

LO Funds – Global Climate Bond

2022 Impact Report



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Management commitment to impact



Message from Lombard Odier Investment Managers (LOIM)

At Lombard Odier, our core investment conviction is that sustainability will drive returns. Why? Because powerful policymaking, consumer, technological and market forces are combining to fundamentally change three key systems – energy, land use and materials, all of which are emissions intensive – while pricing externalities, like carbon, with greater accuracy. These systems changes will be crucial in the transition to what we define as a Circular, Lean, Inclusive and Clean (CLIC®) economy. We believe investors should invest with a forward-looking mindset to both capture the opportunities and manage the risks it is generating.

LO Funds – Global Climate Bond (“the Fund”) was designed to focus on the Clean dimension of CLIC by tapping into the deep investment universe of labelled green bonds and non-labelled climate-aligned bonds. The portfolio focuses on clean energy, water and emissions reduction, helping fund the green transition while having a measurable environment impact. Over the past year, the Fund has actively invested in a range of debt instruments

promoting the UN Sustainable Development Goals (SDGs) and helping to foster positive environmental and/or social externalities. With the largest share of the Fund’s holdings being in climate-related green bonds, our impact is most heavily concentrated in supporting: SDG 7 (Affordable and Clean Energy), SDG 9 (Industry, Innovation and Infrastructure), SDG 11 (Sustainable Cities and Communities) and SDG 13 (Climate Action).

This marks the sixth year of our partnership with Affirmative Investment Management (AIM) for the Fund. The collaboration relies on AIM’s expertise in rigorous analysis, verification and engagement. Solely focused on investing in the impact bond market, AIM uses a specialised approach to building impact bond portfolios without compromising financial returns.

We hope you enjoy reading our 2022 Impact Report, covering 2021 holdings, outlining the positive change that has been generated via the use of proceeds of the green, social and sustainability bonds comprising the investments in the Fund.

Message from Affirmative Investment Management (AIM)



We are delighted to release our fifth annual Impact Report for the LO Funds – Global Climate Bond and provide evidence on our financial returns along with environmental and social impact.

Our report is the culmination of our investment process and our world-leading environmental and social-impact measurement and reporting. We are pleased to cover an impressive 95% of holdings through our rigorous in-house data collection and active engagement. Over the past year the portfolio supported over 2,700 projects across 165 countries, covering 15 of the 17 SDGs. The portfolio achieved 54% reduction in weighted average carbon intensity (WACI) compared to benchmark.

We continue to enhance our Impact Report to provide greater depth of reporting and insight. This year, for the first time, we have included project-level net zero alignment alongside our avoided-emissions analysis and have also begun to incorporate EU Sustainable Finance Disclosure Regulation (SFDR) metrics in our reporting.

Engagement with issuers is a core part of our process and central to our impact reporting. This year we have been conducting a thematic engagement on issuers’ net zero commitments. A summary of our findings is on page 12.

Our Impact Reports have been recognised as best in class for the third consecutive year. At the recent 2022 Environmental Finance Sustainable Investment Awards, AIM won ‘Best sustainability reporting by an asset or fund manager: medium and small (fixed income)’. We have also been awarded ‘Best Social Impact Investment Manager UK 2022’ at the CFI.co Green Finance Awards, while the portfolio received the award for ‘Best ESG Investment Fund: Fixed Income’ at the ESG Investing Awards 2022. We are proud to continue receiving such recognition as sustainable investing becomes more mainstream.

Thank you for your ongoing support. We are excited to continue delivering financial returns with impact and to assist with the transition to a better world.

Our recognitions



‘Impact asset manager of the year’
at the Australian Impact Investment Awards (2021)

‘Best sustainability reporting by an asset manager medium and small (fixed income)’
at the Environmental Finance Sustainable Investment Awards (2020)



SFDR Article 9
classification for all European funds
EU Sustainable Finance Disclosure Regulation, effective 10 March 2021

Global Climate Bond by numbers

164

impact bond frameworks

2,700

projects/initiatives partially or fully supported by impact bonds held in the portfolio

165

countries receiving impact bond commitments and disbursements

15/17

Sustainable Development Goals supported

6/6

environmental sectors supported¹

6/6

social sectors supported²

95%

of the portfolio covered in this report

80%

subject to TCFD-aligned WACI assessment

97%

of the 2021 portfolio in impact bonds³

66%

of the portfolio covered in avoided GHG emissions analysis⁴

-0.39%

annualised net return⁵

US\$588m

portfolio size⁶



¹See p72 for details of AIM Taxonomy and the eligible environmental sectors.
²See p73 for details of AIM Taxonomy and the eligible social sectors.
³The remaining 3% was in cash.

⁴28% of the portfolio is ineligible for this analysis, 16% of which is related to social or resilience focused impact, 2% for UoP bonds where impact data is not available yet, as well as non-UoP bonds and cash.

⁵Inception to 30 June 2022.
⁶As at 30 June 2022.

Global Climate Bond impact highlights



840,000MWh

estimated clean energy generated¹

Enough electricity to power 225,000 UK households for a year²



228MW

clean energy capacity installed

Equal to the solar capacity added in the UK in 2021. Total UK solar capacity is 13,600MW³



16,700ha

land managed

49 times the area of Central Park, New York⁴



3.8m people/year

added passenger capacity

Approximately the population of Berlin⁵



1,700km

trainlines added/rehabilitated

The distance between London and Dubrovnik as the crow flies (1,688km)



204,800,000m³

water treated each year

Enough to fill 81,900 Olympic swimming pools⁶



172tCO₂e

potential avoided emissions per US\$1m per annum

This equates to a 54% GHG emission saving



83.7tCO₂e/US\$m

Weighted Average Carbon Intensity (WACI) of the portfolio



44%

projects within the eligible pool considered aligned or aligning with a net zero-by-2050 trajectory



7,100

children immunised



682

students supported



1,550

jobs created/retained

- Environment
- Climate
- Social



¹ Estimate based on portfolio-weighted clean energy installed capacity using IRENA Renewable Energy Capacity Factors, IRENA, Renewable Power Costs 2020, 2021
² BEIS (2020) Energy Consumption in the UK (ECUK) 1970 to 2019. According to this paper, in 2019 the average UK household uses 3.731kWh per year.

³ 227MW of solar energy was added to the UK in 2021. IRENA (2021) Trends in Renewable Energy. Available: <https://public.tableau.com/views/IRENARETimeSeries/Charts?embed=y&showVizHome=no&publish=yes&toolbar=no>

⁴ Central park is 340ha.
⁵ Berlin's population in 2022 was 3,571,000. <https://worldpopulationreview.com/world-cities/berlin-population>
⁶ The volume of an Olympic swimming pool is approximately 2500m³.

Sustainable Development Goals alignment

The portfolio supported 15 of the Sustainable Development Goals (SDGs) that set out a blueprint for peace and prosperity for people and the planet.¹

The largest share of portfolio holdings are in climate-related green bonds, so the heaviest concentrations fall to a number of the climate-related SDGs, such as:

SDG 7: Affordable and Clean Energy

SDG 9: Industry, Innovation and Infrastructure

SDG 11: Sustainable Cities and Communities

SDG 13: Climate Action

To assess portfolio alignment to the SDGs, we complete our own tagging of funded projects and activities to the SDGs they support. This allows us to implement a consistent assessment on which SDGs are supported by which projects or activities, ensuring that we review critically the issuer's tagging to underlying SDGs. Our approach identifies primary and additional SDGs supported by the underlying projects in which our holdings invest. SDG alignment is weighted by order of relevance per project to limit double counting.

Projects frequently support more than one goal – for example, we tagged the World Bank's Coral Reef Rehabilitation and Management Programme in Indonesia as supporting SDG 14: Life Below Water, SDG 13: Climate Action, and SDG 6: Clean Water and Sanitation. The objective of the Indonesian coral reef rehabilitation programme is to implement a viable, decentralised and integrated framework for sustainable management of coral reef resources, associated ecosystems and biodiversity to generate positive impact for the health of the reefs and the welfare of local communities.²

The project case studies (p44-51) provide more examples showing how projects often support more than one SDG, and illustrating some of the types of projects funded.

Although not included in the chart below, which accounts only for impact bond-funded activities, AIM's mission and partnerships is aligned to Goal 17, which includes private-sector engagement in sustainable development.

The UN formally adopted 17 Sustainable Development Goals in 2015



Portfolio-weighted SDG Alignment (US\$ equivalent)³

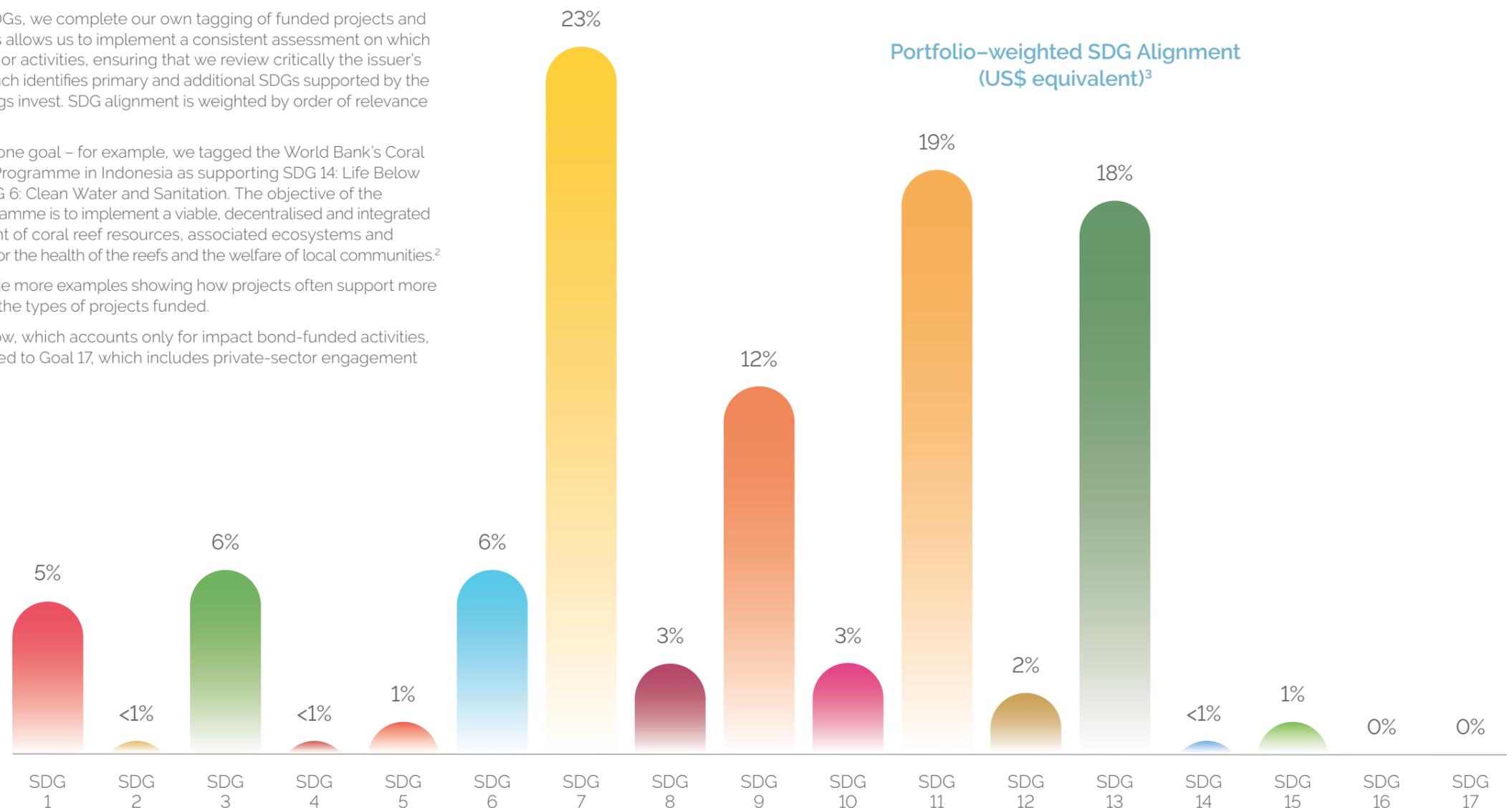


Photo: Alliander.



¹ UN, Department of Economic and Social Affairs: Sustainable Development – the 17 Goals <https://sdgs.un.org/goals>
² Coral Reef rehabilitation and Management Program – Coral Triangle Initiative (COREMAP-CTI): <https://projects.worldbank.org/en/projects-operations/project-detail/P127813>
³ Coverage ratio of 88% of 2021 average portfolio holdings.

Impact bond verification overview

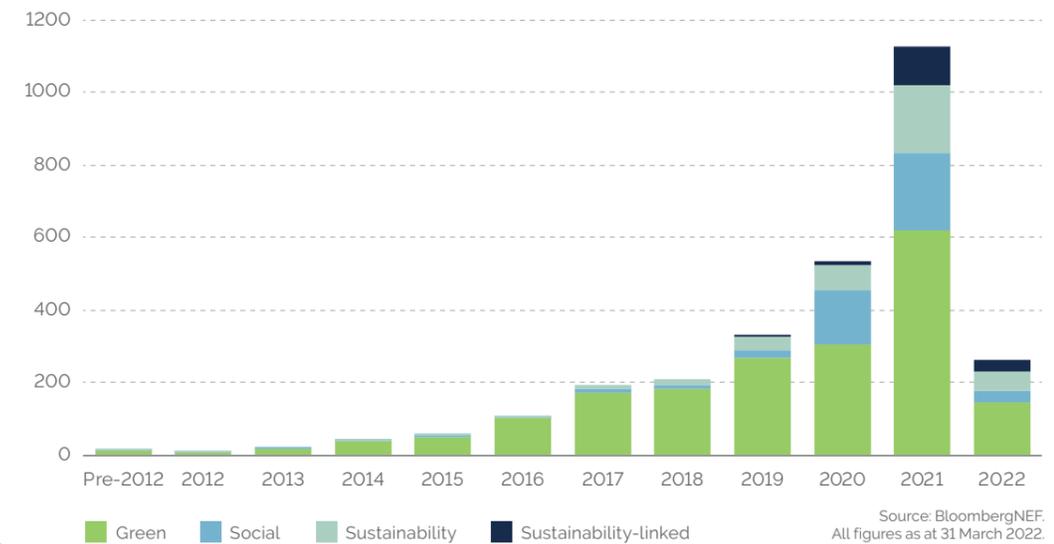
- S SUSTAINABLE**
Aligned with our purpose to support the UN SDGs and Paris Agreement on climate change
- P POSITIVE EXTERNALITIES**
Positive environmental and/or social externalities associated with the issuance
- E ETHICS AND ISSUER CONDUCT**
Issuers must have appropriate governance, policies and operational conduct
- C CREDIT**
Issuers must have a strong financial structure
- T TRANSPARENT**
Issuers with clear and transparent reporting and disclosure
- R RESPONSIBLE ISSUER**
Issuers with strong integrity and environmental and social standards, as well as a clear commitment to a sustainable model
- U USE OF PROCEEDS**
Ability to determine use of proceeds to assure funded activities meet our criteria
- M MATERIAL AND MEASURABLE**
Issuers with reporting on material and measurable environmental and social impact

● Sustainability ● Credit

All bonds are subject to our proprietary SPECTRUM Bond® analysis. Within SPECTRUM, we combine three types of analysis – Impact, ESG and Credit – to determine eligibility in our universe, assessing both impact bond frameworks and issuers. A bond must pass all three elements of analysis to be included in our investment universe.

We designed the SPECTRUM framework to independently verify impact bonds, which include issuer self-labelled, use of proceeds green, social and sustainability bonds, and unlabelled pure play bonds. The labelled impact-bond universe continues to grow strongly, with 2021 a record year for issuance: annual issuance reached US\$1.1trn, taking the labelled market to over US\$2trn outstanding.

Labelled impact bond market growth US\$bn



2021 saw growth in all types of labelled issuances. This growth was supported by several initiatives and regulations, such as the EU Taxonomy and related EU Sustainable Finance Disclosure Regulation (SFDR). Social issuance also continued to grow as part of the market response to the COVID-19 pandemic.

Engaging for impact

As impact investors, we see engagement with issuers as an important action for achieving positive environmental and social impact.

Engagements enable us to build closer relationships with relevant issuers, gain a more granular understanding of their sustainability strategies and, importantly, provides a platform for us to encourage them to adopt the highest levels of ambition and transparency around sustainability. We also engage with issuers that are excluded from our SPECTRUM investible universe, to promote sustainability beyond our portfolios.

Engagement is a core part of our verification and impact reporting processes. The majority of our engagements take place at issuer roadshows and during our impact reporting cycle, though they can take other forms, such as our thematic engagement initiatives. This year we have carried out a series of thematic engagements focusing on the topic of net zero – see the next page.

In addition, we help to advance the impact bond market more broadly through our market-development engagements at, for example, industry events where we

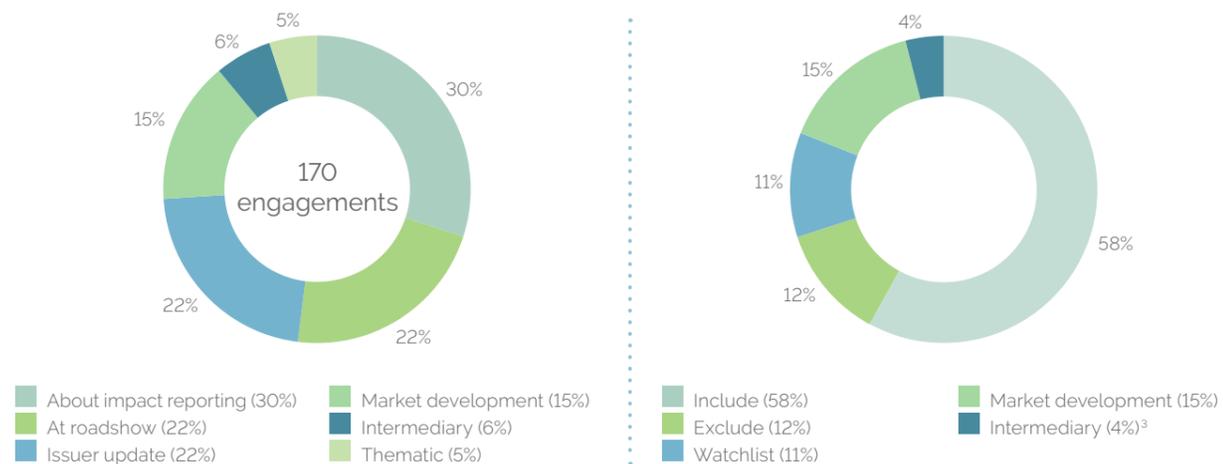
can communicate our views and expectations with a wider audience. We also actively respond to intermediaries on sustainability and impact bond market queries. This cooperation has helped us to build strong relationships with several intermediaries.

Having continual and detailed engagement with issuers and brokers delivers a significant benefit to our portfolio: enhanced allocations on new issues. New impact bonds are commonly oversubscribed when coming to market. This means that many investors' orders are scaled back. However, our review of data for more than 130 individual orders on primary market issues indicates that we have received consistently higher allocations relative to the expected pro rata percentage – on average 28% higher.¹

This increased allocation, relative to competitors, supports more effective implementation of trade ideas and more robust risk and portfolio management on a day-to-day basis, which ultimately benefits our clients and their assets.

