3,931m
ILIM Non ESG (Indexed)	EUR 13,412m

As per section 4(b), firmwide GHG Emissions are a foundational disclosure, covering:

(i) Absolute scope 1, scope 2, and scope 3
(ii) Emissions intensity measures (including WACI and relative carbon footprint)

These foundation disclosures are in section 4(b) below.

In addition to the above disclosures, metrics coverage has been expanded to incorporate the range of cross-sector climate-related metrics TCFD required, following its 2021 update to recommended disclosures.

1. **Transition risks (including amount and extent of assets or business activities vulnerable to transition risks)**
   (i) Portfolio exposure to fossil fuels
   (ii) Weighted average carbon risk rating (all portfolios)
   (iii) Scenario alignment and Implied Temperature Rise (ITR)
   (iv) Transition VaR
   (v) Power generation exposure / energy mix
2. **Physical risks (and the amount and extent of assets or business activities vulnerable to physical risks)**
   (i) Physical Value At Risk (VaR)
   (ii) Physical risk management
3. **Climate-related opportunities (including proportions of revenue, assets, or other business activities aligned with climate-related opportunities)**
   (i) Green revenues
4. **Capital deployment (including amount of capital expenditure, financing, or investment deployed toward climate-related risks)**
   (i) Brown/fossil fuel expansion (as weighted % of portfolio)

a) Assessing climate-related risks and opportunities

1. Transition risks: amount and extent of assets or business activities vulnerable to transition risks

i. Exposure to fossil fuels (equities & fixed income portfolios)

Table 2 is presented to provide context in relation to the designated benchmarks in 2022. Exposure to all fossil fuel types remain across the six portfolios within the analysis, featuring coal, oil and gas. Within these portfolios, all of the following criteria show a significantly lower involvement in comparison with their benchmarks:

- Revenue linked to fossil fuels, both in absolute millions (MIO) of EUR and as a % of total owned revenue
- The weighted percentage of issuers with evidence of brown expansion projects
- Potential reserves, both in terms of absolute of tCO2e MIO, and the proportion attributable to coal

Table 2: ILIM Portfolio and Benchmark Exposure to Fossil Fuel (2022)

	Revenue Linked to Fossil Fuels				Fossil Fuel Expansion (Wt % of issuers)		Potential Reserves (Mio tCO2e)		Coal as % of Potential Reserves	
	Absolute (EURm)		As % of Total Revenue							
	PF	BM	PF	BM	PF	BM	PF	BM	PF	BM
PORTFOLIO										
Eq ILIM IP	662.2	685.5	7	9	7	8	18,287	102,218	35	84
Eq ILIM ESG Other	542.4	915	4	8	4	8	20,364	250,204	62	92
Corp ILIM IP	116.2	158.27	7	9	8	10	2,741	4,907	21	29

Potential reserves across the two equity portfolios ('ILIM IP ESG' and 'ILIM Other ESG') are between 85% and 90% lower than equivalent potential reserves in the respective benchmarks. According to the exclusionary criteria adopted by ILIM IP assets, companies involved in thermal coal are excluded if they earn more than 10% of their revenue from its extraction, or more than 25% from power generation. In addition, the tilting approach described in the risk management section supports the results. The decarbonisation tilt reduces exposure to companies with fossil fuel involvement, and instead assigns capital to companies with high 'green revenues'.

For further methodological explanation, see *Appendix I – Methodology*.

ii. Weighted average carbon risk rating (all asset classes)

Table 3: Weighted Average Carbon Risk Rating (all asset classes)

	CRR	
	PF	BM
EQUITY		
ILIM IP	59	57
ILIM ESG Other	56	55
ILIM Non-ESG	55	

	CRR	
	PF	BM
CORPORATE		
ILIM IP	61	60
ILIM Non-ESG	56	

	CRR	
	PF	BM
SOVEREIGN		
ILIM ESG Other	31	30
ILIM Non-ESG	42	

The Carbon Risk Rating (CRR) assesses the forward-looking climate change performance of a portfolio. This assessment evaluates the effectiveness of a portfolio in implementing policies that aim to reduce greenhouse gas emissions by state, corporate, and private actors, and in adapting to a changed climate by reducing its vulnerability to climate risks. It includes an assessment of the alignment of the portfolio with national and international reduction targets. The Carbon Risk Rating assesses on a scale of 0 (very poor performance) to 100 (excellent performance). In terms of weighted average carbon risk rating, all equity and corporate groupings outperform in absolute terms (i.e. are scored above 50) and also outperform their benchmarks. Carbon risk rating is an assessment of overall strategy, along with issuer exposure to and management of material carbon issues in its own operations as well as its products and services. In addition, at each value chain stage, a company's vulnerability to carbon risks is assessed.

For the Sovereign asset class, limited data is available related to country weighted average carbon risk rating. The weighted average carbon risk rating of the portfolio is 31. The reason for the relatively poorer performance of the Sovereign 'ILIM ESG Other' portfolio compared to the Sovereign 'ILIM Non-ESG' portfolio is due to the fact that the Sovereign 'ILIM ESG Other' portfolio is primarily an emerging market portfolio which has inherently poorer scores versus developed market portfolios. The country carbon risk rating is based on two complementary elements:

- Country Carbon Performance Score (CCPS): a metric for the current carbon-related performance of a country.
- Country Carbon Risk Classification (CCRC): a metric for the country's exposure and vulnerability to climate change risks.

For further methodological explanation, see *Appendix I – Methodology*.

iii. Scenario alignment

Table 4: Implied Temperature Rise 2022 assessments vs Benchmarks

	ITR	
	PF	BM
EQUITY		
ILIM IP	2.1	2.3
ILIM ESG Other	2.1	2.3
ILIM Non-ESG	2.2	

	ITR	
	PF	BM
CORPORATE		
ILIM IP	1.9	2.0
ILIM Non-ESG	2.1	

In terms of the single scenario methodology assessment, all ILIM portfolios outperform their respective benchmark in 2022. For detailed methodological explanation of the Implied Temperature Rise (ITR) assessment, see Appendix I. Below we take a closer look at the ITR outcomes.

Equities – ILIM IP ESG

Figure 6 (a) and (b): Equity 'ILIM IP ESG' Portfolio and Benchmark GHG Emission Pathway vs Climate Scenario

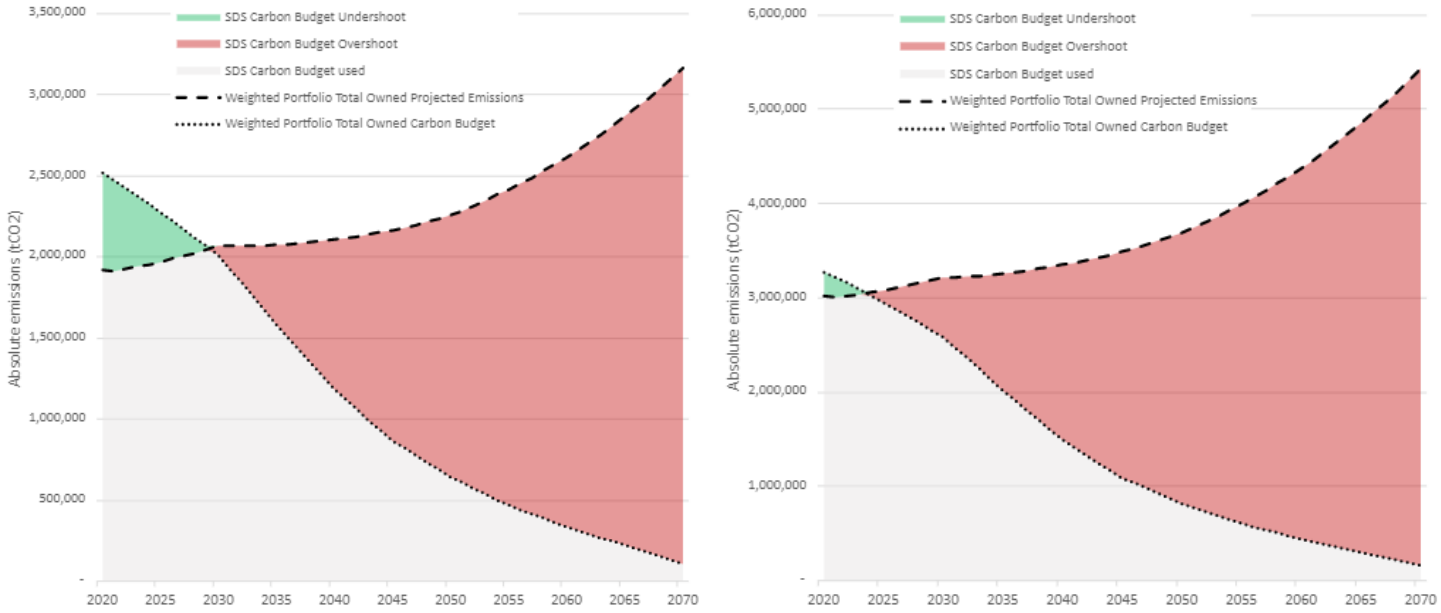
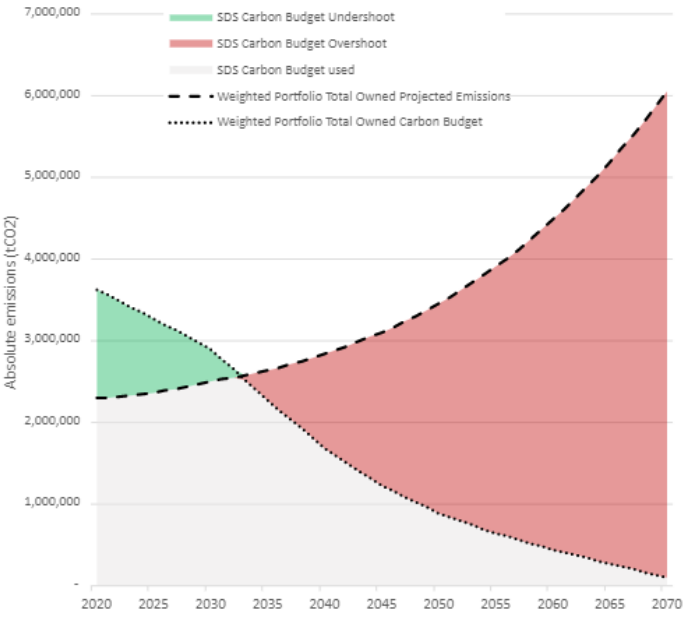


Figure 6 (a) and 6 (b) illustrate the GHG emission pathway of the Equity "ILIM IP ESG" Portfolio and its equivalent market benchmark. The portfolio is associated with a potential temperature increase of 2.1°C by 2070, while its benchmark is associated with a temperature increase of 2.3°C.