Our engagements in the last 12 months

In the last 12 months, we carried out 170 engagements, up from 126 in the previous year. Our market development engagements have increased the most, representing 15% of this year's engagements, compared to 9% last year. Part of this increase is explained by our enhanced system for tracking engagements, which has been in place for the full 12-month period covered by this data.² Beyond this increase, the proportion of engagements of each type remains broadly unchanged – evidence of our commitment to engaging with issuers across different stages of the investment process.



A major trend in the impact bond market is the increasing issuance from sovereigns. Given the importance and complexity of sovereigns, both at the framework and responsible issuer level, this has given us a number of significant engagement opportunities. Our engagements with these issuers are a chance to obtain clarifications on specific areas of their frameworks or reporting commitments, as well to understand their sustainability strategies. As with all of our engagements, we promote best practice with respect to ambition and disclosures.

¹ Data review covers from end 2019-June 2022.
² Engagement reporting period is July 2021-June 2022.

³ Intermediary differs because some engagements with intermediaries were specifically about issuers that are either include, exclude or watchlist.

Examples

ENGAGEMENT TYPE	DESCRIPTION	OUTCOME
ABOUT IMPACT REPORTING	Engaged with a multi-utility to clarify the share of KPIs disclosed within their impact report attributable to green bond proceeds.	The issuer provided additional information on the share of investments financed by the green bond, which enabled us to pro-rata KPIs down to the portfolio holdings.
AT ROADSHOW	Engaged on a sovereign green bond framework pre and post it being published. Pre-issuance, we gave feedback that we did not want nuclear energy-related assets to be included in the use of proceeds as it is not included in our AIM taxonomy of eligible environmental sectors.	When the final framework was published, nuclear was within the excluded sectors of the framework.
ISSUER UPDATE	Engaged with an electricity utility to clarify its plans for its fossil fuel assets and its sustainability governance structure.	The issuer explained how it plans to decarbonise its energy generation activities and how it manages sustainability internally. This gave us confidence regarding its environmental trajectory as part of our Responsible Issuer verification.
MARKET DEVELOPMENT	We were invited to participate in a Transition Advisory Meeting hosted by the Climate Bonds Initiative.	We emphasised the importance of considering the regional context when assessing issuers' decarbonisation strategies.
EXCLUDED ISSUER	Engaged with a natural gas transport and storage issuer to understand its transition plans and recent updates to its material on its transition strategy.	Heard a detailed account of plans to prepare transport and storage infrastructure for hydrogen and other low-carbon gases. We communicated that we do not consider expansion of natural gas as aligned with the low carbon transition, but preparing infrastructure for low carbon gases is aligned. The issuer remains excluded, but we will follow its transition actions.
SOVEREIGN ISSUER ¹	Engaged with the UK Debt Management Office first in 2019 to discuss issuance of a Green Gilt. We then signed an investor letter calling for a Green Gilt in 2020. In 2021, we had a one-to-one meeting with HM Treasury to get more detail on the types of projects that would receive green bond proceeds and other projects that would not be eligible.	We were able to add our voice to the investor pressure to get a Green Gilt issued, which contributed to the eventual issuance in 2021.

Recent market development engagements:

- Contributed to Environmental Finance's annual investor impact reporting survey, initially by suggesting focus topics, then by completing the survey and finally participating in the summary webinar.
- Supported the Inter-American Development Bank in developing its Green Bond Transparency Platform.
- Participated in signatory meetings with the Net Zero Asset Managers Initiative.
- Joined several CBI working groups, including steel and basic chemicals.
- Spoke on Lonsec sustainability webinar: Green bonds or green washing.
- Participated in Environmental Finance's ESG in Fixed Income conference speaking on the social bonds coming of age panel.

¹ Engagement with a SPECTRUM issuer, not held in the portfolio.

Thematic engagement: net zero

Intent

In recent years, the market has seen a rapid growth in net zero commitments. This includes industry initiatives such as the Net Zero Banking Alliance, Net Zero Asset Managers Initiative, the Science Based Targets initiative, and a number of sector-specific frameworks and pathways intending to support signatories in reaching net zero. Analysis of an issuer's decarbonisation strategy is a key part of our verification process, so this year we have actively engaged with key issuers on this theme to gain better insight on their net zero targets and strategies. Our net zero engagements enabled us to communicate our priorities to issuers and to encourage higher levels of ambition, disclosure, and consistency. This project is part of our broader engagement policy and follows last year's successful thematic engagement on physical climate risk.

A key motivation behind this thematic engagement is to understand how issuers define net zero. We consider the term net zero to refer to a commitment to reduce emissions to a level consistent with net zero emissions at the global or sector level, and with a Paris Agreement-aligned 1.5°C trajectory by 2050. This engagement was designed to provide insights into the practical meaning of net zero commitments, give insights into sector-specific norms, improve our capabilities in assessing issuers' commitments and progress, allow us to convey our expectations, and provide feedback to issuers.

How we engaged

We selected a number of issuers across different sectors for engagement, each with strong sustainability profiles. We closely reviewed their net zero strategies prior to engagement using a set of key questions, adapted to the specific circumstances of the issuer and sector. Our net zero engagements were all conducted through one-to-one meetings, allowing in-depth dialogue with key individuals, and enabling us to reinforce our message as an impact investor that decarbonisation and net zero strategies matter and that detail is important. In each case, we focused on the issuer's methodology, the reasoning behind specific targets, and the overarching considerations that informed their strategy.

To date, we have engaged with eight issuers as part of this programme – three financial institutions, two energy utilities, two REITs, and an automotive sector issuer. By engaging across multiple sectors, we have heard a range of perspectives on the low-carbon transition and the challenges and opportunities it presents. We are continuing with our net zero thematic engagements and have several more in the pipeline, including with issuers in the industrial and automotive sectors.

Outcomes

Alongside allowing us to convey our expectations to issuers, this net zero thematic engagement has given us valuable insights that will inform our future engagements and verification analysis. Through our conversations with issuers in multiple sectors, we have discussed implications at the issuer and sector level, and across the market.

Carrying out this thematic engagement has allowed us to refine our process for engaging with issuers on net zero, including a selection of potential themes and focus areas. Asking questions directly to issuers has further enhanced our understanding of their decarbonisation strategies, going beyond the information in their publicly available materials.

More broadly, by engaging with multiple issuers in key sectors, we gained sector-specific insights that will feed into our future verification analysis. While we already

assess decarbonisation strategies in our verification process, these engagements uncovered new information with respect to the opportunities and challenges that exist within individual sectors.

Finally, these engagements provided us with a better understanding of what net zero or carbon neutrality targets mean in practice. When assessing decarbonisation targets, we typically prefer to see net zero commitments, since these tend to rely less heavily on carbon offsets. However, given that the terms 'net zero' and 'carbon neutral' are not always used accurately, our overall preference is to see organisations making ambitious, near-term commitments to reduce their GHG emissions.

Setting the standard

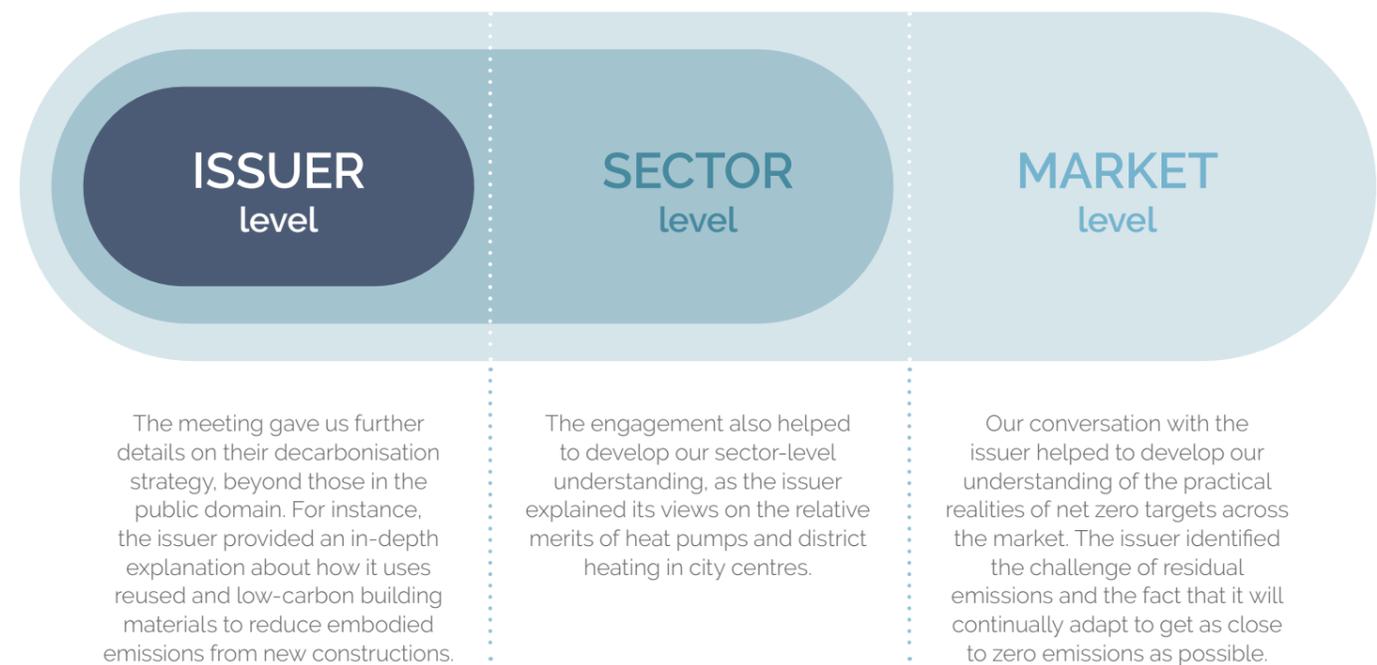
Our assessment of net zero strategies looks at five key areas, each of which is, we believe, necessary for a strong net zero strategy. Our engagements provided an opportunity to emphasise the importance of these areas and offer feedback to issuers on the strengths of their strategies as well as areas for improvement. Ambitious target setting with discussion of the transition pathway is a critical first step to allow investors to assess the net zero commitment.

Risks and opportunities should also be mentioned and issuers should provide a clear indication of how capital will be allocated and what practical steps are being taken to achieve those targets. Commitment to reporting means we can understand how we will track the issuer's progress against the targets set. Being clear on the issuer's process for reviewing its targets is important, as it stipulates how the targets may be updated in the future.



Net zero engagement case study:

We spoke to Vasakronan, a Swedish real estate company, as part of our net zero thematic engagement series. The issuer has a target of reducing scope 1, 2 and 3 emissions by at least 90% by 2030. To achieve this, Vasakronan is taking steps such as retrofitting its portfolio buildings and using reused materials in new developments and fit-out works. During this engagement, we discussed Vasakronan's approach at three levels.¹



¹ Source: conversation with the issuer, statements not verified.



Portfolio deep dive

Portfolio composition

Our mission is to manage fixed income portfolios that generate positive environmental and social impact towards achieving the Paris Agreement and the UN SDGs. The portfolio predominantly holds labelled use of proceeds bonds, with green bonds significantly outweighing the other bond types.

2021 portfolio holdings by bond type



Each year, we review all holdings and collect allocation and impact data on the projects and activities they support.

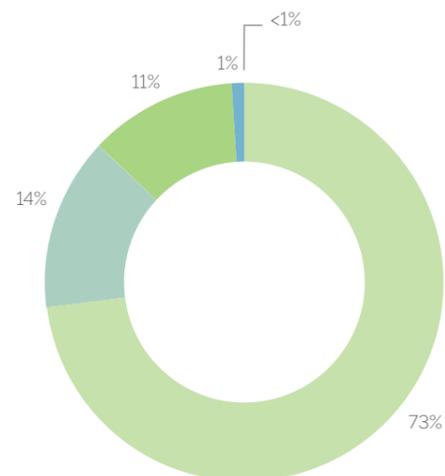
For 2021 holdings, we were able to collect data covering 95% of the portfolio.

The uncovered portfolio weight comprises cash and held bonds for which allocation and impact data was not available during our data collection period. This is usually because it is less than a year since issue so the first impact reporting has not been due.

Green bonds largely fund projects with an impact focus of mitigation and adaptation, so those categories make up the majority of the impact focus.

A more detailed view of the impact can be found through key performance metrics, sectors supported, and the case study library on p44-51.

2021 Impact focus¹ (portfolio weight)



- Mitigation (73%)
- Social (14%)
- Adaptation (11%)
- Adaptation and mitigation (1%)
- Sustainability (<1%)

¹ Coverage ratio of 88% of 2021 average portfolio holdings.

Portfolio sector distribution

The portfolio invests in a range of environmental and social sectors that support the Paris Agreement, climate resilience, and the Sustainable Development Goals (SDGs). (See p72-73 for examples of AIM-eligible sectors.)

In 2021, the top three sectors impact bond proceeds were allocated to were environmentally focused:¹



Infrastructure

Clean energy

Water and wastewater management

53%

22%

8%

Over 10,500 daily passenger capacity supported in low carbon transport.

Hard and soft infrastructure promoting inclusive, climate-resilient, low carbon built environment; for example, clean transport networks, green buildings, resilience measures, information and communication technology.

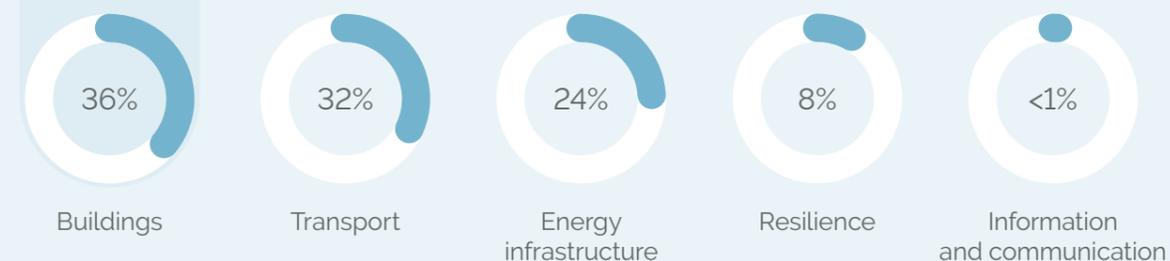
228MW of renewable energy generation capacity supported.

Renewable energy generation, modern energy access, energy storage and energy efficiency technologies.

Over 204 million m³ of wastewater treated annually.

Water resources management, wastewater treatment, sanitation, water efficiency measures.

Infrastructure comprises:



Other sectors to which funds were allocated:

- Financial inclusion and sustainable enterprise (7%)
- Social housing (3%)
- Empowerment of women and vulnerable groups (2%)
- Land management (1%)
- Resource efficiency (1%)
- Global health (1%)
- Education, training and employment (1%)
- Marine environment and fisheries (<1%)
- Food security (<1%)

¹ Coverage ratio of 88% of 2021 average portfolio holdings.

Global distribution of project commitments¹

We invested in impact bonds supporting sustainable activities in 165 countries. Here are just a few examples of the projects our investments support.

For this impact report map we have used the Winkel-Tripel projection. While not perfect, Winkel-Tripel significantly reduces the distortions present in other projections, notably Mercator, and provides a more accurate picture of the world's land masses in terms of both their relative size and location.

(See SDG cases studies p44-51 for more detail)

Invested in **165** countries

Top three countries supported:
Netherlands
Germany
UK

1 Clean water

Asian Development Bank

Improved water supply, sewerage and drainage for 10 cities in Tamil Nadu, India.

SDG alignment **3 5 6 9 11**

2 Wastewater management

Corporation Andina de Fomento

Water treatment and pollution reduction in the Panama City and Panama Bay areas.

SDG alignment **3 6 9 11**

3 Onshore wind

Ignitis Group

Clean electricity generation of 300GW/hpa in Pomerania, Poland, enough to power 160k households.

SDG alignment **7 13**

4 Solar

Rabobank

100MW of renewable energy generation capacity in Mississippi, enough to provide clean electricity for 16k homes.

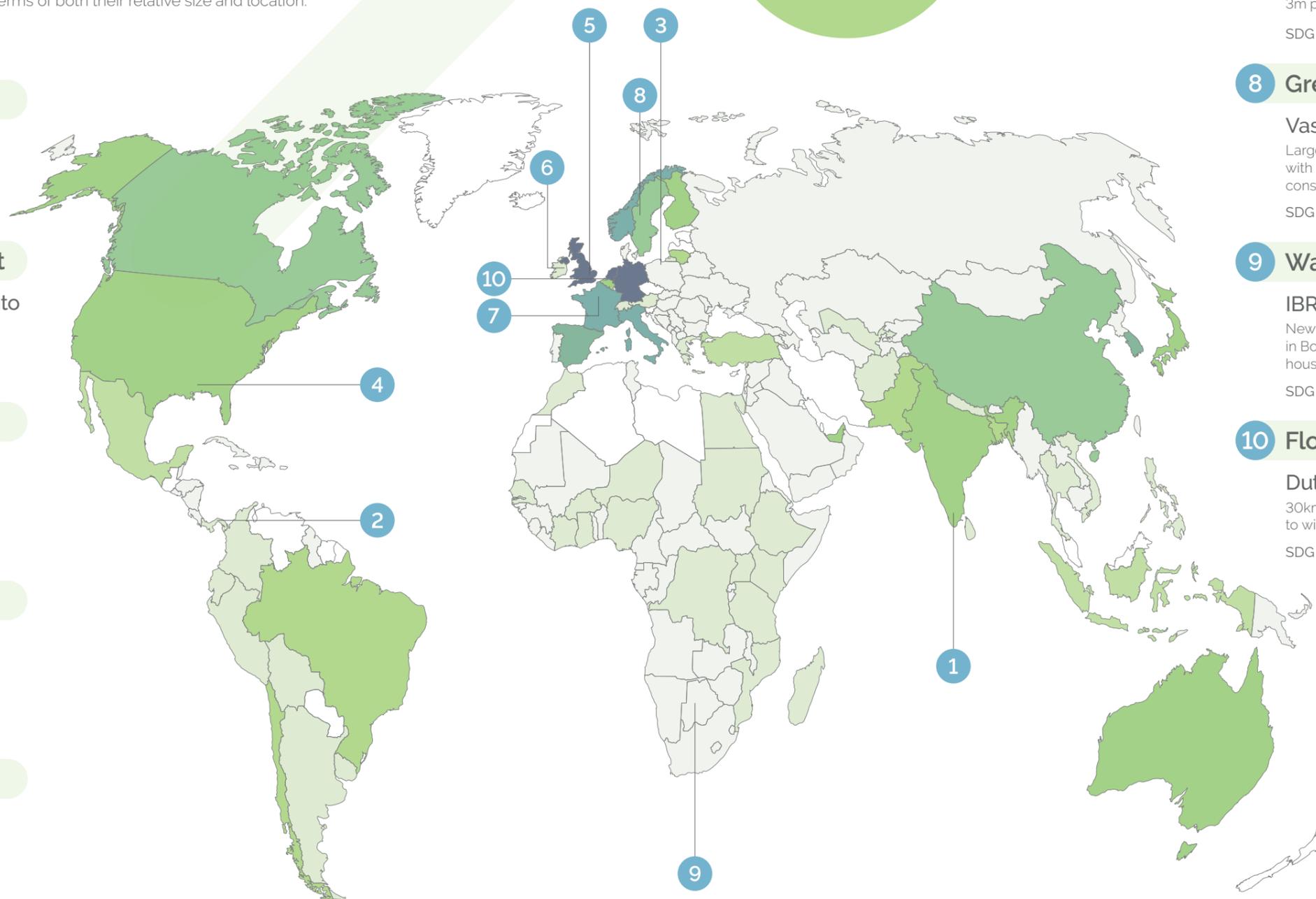
SDG alignment **7 13**

5 Green data centre

Digital Realty

BREEAM-certified-Excellent data centre in London with low-emissions design and build, and 100% renewable powered.

SDG alignment **7 9 11**



6 Smart buildings

Johnson Controls

AI-enabled energy management for buildings helped customers save \$6.6bn through operational efficiencies.

SDG alignment **7 9 11**

7 Public transport

Société du Grand Paris

Doubling the Paris Metro network and providing faster, low-emission transport options for nearly 3m people in suburban towns.

SDG alignment **9 10 11**

8 Green offices

Vasakronan

Largest timber-constructed office in Sweden with low embodied emissions and energy consumption 66% below requirements.

SDG alignment **7 9 11**

9 Water resilience

IBRD

New water infrastructure and management in Botswana bringing drinking water to 21k households.

SDG alignment **6 9 13**

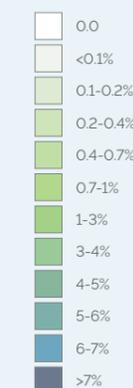
10 Flood defence

Dutch State Treasury

30km of reinforced flood protection to withstand the 10,000 year storm.

SDG alignment **6 9 11 13**

Project commitments – percentage of portfolio



¹ Coverage ratio of 88% of 2021 average portfolio holdings. Source: Issuer Impact Reports, AIM Engagement.

EU Taxonomy eligibility

The number of classification systems, or taxonomies, for sustainable finance have grown over the last few years as the importance of ensuring ambition in the sustainable finance market has become more widely accepted. The EU's Taxonomy for sustainable activities¹ is predominant in the market, with others published or emerging from Australia, Canada, South Korea, the UK and the ASEAN region.

At AIM, we maintain our own taxonomy (see p72-73) to detail which types of environmental and social projects and activities we deem appropriate for our investable universe and expect to generate positive impact. Our taxonomy is, and always will be, a dynamic list. We keep abreast of market developments, such as the EU Taxonomy, to inform the development of our taxonomy and internal verification. We have also been active in responding to consultations on the development of the EU Taxonomy, sharing our experience as an impact investor.

Every issuer and issuance in our investable universe has been assessed for generating positive environmental or social impact per our SPECTRUM verification criteria, however it is not a prerequisite to be aligned with the EU Taxonomy.

This year, for the first time, we have conducted an exercise to understand the proportions of projects and activities supported that are EU Taxonomy eligible, i.e. that fall under guidance given by the EU Taxonomy (as of June 2022). This is based on the projects and assets that have received allocations from the labelled bonds held in the portfolio. Complete EU Taxonomy-alignment reporting is not formally required for financial undertakings until 2024, one year after it is required for non-financial undertakings.²

We have categorised supported projects and activities into one of three groups:

Eligible – likely aligned

There is guidance for these types of projects in the EU Taxonomy and we consider them likely to align with the EU Taxonomy's thresholds. For example, solar projects have been categorised in this group as it is likely they will meet the gCO_{2e}/kWh threshold set in the EU Taxonomy.

Eligible – potentially aligned

There is guidance for these types of projects in the EU Taxonomy, but a full alignment analysis has not been completed. For example, green buildings-related projects have been categorised in this way.

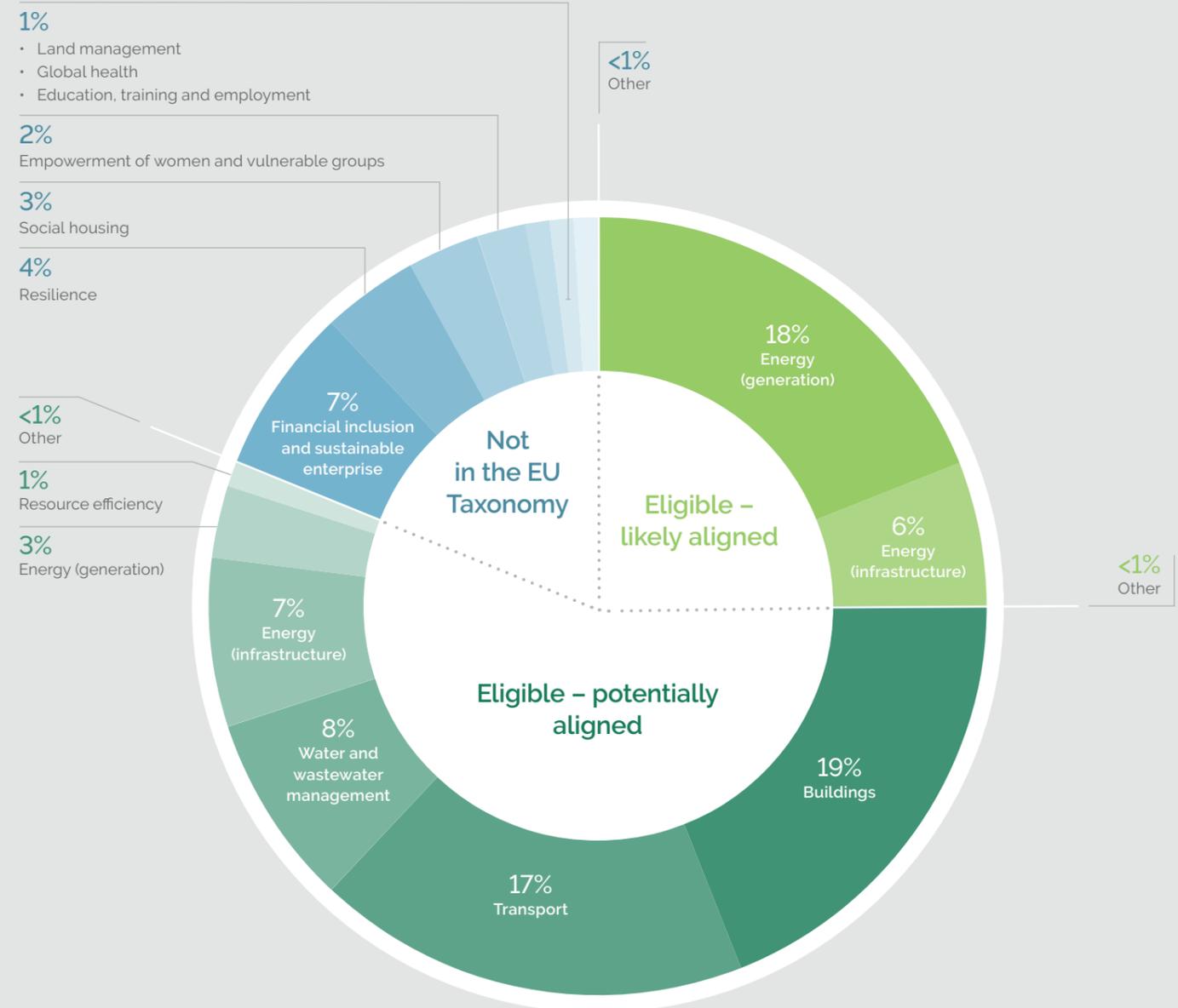
Not in the EU Taxonomy

These types of projects do not have guidance under the EU Taxonomy yet. For example, healthcare projects have been categorised in this way.

The graph also shows the sector distribution of the projects in each of our three categories.

Photo: Switzerland - Source: SBB CFF FFS - Supported by EUROFIMA

¹ https://ec.europa.eu/info/business-economy-euro/banking-and-finance/sustainable-finance/eu-taxonomy-sustainable-activities_en
² PRI Investor Briefing, EU Taxonomy, Updated April 2022.



Coverage ratio of 88% of 2021 average portfolio holdings.

To complete a full EU Taxonomy-alignment study, we depend on issuers providing the information about the taxonomy alignment of their use of proceeds at three levels: substantial contribution to an environmental objective, Do No Significant Harm (DNSH), and minimum social safeguard.

A growing number of issuers are starting to do this or committing to do so and we hope to be able to complete the full exercise in the future, in compliance with the EU's Sustainable Finance Disclosure Regulation.



Understanding GHG metrics

Measuring greenhouse gases

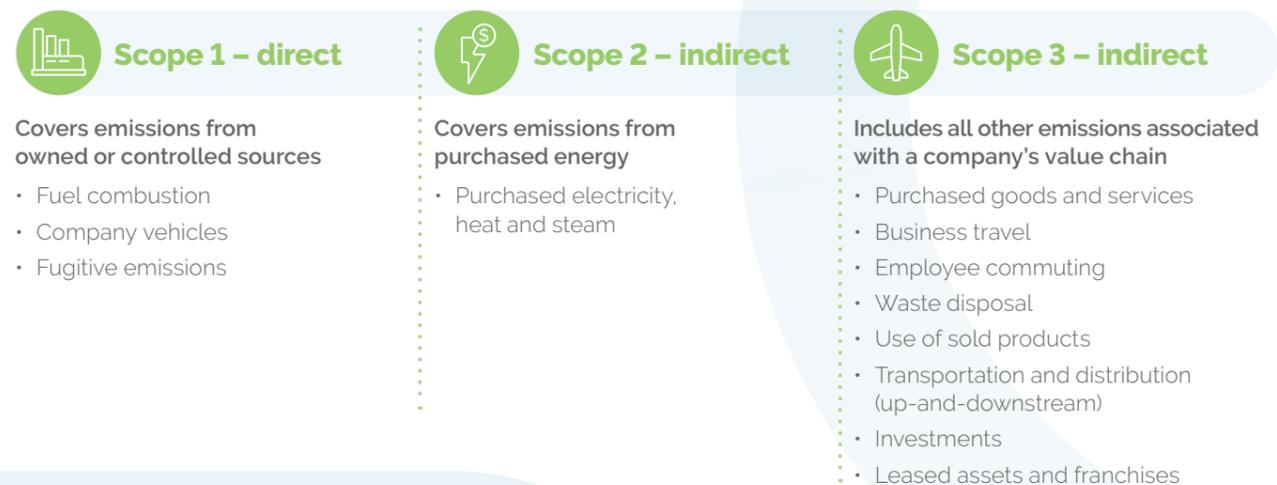
Greenhouse-gas (GHG) metrics are important indicators of our progress in generating positive climate-mitigation impact and managing the carbon risks associated with our portfolios.

This section includes several GHG metrics to assess our progress along both dimensions and demonstrate our commitment to supporting the Paris Agreement. GHG metrics also benefit from being the most developed in terms of methodology and data availability compared to metrics for other types of impacts and risks. Further detail on GHG metrics can be found on page 84.

Carbon dioxide (CO₂) is the primary greenhouse gas emitted through human activities,¹ hence its importance in measuring anthropogenic global warming and progress on climate change mitigation. However, it is important to account for other GHG emissions as well, some of which have greater global warming potential than CO₂. For this reason, it is best practice to measure and report on GHG emissions in terms of "carbon dioxide equivalent emissions" or CO₂e.

GHG emissions are categorised in three groups or 'scopes' by the most commonly used international carbon accounting tool for corporates, the GHG Protocol.²

Example:³



Understanding GHG metrics contents

Positive climate impact – funded projects

Net zero-alignment	p25
Carbon Yield™/potential avoided emissions	p26

Managing climate risks – funded projects

Project GHG emissions footprint	p30
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Managing climate risks – issuer

Issuer carbon metrics	p31
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¹ <https://www.epa.gov/ghgemissions/overview-greenhouse-gases>
² We source scope 1, 2 and 3 emissions data from S&P. Figures may be as reported or estimated.
³ Carbon Trust.

Estimating our positive climate impact

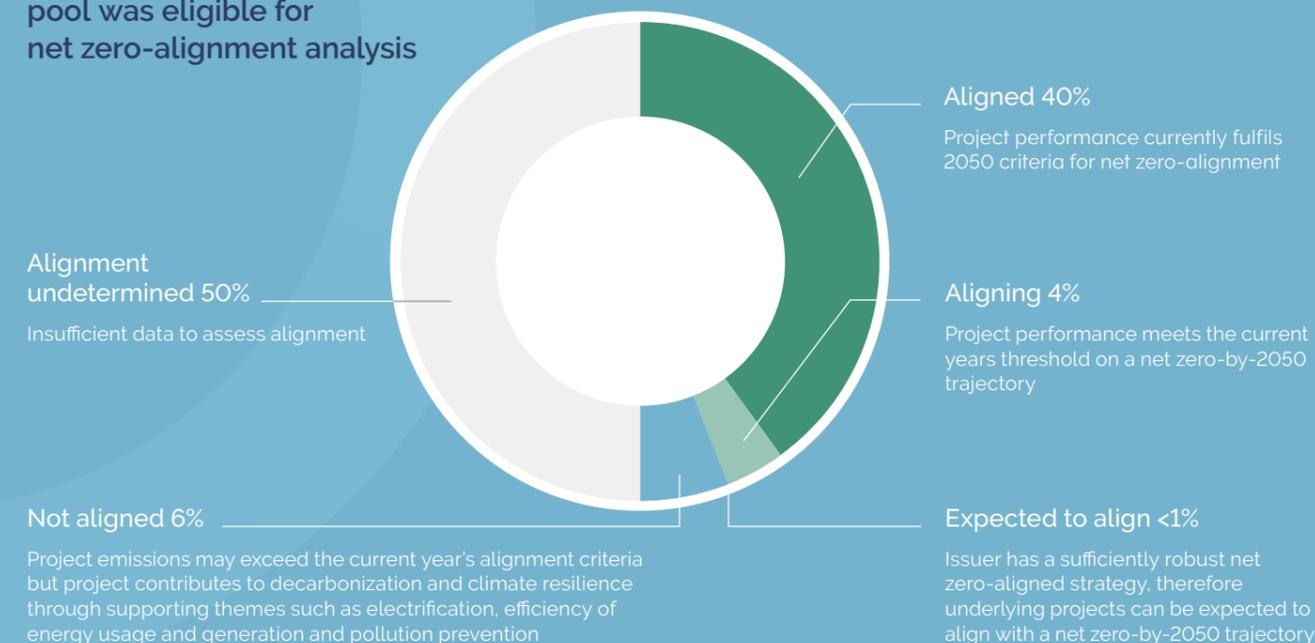
NET ZERO Net zero alignment

For the first time this year, in addition to the Carbon Yield – which measures the estimated avoided GHG emissions from our funded projects – we also performed an innovative assessment of the net zero-alignment of our funded projects.

This analysis builds on our Carbon Yield assessment and helps us understand how our projects align with a net zero-by-2050 future, which is required to achieve the Paris Agreement objective of limiting global warming to 1.5°C this century. Investing in line with these targets is a critical part of our mission.

Not all projects are suitable for this analysis. For example, social projects do not have a climate goal and therefore are not eligible for this analysis. We have therefore focused on the three sectors that make up most of our funded projects: energy, transport and buildings. Out of the pool of eligible projects, 50% had data available. Within that component, 88% were aligned, aligning or expected to align. This evidences the effectiveness of our SPECTRUM verification process in selecting projects actively supporting the transition towards a net zero world.

71% of the funded project pool was eligible for net zero-alignment analysis



In 2021, we became a signatory to the Net Zero Asset Managers Initiative (NZAM). In signing up to NZAM, we have committed to support the goal of net zero greenhouse-gas (GHG) emissions through our investments by 2050. Key to our commitment is setting interim targets for 2030, which we will submit to NZAM in H2 2022.

We acknowledge that data is not sufficiently complete/available to fully run net zero-alignment analysis across our portfolios and will continue to engage with and encourage issuers to enhance disclosure to support such efforts.

For more details on our approach, see the Methodology section (p74-85).

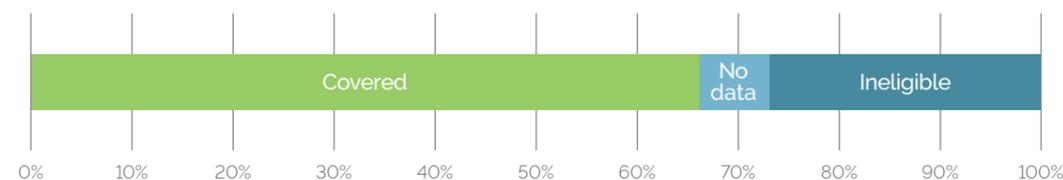


A bottom-up assessment of the potential avoided GHG emissions of the projects funded by a bond's proceeds is the most comprehensive way to demonstrate the robustness of our SPECTRUM methodology in generating positive climate impact.

To do this we follow the Carbon Yield methodology, which we co-developed with funding from the Rockefeller Foundation. Carbon Yield calculates impact in terms of the "potential avoided emissions" (PAE) enabled by funded projects in terms of tonnes of CO₂e/year/US\$1m.

We have been reporting climate metrics since 2016 and have continued to innovate and expand our reporting over that time.

Potential avoided emissions portfolio coverage



Our portfolio carbon yield covers 66% of the portfolio holdings. The remaining proportion was deemed either ineligible, as those holdings related to activities not expected to have significant mitigation potential (such as cash and/or social bonds), or was not covered due to insufficient data.³

Our portfolio Carbon Yield¹

The GHG emissions that would have occurred under a reasonable baseline scenario if the funded projects had not been implemented²



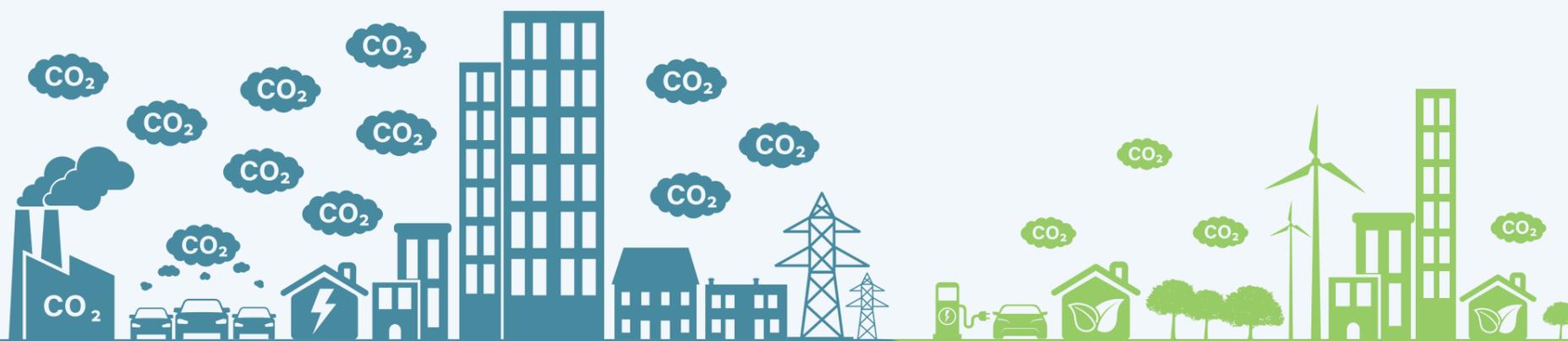
The carbon footprint of the funded projects (this data is reported on p30)



Funded projects avoided emissions
171.89tCO₂e
per US\$1m
per annum



This equates to
54%
GHG emissions savings



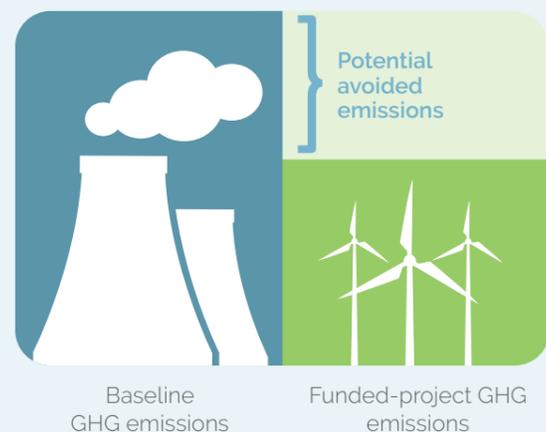
¹ Avoided emissions and Carbon Yield calculations cover scope 1 and 2 emissions of funded projects and of their respective reasonable baselines.
² For renewable energy projects, a dynamic baseline is used to account for changes in the composition of electricity grids across the globe, as outlined in the IEA's STEPS scenario.