The portfolio is not aligned with SDS and exceeds its carbon budget in 2030. This is partially driven by the integrated oil & gas, conventional electricity and iron & steel sectors, which are projected to exceed their SDS-based budget in 2050. In particular, integrated oil & gas – which accounts for the majority of the top 10 portfolio issuers by relative contribution to 2022 ITR – already exceeds its 2022 budget by 18%. The top 100 contributors are dominated by energy companies – 46 of the top 100 – and these 46 collectively represent 58% of all projected emissions in the portfolio, but only 14% of its allowable SDS-aligned budget.

Equities – Other ESG

Figure 7 (a) and (b): Equity 'ILIM Other ESG' Portfolio and Benchmark GHG Emission Pathway vs Climate Scenario



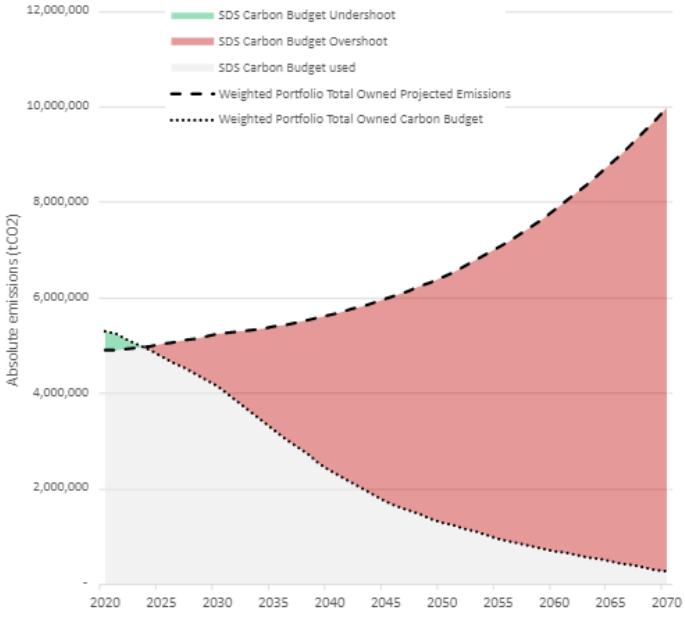


Figure 7 (a) and 7 (b) illustrate the GHG emission pathway of the Equity "ILIM Other ESG" Portfolio and its equivalent market benchmark. The portfolio is also associated with a potential temperature increase of 2.1°C by 2070, while its benchmark is also associated with a temperature increase of 2.3°C. The portfolio is not aligned with SDS and exceeds its carbon budget in 2033 (compared to 2022 for the benchmark). This is partially driven by the conventional electricity and iron & steel sectors, which are projected to exceed their SDS-based budget in 2050. This portfolio's ITR top 100 contributors are dominated by materials, utilities and energy sector issuers, with the top 100 representing 66% of total owned cumulative projected emissions, but only 11% of the allowable SDS-aligned budget by 2070.

Equities – Indexed

Figure 8: Indexed Equity Portfolio GHG Emission Pathway vs Climate Scenario

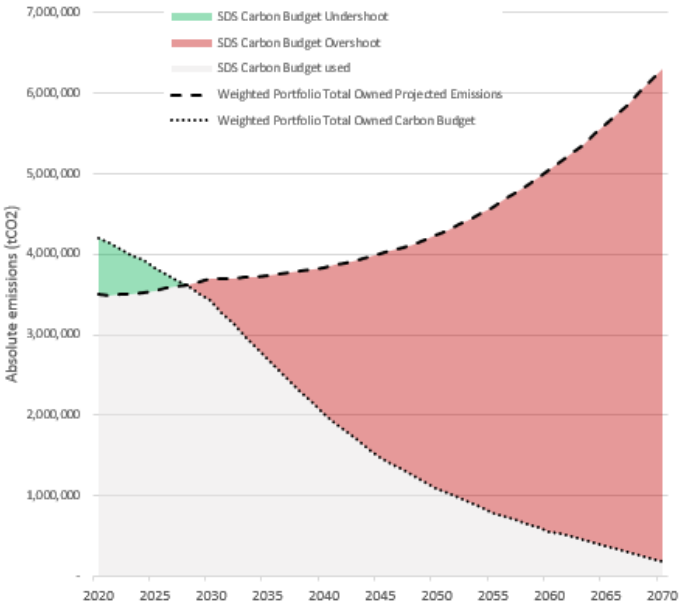


Figure 8 illustrates the GHG emission pathway of the Indexed Equity Portfolio. The portfolio is associated with a potential temperature increase of 2.2°C by 2070. However, it is not aligned with SDS and exceeds its carbon budget in 2028. This is mainly driven by the integrated oil & gas sector already exceeding its carbon budget in 2022 and projected to considerably overshoot its SDS budget by 2050. In addition, conventional electricity and iron & steel sectors will also exceed their carbon budgets in 2030 and 2050, respectively. Energy companies represent the significant contributors to ITR, with 57 of the top 100 issuers being in the energy sector, and collectively representing 45% of all projected 2070 emissions, but only 13% of the cumulative budget.

Corporate – Indexed

Figure 9: Indexed Corporate Portfolio GHG Emission Pathway vs Climate Scenario

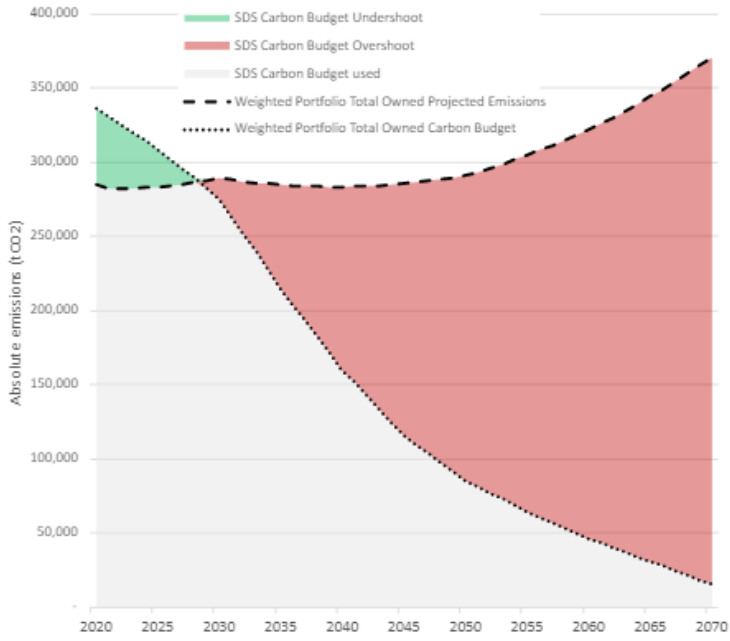


Figure 9 illustrates the GHG emission pathway of the Indexed Corporate Bond Portfolio. The portfolio is associated with a potential temperature increase of 2.1°C by 2070. However, it is not aligned with SDS and exceeds its carbon budget in 2028. This is mainly driven by investments in the integrated oil & gas sector, which significantly overshoots the assigned carbon budget in 2022, continuously increasing until 2050.

For further methodological explanation, see *Appendix I – Methodology*.

iv. Transition Value-at-Risk

Table 5: Asset Class-level Transition Risk (EURm and as % of total AUM)

	Transition Value at Risk			
	Absolute (EURm)		As % of Total AUM	
PORTFOLIO	PF	BM	PF	BM
Eq ILIM IP	661	805	4	5
Eq ILIM ESG Other	1,000	1,200	5	6
Eq ILIM Non-ESG	1,100		6	
Corp ILIM IP	170	183	4	5
Corp ILIM Non-ESG	114		7	

As per Table 5, the total estimated transition Value at Risk (VaR) for the Equity portfolios are significant at around the 5% of AUM level; however, all are outperforming the respective benchmarks. Transition VaR is based on the IEA 'NZE 2050' scenario and relates to total potential financial impact of transition risks and opportunities on the portfolio. The VaR presented is a net number between the positive and negative potential share price performance in the portfolio. The Transition VaR is an equity-based analysis, and its output should not be interpreted as the potential change in price of a bond. Nevertheless, the VaR remains a useful metric for fixed income as it is a holistic indicator of the issuer's exposure to physical or transition risks, even if not directly material to a bond price itself.

For further methodological explanation, see *Appendix I – Methodology*.

v. Power Generation Exposure / Energy Mix

Table 6: Power Generation Exposure and distribution

	Power Generation Exposure and distribution (%)		
	Fossil Fuels	Nuclear	Renewables
PORTFOLIO			
Eq ILIM IP	37	32	30
Eq ILIM ESG Other	54	25	22
Eq ILIM Non-ESG	53	27	20
Corp ILIM IP	32	34	34
Corp ILIM Non-ESG	34	44	22
SDS 2030 Aligned	37	10	53
SDS 2050 Aligned	7	9	84

Table 6 shows the energy generation mix in % from different sources by power generators in the portfolio. The two lines at the bottom are static and illustrate an SDS compatible generation mix in 2030 and 2050, according to the International Energy Agency[14]. Corporate ILIM IP ESG marginally outperforms Equity ILIM IP ESG in terms of proportional exposure to green energy source. All portfolios are currently marginally misaligned with an energy mix for 2030 that would represent an alignment with Paris-aligned SDS scenario.