³ Issuers provide their impact reports by bond frameworks, which are a collection of funded projects. The average project proportion covered by our Carbon Yield assessment for each framework is 74%.

How do we calculate potential avoided emissions?

Potential avoided emissions is an established way to express the impact of the adoption of new practices or the introduction of new projects, technologies, initiatives or systems in terms of changes in expected GHG emissions. For example, comparing the GHG emissions of a new wind farm against existing electricity grid emissions.

This year, we partnered with ISS ESG to estimate both avoided scope 1 and 2 emissions (i.e. from project operations) and partial scope 3 emissions (i.e. from project construction and material use), and then allocated them on a portfolio-weighted basis to our funds.



The greater the avoided emissions and Carbon Yield, the greater the climate-mitigation impact.

Our potential avoided emissions analysis covers only projects that are expected to mitigate GHG emissions, such as renewable energy, energy efficiency or clean transport. For this reason, we do not include projects that target different positive impacts, for example wastewater treatment, sanitation projects or socially focused projects, though they remain an important part of our portfolio.

It is also important to be clear that Carbon Yield focuses on scope 1 and 2 emissions and not scope 3 emissions from the value chain. Details of our Carbon Yield approach can be found in the Methodology section of this report.

Using an example of a wind farm, potential avoided emissions are calculated based on the energy generated from the operation of the wind farm compared to the region/country's electricity grid emissions under a dynamic scenario for its expected working life. In 2021, we updated our calculations to replace business-as-usual baselines with dynamic baselines that take into consideration future changes in the composition of electricity grids across the globe, and consequent changes in their emission intensity.

For renewable energy projects, such as a wind farm, our dynamic baselines are based on the IEA's Stated Policies Scenario (STEPS).¹ The STEPS scenario "reflects current policy setting ... as well as those that have been announced by governments around the world"² and therefore,

we believe, provides a reasonable benchmark to assess the climate-mitigation impact of our funded projects. It also assumes that baseline GHG emissions intensity will decline across most jurisdictions as existing climate policies take effect over time, and hence we would expect declining avoided emissions in future years.

We also performed the same analysis using the more ambitious normative Sustainable Development Scenario (SDS), provided by the IEA. SDS assumes that key SDGs on 'universal access to modern and sustainable energy services' (SDG 7), 'reduction in air pollution' (SDG 3) and 'taking effective action to combat climate change' (SDG 13) are met, in alignment with the Paris Agreement ambitions to limit global warming to 1.5°C this century. However, in our view reporting against SDS is overly optimistic: it assumes a global emissions trajectory that is SDG and Paris Agreement aligned, which unfortunately is currently not the case.³

This is why we use the more conservative STEPS scenario for potential avoided emissions analysis.

We aim to provide accurate, detailed and as comprehensive as possible a view of the impact of our funded projects. To this end, we apply a range of recognised metrics and energetically seek out new ways of providing transparency and insight. In 2021, funded projects reduced GHG emission by 54% on average compared to baseline projects and 88% of projects eligible for assessment were considered 'aligned' or 'aligning' with a net zero future.

See further information on p25.

¹ <https://www.iea.org/reports/world-energy-model/stated-policies-scenario>

² <https://www.iea.org/reports/world-energy-model/understanding-weo-scenarios>

³ <https://www.ipcc.ch/2021/08/09/ar6-wg1-20210809-pr/>

Assessing the climate-related risk of our portfolios

In addition to estimating the expected positive climate impact using GHG metrics, we also use GHG metrics to analyse climate-related transition risk. This allows us to understand our positive impacts within the context of how well we have managed our financed GHG emissions, intensity, and exposure.

To do this we consider both project, and issuer metrics. We believe this combination of data provides the most comprehensive view available.

Project GHG emissions footprint

To facilitate reporting on our funded-projects climate-mitigation impact through Carbon Yield and net zero alignment, we measure the project-level GHG emissions footprint. Although our SPECTRUM process permits investment only in activities supporting the SDGs and/or low-carbon, climate-resilient economies, funded initiatives have a carbon footprint – they still emit GHG emissions throughout their lifecycle. Our goal is that they contribute to less emissions over their lifetime compared to a scenario where reasonable baseline alternatives were implemented instead.

Measuring the GHG footprint of our projects is also an important step in calculating our avoided emissions. It allows us to monitor the balance between financed emissions and potential avoided emissions, as expressed in our avoided emissions-to-footprint ratio in the below table.

Project GHG emissions footprint

Project metric	tCO ₂ e per annum
Scope 1 and 2 GHG emissions footprint	92,611
Scope 1, 2 and 3 GHG emissions footprint	127,992
Total avoided GHG emissions	110,197
Avoided emissions/footprint ratio ¹	1.2

Photo: Ignitis, Pomerania wind farm

¹ In relation to scope 1 and 2 emissions.

Issuer carbon metrics

We calculate issuer GHG-emissions metrics for our portfolios in line with the Task Force on Climate-related Financial Disclosures (TCFD) recommendations for asset managers. These metrics include the Weighted Average Carbon Intensity (WACI).

We also report issuer carbon metrics aligned with the requirements of the European Commission's new Sustainable Finance Disclosure Regulation (SFDR).

A key difference between TCFD and SFDR metrics is that TCFD metrics only cover scope 1 and 2 emissions, while SFDR metrics cover scope 1, 2 and 3 emissions. The table below, shows SFDR and TCFD metrics to facilitate comparisons and highlight the different emission scopes coverage.¹

The results of the issuer GHG emission analysis of the 2021 portfolio holdings are shown below. For descriptions of each metric and how they are calculated, see the Methodology section (p74-85). WACI helps to capture our current carbon risk levels, and comparisons with a mainstream benchmark show it to be a compelling indicator of our positive climate impact – evidencing our commitment to investing in responsible issuers. For a deep dive into our WACIs, see the next section.

2021 Issuer carbon metrics

Issuer metric	TCFD reporting (scope 1 and 2)	SFDR reporting (scope 1, 2 and 3)
WACI		
Aggregated portfolio WACI ² (tCO ₂ e/US\$m)	83.7	321.0
Aggregated coverage	80%	80%
Benchmark WACI (tCO ₂ e/US\$m)	182.8	397.9
Portfolio WACI vs benchmark WACI	54% lower	19% lower
WACI breakdown		
Corporate WACI ³ (tCO ₂ e/US\$m revenue)	64.9	271.4
Sovereign WACI ⁴ (tCO ₂ e/US\$m PPP-adjusted GDP)	18.8	49.6
Emissions footprint^{5,6}		
Scope 1 emissions (tCO ₂ e)	7,462	7,462
Scope 2 emissions (tCO ₂ e)	2,317	2,317
Scope 3 emissions (tCO ₂ e)	n/a	22,669
Total GHG emissions (tCO ₂ e)	9,778	32,447
Carbon footprint (tCO ₂ e/US\$m invested)	19.9	66.1

¹ SFDR carbon metrics' denominators are in EUR. We are reporting these based on USD this year to enable an easier comparison with the TCFD-aligned metrics. However, we will report EUR-denominated metrics from our impact report for 2022 holdings, once SFDR reporting becomes mandatory.

² Aggregated WACI not explicitly required by TCFD and SFDR.

³ Corresponding SFDR metric name: GHG intensity of investee companies.

⁴ Corresponding SFDR metric name: GHG intensity of sovereigns.

⁵ Emissions are apportioned to the fund based on an ownership approach, using the issuer's adjusted enterprise value.

⁶ Coverage is 72% of the portfolio.

Deep dive on carbon intensity

Why is Weighted Average Carbon Intensity (WACI) important?

WACI, the TCFD-recommended carbon metric for asset managers, is a carbon-intensity metric designed to measure a portfolio's exposure to GHG-intensive issuers. It provides a weighted average of the carbon intensity for each issuer held within the portfolio, calculated based on tCO₂e per US\$1m of revenue (for corporates) and tCO₂e per US\$1m Purchasing Power Parity-adjusted GDP (for sovereign-related issuers).¹



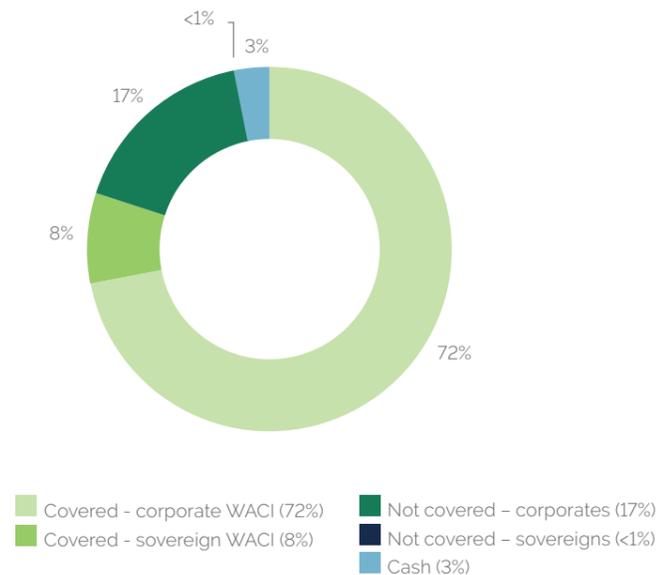
WACI is a static metric showing a portfolio's carbon-intensity exposure at one point in time and does not capture emission-reduction commitments or the decarbonisation potential of held issuers. It is also influenced by the portfolio's sectoral composition; some sectors are inherently more carbon intensive than others. While we do not rely on issuer WACI as a key decision-making metric in our investment process, we see it as an indicator of the effectiveness of the climate assessment we perform at the issuer-level within our SPECTRUM verification process.

$$\sum_n^i \left(\frac{\text{current value of investment}_i}{\text{current portfolio value}} \times \frac{\text{issuer's scope 1 and 2 GHG emissions}_i}{\text{issuer's US\$m revenue}_i} \right)$$

In previous years, we disclosed an aggregated WACI figure covering all types of issuers – sovereign-related entities, including central governments/treasuries, sub-sovereigns and municipalities – and 'corporate' issuer that includes all other entities.

However, because the approaches to calculating corporate and sovereign WACIs differ significantly, we have refined our reporting this year and present separate portfolio WACI figures for corporate and sovereign issuers, to complement the portfolio aggregate figure. These two types of issuers pose different methodological and data availability challenges and are not directly comparable to each other; the methodologies and data behind corporate WACIs are more advanced than for sovereign-related issuers. We believe that the separation of corporate and sovereign-related WACIs enhances the transparency of our reporting hence our decision to break down the results into these two categories.

Portfolio coverage by WACI methodology



¹ The WACI should be regarded as an assessment of the carbon profile for the share of the portfolio covered by the analysis. The WACI was calculated by maintaining original portfolio weights. The same approach was used for the benchmark.

Benchmarking WACI results

The portfolio had aggregated scope 1 and 2 WACI of 83.7tCO₂e/US\$m.¹ Including scope 3 emissions leads to an almost four-fold increase in the portfolio's aggregated WACI to 321tCO₂e/US\$m.²

The portfolio's aggregated WACI figures cover 80% of 2021 portfolio holdings, a slight increase compared to last year's 78% coverage.³

To help benchmark our aggregated WACI, we used the same data sources and methodology to calculate an aggregated WACI for Bloomberg Global Aggregate Bond Index, achieving an 82% coverage. The portfolio's aggregated scope 1 and 2 WACI is 54% lower than the Bloomberg Global Aggregate Bond Index's aggregated scope 1 and 2 WACI of 182.8tCO₂/US\$. The portfolio's aggregated scope 1, 2 and 3 WACI is 19% lower than the Benchmark's equivalent of 397.9tCO₂/US\$m. However, we caution that, owing to the complexity of calculating WACI for a large global multi-asset class benchmarks such as Bloomberg Global Aggregate Bond Index, the figures are indicative only. The challenges in calculating mainstream index WACI are rooted in data gaps and difficulties in mapping index constituents, which may feature several subsidiaries and/or special-purpose vehicles, to the ultimate issuing entity to better reflect their emissions profile.

WACI helps to capture our current carbon risk levels, and comparisons with a mainstream benchmark show it to be a compelling indicator of our positive climate impact, further evidencing our commitment to investing in responsible issuers.

Our aggregated scope 1 and 2 WACI
54%
lower than benchmark scope 1 and 2 WACI

Our aggregated scope 1, 2 and 3 WACI
19%
lower than benchmark scope 1, 2 and 3 WACI



Photo: Frederk Beyens, © Aquafin

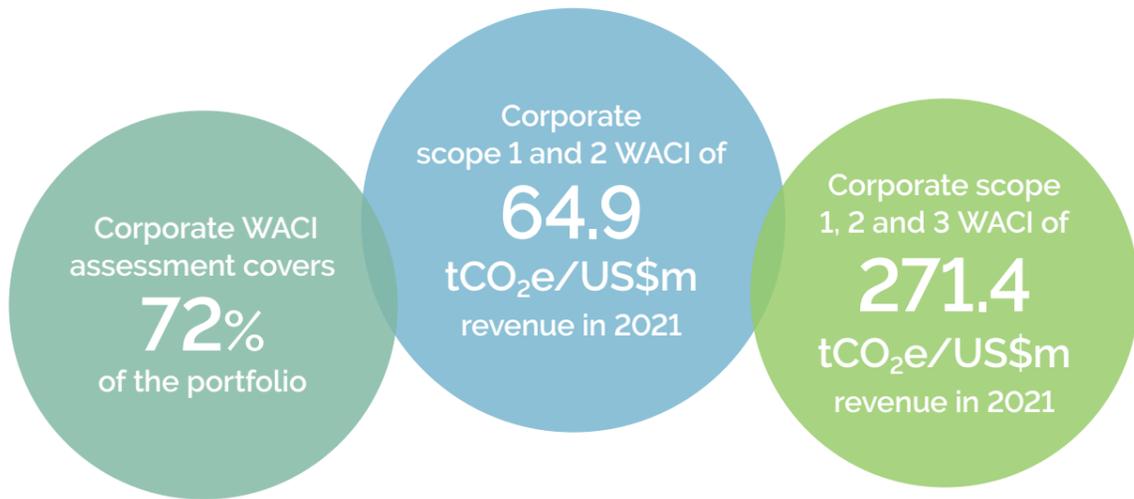
¹ Aggregated scope 1 and 2 WACI combines corporate scope 1 and 2 WACI and production-based sovereign WACI.

² Aggregated scope 1, 2 and 3 WACI combines corporate scope 1, and 3 WACI and territorial sovereign WACI.

³ This figure is not directly comparable to our aggregated scope 1 and 2 WACI reported last year due to a change in data source following an in-depth data provider review this year.

Corporate WACI

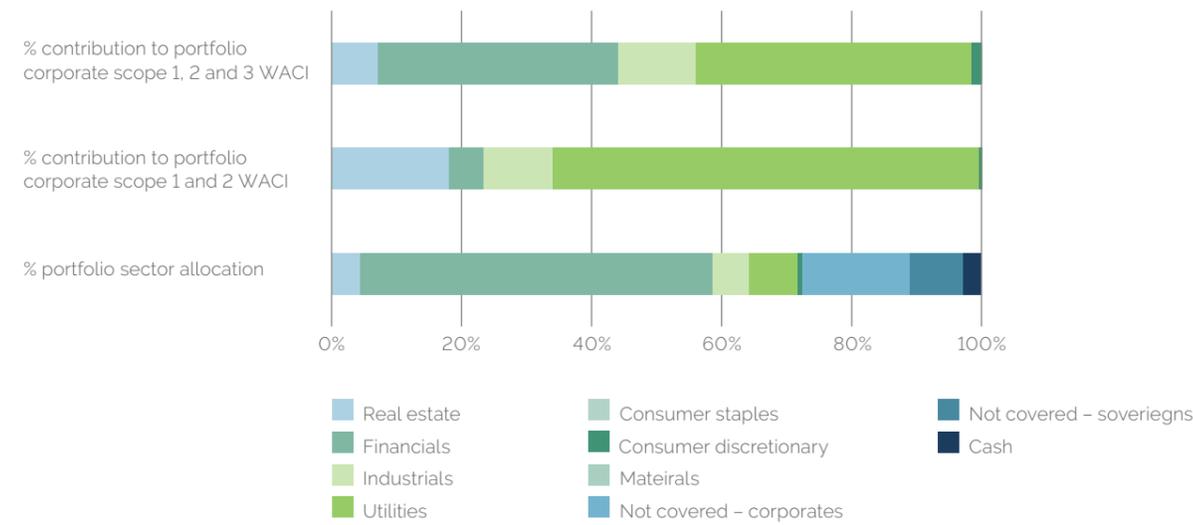
The portfolio had a corporate scope 1 and 2 WACI of 64.9tCO₂e/US\$m revenue in 2021.



To better understand our corporate WACI, we assessed the contribution by sector. The results (below) illustrate the outsized contribution of three sectors – utilities, real estate and industrials – relative to their portfolio weights.

Utilities represent a minority share of portfolio allocations (8%) but they are the largest contributor to the portfolio's corporate scope 1 and 2 WACI, accounting for two-thirds of the overall figure. This is in line with expectations because energy utilities typically have a high scope 1 emission intensity due to their power generation activities. Conversely, while financials make up 54% of portfolio allocations, they contribute just 5% of corporate scope 1 and 2 WACI, due to the limited emission intensity of their operational footprint.

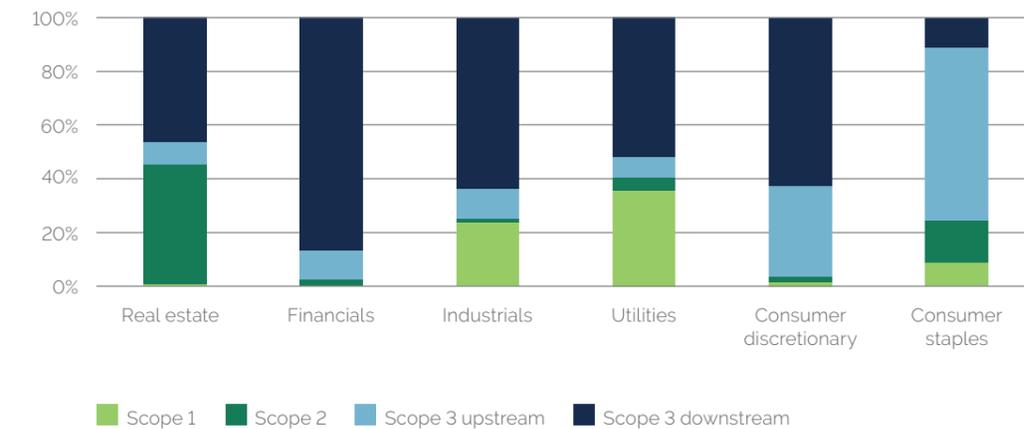
Corporate WACI contribution vs. portfolio sector distribution



Scope 3 emissions are important

The picture changes when adding in scope 3 emissions to the corporate WACI. Scope 3 emissions make up a material share of the total emission footprint for issuers across several sectors. As the chart below shows, scope 3 emissions account for 97% of total absolute emissions from Financials held in the portfolio, with the majority coming from downstream emissions linked to their lending and financing portfolios. Financials' downstream scope 3 emissions drive their contribution to corporate scope 1, 2 and 3 WACI up to 37%. Downstream scope 3 emissions also account for a significant share of held utilities' total footprint, mainly driven by energy utilities' emissions from the sale of electricity and gas. For this reason utilities represent the largest share of corporate scope 1, 2 and 3 WACI at 42%.