For further methodological explanation, see *Appendix I – Methodology*.

[14] **https://iea.blob.core.windows.net/assets/4ed140c1-c3f3-4fd9-acae-789a4e14a23c/WorldEnergyOutlook2021.pdf**

2. Physical risks: amount and extent of assets or business activities vulnerable to physical risks

i. Physical Value at Risk (VaR)

Table 7: Physical VaR (*Data based on IPCC RCP 4.5 'Most Likely' Scenario) for 2022

	Physical Value at Risk			
	Absolute (EURm)		As % of Total AUM	
	PF	BM	PF	BM
PORTFOLIO				
Eq ILIM IP	101.7	95.6	0.7	0.6
Eq ILIM ESG Other	182.8	171.4	1.0	0.9
Eq ILIM Non-ESG	93.8		0.5	
Corp ILIM IP	13.2	13.3	0.3	0.4
Corp ILIM Non-ESG	6.2		0.4	

The Value at Risk (VaR) of an individual issuer estimates the change in share price as a result of considering the financial impact of physical risks. The VaR is computed using a valuation model based on the Economy Value Added (EVA) framework and highlights potential impact on the portfolio value in 2050 based on current risk levels and hazards due to climate change, along with total anticipated net change in value.

Aggregated up to portfolio level, the equity and corporate fixed income portfolios display a path to physical risk-related damage to annual EVA as shown in the table on the left, by 2050. While portfolios marginally underperform respective benchmarks, these all represent less than 1% of total asset values.

For a further explanation, see *Appendix I – Methodology*.

ii. Physical Risk Management

Table 8: Physical Risk Management Data at Portfolio / Benchmark Level (2022)

	Physical Risk Score		Phsical Risk Management – Assessment Categories (as % of total)							
			Robust		Moderate		Weak		Not covered / None	
	PF	BM	PF	BM	PF	BM	PF	BM	PF	BM
PORTFOLIO										
Eq ILIM IP	53	53	24	23	18	17	5	6	53	54
Eq ILIM ESG Other	51	51	16	14	14	13	5	5	65	58
Eq ILIM Non-ESG	56		14		13		5		68	
Corp ILIM IP	65	64	38	36	22	22	10	9	30	33
Corp ILIM Non-ESG	63		28		20		8		45	

Physical risks can have a financial impact on the portfolio both at the operational and the market level. The physical risk scores of the equity and corporate fixed income portfolios are in a similar range. In Table 8, the Equity portfolios show a marginal improvement on the respective benchmarks, across both overall physical risk and also physical risk management assessments.

For further methodological explanation, see *Appendix I – Methodology*.

b) The weighted average carbon intensity and other metrics

Within the equity asset class, we deep-dive into the Equity ILIM IP ESG Portfolio. Both climate metrics WACI and the Relative Carbon Footprint perform best as compared to the other portfolio subsets considered in this analysis. This result is connected to ILIM's screening management approach that applies to all equity funds under management over which ILIM retains full discretion. According to the exclusionary criteria adopted by ILIM, companies involved in thermal coal are excluded if they earn more than 10% of their revenue from its extraction, or more than 25% from power generation. In addition, the tilting approach (described in the risk management section), supports the results. The decarbonisation tilt reduces exposure to companies with fossil fuel involvement, and instead assigns capital to companies with high 'green revenues'. Moreover, companies identified as exhibiting low carbon risk and low carbon intensities are selected for this strategy.

The Weighted Average Carbon Intensity (WACI) is the metric explicitly recommended by the TCFD for asset managers and asset owners. The WACI allocates scope 1 & 2 GHG emissions based on portfolio weights and can be applied across asset classes without relying on an ownership approach. It allows for blending fixed income and equity holdings as it is only linked to the underlying issuer and not to the security-level valuation. Additionally, the WACI is simple to calculate and easy to communicate to investors. The Relative Carbon Footprint is an additional useful metric based on the ownership principle, which is the key logic of the GHG protocol. The WACI and the Relative Carbon Footprint are collected for the following ILIM portfolios with their respective benchmarks, analysed as of 31 December 2022:

Table 9: Overview of end-2022 climate-related metrics for ILIM portfolios and benchmark

	CRR		WACI	
	PF	BM	PF	BM
EQUITY				
ILIM IP	75.27	115.41	119.09	184.89
ILIM ESG Other	105.28	155.56	146.41	222.36
ILIM Non-ESG	104.10		172.19	

	CRR		WACI	
	PF	BM	PF	BM
CORPORATE				
ILIM IP	53.65	90.06	94.70	149.91
ILIM Non-ESG	106.97		198.0	

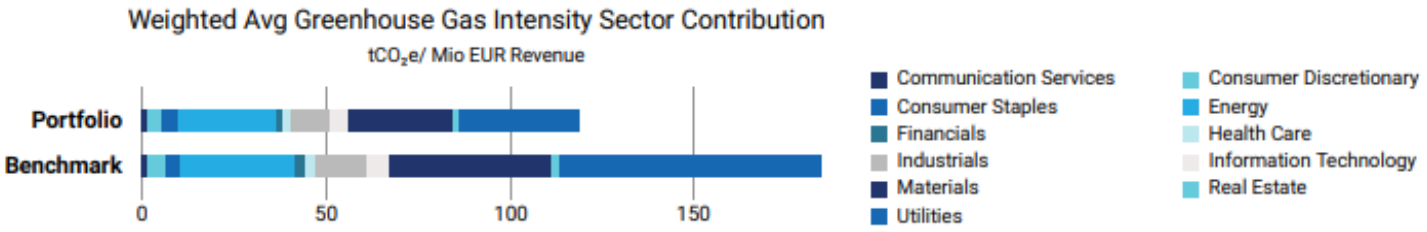
	CRR		WACI	
	PF	BM	PF	BM
SOVEREIGN				
ILIM ESG Other	393.12	452.46	393.12	388.77
ILIM Non-ESG	167.06		135.77	

Table 10: Summary of 2021 and 2022 results of climate-related metrics for ILIM portfolios vs benchmarks

		Emissions Exposure tCO2e		RCF		WACI	
		2022	2021	2022	2021	2022	2021
EQUITY							
ILIM IP	Portfolio	1,138,374	956,019	75.27	57.96	119.09	114.89
	Benchmark	1,745,372	1,536,159	115.41	93.13	184.89	178.04
	Under/(out)	(34.8%)	(37.8%)	(34.8%)	(37.8%)	(35.6%)	(35.5%)
ILIM ESG Other	Portfolio	2,007,106	1,080,732	105.28	76.05	146.41	126.73
	Benchmark	2,965,718	1,211,759	155.56	85.27	222.36	128.93
	Under/(out) performance	(32.3%)	(10.8%)	(32.3%)	(10.8%)	(34.2%)	(1.7%)
CORPORATE							
ILIM IP	Portfolio	201,216	147,308	53.65	52.69	94.70	116.74
	Benchmark	352,910	258,979	90.06	92.63	149.91	182.99
	Under/(out) performance	(43.0%)	(43.1%)	(40.4%)	(43.1%)	(36.8%)	(36.2%)

The carbon performance of the 'ILIM IP ESG' Equity portfolio is characterised by a lower Relative Carbon Footprint and a lower WACI as compared to the benchmark. As displayed in Table 10, each portfolio outperforms the benchmark in terms of Relative Carbon Footprint by 34.8% and WACI by 35.6% respectively, which is principally driven by the exclusion of investments in high emission sectors. For Equity IP ESG Portfolio, this is supported by Figure 10 illustrating the WACI broken down to respective sector contributions comparing the Equity IP ESG Portfolio against the benchmark.

Figure 10: Greenhouse Gas Intensity (Equity ILIM IP ESG Portfolio vs Benchmark)



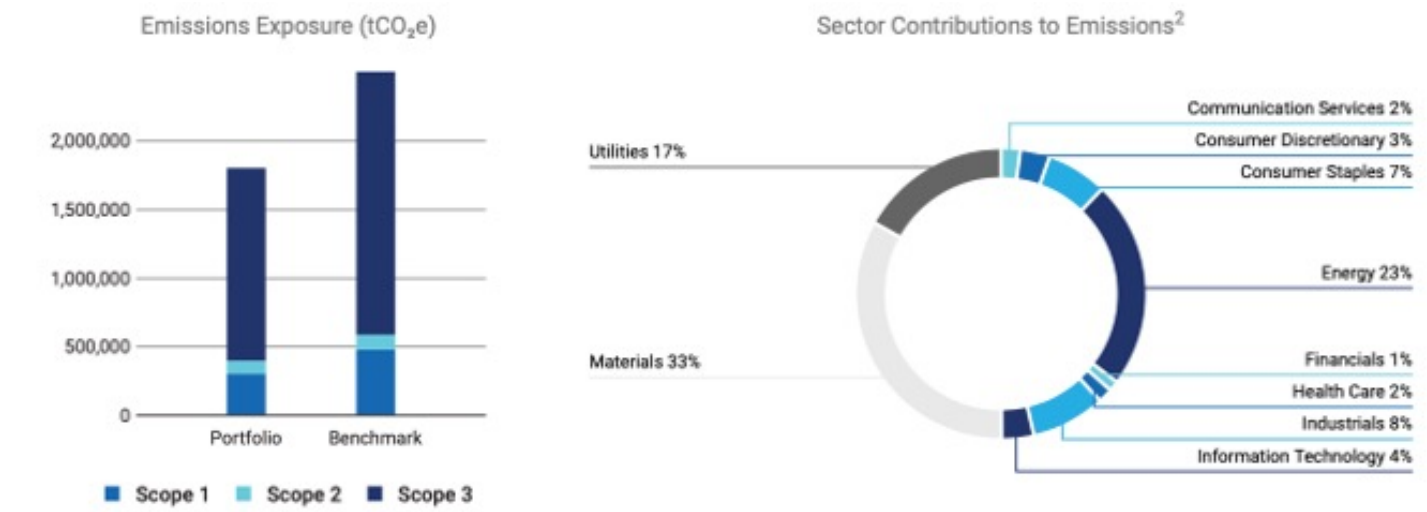
Further to this, Table 11 examines the extent to which higher or lower GHG exposure between the portfolio and the benchmark can be attributed to sector allocation versus issuer selection. Here, a portfolio with a larger amount of assets allocated to an emissions-intense sector will ultimately have higher GHG emissions exposure. However, this can be offset by the selection of less emissions-intense issuers from that sector. As is shown in Table 11, fewer investments are made in sectors with higher average GHG emission intensities, such as the materials, industrials and energy sectors. While the utilities sector is overweight compared to the benchmark, the sector has a positive effect on the carbon footprint of the portfolio against the benchmark, as the utilities portfolio holdings display a notably better carbon intensity profile when compared to their peers in the benchmark.