Issuer absolute emissions split by sector



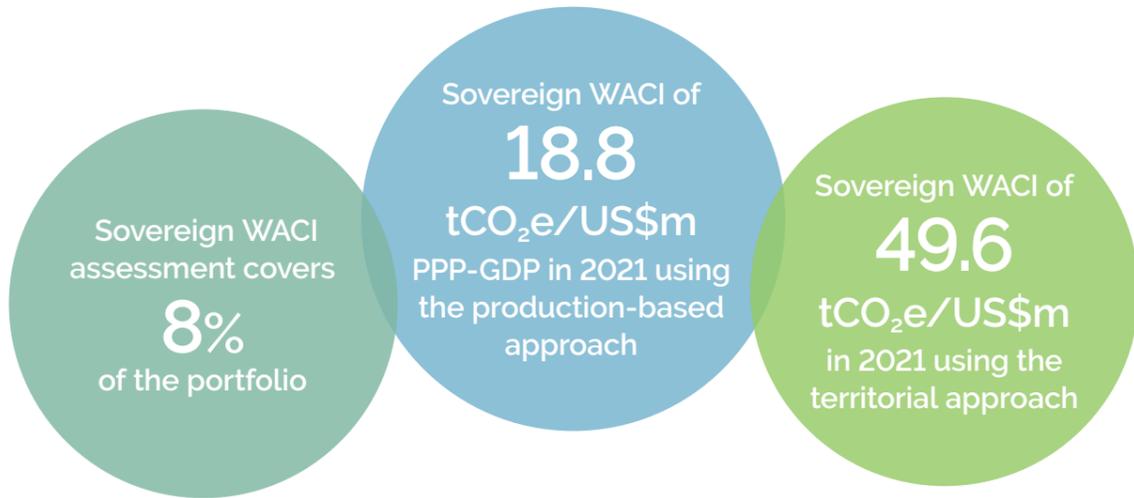
Given their materiality, we believe that accounting for scope 3 emissions within issuer metrics and assessments is critical. However, issuer scope 3 emission reporting is much less widely available and consistent than reporting for scope 1 and 2 emissions and the quality of associated data is highly variable. This is confirmed by the data sources disclosed by S&P: for corporates covered by WACI calculations, 43% of scope 3 downstream emissions are based on estimates, compared to just 2 and 3% of total scope 1 and 2 emissions respectively. An issuer's scope 3 emissions reporting and its integration within its climate strategies is an important focus of the Responsible Issuer analysis within our SPECTRUM Verification process and is often a subject of our issuer engagements. We believe that increasing pressure from investors, as well as other stakeholders, combined with more stringent non-financial reporting regulations will ultimately lead to greater transparency on issuers' value chain-emissions exposure and management. In the meantime, estimates will continue to play an important role in helping to bridge the gaps in data.



Sovereign WACI

Our calculations align with a conservative approach that goes beyond accounting solely for emissions generated by the public sector and covers direct and indirect emissions generated by a country to capture the sovereign issuer's broader responsibilities in influencing the economy through policies and regulation.

The calculation of sovereign GHG emissions intensity is an evolving process and there is no real consensus on the most appropriate methodologies and metrics.



There are three main ways of accounting for sovereign GHG emissions while considering the role of a government as a regulator.¹

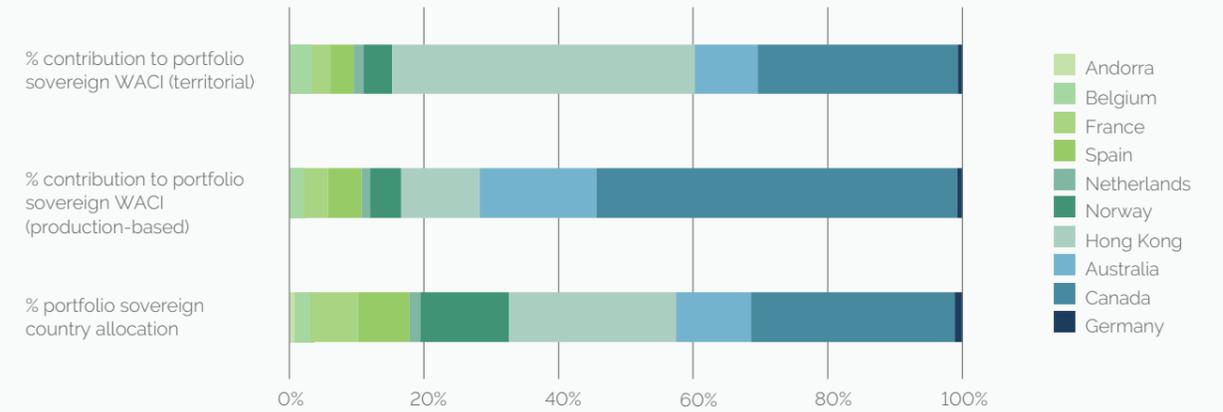
Production-based approach	Consumption-based approach	Territorial approach
Covers domestic consumption emissions and production emissions linked to exports. This aligns with the UNFCCC's reporting requirements for annual national GHG inventories and is effective in attributing emissions generated by an economy. However, it fails to account for emissions associated with the production of imported goods and services, placing countries where emissions are driven by demand of imported goods and services (typically developed markets) at an advantage compared to the countries producing such goods and services (typically emerging markets).	Covers domestic emissions and production emissions related to imported goods and services. This effectively reflects demand-driven emissions but fails to capture production emissions related to exported goods and services. This places countries where emissions are driven by exports at an advantage compared to importing countries.	A hybrid approach covering production-based emissions as well as emissions attributable to imports, addressing all demand and supply-driven emissions of a sovereign entity and neutralising carbon emission biases towards either net importers or exporters. However, the territorial approach does introduce potential double counting of emissions across countries. For instance, the production emissions associated with goods and services exported from one country to another will be accounted for in both countries' emissions.

For a more comprehensive view, we have calculated sovereign WACIs based on both the production-based and territorial approaches.²

The portfolio's sovereign WACI (production-based) added up to 18.8tCO₂e/US\$m PPP-GDP in 2021. Accounting also for imported emissions within sovereign carbon intensities leads to almost a three-fold increase in the portfolio's sovereign WACI to 49.6tCO₂e/US\$m PPP-GDP in 2021.

¹ PCAF, New methods for public consultation for financial institutions measuring and reporting scope 3 category 15 (2021).
² Sovereign WACI calculated using the territorial approach matches SFDR reporting requirements for the "GHG intensity of sovereigns" metric, as it covers the equivalent of scopes 1, 2 and 3 emissions (scope 1: domestic emissions, scope 2: imports, scope 3: exports).

Sectoral breakdown % sovereign WACI allocation vs. contribution



Sovereign WACI country highlights

Australia, Canada and Hong Kong are among the countries with the largest portfolio allocations and also provide the largest contributions to both production-based and territorial sovereign WACIs, although their contributions vary across the two metrics.

Canada represents both the largest share of portfolio allocations among sovereign-related issuers covered in the WACI assessment and, at 54%, the highest contribution to production-based sovereign WACI. This reflects the country's high production-based carbon intensity, driven by emissions from oil and gas extraction activities and the transport sector.¹ Australia is the second-largest contributor to production-based WACI at over 17%, driven by the country's heavy reliance on coal and other fossil fuels both for electricity generation and direct combustion for activities including manufacturing and mining.²

Both Canada and Australia are cases where only sub-national issuers were held in the portfolio, namely Canadian provincial governments of Ontario and Quebec, and Australian state governments of Queensland and New South Wales. These sub-national entities have been mapped up to their respective countries for WACI calculations.

While Hong Kong's production-based emission intensity is far lower than other country intensities linked to held sovereign issuers, a high share of portfolio allocations leads to a sizeable contribution to production-based WACI (12%).

As the chart on the next page shows, import-carbon intensities represent a material share of territorial carbon intensities of held sovereign-related issuers. This is particularly accentuated in the case of Hong Kong, where imports make up 90% of territorial emissions. Due to the relatively higher emission intensity from imports compared to Australia and Canada, Hong Kong becomes the largest contributor to sovereign WACI when taking a territorial accounting approach.

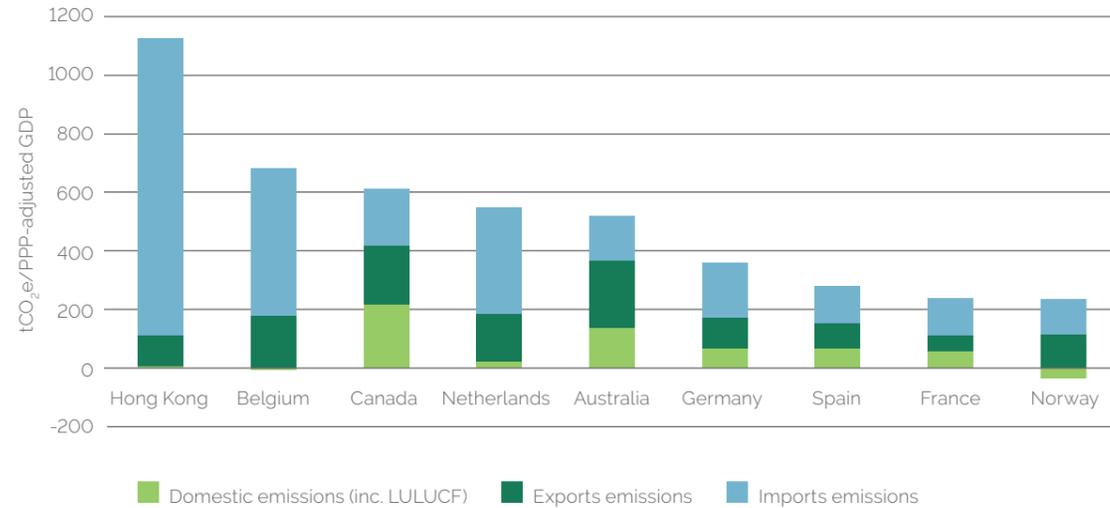
Photo provided by Icade, photo credit: Svend Andersen

¹ Government of Canada, National greenhouse gas emissions: <https://www.canada.ca/en/environment-climate-change/services/environmental-indicators/greenhouse-gas-emissions.html>
² Australian Government, National Greenhouse Gas Inventory Quarterly Update: December 2020: <https://www.industry.gov.au/data-and-publications/national-greenhouse-gas-inventory-quarterly-update-december-2020#download-the-full-report-and-data>



Sovereign WACI

Emission intensity split by country



Accounting for emissions of sub-national issuers presents significant data availability challenges. Mapping sub-national issuers to their relevant country enables us to provide an indication of such issuer's potential emission intensity and to cover them in WACI calculations. However, country-level emission intensities are not reflective of specific sub-national contexts and may therefore over or underestimate actual emission intensities of sub-national issuers. As data availability and methodologies improve, we are committed to further refining our approach to addressing sub-national issuers within WACI calculations.



WACI summary

As our analysis shows, assessing and comparing WACIs is highly nuanced, and each year we continue to refine our analysis as data and methodologies in the market improve. Our results thus far demonstrate our commitment to investing in low-carbon assets through our rigorous SPECTRUM verification methodology. We provide mainstream financial return and generate positive social and environmental impacts with portfolios showing much lower-than-benchmark issuer carbon intensity.

Issuer metric	TCFD reporting (scope 1 and 2)	SFDR reporting (scope 1, 2 and 3)
WACI breakdown		
Corporate WACI ¹ (tCO ₂ e/US\$m revenue)	64.9	271.4
Sovereign WACI ² (tCO ₂ e/US\$m revenue)	18.8	49.6

¹ Corresponding SFDR metric name: GHG intensity of investee companies.
² Corresponding SFDR metric name: GHG intensity of sovereigns.



As part of our assessment of the portfolios climate related risks, we have assessed both project and issuer-level emissions. The portfolio WACI is significantly lower than benchmark, by 54% when accounting for scope 1 and 2, and 19% when accounting for scope 1, 2 and 3. We enhanced the granularity of our reporting by disaggregating the WACI between corporate and sovereign issuers.

An aerial photograph of a winding river flowing through a lush green landscape. The river is a dark brown color, contrasting with the vibrant green grass and scattered trees. Some trees have autumn-colored foliage in shades of orange and yellow. Long shadows are cast across the grass, indicating a low sun position. A large, semi-transparent white circular graphic is overlaid on the right side of the image, containing the text 'SFDR metrics' in a bold, white, sans-serif font.

**SFDR
metrics**

SFDR Principal Adverse Impacts reporting

The EU's Sustainable Finance Disclosure Regulation (SFDR) sets out disclosure requirements that will apply to investors and financial advisers. It affects EU financial market participants and non-EU financial market participants that are managing EU-domiciled funds or marketing into the EU.¹

The regulation includes pre-contractual disclosures and periodic disclosures. Requirements are determined by whether the fund is labelled Article 6, 8 or 9, which indicates its sustainability objective.

The funds we manage that fall under the remit of SFDR are all labelled Article 9, meaning they have sustainable investment as an objective. In fact, we manage all of our funds with the same sustainability ambition and objectives, but only funds that fall under the scope of this regulation are labelled Article 9.

One part of the periodic disclosures under SFDR is the Principal Adverse Impacts (PAIs) statement. Reporting against the PAIs will be an annual requirement for Article 9 funds starting with reporting against 2022 holdings (to be published in 2023 reporting). The PAIs are split into mandatory and optional PAIs. We have chosen to begin reporting against the mandatory PAIs for 2021 holdings to familiarise ourselves with the reporting framework, understand the metrics, and assess the quality and usability of the data sources that are emerging to fulfil this requirement ahead of legally required schedules.

The PAI statement reports metrics at the issuer level. We consider an issuer's performance against metrics such as the mandatory PAIs through our SPECTRUM verification assessment, which is completed ahead of any issuer or issuance entering our investable universe.



SFDR Article 9
classification for all European funds

¹ PRI (Feb 2022), Investor Briefing: EU Regulation on Sustainability-Related Disclosures in the Financial Services Sector.

Mandatory PAIs	Value	Coverage ¹	Data source
GHG emissions (scope 1) (tCO ₂ e)	Refer to 2021 issuer carbon metrics table on p31		
GHG emissions (scope 2) (tCO ₂ e)	Refer to 2021 issuer carbon metrics table on p31		
GHG emissions (scope 3) (tCO ₂ e)	Refer to 2021 issuer carbon metrics table on p31		
Carbon footprint (tCO ₂ e/EURm)	Refer to 2021 issuer carbon metrics table on p31		
GHG intensity of investee companies (tCO ₂ e/EURm)	Refer to 2021 issuer carbon metrics table on p31		
Sovereigns and supras: GHG intensity (tCO ₂ e/EURm)	Refer to 2021 issuer carbon metrics table on p31		
Share of non-renewable energy consumption	66%	28%	Bloomberg
Share on non-renewable energy production	54%	7%	Bloomberg
Energy consumption intensity per high-impact climate sector ²	0.74GWh per US\$m sales revenue	46%	Bloomberg
Sites on environmentally sensitive areas	10 sites	1%	Bloomberg
Emissions to water (tonnes)	No data		Bloomberg
Hazardous waste ratio	0.02 tonnes	18%	Bloomberg
Violations to UNGC and OECD guidelines	Bloomberg does not cover this metric yet		
UN Global Compact signatory	28%	54%	Bloomberg
Mean gender pay gap	20%	25%	Bloomberg
Board gender diversity (women on the board)	32%	54%	Bloomberg
Exposure to controversial weapons (anti-personnel mines, cluster munitions, chemical weapons and biological weapons)	Bloomberg does not cover this metric yet		
Sovereigns and supras: Investee countries subject to social violations	Bloomberg does not cover this metric yet		

The data products to assist reporting against the PAI regime are still in their infancy in terms of data availability and quality. Coverage rates across metrics are low, and some metrics are not yet covered. This means that a PAI statement, such as the table above, does not currently provide a comprehensive picture of the impact of the holdings, and makes examining issuers' performance challenging as it is unclear how uncovered issuers would compare to issuers for which data is available. So, while the metrics are interesting, until coverage improves there is too much uncertainty about the total impact of the holdings or the performance of the uncovered issuers. However, data providers recognise the appetite for SFDR products and we expect to see the quality of these offerings develop quickly in response.

In addition, the SFDR requirement is to report most fields at an absolute level rather than as intensity figures. While reporting absolute measures is informative, it makes comparing fund-to-fund performance difficult because absolute figures reflect the size of the fund as well as issuer performance in the given fields. For the PAI reporting to accurately convey a fund's performance, there needs to be some clear way of contextualising the metrics reported. This could be in the form of intensity metrics or comparable benchmarks.

We support the intention to improve reporting against sustainability related metrics and improve transparency on the impact of funds, but observe that this regulation and related data infrastructure will require considerable development before it can effectively deliver on this aim.

¹ % of issuers held (not portfolio weighted).

² Bloomberg provide energy intensity per sales as a proxy for this metric.



SDG case studies



Improving clean water access and empowering women in India

Asian Development Bank (ADB) – Green Bond¹

The Tamil Nadu Urban Flagship Investment Programme, India will improve the water supply, sewerage and drainage infrastructure in 10 cities across the Indian state of Tamil Nadu, where only 48% of households have access to piped water and 42% are served by a sewerage network.

The state is also one of the most vulnerable-to-drought regions² in the world, so as well as being critical for human health and wellbeing this project is also building resilience to the impacts of global warming.

The Tamil Nadu Urban Flagship Investment Programme involves the construction of new water distribution and sewerage collection pipelines, along with India's first solar-powered sewage-treatment facility. The programme will also deliver 66 new reservoirs to bring resilience to local water supply in the face of rising drought frequency. In addition, it promotes capacity building and gender equality by training 12 all-female community organisations to form water and sanitation committees, and through several further targets for female involvement.

Impact

- India's first solar-powered sewage-treatment facility.
- Helping address inequality in household access to water systems.
- Improving climate resilience in a climate-vulnerable region.
- Empowering women in a country with high levels of gender disparity.³
- Improving human health and living standards.

KPIs

- 1,328km of new sewerage collection pipelines connected to 152,593 households.
- 1,260km of new water distribution pipelines connected to 188,900 households.
- 92 ML of new reservoir capacity.

Related SDGs



152,593
homes connected to sewerage

Reducing river and sea pollution in Panama

Corporation Andina de Fomento (CAF) – Green Bond⁴

The Panama City wastewater treatment project will deliver vital improvements to the collection and treatment of wastewater for residents in the city and Panama Bay areas.