Table 11: Sectors attribution to emissions exposure

Sector	Portfolio Weight	Benchmark Weight	Difference	Sector Allocation Effect	Issuer Selection Effect
Communication Services	6.99%	6.82%	0.18%	-0.02%	-0.24%
Consumer Discretionary	10.77%	10.27%	0.5%	-0.1%	0.35%
Consumer Staples	8.23%	8.03%	0.3%	-0.09%	-0.05%
Energy	5.44%	5.56%	-0.12%	0.39%	-0.18%
Financials	16.96%	17.05%	-0.1%	0.01%	0.56%
Health Care	14.34%	13.18%	1.16%	-0.05%	0.01%
Industrials	8.78%	10.38%	-1.6%	1.13%	-0.67%
Information Technology	17.4%	17.93%	-0.53%	0.06%	0.12%
Materials	4.68%	5.04%	-0.36%	2.39%	10.99%
Real Estate	3.05%	2.58%	0.48%	-0.05%	-0.01%
Utilities	3.26%	3.17%	0.09%	-0.89%	21.12%
Cumulative Higher (-) and Lower (+) Emission Exposure vs. Benchmark				2.78%	32%
Higher (-) and Lower (+) Net Emission Exposure vs. Benchmark				35%	

The chart below on the left side of Figure 11 shows the emission exposure of the portfolio and the benchmark, where scope 3 emissions dominate for both cases. The portfolio emission exposure is significantly less than the benchmark's. On the right side, scope 1 and 2 emission exposure of the portfolio is aggregated by GICS sectors, where the sectors materials, energy, and utilities are identified as the biggest contributors to those emissions.

Figure 11: Emission exposure analysis for Equity 'ILIM IP ESG' Portfolio



c) Targets for climate-related risks and opportunities

The ILIM Climate Action Pledge has been extended in 2022 to a formal commitment to help reach net zero greenhouse gas emissions by 2050 or sooner by joining the Net Zero Asset Managers Initiative as the next milestone on our sustainability journey. ILIM is committed to supporting the goal of achieving net zero greenhouse gas emissions by 2050 or sooner, for both operations and investments.

ILIM will initially commit c.20% of total AUM to net zero, with the long-term target of 100%. For these assets, ILIM will seek to achieve:

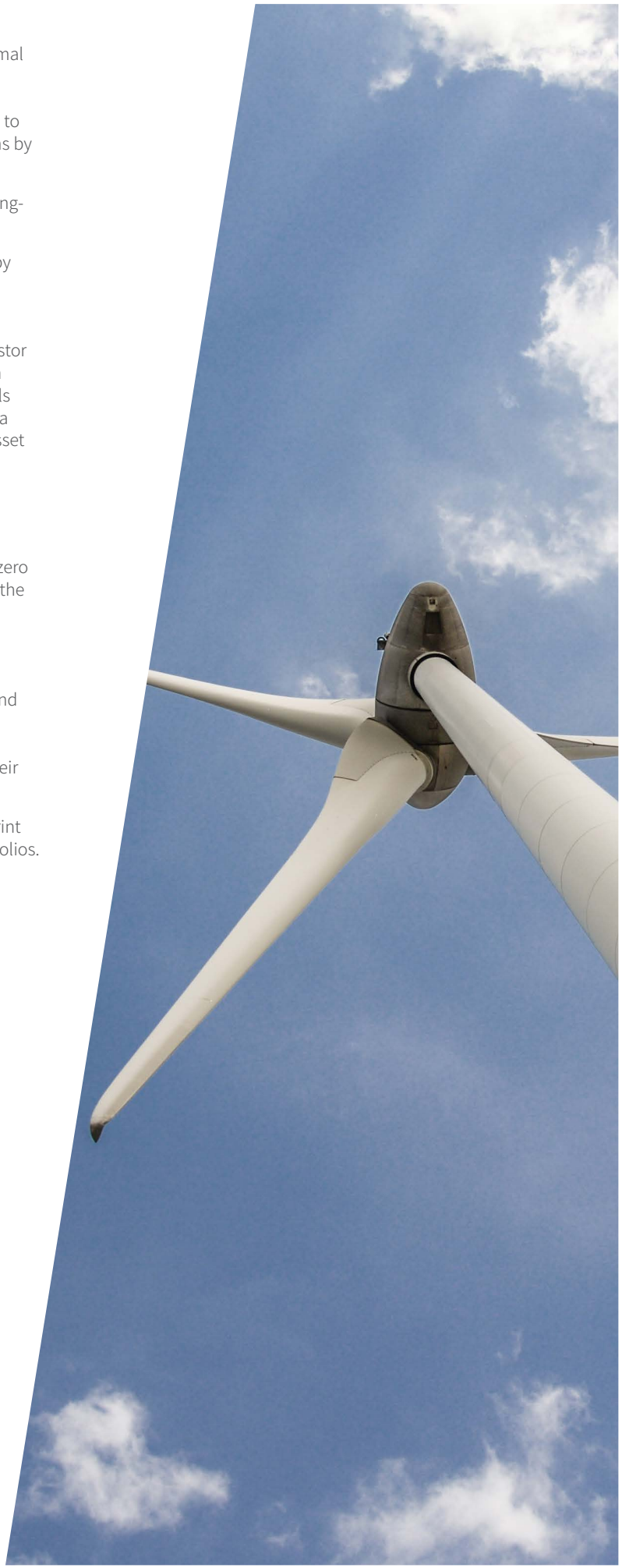
- at least 25% reduction[15] in weighted average carbon intensity by 2025
- at least 50% reduction by 2030, compared to base year 2019.

In making this commitment, ILIM adheres to the Paris Aligned Investor Initiative (PAII). The PAII is a collaborative investor-led global forum enabling investors to align their portfolios and activities to the goals of the Paris Agreement. The PAII framework is designed to provide a foundation based on climate science, on which a broad range of asset owners and asset managers can make commitments to achieving net zero emissions and define strategies, measure alignment, and transition their portfolios. Further key aspects of the ILIM net zero strategy involve:

- Energy policy: align the energy investment policy with the net zero requirements set by the International Energy Agency (IEA) and the Intergovernmental Panel on Climate Change (IPCC).
- Climate solutions strategy: increase the allocation of capital to companies that provide climate solutions.

ILIM recognises that the path to achieving net zero is a long-term and challenging commitment requiring ILIM to set annually reviewed interim targets, adopt a decarbonisation pathway and engage with investee companies through voting and engagements to ensure their alignment with net zero.

ILIM also monitors annual progress against Relative Carbon Footprint and WACI intensity measures in its equity and corporate debt portfolios.



[15] Scope 1 and 2 Greenhouse Gas emissions only initially.

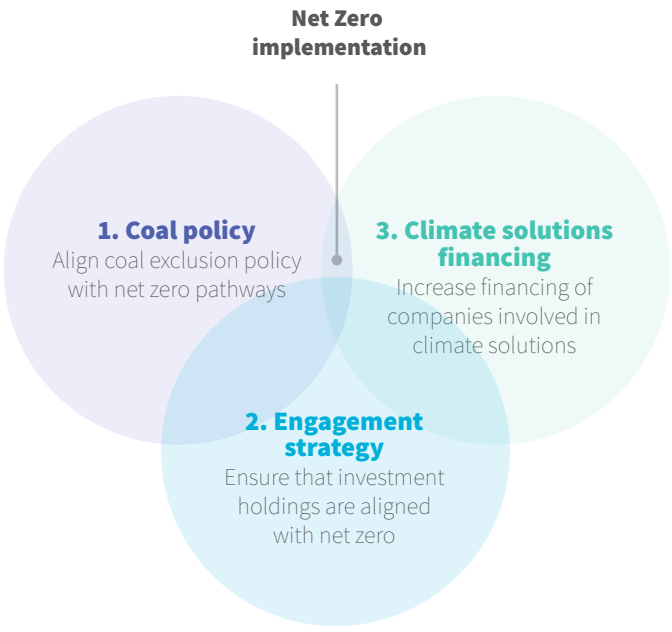
Conclusion

This report outlining ILIM's efforts along the TCFD recommendations covers the full scope of the TCFD's four categories and 11 recommendations. It has highlighted areas where ILIM is performing strongly. ILIM is committed to making further improvements in the years ahead.

ILIM is committed to supporting the TCFD and has published reports on climate-related risks and opportunities as part of a wider pledge to increase transparency around climate strategy, governance, metrics and targets.

ILIM has committed 20% of total AUM to net zero. This includes discretionary equity, corporate fixed income and property assets.

This commitment means a reduction in weighted average carbon intensity (WACI) of 25% by 2025[16] and of 50% by 2030 from our identified base year of 2019. ILIM will achieve this by taking the following actions:



1) Coal phase-out strategy

- ILIM will align with the decarbonisation rate required i.e. a phase-out of unabated coal in developed markets by 2030 and in emerging markets by 2040.

2) Engagement: As part of the Net Zero Asset Managers Initiative commitment, ILIM is implementing a stewardship and engagement strategy, with a clear escalation and voting policy, which is consistent with the ambition for all AUM to achieve net zero emissions by 2050 or sooner.

The Paris Aligned Investor Initiative (PAII) sets the following targets for investment managers to align their assets with net zero.

2025 target: Have **70% of financed emissions** in material sectors **aligned with a net zero pathway**, or subject to direct or collaborative engagement

2030 target: Have **90% of financed emissions** in material sectors **aligned with a net zero pathway**, or subject to direct or collaborative engagement

To align with the Net Zero Asset Managers Initiative, ILIM will focus its engagement on key sectors such as oil and gas producers and construction materials. Engagement will be done directly and collaboratively.

What happens if engagement is unsuccessful?

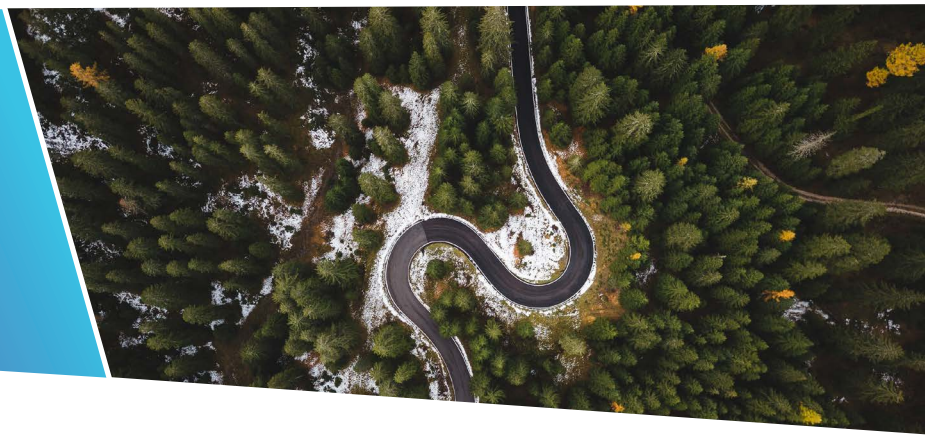
If engagement with the unaligned companies is unsuccessful, then ILIM will have to resort to further escalation strategies such as voting against management, underweighting companies in the portfolios or even eventual divestment.

3) Increase allocation to green solutions:

- ILIM's net zero strategy will aim for the power generation exposure of utility assets to be equal to that of the IPCC 1.5°C pathway.
- Increase the renewable energy share of utility assets through engagement.
- Increase weightage of low-carbon investments in portfolio construction (e.g. clean energy, green transportation, etc.) based on climate solutions revenues.

[16] Scope 1 and 2 Greenhouse Gas emissions only initially.

Appendix I – Methodology



1. GHG emissions

(i) Equities & Fixed Income Portfolios

Scope 1 & 2 emissions for issuers

The emissions methodology was developed over three years with the Swiss Federal Institute of Technology and includes about 800 sector and sub-sector specific models, allowing ISS ESG's researchers to calculate the GHG emissions of companies based on those criteria that are most relevant to their line of business.

A summary of the process is provided below:

- Self-reported emissions data is collected from all available sources.
- Self-reported numbers are evaluated for trustworthiness and, where necessary, discarded.
- All companies are classified according to the proprietary ISS ESG CICS (Carbon Industry Classification System) – i.e., companies are classified in light of their carbon-profile, allowing ISS ESG to benchmark non-reporting companies against their reporting peers.
- ISS ESG applies its 800 sub-sector specific models to estimate the emissions of non-reporting companies according to sector-relevant financial or operational metrics.

Scope 3 emissions for issuers

ISS ESG's methodology conceptually differentiates between two sources of scope 3 emissions: a) emissions from a company's upstream and downstream supply chains and b) emissions from the "use phase" of a company's product or service.

Upstream emissions include GHG emissions that occur before the primary inputs for production (raw material/machinery etc.) enter the company's operational control. Downstream emissions are those emitted after a product/service leaves a company's control or ownership. Purchased goods and services (upstream, category 1) and use of sold products (downstream, category 11) are responsible for most of the emissions across high emitting sectors. Among the Climate Action 100+ companies, two thirds of the scope 3 emissions from the reporting companies were estimated to be concentrated in the 'use of sold products' category. These findings were confirmed in ISS ESG's analysis of self-reported scope 3 data. Only companies reporting on most of the relevant categories were considered to ensure a sound analysis based on high quality data.

The highest contributors to upstream emissions in most sectors were found to be category 1 (purchased goods and services), category 2 (capital goods), category 3 (fuel and energy-related activities) and category 4 (upstream transportation).

The highest contributors to downstream emissions in most sectors were found to be category 11 (use of sold products), category 9 (downstream transportation and distribution) and category 12 (end-of-life treatment of sold products). The scope 3 emission estimation approaches were designed to capture these categories to ensure a high degree of coverage.

ISS ESG uses a combination of approaches to estimate the upstream and downstream scope 3 emissions of companies. The following table provides the overview of the scope 3 emission estimation approaches used for companies in the ISS ESG climate universe. A unified upstream approach based on Environmentally Extended Input Output models (EEIOs) is used with downstream approaches that vary based on the type of sector and data availability. The order of preference for the downstream approach is based on the accuracy and proximity in representing the operations and emission profile of the underlying company. The upstream and downstream approaches are described in sections 3 and 4 below.

Approach type	Upstream	Downstream	Example sectors
Bottom-up approach	Emission Multipliers from EEIO Models	Output production or a proxy (E.g.: revenue) used with standardized emission factors.	Oil & gas extraction coal mining auto manufacture
Product profile top-down approach		Downstream emission ratios from EPDs and LCAs used for a standardized product profile	Manufacturing Cement Electronics Electricals
Peer top-down approach		Emission profile of representative peers with high quality disclosure for diversified or low impact sectors	Chemicals Services Wholesale and retail Real estate

Carbon Metrics (Equity and Fixed Income)

Position Ownership Ratio	For equity and corporate fixed income calculations below, the adjusted enterprise value of a company (AEV) is used to represent the value of a company.
Emission Exposure	Calculated using the following formula for scope 1&2 (the same approach is used for calculating scope 3 emissions): $\sum_{i}^{n} Position\ Ownership\ Ratio \times Position\ Scope\ 1\&2\ Emissions_{i}$
Relative Carbon Footprint	$\frac{Emission\ Exposure}{Total\ Analysis\ Value}$
Carbon intensity	$\frac{(\sum_{i}^{n} Position\ Ownership\ Ratio_i \times Position\ Scope\ 1\&2\ Emissions_i)}{(\sum_{i}^{n} Position\ Ownership\ Ratio_i \times Position\ Revenue_i)}$
Weighted Average Carbon Intensity	$\sum_{i}^{n} Position\ Weight_i \times \frac{Position\ Scope\ 1\ \&\ 2\ Emissions_{i}}{Position\ Revenue_{i}}$

(ii) Emissions for sovereign fixed income

The methodology was developed in accordance with the indications of the Platform Carbon Accounting Financials (PCAF) and allows ISS ESG's researchers to calculate the GHG emissions attributable to the governmental activities of a specific country. A summary of the process is provided below:

ISS ESG has developed a methodology based on the principles proposed by PCAF, but has relied on data sources more consistently available across more countries. The PCAF approach for sovereign bonds attributes emissions caused by a government to the government bond based on the following steps:

Step 1: Gathering of emissions data

Depending on data availability, the primary model is based on sectoral greenhouse gas emissions for each country published by the UNFCCC, which are allocated to a government using expenditure input-output data from the OECD, which provides better geographical coverage and more recent data (as of 2018) compared to the previous World Input-Output Database.

The methodology uses either production emissions data from the UNFCCC (2020) or CAIT (2019). PCAF separates emissions caused by direct government activities from emissions caused by other sectors – emissions from government activities are attributed directly to the government.

Step 2: allocating emissions to expenditure

In the next step, the general government final consumption expenditure (GGFC) per expenditure subsector is aggregated and matched to one of the five emission categories – i.e. energy, waste, industrial processes & product use, agriculture and other. The categorisation allows the calculation of a government's share of expenditure per sector as a percentage of the total expenditure.

The expenditure data from the OECD IO (Input-Output), used by ISS ESG, covers 66 countries across 45 expenditure sectors, which is the most exhaustive and up-to-date publicly available source. Next, the government is then allocated a share of sectoral emissions based on its expenditure in that sector. For example, if a government's final consumption of energy is 2%, then the government will be assigned 2% of the country's total emissions from the energy sector.

The sectoral share of a government's expenditure is then divided by the Domestic Output of the respective sectors to derive a ratio that estimates the emissions of the government from that sector. To account for the different calculation possibilities as well as to offer various perspectives, ISS ESG provides data for the following two different sovereign emission categories:

Production emissions

Production emissions are calculated based on production of goods and services in each country, i.e., they include the direct emissions (in tCO2e) emitted within the country's borders. The production emissions factor allows investors to, for example, identify sovereigns with the largest share of the world's total production emissions (see Figure 1). China is clearly the largest emitter in absolute terms with over 27% of the world's total production emissions, followed by the United States, which is responsible for almost 13% of the world's total production emissions.