The population of Panama City has grown by more than 50% in the last 20 years⁵ and the city's existing sewerage system has been overwhelmed leading to the pollution of nearby rivers and Panama Bay with untreated sewage.

The project will deliver additional wastewater and rainwater collection infrastructure and expand the city's treatment capacity, helping to eliminate the water pollution and improve the living conditions for citizens in the city and surrounding areas.

Impact

- Providing relief for Panama City's overwhelmed sewerage system by improving wastewater collection and treatment.
- Expanding the city's water treatment capacity for a rapidly growing population.
- Improving living conditions by reducing pollution from untreated sewage.

KPIs

- Additional wastewater treatment capacity for 626,400 residents.
- Avoided emissions of 17,000tCO₂ per annum.

Related SDGs



Avoided emissions of
17,000tCO₂
per annum



Decarbonising Poland's energy generation

Ignitis Group – Green Bond¹

Ignitis Group constructed a 94MW onshore wind farm in Pomerania, a northern province of Poland.

The project will help Poland achieve its target of generating 23% of its energy from renewables by 2030. Poland is the second-largest consumer of coal in the EU;² coal accounts for over 40% of the country's total energy supply,³ making Poland's electricity the second-most emissions-intensive grid in Europe.⁴ The clean electricity generated by the Pomerania wind farm will support the decarbonisation of the country's electricity grid and increase its supply of renewable energy. This will be fundamental for the low-carbon transition as it enables the electrification of other sectors.



Photo: Ignitis Group, Pomerania Wind Farm

Impact

- Construction of an onshore wind farm in northern Poland, providing clean energy for many households.
- Aiding the decarbonisation of the Polish electricity grid.
- Decreasing Poland's reliance on coal.
- Fundamental for meeting Poland's renewable energy targets.

KPIs

- 94MW of renewable energy generation capacity.
- Clean electricity generation of 300GWh per annum, enough to power 160,000 households.
- Expected avoided emissions of 221,276tCO₂ per annum.

Related SDGs



94MW
renewable energy generation capacity

Harnessing solar energy on the Mississippi

Rabobank – Green Bond⁵

Rabobank's Green Bond proceeds supported a loan to Recurrent Energy, a utility-scale solar-project developer, to finance the construction of the Sunflower solar farm in Sunflower County, Mississippi.

The solar farm will be operated by Entergy Mississippi, an electricity utility that intends to add 1,000MW to the state's renewable energy capacity by 2027.⁶ With 80% of Mississippi's electricity generation currently fuelled by natural gas,⁷ this project will help to displace fossil-fuel power generation and reduce GHG emissions. A social co-benefit of the project is that it employed 400 workers in the construction phase, supporting the development of skills required for the low-carbon transition.

Impact

- Constructing a large solar farm in Mississippi.
- Displacing significant fossil fuel power generation in Mississippi, a state in which only 1.8% of electricity generation is currently noncombustible renewable.⁸
- Providing significant employment while equipping workers with skills required for the low carbon transition.

KPIs

- Clean electricity to power 16,000 homes.
- 100MW of renewable energy generation capacity.
- 350,000 photovoltaic modules.

Related SDGs



Clean electricity to
16,000
homes

¹ ADB (2022) India: Tamil Nadu Flagship Investment Program – Tranche 2. Available: <https://www.adb.org/projects/49107-005/main#project-pds>

² WRI (2019) Aqueduct Water Risk Atlas. Available: https://www.wri.org/applications/aqueduct/water-risk-atlas/#/?advanced=false&basemap=hydro&indicator=w_awr_def_totcat&lat=28.767659105691255&lng=-374.765625&mapMode=view&month=1&opacity=0.5&ponderation=DEF&predefined=false&projection=absolute&scenario=optimistic&scope=baseline&timeScale=annual&year=baseline&zoom=2

³ World Economic Forum, Global Gender Gap Index, ranks India 140th out of 156 countries.

⁴ CAF (2021) 2020 Green Bond Report.

⁵ World Population Review (2022) Panama City Population 2022. Available: <https://worldpopulationreview.com/world-cities/panama-city-population>

¹ Ignitis Group (2021) Green Bond Investor Letter 2020.

² Eurostat (2021) Coal production and consumption statistics.

³ IEA (2022) Poland. Available: <https://www.iea.org/countries/poland>

⁴ Carbon Footprint (2022) Country specific electricity grid greenhouse gas emissions factors.

⁵ Rabobank (2022) Rabobank Green Bond Report.

⁶ <https://www.solarpowerworldonline.com/2021/11/entergy-mississippi-plans-1000-mw-renewables-five-years/>

⁷ EIA (2021) Mississippi: State Profile and Energy Estimates. Available: <https://www.eia.gov/state/?sid=MS>

⁸ EIA (2021) <https://www.eia.gov/renewable/state/Mississippi/>



Optimising energy consumption with buildings as a service

Johnson Controls – Green Bond¹

Buildings and their construction are the source of approximately one third of global GHG emissions.² Johnson Controls' Green Bond proceeds helped to finance the development of its Open Blue smart-buildings offering, which provides a range of services to drive improvements in sustainability, security, and occupant wellbeing within buildings.

This includes the Open Blue Net Zero 'Buildings as a Service' offering, in which Johnson Controls takes responsibility for optimising energy usage in buildings and procuring renewable energy on behalf of a client.

Open Blue includes AI-enabled collection of performance data for buildings, which can be used to produce digital twins – an advanced tool for maximising energy performance. In addition, the service ensures maximum comfort for occupants by managing factors such as indoor air quality and temperature.

Impact

- Innovative smart building technology for an energy intensive sector, responsible for approximately one third of global emissions.
- Uses AI-enabled data collection to optimise energy usage in buildings.
- Energy performance can be maximised to reduce emissions.
- The service can simultaneously facilitate improved employee comfort.

KPIs

- Avoided more than 30m tCO₂.
- Helped customers save US\$6.6bn through operational efficiencies.

Related SDGs



Avoided emissions of 30m tCO₂

Pioneering low-energy data centres

Digital Realty – Green Bond³

Cloud House is a BREEAM Excellent⁴ certified data centre in London developed by Digital Realty.

The data centre is a carrier-neutral and fibre-rich facility that provides access to global carriers, internet service providers, and internet exchange providers. Data centres currently account for 1-1.4% of global electricity consumption.⁵ As digitisation continues, the use and importance of data centres will also increase so, it is critical that these facilities are as efficient and sustainable as possible to limit their significant GHG emissions.

The Cloud House data centre incorporates several sustainability features to limit its environmental impact: by repurposing a disused building it reduced the embodied emissions from construction; it employs an energy-efficient cooling system that utilises cold water from the adjacent canal; it sources 100% renewable energy to reduce the emissions from its energy consumption; and, it has easy access low-carbon transport as it is located close to the business hubs of Canary Wharf and the City of London, and provides electric vehicle charging stations for staff.

Impact

- Financing a carbon neutral data centre powered completely by renewable energy.
- Repurposing an existing building, significantly reducing emissions from construction.
- Facilitating a sustainable option for a growing and energy intensive sector.
- Improving low-carbon transport options for workers: close to public transport hubs and provides electric vehicle charging stations.

KPIs

- BREEAM Excellent green building certification.
- 40,000ft² of sustainable space.
- 100% renewable-energy powered.
- 40% of building structure re-used.

Related SDGs



100% renewable-energy powered



Supporting energy-efficient public transport

Société du Grand Paris – Green Bond^{1,2}

The Grand Paris Express is a major infrastructure project in the Ile-de-France region that will significantly expand the coverage of the Métro network, which is critically important from both an environmental and a social perspective.

Transport is the largest source of GHG emissions in the Ile-de-France region and a modal shift away from cars and towards public transport will deliver significant avoided emissions. It will also support the ambition of banning fossil fuel cars in Paris from 2030 onwards.

The project will double the size of the existing Métro network, with a particular focus on providing public transport access for suburban towns that it had not previously served. With average commuting times in Ile-de-France around double those of other regions in France, the Grand Paris Express project will provide faster travelling options for nearly 3m people and dramatically increase the number of jobs accessible within a 45-minute commute – in some suburbs by as much as 5-10 times.

Impact

- A group of new and extended high-speed lines for the Paris Métro.
- Helping the ambition of banning fossil fuel cars in Paris from 2030 onwards.
- Expanding the number of commutable jobs.
- Increasing low-carbon transport in a region where transport is the largest source of emissions.

KPIs

- 200km of automated metro lines, providing faster transport options for nearly 3m people.
- 68 new Métro stations.
- Avoided emissions of 775,000-1.3m tCO₂e per annum, once completed.

Related SDGs



Avoided emissions of up to 1.3m tCO₂e per annum

Controlling emissions in construction

Vasakronan – Green Bond³

Vasakronan's Green Bond has helped to finance the construction of Magasin X, Sweden's largest timber-framed office building.

The construction and operation of buildings accounts for almost one third of global GHG emissions⁴ and embodied emissions from construction are a significant hurdle for the sector's low-carbon transition. Using wood in place of high-emitting materials, such as concrete and steel, has dramatically reduced Magasin X's embodied emissions. Additional sustainability features include on-site photovoltaic panels, borehole heat exchangers, and batteries to store solar energy. Magasin X also delivers benefits for occupants, including easy access to public transport, electric vehicle charging and bicycle storage facilities.

Impact

- Sweden's largest timber-framed office building.
- Emissions from construction dramatically reduced.
- On-site solar panels, borehole heat exchangers, and batteries to enable the long-term storage of solar energy.
- Providing easy access to low-carbon transport for workers.

KPIs

- Targeting LEED Platinum green building certification.⁵
- Largest timber-constructed office building in Sweden offering 11,000m² of green office space.
- Energy consumption 66% lower than requirements for new buildings in Sweden.

Related SDGs



Energy consumption 66% below limit



Photo: Vasakronan, Magasin X

¹ Johnson Controls (2021) 2021 Green Bond Report.

² IEA (2022) Buildings. Available at: <https://www.iea.org/topics/buildings>

³ Digital Realty (2021) Green Bond Allocation Statement. Available: https://go2.digitalrealty.com/rs/087-YZJ-646/images/DOC_Digital_Realty_2109_2021_Sept_Green_Bond_Allocation_Statement.pdf

⁴ A BREEAM certified rating reflects the performance achieved by a project and its stakeholders, as measured against the BREEAM standard and its benchmarks.

<https://bregroup.com/products/breem/how-breem-works/>

⁵ IEA (2021) Data Centres and Data Transmission Networks. Available: <https://www.iea.org/reports/data-centres-and-data-transmission-networks>

¹ Société du Grand Paris (2021) 2020 Green Bond Report.

² Société du Grand Paris (2021) A new metro for the inhabitants of Ile-de-France. Available: <https://www.societedugrandparis.fr/ville-demain/metro-ile-de-france>

³ Vasakronan (2022) Annual Report 2021.

⁴ IEA (2022) Buildings. Available: <https://www.iea.org/topics/buildings>

⁵ LEED provides a framework for healthy, efficient, carbon and cost-saving green buildings. <https://www.usgbc.org/leed>



Building water resilience in Botswana

International Bank for Reconstruction and Development (IBRD) – Green Bond¹

The Emergency Water Security and Efficiency project increases water supply in areas vulnerable to droughts and enhances wastewater management infrastructure.

It was implemented in response to the 2015-2016 El Nino-related drought, which had severe impacts on the agricultural sector and forced communities in several locations to ration their water consumption. The project will make households and businesses in Botswana more resilient to extreme weather events, including chronic droughts, which are expected to become more frequent as a result of climate change.

The new infrastructure will provide more efficient water management, improving access to water in areas that have been especially impacted by droughts. It will also enhance wastewater treatment by expanding and refurbishing the existing infrastructure, which will protect surface and groundwater sources and increase the reuse of wastewater.

Impact

- Construction of new infrastructure enabling more efficient water management.
- Improving access to water in areas impacted by droughts in Botswana.
- Encouraging the reuse of wastewater through enhancing wastewater treatment infrastructure.
- Helping households, agriculture and businesses adapt to increased weather variability due to changes in climate.

KPIs

- 21,128 households supplied with drinking water.
- 956,000m³ of additional wastewater treated per annum.
- 24,436ha rehabilitated with irrigation and draining systems.

Related SDGs



drinking water to
21,128
homes

Protecting the Netherlands against the 10,000-year storm

Dutch State Treasury – Green Bond^{2,3}

Proceeds from the Dutch State Treasury's green bond financed the reinforcement of the Houtribdijk Flood Defence.

The asset is a breakwater between IJsselmeer and Markermeer, which is critical to the safety of several Dutch provinces including North Holland and Friesland. The reinforcement project ensures that the dyke can withstand the impact of the '10,000-year storm'. This will be increasingly important for the region in defending against rising sea levels and the increased frequency of extreme weather events caused by climate change.

In addition to the benefits of flood protection, the dyke reinforcement project has delivered positive biodiversity and social impacts. The excess sludge and sand released was used to create a 370ha wetlands nature reserve, which will help to promote biodiversity in the area and sand has been used to create new recreational facilities, such as a water-sports beach at Lelystad.

Impact

- Reinforcing Dutch flood defenses.
- 29% of the Netherlands is below sea level, and 55% is at risk of flooding.
- Protecting several Dutch provinces, including North Holland, the second most populous.
- The excess sand has been used to create a nature reserve and new recreational facilities.

KPIs

- 30km of reinforced flood protection.
- 370ha wetlands nature reserve.

Related SDGs



30km
of reinforced
flood protection

From emissions reduction, energy efficiency and sustainable energy generation to improved sanitation, water supply and pollution control, and protecting against extreme weather events, our investments are delivering tangible benefits to people, businesses and our environment around the world.

¹ IBRD (2022) Emergency Water Security and Efficiency Project. Available: <https://projects.worldbank.org/en/projects-operations/project-detail/P160911>

² Dutch State Treasury Agency (2021) State of the Netherlands Green bond report.

³ Rijkswater (2022) Reinforcement of the Houtribdijk. Available: <https://www.rijkswaterstaat.nl/en/aboutus/gems-of-rijkswaterstaat/houtribdijk-reinforcement>



SPECTRUM
aligned
summary

SPECTRUM aligned investments

In 2021, 6% of the portfolio was invested in five SPECTRUM aligned issuers – those with at least 50% of revenues generated from sectors aligned with the AIM taxonomy (see p72-73).

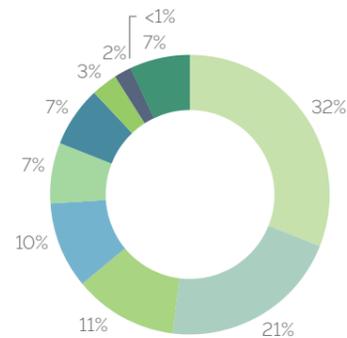
SPECTRUM aligned issuers have a clear commitment to climate mitigation and adaptation, and to sustainable economic development, for example to the Sustainable Development Goals. SPECTRUM aligned bonds are an important portfolio management tool.

Agence Française de Développement (AFD)

AFD is a public development bank that implements France's international development and solidarity policies. AFD's work involves providing loans, grants, expertise and technical assistance to contribute to the economic, social and environmental development of low and middle-income countries. AFD's funding strategy focuses on six "fields of action" or "transitions": demographic and social, energy, ecological, digital and technological, political and civic, and economic and financial. The issuer has robust and highly transparent governance and policies. Beginning in 2017, AFD committed to aligning its activities with the goal of long-term, low-carbon development.



AFD approvals by sector FY 2021

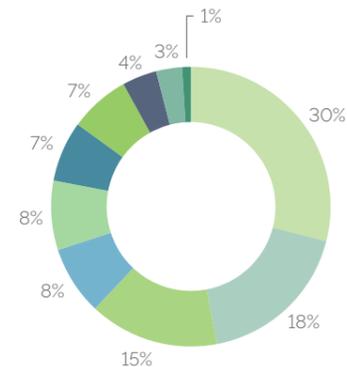


European Investment Bank (EIB)

EIB is a multilateral financial institution owned by and representing the interests of the 27 Member States of the European Union. The bank supports implementation of EU policy, with priority areas including climate and environment, development, innovation and skills, small and medium-sized business, infrastructure and cohesion. Its mission is to finance projects in less-developed regions in modernisation and/or of common interest that cannot be financed by individual members, as well as other development projects outside the EU. Climate action is taken into consideration throughout the assessment and monitoring of all projects. EIB is committed to further strengthening its sustainable finance ambitions; its Climate Bank Roadmap 2021-2025 targets 50% of financing to climate action and environmental sustainability by 2025.



EIB loan distribution by sector FY 2021

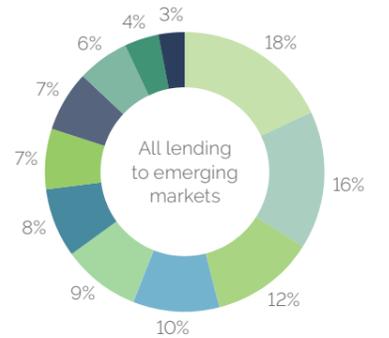


International Bank for Reconstruction and Development (IBRD)

IBRD, part of the World Bank Group, is a mission-driven organisation that supports the dual goals of ending extreme poverty by 2030 and boosting shared prosperity for the poorest 40% of the population with sustainable solutions. IBRD provides loans, guarantees, risk-management products and advisory services, as well as technical assistance and regional coordination, to middle-income countries – home to more than 70% of the world's poorest people. IBRD was a trailblazer in the green-bond market, being the first issuer in 2008 of the form of green bond recognisable in today's market.



IBRD commitments FY 2021

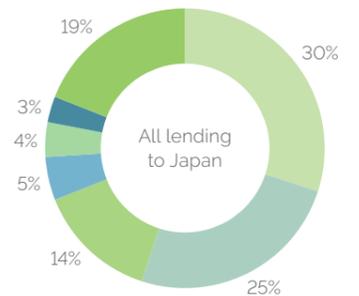


Japan Finance Organisation for Municipalities (JFM)

JFM is a funding organisation set up to optimise funding for local authorities in Japan. JFM focuses on long-term lending, reflecting the longer life cycles of social infrastructure projects for which local governments borrow. JFM expects there to be increased funding demand from local governments for the repair and renewal of public infrastructure originally constructed in the post-war era, especially given the ageing and declining population in Japan. Key financing areas include sewage management, water, hospitals and elderly care, as well as disaster management for an earthquake-prone country with large areas vulnerable to rising sea levels.



JFM FY 2021 outstanding loans

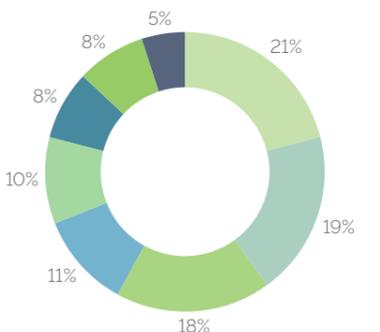


Nordic Investment Bank (NIB)

NIB is an international financial institution owned by and serving the development and investment needs of the Nordic and Baltic countries. The bank offers long-term financing for projects that generate long-term environmental and economic impact. NIB has robust and transparent sustainability policies, including a commitment not to finance projects involved in fossil fuel extraction or power generation. The issuer has recently completed divestment from companies with primary revenue derived from carbon-intensive fossil fuels.