Government emissions

Government emissions refer to the proportion of a country's emissions attributable to its government. This takes into consideration the central government's activities and its sphere of influence on the economy. The calculations of the emissions allocated to the government of each country are based on the PCAF guidelines, which primarily consists of two parts: 1) gathering country emissions data (CAIT or UNFCCC), and 2) allocating emissions to government expenditure. They vary depending on data availability.

Carbon metrics (sovereign debt)

Disclosure: weight	> Share of disclosing holdings: Share of countries for which information on GDP, debt, and emissions is available. > Share of Reported UNFCCC emissions: Share of countries that report to the UNFCCC yearly.
Emission exposure	> Production or government emissions – total portfolio's and benchmark's emissions $\sum_{i}^{n} \frac{Investment\ into\ Country_i}{GDP\ adjusted\ PPP\ of\ Country_i} \times Total\ Production\ or\ Government\ Emissions\ of\ Country_i$
Relative Carbon Footprint	> Production emissions (tCO2e/MIO invested) or government emissions/million invested $\frac{Emission\ Exposure}{Total\ Analysis\ Value}$
Weighted Average Carbon Intensity	> Weighted Average Carbon Intensity (tCO2e/GDP) $\sum_{i}^{n} Position\ weight_i \times \frac{Total\ Production\ or\ Government\ Emissions\ of\ Country_i}{GDP\ of\ Country_i}$

2. Transition risk

(i) Exposure to fossil fuels

Revenue from fossil fuels, overall and By FF type

These graphs show the revenue linked to fossil fuel extraction for the portfolio and the benchmark. The share of revenue derived from exposure to fossil fuels, a major contributor to climate change, is a widely used quantitative metric to measure an issuer's involvement in this area. This allows investors to capture involvement for issuers beyond industry sector classification. The data covers involvement in, and revenues derived from, the following fossil fuel-related activities:

- Coal extraction/mining
  - Thermal coal mining
  - Metallurgical coal mining
- Coal power generation
- Coal refining & processing
- Oil extraction
- Oil power generation
- Oil refining & processing
- Natural gas extraction
- Natural gas power generation
- Natural gas refining & processing
- Fossil fuel exploration
- Coal mining exploration
- Fossil fuel distribution
- Fossil fuel services
  - Coal Mining Services

The data covers the latest fiscal year. If issuer reporting has not been updated, older reported data may be used.

Fossil fuel expansion (%)

The graph shows the percent of weight of issuers that have expanded fossil fuel assets in the previous fiscal year. The factor identifies issuers currently engaged in the expansion or development of fossil fuel projects or have declared plans to do so in the near future. Fossil fuel projects incorporate oil, gas, and coal extraction operations, as well as energy generation assets powered by fossil fuels, and infrastructure which is critical for the fossil fuel industry (e.g., pipelines and terminals). The International Energy Agency (IEA) states in their Net Zero 2050 scenario (NZE), that "there is no need for investment in new fossil fuel supply" (source **https://www.iea.org/reports/net-zero-by-2050**). The scenario expects a sharp decline in fossil fuel demand. The graph in the Climate Impact Report is built around a binary yes/no metric.

Reserves potential emissions (GtCO2e)

The graph shows the potential future emissions from fossil fuel reserves expressed in megatons of carbon dioxide equivalent (GtCO2e). The factor covers Proven (P1) oil, gas, and coal reserves as of the latest reporting year. 'Proven' is aligned with the OECD definition, 'P1 reserves are estimated quantities of mineral deposits, at a specific date, as analysis of geologic engineering data demonstrates with reasonable certainty to be recoverable in the future under the same economic and operational conditions.

(ii) Weighted Average Carbon Risk Rating (CRR)

Revenue from fossil fuels, overall and By FF type

The Carbon Risk Rating is a comprehensive assessment of the carbon-related performance of companies, based on a combination of quantitative indicators, forward-looking qualitative indicators, and a classification of the company's absolute climate risk exposure due to its business activities. Quantitative factors include, for example, information on the current intensity and trend of the greenhouse gas emissions of an issuer, the carbon impact of the product portfolio including revenue shares of products or services associated with positive as well as negative climate impact. Corporate policies, shifts in product and services portfolio, emission reduction targets and action plans, are some of the forward-looking indicators considered.

CRR provides a numeric score from 0 to 100 for the rated entity's overall carbon risk based on an assessment of over 100 industry-specific indicators and a carbon risk classification at the industry and sub-industry levels. Calculated as:

Weighted Average Carbon Risk Rating	$\sum_{i}^{n} Position\ Weight_i \times Position\ Carbon\ Risk\ Rating_i$

(iii) Scenario Alignment (single scenario approach only)

Revenue from fossil fuels, overall and By FF type

The IEA Sustainable Development Scenario from the World Energy Outlook 2021 (WEO 21) is in line with the Paris Agreement objective of limiting temperature rise to "well-below 2°C" compared to the preindustrial era.

The Intergovernmental Panel on Climate Change (IPCC) AR5 report found that "there is a near-linear relationship between cumulative CO2 emissions and the increase in global average temperature caused by CO2" (high confidence). This finding was reaffirmed in the latest AR6 Report.[17]

It is then possible to define Transient Climate Response to Cumulative Carbon Emissions (TCRE), expressed in °C/GtC or °C/GtCO2, and which provides an estimate of global temperature rise due to additional cumulative anthropogenic carbon emissions. According to the IPCC AR6 WGI Technical Summary, TCRE spans across the "0.27°C–0.63°C range with a best estimate of 0.45°C when expressed in units per 1,000 GtCO2".

TCRE multipliers are derived based on 2,100 global carbon budgets and temperatures. The alternative portfolio Implied Temperature Rise (ITR) metric is based on the TCRE multiplier and guidance published in the Portfolio Alignment Technical Considerations 2021 report[18]. Based on this guidance, the portfolio ITR for the year 2XXX is defined as

$$2XXX\ ITR\ (°C) = 2XXX\ Scenario\ Temperature\ Rise\ (°C) + 2XXX\ Portfolio\ Under-/Overshoot\ (\%) \times Scenario\ Remaining\ Carbon\ Budget\ (GtCO_2) \times TCRE\ (°C/GtCO_2)$$

with

$$2XXX\ Portfolio\ Under-/Overshoot = \frac{2020-2XXX\ Cumulative\ Owned\ (Projected\ Emissions - Carbon\ Budget)}{|Cumulative\ Portfolio\ Owned\ Carbon\ Budget\ 2020-2XXX|}$$

The ownership ratio is based on market capitalisation for equity portfolios in line with previously delivered TCFD reports. For fixed income portfolios, ownership is based on Adjusted Enterprise Value (AEV).

$$Ownership = \frac{Amount\ Invested}{Market\ Capitalisation\ or\ AEV}$$

Table 12: IEA SDS

IEA SDS	2050	2070	2100
Scenario Temperature Rise (50% probability) – C°	1.7	1.7	1.65
Scenario Remaining Carbon Budget (2020 included) – GtCO2	677.652	755.266	755.266
TCRE Multiplier – °C/GtCO2		0.00045	

Assumptions' sources:
IEA
IPCC
Derived

[17] IPCC AR6 WGI Technical Summary, 2021
[18] PAT Measuring Portfolio Alignment Technical Considerations, 2021

ITR results are bounded within the 1.5-6°C range to avoid underestimating the climate impact and remove outliers, respectively.

The proposed approach has some limitations which include, but are not limited to:

- TCRE and carbon budget estimates are subject to high uncertainties (non-CO2 effects, historical temperature, recent emissions, zero CO2 emissions commitments), as highlighted in IPCC AR6 WGI Report. Those uncertainties are not accounted for in the present analysis.
- ITR is better suited only for long-term analysis, as noted by GFANZ Portfolio Alignment Measurement report (PAM, August 2022), and assumes that the rest of the world will exceed its carbon budget proportionally. This may affect sectors and/or regions according to the respective ease or lack of ease with which they decarbonise.

The TCRE ITR considers a single scenario and cumulative emissions (and carbon budget) to compute a portfolio alignment metric, which aims to reflect the concept of remaining carbon budget defined by the IPCC.

This approach to portfolio temperature score differs from ISS ESG 2022 Methodology, which is based on the interpolation of a set of scenario temperature outcomes. The two methodologies and their respective outputs are not directly comparable. Both approaches are subject to uncertainties, and industry consensus is that there is no one correct way of deriving a portfolio or issuer ITR[19]. The output provides ITRs based on 2050 and 2070 timeframes. ITR based on 2050 under/overshoot is provided at the request of the client.

The recommended approach between the two is to take the ITR based on 2070 cumulative under/overshoot. This best reflects the TCRE's link to a 2100 timeframe, keeping additional assumptions to a minimum (compared to a 2100 timeframe), and is in line with the guidance in the latest PAM report stating that such metrics are not suited to short-term analysis.

IEA SDS emissions pathways extrapolation

The chosen reference scenario is the IEA Sustainable Development Scenario from World Energy Outlook 2021 (WEO 21), which is in line with the Paris Agreement objective of limiting temperature rise "well-below 2°C" compared to the pre-industrial era. The WEO 21 database contains emissions pathways for different sectors but only up until 2050. Yet, it is possible to extract from the report some indications on emissions pathways and temperature rise outcomes beyond 2050.

As per IEA World Energy Model 2021[20] :

"In this scenario, all current net zero pledges are achieved in full and there are extensive efforts to realise near-term emissions reductions and […] all other countries achieve net zero by 2070 at the latest."

and

"Without assuming any net negative emissions, this scenario is consistent with limiting the global temperature rise to 1.65 °C (with a 50% probability)".

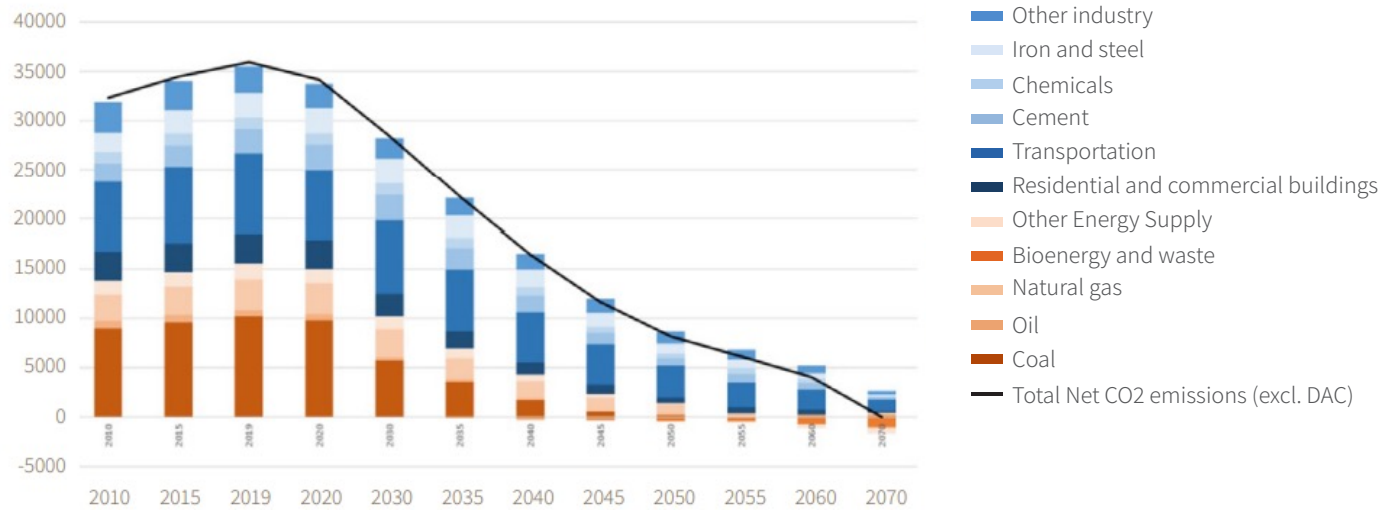
These indications are used to extrapolate the data provided by the IEA. The following assumptions are made to extrapolate IEA data:

- Total world net CO2 emissions are linearly interpolated between 2050 (c. 8170 MtCO2) and net zero emissions in 2070.
- Emissions from combustion of fossil fuels and bioenergy and waste as well as industrial processes are assumed to decrease at the same rate as total world net CO2 emissions.
- Respective sector shares of emissions from IEA net zero by 2050 scenario are used as a proxy to derive a sector breakdown (e.g., energy supply versus energy demand) from the calculated 2051-2070 total world net CO2 emissions.

By assuming no net negative emissions after 2070, the SDS total cumulative emissions for the 2020-2100 period is c. 755 GtCO2, which is consistent with IPCC 50% probability estimates of 750 GtCO2 in a 1.65°C scenario (IPCC AR6 WGI).

Below is a representation of the resulting IEA SDS emissions pathways during the 2010-2070 period. Shades of orange correspond to emissions related to the energy supply while shades of blue correspond to emissions related to the energy demand.

Figure 12: IEA WEO21 – SDS World CO2 Emissions (2051–2070 extrapolated)

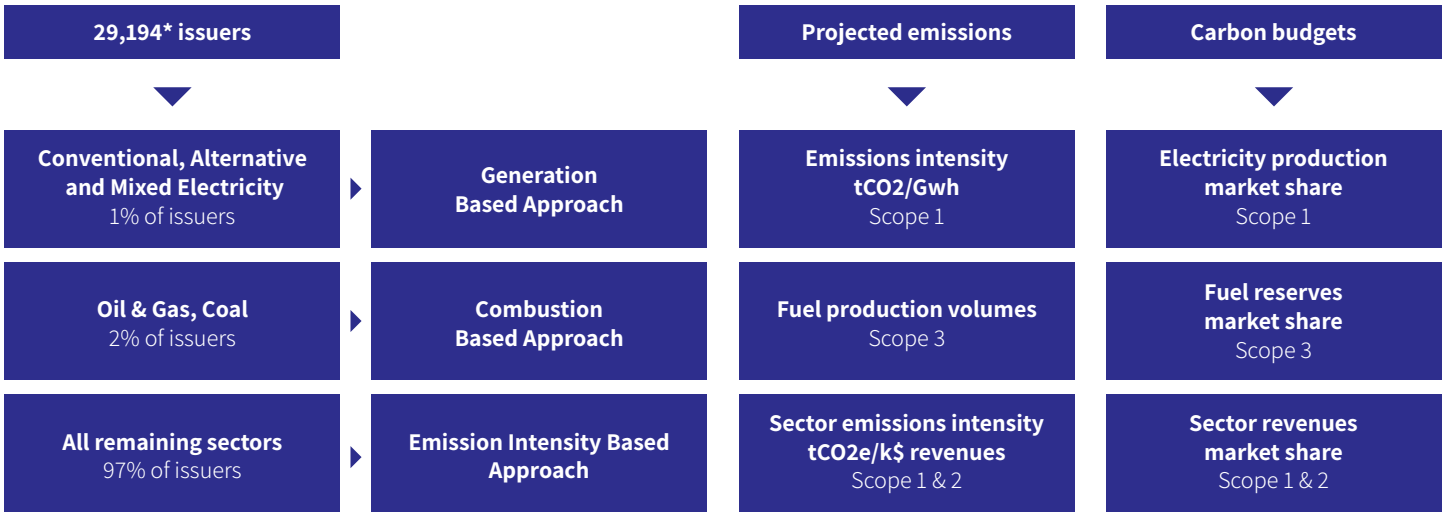


[19] The latest GFANZ Portfolio Alignment Measurement report (2022) does not provide yet a recommendation on a preferred approach
[20] **https://iea.blob.core.windows.net/assets/932ea201-0972-4231-8d81-356300e9fc43/WEM_Documentation_WEO2021.pdf**

Issuer projected emissions and carbon budgets

Emissions are projected according to ISS ESG 2022 Portfolio Alignment methodology. To reflect the materiality of scope 1, 2 or 3 emissions, and based on the issuer sector and associated activities, three approaches are used.

Figure 13 – issuer-projected emissions and carbon budgets



*as of June 2022

The approach has been extended to 2070, using:

- extrapolated SDS emissions pathways used to derive scope 1 emissions of the emission intensity-based approach
- extrapolated SDS emissions pathways and total electricity generation used to derive scope 2
- extrapolated power generation intensities (tCO2/GWh) used in the generation-based approach
- extrapolated fossil fuels prices and production volumes used to derive projected emissions and budgets, respectively

ILIM uses ISS (Institutional Shareholder Services) climate data as input for climate scenario analysis.

(iv) Transition VaR

Summary:

The ISS ESG Climate Transition Value at Risk (TVaR) solution helps investors assess their portfolios' exposure to climate-related transition risks and opportunities. It provides forward-looking returns-based analysis, leveraging financial data and modelling via ISS ESG's EVA solution, company-specific data, and scenario inputs. The TVaR solution allows financial institutions to identify assets which may be most at risk from carbon pricing and demand changes, as well as those which may be better positioned to seize opportunities. The total estimated TVaR for the portfolio in absolute terms, including a sector-level contribution breakdown.

The TVaR presented is a net number between the positive and negative potential share price performance in the portfolio. The TVaR is concerned at issuer level with the impact of the below changes on projected issuer emissions out to 2050:

(ii) Changes in demand, and

(iii) Changes in costs (including operating costs and carbon costs)

Input modelling basis:

Analysis of the potential transition risks and opportunities is based on two of the most common reference transition risk scenarios, as developed by the International Energy Agency (IEA):

- **Sustainable Development Scenario (SDS)**, corresponding to a 1.65˚C temperature increase
- **Net Zero Emissions by 2050 (NZE2050)**, corresponding to a 1.5˚C temperature increase

Both scenarios are part of the IEA's World Energy Outlook (WEO) series, published annually, with current data (as per Q2 2022) based on the 2021 WEO release. The temperature increases implied within the two scenarios illustrate potential futures with a high level of transition risks. The selection of these scenarios is consistent with TCFD recommendations, which propose the use of a 2˚C or lower scenario within scenario analysis.

The IEA's World Energy Model (WEM) which produces the scenarios, is a hybrid Integrated Assessment Model, incorporating (i) policy, (ii) market and also (iii) technology risks. The IEA's WEM models not only the energy system, but also assumptions about policy and behavioral changes, as well as relative technology cost trajectories of key low-carbon technologies compared to traditional fossil fuel alternatives.

(i) **Policy transition risks** describe the additional costs or revenues that a company may experience as a result of changes in the policy environment. Various policy risks such as carbon tax, emissions trading schemes or coal production restrictions, are often summarized under a single carbon price instrument.

(ii) **Market risk** is considered via the integration of carbon prices per region/country, where each scenario applied to the scope 1 and 2 emissions of specific sectors, consistent with the IEA approach. Relevant sectors with direct carbon prices are power generation, energy production and industry. Theoretically, high-emitting companies with relatively inelastic demand would be able to pass through any additional carbon prices to counterparties. The analysis reflects this, with power generation companies assumed to pass through a proportion of their carbon price to other sectors' scope 2 emissions.

The below table shows the IEA sectors used in the analysis. Companies are assigned an IEA sector using mapping based on the ISS ESG proprietary industry classification system (CICS).