NIB outstanding loans, as of March 2022





Corporate sustainability

Our corporate sustainability

At AIM, our mission is to mobilise mainstream capital to address the challenges the world faces. We manage fixed income portfolios that generate positive environmental and social impacts without compromising financial returns. We invest for impact and financial return, with all investments supporting the Paris Agreement and/or the UN Sustainable Development Goals in alignment to a 1.5°C pathway.

Our corporate sustainability is central to achieving this mission. We recognise we must hold ourselves to the same, or higher, standards that we expect from the issuers and issues in which we invest.

Our corporate sustainability is underpinned by four pillars: our people, our clients, our climate and our impact community. Within each pillar, we have key focus areas and targets so that we can measure our progress.



Community



2021 achievements

Agent for change	Collaborator
<ul style="list-style-type: none"> ✓ Panel and working group participation, such as the ICMA transition working group ✓ Promoted sustainable action, speaking at panels such as the Australian Climate Change Authority panel at COP26 ✓ Participation in investor surveys, such the Environmental Finance survey on impact reporting best practices 	<ul style="list-style-type: none"> ✓ Collaboration with peers to drive forward initiatives ✓ Active, thematic engagement with potential and current impact bond issuers around physical risk and net zero commitments



We continue to collaborate with our peers to support collective action.

Over 2021, we participated in a number of working groups to facilitate the development of the impact bond market. These included the CBI basic chemicals first impact working group, the ABN AMRO roundtable on aligning ESG ambitions with bond issuance and the ICMA working group on transition finance.

We have also presented at events throughout the year promoting sustainable action. Stephen Fitzgerald, Managing Partner, spoke on the Australian Climate Change Authority panel at COP26 and also at the Portfolio Construction Forum alongside Kate Temby, advocating for the power of positive selection. Stephen also spoke at the World FinTech Festival (WFF), in Japan, and gave a lecture at the UNU-IAS IC course, "Sustainable Finance, ESG Investment and SDG Business management", coordinated by Mitsuo Kojima.

Throughout the year we participated on panels organised by the University of Bologna on impact investing and sustainable finance, by Swedbank on sustainability-linked bonds, and on impact reporting best practices at webinars organised by Environmental Finance and the Climate Bonds Initiative. We also participated in the International Panel for Climate Finance, convened by Aviva, which included calling on governments to create net zero incentives to shift capital at scale and speed. We spoke on podcasts, such as the Good Future podcast, hosted by John Treadgold, the Green Dream and Between Meetings with Matt Heine. We believe raising awareness is crucial to developing the impact investing market and continue to publish insights and thought pieces on our website.

¹ Educational events include webinars, teach-ins, presentations and podcasts.

People



2021 achievements

Diversity and inclusion

- ✓ Gender balance at all levels
- ✓ Gender pay gap review considered
- ✓ Paid internships throughout the year
- ✓ In-depth review of our Staff Handbook expanding our staff wellness and development policies
- ✓ Continued refinement of our People Policy

Professional development

- ✓ Six new hires across the business
- ✓ Two interns transitioned to full-time employees
- ✓ Courses and examinations undertaken

Wellbeing

- ✓ Flexible and hybrid working continues globally
- ✓ Return to the office guidance outlined

Charitable giving

- ✓ AIM community initiative selected
- ✓ Volunteering schedule commenced
- ✓ Participation in charity events, such as the Bloomberg Power Ride



52%
of employees are women



40%
of senior management are women



10
languages spoken



26 weeks'
paid parental leave for both female and male employees

We recognise that our people are our greatest asset. We seek to create a working environment that promotes wellbeing.

As COVID-19 restrictions ease, we are building out our return to the office guidance, emphasising flexibility while recognising that teams work best when together.

We are committed to diversity across all areas of our business and are pleased that we have achieved a gender balance at all levels of the firm, including the Management Committee. Last year, we committed to undertaking

a gender-pay-gap review. We have conducted further research and, taking into account the UK government guidance on the structure of the gender-pay-gap review, have concluded it is not practical for us to complete a review owing to the comparatively small size of our organisation. We have completed a full review of our compensation across all levels, regardless of gender.

A safe and inclusive working environment

We foster an environment of transparency and inclusion. As our firm grows, we continue to build out our policies to ensure we clearly articulate our policies and processes. This year we undertook an in-depth review of our Staff Handbook, enhancing our staff wellness and development policies. We also took the opportunity to ensure the handbook provides guidance for any challenges our team could encounter in the workplace, for example directly addressing sexual harassment and discrimination. Alongside this, we refined our People Policy to ensure ease of navigation for our team. We know that a high-performing team requires diversity of thought, and we will work with recruitment agencies to encourage applications from a variety of backgrounds. We proudly note that 10 languages are spoken across our team of 22 people.

Our growing team

This year we welcomed six new members as well as the first member of our Advisory Committee. Fiona Reynolds was formerly CEO of the UN Principles for Responsible Investment (PRI) and joined our Advisory Committee in October 2021. Fiona's extensive experience affords our team of experts a unique perspective as we continue to deliver financial returns with environmental and social impact.

We value diverse perspectives and recognise our employees have a wealth of knowledge, skills and ideas to contribute. We promote collaboration and teamwork, and are recommencing our "brown bag" lunches, to encourage open dialogue and the sharing of knowledge. We encourage professional development and this year we were delighted to see our team progress with qualifications such as the Investment Management Certificate (IMC) and become CFA® Charterholders.

AIM community initiative

We are delighted this year to announce our chosen AIM community initiative, the Whitechapel Mission. The Whitechapel Mission is a volunteer-led organisation, helping the homeless in London. It helps people by firstly meeting their immediate needs: food, shelter, clothing and medical care, and in its recovery programmes it addresses the deeper needs for life and job-skills training, and addiction recovery.

Whitechapel offers in-person volunteering options, and our London-based members have also signed up to the breakfast and clothing challenges.

You can read more about the Whitechapel Mission on its website: <https://whitechapel.org.uk/about>



Katie House volunteering at the Whitechapel Mission

 **Clients**



2021 achievements

Accountability	Insights	Impact delivery
<ul style="list-style-type: none"> ✓ Our second Modern Slavery Statement published ✓ Continued innovation of our impact reporting ✓ Thematic engagement on physical risk leveraged to enhance verification process ✓ European vehicles classified as Article 9 under SFDR 	<ul style="list-style-type: none"> ✓ Insights and thought pieces published on our website ✓ Held webinars for continued education and sharing of knowledge ✓ Hosted impact education sessions for investors and advisors 	<ul style="list-style-type: none"> ✓ Continued to deliver environmental and social impact alongside financial returns ✓ Ongoing external recognition for our world-leading verification process, portfolios and impact reporting



A+
PRI rating across all modules¹



Leader
Morningstar ESG commitment level²



Leader
recognition by RIAA³



SFDR Article 9
classification for all European funds



Our clients come first. We remain dedicated to providing mainstream returns with environmental and social impact, enabling the transition to net zero.

We strive to meet the highest standards. The EU Sustainable Finance Disclosure Regulation ("SFDR") came into effect in March 2021 and requires asset managers to reveal the differing levels of sustainability integration and focus of each investment strategy they offer. All our European vehicles are classified under Article 9, the highest sustainability classification. Although we are not required to report on SFDR metrics until 2023, we have begun to incorporate these into our impact reports across all portfolios in 2022.

Transparency is one of our core values. We are proud to continue to deliver our world-leading annual Impact Reports. Our highly credentialed verification team continues to innovate in our impact measurement and reporting.

For example, last year we delivered:

- Our in-house calculation of the Weighted Average Carbon Intensity (WACI) for all of our portfolios and selected benchmarks.
- Updated avoided emissions methodology to include a dynamic baseline for our calculation of avoided emissions and Carbon Yield.
- Enhanced multi-year assessment of physical climate risk to include issuer engagement about the use of scenario analysis, adaptive capacity measures and resilience planning.

Each year we host a series of webinars for our clients to communicate the impact their investments have made.

At the end of our annual reporting process we incorporate the learnings to ensure our processes are enhanced. For example, this year we are integrating into our verification process learnings from a previous TCFD-aligned physical-risk assessment. This includes a more systematic consideration of the potential materiality of physical-risk exposure and the potential adaptive capacity of relevant issuers to manage these risks.

We recognise that our clients choose us for our expertise and are proud to continue to be recognised as a leader within sustainable investing.

In 2021 the Responsible Investment Association Australasia (RIAA) included us as a Responsible Investment Leader in its landmark study. We were also awarded an ESG commitment level of "Leader" by Morningstar, which defines "Leader" funds as those funds that integrate ESG factors fully into their security analysis and portfolio construction, and deliver desirable ESG outcomes at the portfolio level, such as a high sustainability profile, advancement of the UN SDGs, or similar. Of the 140 strategies and 31 asset managers assessed by Morningstar in May 2021, we are the only strategy and only manager to be awarded this highest classification of "leader".

Similarly, we are delighted that our funds and impact reports have been recognised as leading. The AIM US\$ Liquid Impact Fund, our short duration offering, won 'Best ESG investment fund: specialist fixed income' at the ESG Investing Awards, while our annual Impact Reports won 'Impact report of the year (for investors)' at the Environmental Finance Bond Awards. In their comments the judges highlighted our extensive coverage and addition of reporting in line with the recommendations of the Task Force on Climate-related Financial Disclosures (TCFD).

In 2021 we also earned the 'Towards Sustainability' label for the LO Funds – Global Climate Bond. The label is sponsored by Febelfin, the Belgian financial sector federation. The initiative aims to promote socially responsible and sustainable investment and instil trust among investors that labelled products are managed with sustainability at the fore. We are proud that our European vehicle has been recognised by the federation.

For more information on our awards and recognition see our media coverage and awards here: <https://affirmativeim.com/in-the-news/>

¹ Awarded in 2021 during the PRI's latest reporting cycle in the Financial Services Sector.
² Awarded to AIM in May 2021.
³ Awarded in 2021 during RIAA's latest review cycle, renewed annually.

Climate



2021 achievements

Aligning our investments

- ✓ Became a signatory to the Net Zero Asset Managers Initiative (NZAM)
- ✓ Firmwide commitment to net zero emissions by 2050 covering our investments and operations
- ✓ Formulating our net zero targets for our investments
- ✓ Work commences on our first TCFD report, to be published in 2022

Aligning our operations

- ✓ Continued commitment to operational carbon neutrality for scope 1, 2 and 3 emissions
- ✓ Carbon calculations enhanced to better incorporate work from home practices



Carbon neutral operations



Net zero carbon emissions from investments by 2050 with interim 2030 targets



TCFD public supporter

Climate change is one of the most consequential challenges of our time.

With a vision to mobilise capital to meet the challenges the world faces, our climate is central to our corporate sustainability. Our focus is to invest solely in fixed income and cash instruments that both deliver competitive returns and generate meaningful, positive environmental and social outcomes.

Our net zero policy

We recently published our AIM Net Zero Policy. This is underpinned by our corporate sustainability framework and reaffirms our commitment to aligning our business, investments and operations with the Paris Targets to limit global warming to 1.5°C, including net zero GHG emissions by 2050.

1. Our investments

This year we have taken further steps to formalise our commitment to the Paris Targets by becoming a signatory to the Net Zero Asset Managers Initiative (NZAM). In signing up to NZAM, we have committed to support the goal of

net zero greenhouse-gas (GHG) emissions through our investments by 2050 and to take a leading role in engagement to encourage action more broadly within the financial sector. Key to our commitment is setting interim targets for 2030, which we will submit to NZAM in H2 2022.

2. Our operations

While we recognise that the greatest impact we have on our climate is through our investments, we nonetheless commit to tackling our operational GHG footprint. We prioritise activities that directly reduce our operational emissions, such as utilising technology to limit travel

and using electronic copies of all materials. Alongside this, we recognise that credible offsets have a role to play to compensate for unavoidable GHG emissions by supporting projects that can reduce GHG emissions elsewhere. Each year we offset all scope 1 and 2 emissions, and scope 3 Category 6 – Business Travel emissions by purchasing Certified Emissions Reductions (CERs) generated by UNFCCC certified projects in developing countries. This year we are supporting the MW rice husk-based cogeneration plant at Hanuman Agro Industries Limited, which incorporates both environmental and social benefits. Further details around the project are outlined on page 67. We undertake the calculations of our GHG emissions in house and this year have enhanced our approach to better incorporate work from home practices.

Last year we committed to publishing our first firmwide TCFD report. We have commenced this process and will be publishing the report in H2 2022. We have also become a formal supporter of the TCFD in 2022.

Through this disclosure we will deliver:

- A clear description of climate-related governance structures and processes.
- How climate-related risks and opportunities impact our portfolios and how these interact with our firmwide strategy.
- Enhanced risk-management processes with respect to climate-related risks.
- A discussion of the current climate-related targets under development, and the TCFD-recommended metrics to communicate climate performance.

2022 initiatives

AIM workshops

While we offer flexible work arrangements and embrace a hybrid working environment, we believe it is important for team development and culture that there is an element of in-person engagement.

As we return to the office and meet again in person, we will be hosting a series of in-person and virtual workshops. These will be educational, focusing on topics such as corporate governance, promote an environment of wellbeing, and build upon our culture of collaboration, openness and transparency. We will invite external speakers to address topics such as mental health, drilling down into themes such as anxiety, burnout and work-life balance. We expect these discussions to offer a greater understanding of how to be self-aware and how to help those around us.

Refine our policies

We continue to review and enhance our policies to assist and guide our people, and provide transparency to all stakeholders. In 2022 we will continue to refine our People Policy and modern slavery statement and update our Responsible Investment Policy as we innovate our review and reporting. We will also be further developing our policies to support volunteering initiatives.

AIM community initiative

We are continuing to build our relationship with the Whitechapel Mission in London.

In 2022 we will consider SDG alignment for our corporate sustainability initiatives.

Enhancing our climate reporting

Over the next year we will continue to build on our climate-related disclosures, enhancing our approach to reporting on the carbon footprint both of our portfolios and our own operations.

In 2021, we also embarked upon further climate assessment innovation in a pilot project with ISS to assess the temperature-scenario alignment of our funded projects. Updates and results on this initiative will be shared in our Impact Reports.

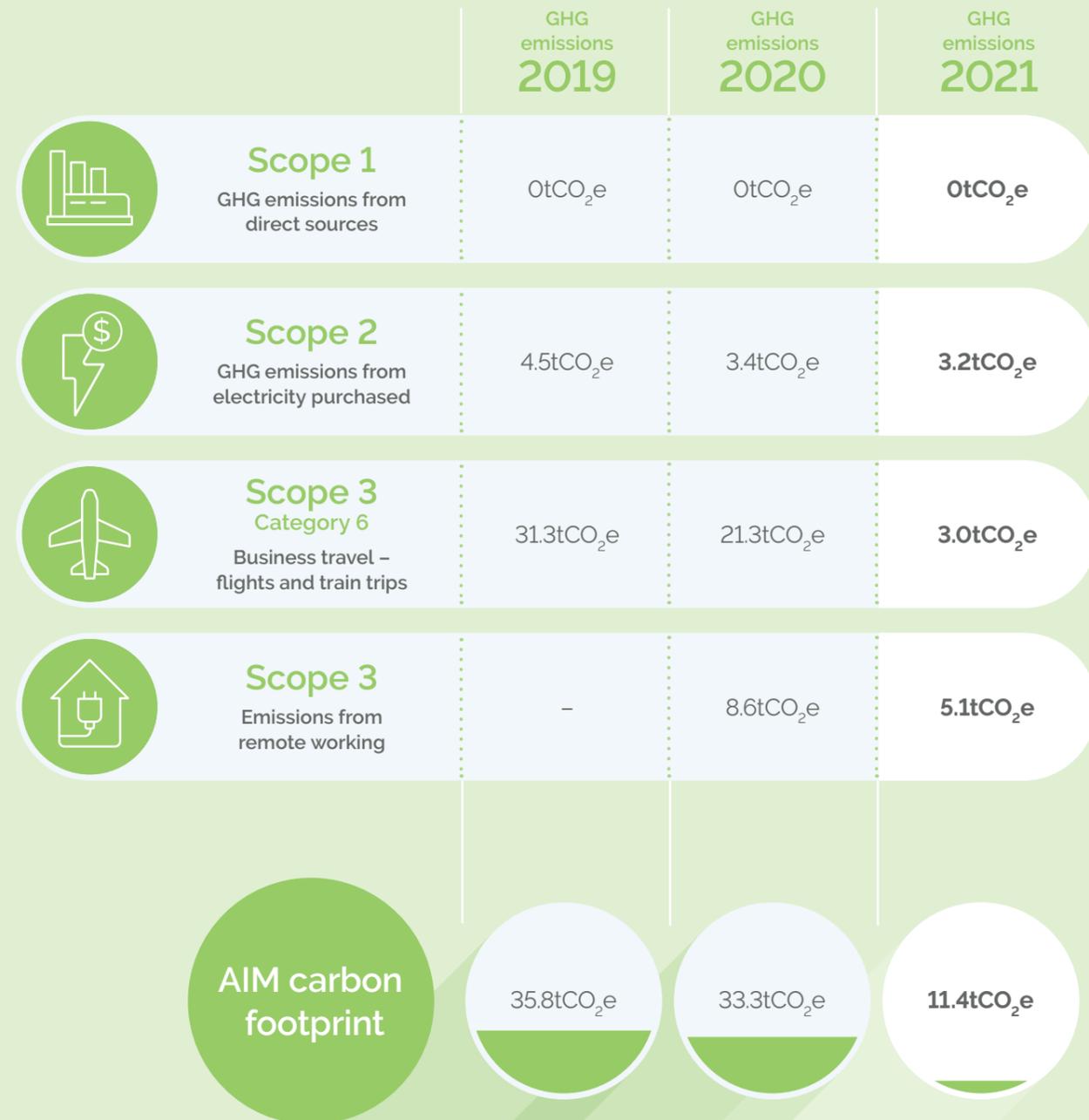
This year's Impact Reports, for the first time, include reporting against SFDR's mandatory Principle Adverse Impacts (PAIs). While we are not *required* to report against the mandatory PAIs until next year, we are taking the opportunity to commence this reporting now in order to get to know the metrics and data available ahead of time. This approach is consistent with our continued innovation to improve our reporting and insights and engagement with all stakeholders.

Impact collaboration

We are continuing to work with a wide range of stakeholders in the impact and sustainable investing markets to promote innovation and integrity. To achieve our mission of mobilising mainstream capital for impact, we need others to move with us. This includes engaging with peers on how they invest and how they engage with the companies they invest in. We also continue to speak on panels, host webinars and participate in working groups to enable education, exchange insights and progress change at all levels.

Our operational carbon footprint 2021

Overall AIM corporate carbon footprint



Scope 1 : Direct GHG emissions from sources that are owned and controlled by AIM¹
0tCO₂e

Scope 2 : Indirect GHG emissions from the generation of electricity purchased by AIM
3.2tCO₂e

Approach for calculating AIM's 2021 scope 2 GHG emissions

Source	2021 electricity consumption (kWh)	GHG emissions conversion factor (kgCO ₂ e per kWh)	GHG emissions (kgCO ₂ e)
Office (scope 2)	15,253	0.21233	3,239 (3.2tCO ₂ e)

To derive scope 2 GHG emissions, we have used a location-based approach in line with the UK Government's guidelines for corporate-carbon-footprint reporting. As shown in the table above, AIM's office electricity consumption in 2021² was multiplied by the GHG emission conversion factor for the electricity supplied to the UK grid to give a total GHG emissions figure.³

Scope 3 : GHG emissions resulting from assets or activities not owned or controlled by AIM
8.1tCO₂e

Remote working continued in 2021 due to the Covid-19 restrictions. While there is no standardised methodology for calculating the GHG emissions from remote working, we have used the resources available to calculate these as effectively as possible.