IEA sectors

Power Generation	Electricity and heat generating companies
Energy Production	Energy supply and transformation outside of power generation
Industry	Manufacturing and construction activities
Buildings/Services	Businesses mainly running commercial activities in facilities such as offices, shops, institutional buildings, etc.
Transport	Transport of goods and people through road, marine and aviation

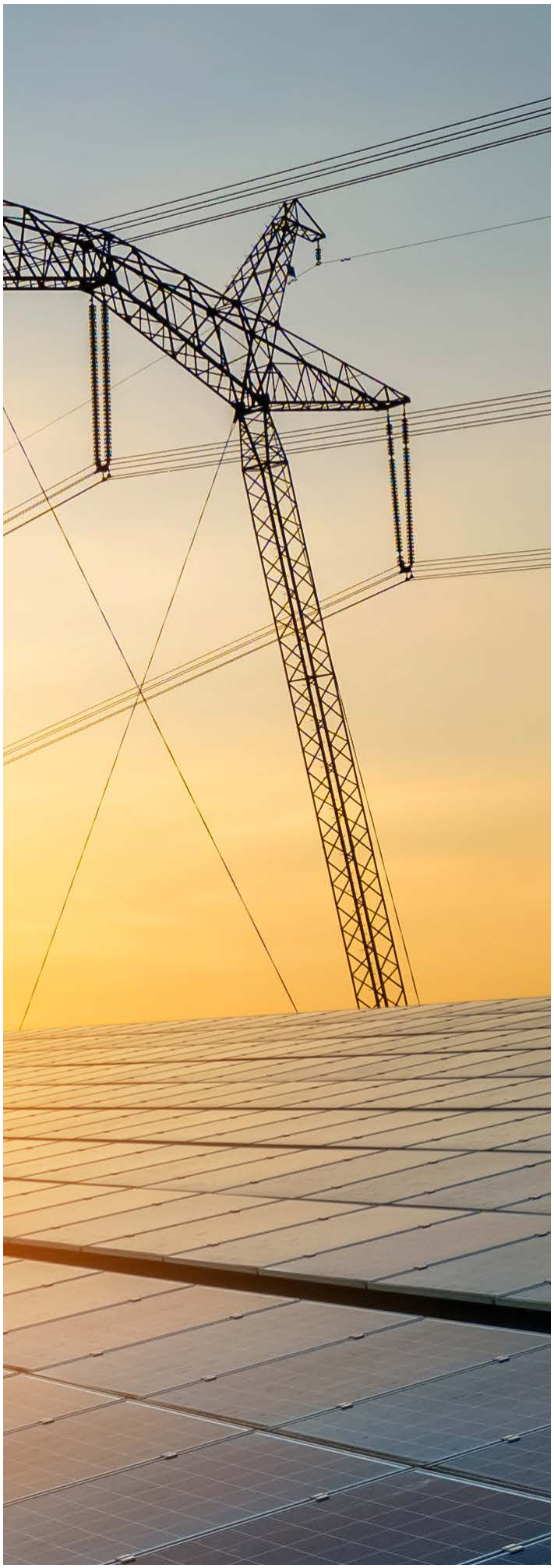
(iii) **Technology risks** include the potential changes in the relative price or demand for low carbon technologies versus fossil fuel technologies. The compound annual growth rates between 2020 and 2050 in energy and power supply from each of the SDS and NZE2050 scenarios are used as proxies for potential changes in demand linked to technology risks.

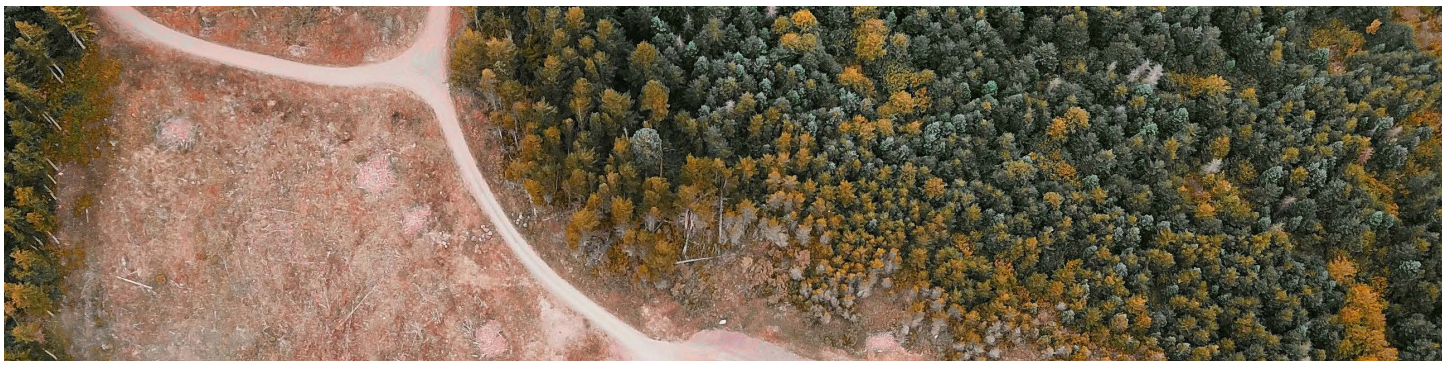
(iv) Green, brown and neutral growth rates are derived in order to distinguish between growing faster, slower or at the same pace as the wider economy. These growth rates are applied to the respective green, brown or neutral proportions of a company's revenue. Please refer the next section for further detail on revenues. Categorizations of green/brown energy and power supply technologies are below:

GREEN TECH	BROWN TECH
Renewables	Oil
Natural gas with CCUS	Unabated natural gas
Coal with CCUS	Unabated coal
Nuclear	

(v) **Power generation exposure/energy mix**

The graph shows the energy generation mix in % from different sources by power generators in the portfolio. The two right-most bars are static and illustrate an SDS compatible generation mix in 2030 and 2050, according to the International Energy Agency (IEA).





3. Physical Risk

(i) Physical Value-At-Risk (VaR)

Overall

Physical risk levels linked to a changing climate, amongst other factors, vary depending on the issuer's financial profile (including where the company operates, the total value of its assets, and in which countries the issuer generates its revenue). **The present analysis quantifies the current and anticipated portfolio financial Value at Risk emerging from individual issuers' exposure to physical risks.** Physical risks can have a financial impact on a company at both the operational and the market level.

Operational risks are quantified by considering the costs of repairing assets damaged by tropical cyclones, river floods, and wildfires, and the loss of income due to the associated business interruptions. The impact of heat stress on labor productivity and the resulting increase in production costs are also considered. Market risks are quantified by the revenue at risk due to the nation-wide effects on country Gross Domestic Products (GDP) due to the combined impact of droughts and heat stress on agricultural productivity, decrease in labor productivity, and human health effects. The ISS-ESG physical risk assessment assumes a one-to-one relation between GDP changes and changes in company revenue.

The ISS ESG analysis extends to the year 2050 and includes two of the most relevant scenarios, both used in the IPCC 5th Assessment Report (AR5): a "most likely" scenario built around Representative Concentration Pathway (RCP) 4.5 (equivalent to a 1-3°C temperature rise by 2100), and a "worst-case" scenario, based on RCP 8.5 (equivalent to above 3-5°C temperature rise by 2100). As a comparison point, the current risk level is assessed in the form of a historical scenario.

Physical risk VaR

The Value at Risk (VaR) of an individual issuer estimates the change in share price as a result of considering the financial impact of physical risks. The VaR is computed using a valuation model based on the Economy Value Added (EVA) framework. Individual issuers are first valued without the consideration of physical risks to calibrate the model. For some scenarios, issuers are re-evaluated, accounting for financial changes due to physical risks. The resulting shift in share price is the value at risk. The valuation model considers the following financial risks:

- Changes in capital value via changes in Property, Plant and Equipment (PP&E)
- Repair costs to damaged assets via investments in Capital Expenditure (CAPEX)
- Increases in production costs via changes in Selling, General and Administrative Expenses (SG&A) or Cost of Goods Sold (COGS)
- Change in income via sales

For physical risk specifically, usage of the ISS EVA data allows to, for example, account not only for owned (traditional accounting method) but also for rented and leased PP&E. This is critical, as business interruptions can occur independently of whether a production facility is rented or owned.

(ii) Physical risk management

Physical risk score

The physical risk score measures the change in an issuer's financial risk relative to its GICS sector (level 2) for a specific scenario. A score of 0 reflects an increase in financial risk that is large relative to the sector median, and a score of 100 represents an increase in financial risk that is low relative to the sector median.

Management score

Each company is given a physical climate risk management score. The management score shows if the company has taken physical climate risk into consideration in their risk management strategies. For a company to receive a management score, they must report to the CDP and specifically mention how they are affected by physical risks, the strategies they have in place, and how they expect the costs will affect their balance sheet. The more detail an issuer provides about their physical risk management strategy and risk management, the higher their score.

4. Climate-related opportunities

(i) Green revenues positively affecting SDGA Environmental Objective: climate change

Portfolio attributable revenue (significant and limited contribution)

The SDG Solutions Assessment (SDGA) measures the positive and negative sustainability impacts of companies' product and service portfolios. It follows a thematic approach that encompasses 15 distinct sustainability objectives, using the United Nations' (UN) Sustainable Development Goals (SDGs) as a reference framework. The product's focus is on assessing to what extent companies are making use of existing and emerging opportunities to contribute to the achievement of global sustainability objectives by offering (innovative) products and services with a positive real-life impact.

The SDG Solutions Assessment applies a proprietary classification of products and services into five categories – based on their direct impact on the achievement of the different sustainability objectives:

- significant contribution
- limited contribution
- no (net) impact
- limited obstruction
- significant obstruction

For mitigating climate change, the share of net sales generated with relevant products and services is quantified per category. While some companies report exact figures on relevant product sales, others only report on geographic segments or do not report segment sales at all. The analyst in charge of the assessment takes all relevant and available information into account to estimate the share of net sales a company generates with relevant products. Clear estimation rules exist to ensure that results are based on reasonable assumptions with medium to high certainty.

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