We derived electricity-related emissions by calculating the electricity consumption of a typical work-from-home setup. We calculated the emissions from heat consumption by finding the additional consumption of gas when working remotely. These figures were multiplied by appropriate conversion factors to find the resulting GHG emissions.⁴

AIM's scope 3 GHG emissions from Category 6: business travel were calculated with consideration for all AIM-

related flights and train journeys undertaken by staff members, excluding commuting. For each trip, we calculated the distance travelled and multiplied this by conversion factors. The factors were sourced from the UK Government's guidelines for corporate carbon footprint reporting, which account for the mode of transport used.⁵ scope 3 emissions from business travel were substantially reduced in 2021 due to the major travel limitations resulting from Covid-19 restrictions.

We recognise that AIM's largest source of emissions is our financed emissions. We report on these in pages 23-39 of our Impact Report. As such, they are not included in AIM's scope 3 emissions reporting.

Offsetting our corporate carbon footprint

While we prioritise the reduction of GHG emissions, we compensate for unavoidable GHG emissions resulting from our internal operations by purchasing Certified Emissions Reductions (CERs) generated by UNFCCC-certified projects in developing countries. For our 2021 carbon footprint, we purchased CERs that support a biomass-energy project in India. The project utilises rice husks, an agricultural waste product,⁶ as the feedstock for a cogeneration plant that produces electricity and steam. This avoids the GHG emissions and air pollution that would have been caused by the combustion of coal and creates value for local rice millers whose rice husks were previously sent to waste.

Photo: offset.climateutralnow.org



¹ Scope 1 emissions are zero because the AIM office has no gas heating and therefore no direct emissions from this space.
² AIM Office Manager – Electricity Consumption Data for 3rd Floor, 7 Birch Lane, London.
³ BEIS and DEFRA, UK Government (2021) Standard Set, UK Government GHG Conversion Factors for Company Reporting, UK Electricity.

⁴ Sources as follows: Australian Government (2021) National Greenhouse Accounts Factors; Climate Transparency (2021) Japan, Country Profile; Climate Transparency (2021) India, Country Profile; BEIS and DEFRA, UK Government (2021) Standard Set, UK Government GHG Conversion Factors for Company Reporting, Fuels.
⁵ BEIS and DEFRA, UK Government (2021) Standard Set, UK Government GHG Conversion Factors for Company Reporting, Business travel - air & Business travel - land.
⁶ <https://offset.climateutralnow.org/25-mw-rice-husk-based-cogeneration-plant-at-hanuman-agro-industries-limited?searchResultsLink=%2FAllProjects%3FSearchTerm%3DRice>

Partnerships for impact

Our vision is to mobilise capital to address the major challenges the world faces. Realising that vision demands collaboration with other industry leaders and initiatives.

To meaningfully address the major challenges the world faces, we cannot go it alone.



Carbon Yield™

We co-developed the Carbon Yield metric and methodology in 2016 with ISS ESG and Lion's Head Global Partners, with funding from Rockefeller Foundation. The Carbon Yield quantifies the climate-change-mitigation impact of green bonds. We apply the Carbon Yield methodology to our strategies as part of our annual impact-reporting commitment.

Climate Bonds

Climate Bonds Initiative

The Climate Bonds Initiative (CBI) is an international organisation working solely to mobilise the \$100trn bond market for climate-change solutions. Since our partnership began in 2015, we have participated in several industry working groups to share expertise.



Colonial First State (CFS)

Since 2018 we have partnered with CFS, one of Australia's leading wealth managers, to offer the Affirmative Global Bond Fund.



FAIRR Initiative

FAIRR's mission is to build a global collective of investors who are focused and engaged on the risks linked to intensive animal production within the broader food system and help them to exercise their influence as responsible stewards of capital.



ICMA Green Bond Principles, Social Bond Principles, Sustainability Bond Principles

We have been a member of the ICMA Green, Social and Sustainability principles since 2015. The principles are voluntary process guidelines that recommend transparency and disclosure, and promote integrity in the development of the impact bond market. In 2021, we joined the ICMA Climate Transition Finance working group.



Impact Management Project

Since 2017, we have been a member of the Practitioner Community of the Impact Management Project, an initiative to build consensus on how we talk about, measure and manage impact, and how we bridge the differing perspectives of diverse industry stakeholders. The IMP market facilitation concluded in 2021 but its principles remain a standard and have been integrated into several mainstream reporting frameworks.



ISS ESG

We have partnered with ISS ESG on multiple fronts since 2016, including portfolio climate analysis, accessing its ESG data and controversy screenings and, most recently, on a funded-projects net zero-alignment pilot.



Lombard Odier Investment Managers

Since 2017 we have partnered with Lombard Odier Investment Managers to offer the LO Funds – Global Climate Bond. Lombard Odier Investment Managers is the asset management business of the Lombard Odier Group, established in 1796.

Net Zero Asset Management (NZAM)

NZAM is an international group of asset managers committed to supporting the goal of net zero GHG emissions by 2050 or sooner, in line with global efforts to limit warming to 1.5°C and to supporting investing aligned with net zero emissions by 2050 or sooner. AIM became a signatory in 2021.



Principles for Responsible Investment (PRI)

We have been a signatory of the PRI, the world's leading proponent of responsible investment, since 2016. It works to understand the investment implications of environmental, social and governance (ESG) factors, and to support investor signatories in incorporating these factors into their investment and ownership decisions.



Responsible Investment Association Australasia (RIAA)

RIAA is the largest and most active network of people and organisations engaged in responsible, ethical and impact investing across Australia and New Zealand. Its landmark 2021 study of the responsible investment landscape in Australia recognised AIM as a Responsible Investment Leader.

S&P Global

Standard and Poor's (S&P)

While we conduct our own ESG analysis on issuers, we have also used S&P ESG data for calculating climate metrics and to assist with our responsible issuer screening against our exclusionary policies since 2020.



Stockholm Declaration

We have been a signatory of the Stockholm Declaration, which is co-led by Global Reporting Initiative (GRI) and UN Global Compact, and supported by the PRI, since 2017. Our support for this declaration underlines our commitment to investing for sustainable development, sustainable impact, and towards the 2030 Sustainable Development Goals.

TCFD | TASK FORCE ON CLIMATE-RELATED FINANCIAL DISCLOSURES

Task Force on Climate-related Financial Disclosures (TCFD)

We have supported the TCFD recommendations since its inception in 2017, having reported our own integration of climate risk and opportunity in our investment process from the beginning. Our 2019 and 2020 impact reporting included a TCFD-aligned physical-risk assessment against several different warming scenarios. We are now working on incorporating our learnings into our verification process. In 2020, we also started reporting on TCFD-recommended metrics for asset managers. In 2022, we became a formal supporter of TCFD and will be publishing our first stand-alone TCFD report.



UN CC:e-Learn

In 2019, we reviewed and supported the development of a UN CC:e-Learn practice-oriented course on the basics of sustainable finance to promote impact-bond issuance. The course was produced by a GLZ-SEB strategic alliance (focused on Green Bond Market Development in G20 Emerging Economies) and the Partnership for Action on Green Economy (PAGE) – a One UN initiative bringing together UN Environment, ILO, UNDP, UNIDO and UNITAR, and reviewed by CICERO, AIM and UNDP.



UNDP SDG Impact Standards for SDG Bonds

In 2020, AIM joined the reference group for SDG Impact Standards for SDG Bonds. These are practice-assurance standards developed by UNDP SDG Impact as a transparent, competitively neutral public good. They aim to bridge the gap in the developing impact-management toolkit between high-level principles of practice and impact-performance reporting and benchmarking.



Eligible sectors

AIM has an internal sector taxonomy that is complimentary but not restricted to the EU Taxonomy for Sustainable Activities. Eligible sectors in the AIM taxonomy include:

Environmental sectors



Energy

- Renewable energy, such as solar, wind, wave, tidal, geothermal and hydro.
- Low-carbon alternative fuels, including hydrogen and biofuels (under certain conditions).
- Renewable energy products, including the production of wind turbines and solar panels.
- Energy storage technologies.



Infrastructure

- Transport: low-carbon public and private fleets and infrastructure, transport policies and planning and non-motorised transport.
- Resilient built environment and green building stock.
- Coastal-zone and flood-area protection.
- Energy: transmission and distribution infrastructure, efficiencies and resilience, energy-efficient solutions, industrial processes and district heating.
- Soft infrastructure: telecommunications and broadband connectivity, efficiency and internet of things (IoT).



Water and wastewater management

- Water-use efficiency: new and retrofitted water supply and consumption infrastructure.
- Water restoration and water-quality management, particularly with innovative materials and technologies, and practices.
- Wastewater collection and treatment infrastructure and technologies.
- Watershed management and planning, including investment in catchments and aquifer-recharge areas.



Resource efficiency

- Sustainable supply chains, including green materials management and substitution, including in green buildings.
- Pollution prevention and remediation: air (including CCUS, landfill gas capture and fugitive emissions mitigation and control) and soil.
- Waste management, reduction, recycling and treatment (including anaerobic digestion and composting).



Land management

- Sustainable agriculture and forestry.
- Integrated landscape planning, maximising carbon efficiency, sequestration and ecosystem resilience.
- Regulatory conditions to promote diverse and resilient communities and landscapes (zoning, easements, etc.).
- Biodiversity conservation and ecosystem restoration.



Marine environment and fisheries

- Pollution prevention and clean-up in the marine environment.
- Biodiversity and fishing-stock management and regulation.
- Environmentally sound coastal-zone management.
- Chemical and biological restoration of critical marine areas.



Social sectors

Global health

- Access to immunisation and other medical resources and services, through financing, distribution infrastructure and training.
- Access to healthcare in the form of hospitals, clinics, trained healthcare workers and information.
- Innovation in healthcare products, financing, distribution and services.



Education, training and employment

- Access to education, safe schools, teaching materials and teachers, food programmes and financial incentives for families.
- Employment training for new and returning job seekers in green and new-economy sectors.



Empowerment of women and vulnerable groups

- Activities promoting gender equality, e.g. education and training for women and girls.
- Access to improved maternal and child-health services.
- Social and regulatory services to support protection and resilience of vulnerable and war-ravaged groups.



Financial inclusion and sustainable enterprises

- Access to microfinance and financial services in underserved communities through regulation, financial institutions and technology.
- Access to funding for SMEs.
- Financial and insurance activities including underwriting climate-related perils and reinsurance.
- Technical, energy and resource-efficiency capacity building for SMEs.



Food security

- Crop insurance and risk-sharing schemes to increase producer resilience to climate and other stresses.
- Water-rights institutions to protect access for vulnerable groups.
- New cropping techniques and resilient crop varieties.
- Expanded market access through financial, regulatory and physical infrastructure.



Social housing

- Affordable housing for vulnerable groups.
- Access to credit for housing for disadvantaged groups.
- Shelter/temporary housing facilities.
- Activities and initiatives addressing homelessness.
- Integrated community planning.

Methodologies

AIM Impact Report methodology

Issuer impact reporting is heterogeneous, utilising different methodologies, reporting formats and performance indicators. This often means that we cannot compare reported impact data accurately nor appropriately.

The impact metrics included in this report can be considered underestimates for two key reasons:

- Not all issuers are able to report on 100% of the portfolio. This may be due to a range of reasons, such as issuers having insufficient resources, or gaps in initial data collected to permit reasonable calculations, or lack of impact metric methodologies and expertise.
- AIM and our partners (e.g. ISS ESG) were not able to use the supplied/reported impact data. This will be the case if, for example, there are differences in issuer reporting methods or a lack of transparency in how the figures were calculated or lack of comparability with other issuers.

However, AIM engages with issuers to encourage market consistency in reporting, including the adoption of industry best practices, such as disclosing their reporting methodologies, appropriate references to baselines and higher levels of disclosure – for example, prorated project-specific information where available. Where possible, this report attempts to standardise the diverse methodologies and metrics used by issuers.

Our methodology to collect, evaluate and process impact data in this report is as follows:

1. Verify issuers' reporting and transparency of proceeds commitments as part of our SPECTRUM Bond® analysis. (Issuers with poor reporting practices are excluded or placed on the watchlist.)
2. Collect impact-bond-issuer proceeds commitments and impact-performance metrics. Issuers tend to report annually on the anniversary of the first impact bond issuance and use different reporting periods.
3. Where the issuer reports at the impact bond level or a sub-set of bonds, we include only projects associated with the bond/sub-set held in our portfolio. Otherwise, as a general rule, AIM takes projects at the framework level.

4. Engage with invested impact bond issuers to request greater disclosure, targeting project-specific data where required. To limit double counting, AIM requests issuers to determine their financing share of projects in order to permit calculation of impact bond issuer prorated project information.
5. Tag and categorise issuer-reported impact bond data by AIM sectors, sub-sectors, region, country and SDG alignment at the project level per framework. Projects and bonds can be aligned to more than one SDG and sector.
6. Estimate portfolio share of impact data as a percentage of portfolio holding amount to total relevant impact bond funding. For example, if the portfolio had an average time-weighted holding of US\$1m of a US\$500m green bond funding programme – the portfolio will be allocated 0.2% of reported impact bond key performance indicators (KPIs).
7. Calculate portfolio time-weighted sector, geographic and SDG distribution in USD equivalent terms and portfolio-adjusted KPIs using the above data.
8. Where relevant and possible, calculated independent portfolio metrics in adherence to international best practices, such as the Greenhouse Gas Protocol, with leading climate data specialists. Non-mitigation focussed activities and social bonds are excluded from GHG emissions estimates currently.

Funded projects net zero scenario methodology

In 2022, AIM partnered with ISS ESG to pilot net zero scenario analysis for relevant funded projects. Our goal is to help assess the alignment of funded projects to our mission of supporting the Paris Agreement and investing in line with limiting global warming to 1.5°C this century.

For this exercise we covered three major sectors in our portfolios: energy, transport, and buildings, which make up the majority of our portfolio-weighted funded projects.

Net zero alignment methodology

1. Determine the sector and sub-sector at the asset-level of our funded projects. For example, Energy Generation – Solar CSP.
2. Follow either a technology or expected performance approach to determine the necessity of the technology in use in the net zero transition. The technology approach categorises certain technologies as aligned with a net zero scenario, for example onshore wind power. The performance approach is based on technology-specific quantitative thresholds for the different projects (i.e. GHG emissions below defined gCO₂e/kWh levels), provided by various data sources such as the Climate Bonds Initiative (CBI), Carbon Risk Real Estate Monitor (CRREM) and the International Energy Agency (IEA).

3. Categorise the alignment status of each asset/project into one of the following:

- Aligned: the net zero criteria under either approach are fulfilled based on this year's data.
- Aligning: the net zero criteria under the performance approach are not yet fulfilled, however there is an asset-level performance target that will bring the project into alignment.
- Committed to aligning: the issuing entity has a sufficiently robust climate strategy that underlying projects can be considered committed to aligning to net zero-by-2050.
- Not aligned: the net zero criteria defined for the project is not fulfilled.
- No data: there is insufficient data to assess the project under either the technology or the expected performance approach.

Other important methodological considerations include:

- Data availability: while we endeavour to obtain the most granular and high-quality data possible for assessment, we are aware that the outcome of the assessment is highly dependent on data availability. Where possible, we seek publicly available information and engage with issuers to fill in any data gaps. However, when this is not possible estimated data will be used.
- Alignment status timeframe: it is also important to note that some of the quantitative thresholds applied may change over time as decarbonisation of the global economy advances. Therefore, the alignment status of an asset/project is only applicable to the latest year under analysis and does not allow for predictions of whether an asset will be aligned with a climate transition to below 1.5°C at a future point.

Project assessment approaches

Using energy generation as a category, examples of technology and performance-assessment approaches and underlying criteria are as follows:

Project sub-category	Technology approach	Performance approach	Comments
Solar PV	Yes	-	-
Solar CSP	-	Direct GHG < 100gCO ₂ e/kWh	-
Wind (On/Offshore)	Yes	-	-
Bioenergy – heating	-	80% less GHG vs. baseline	Baseline can be project-specific, country-specific or generic fossil fuel baseline
District heating	Powered by: thermal solar, geothermal, heat pumps, biomass, waste, green hydrogen	80% less GHG vs. baseline	Baseline can be project-specific, country-specific or generic fossil fuel baseline

The underlying criteria is determined based on several relevant references to reflect the diversity of assets/projects funded by our portfolios. Examples include:

- Climate Bonds Taxonomy: the framework identifies the assets, activities, and projects compatible with a trajectory to net zero by 2050 and is based on input from the Intergovernmental Panel on Climate Change (IPCC) and the International Energy Agency (IEA).
- International Energy Agency (IEA): an autonomous intergovernmental organisation best known for the publication of its annual World Energy Outlook. In 2021 the IEA produced a roadmap for the global energy sector to reach net zero by 2050 and to prevent global temperatures from rising above 1.5°C.
- Carbon Risk Real Estate Monitor (CRREM): aims to support the real estate industry in tackling climate transition risks and fostering investments in energy efficiency.

Issuer assessment in absence of project data availability

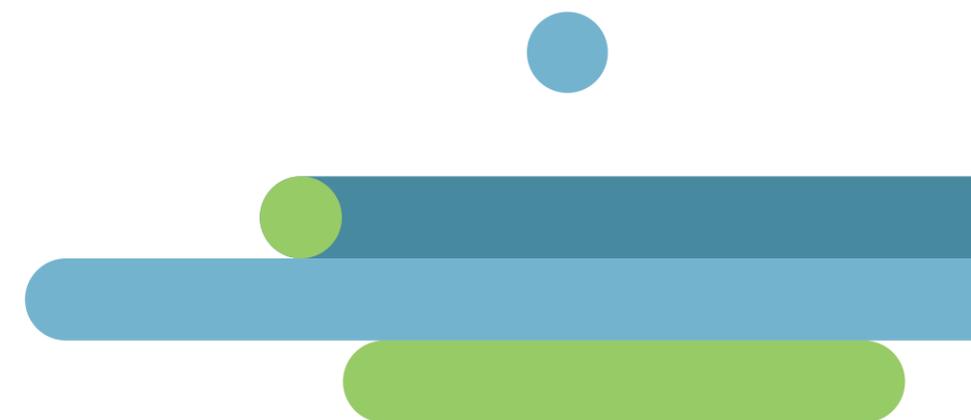
Where insufficient data is available at the project level, the issuer's overall climate targets and strategy will be considered, if covered by our partner ISS-ESG. To determine alignment at an issuer level, we consider the following criteria:

- Materiality: we consider whether the company is disclosing sector-specific material GHG emissions
- 2050 net zero target: whether the issuer has declared a net zero target by 2050 or sooner, including if the target includes scope 1, 2, and relevant scope 3 emissions.

If both criteria are fulfilled then the issuers' projects are assigned an alignment status of "Committed to Aligning".



Photo: Frederik Beyens, ©Aquafin



Carbon Yield™ methodology



The Carbon Yield, jointly developed by Lion's Head Global Partners, ISS ESG and AIM, with funding by the Rockefeller Foundation, quantifies the environmental impact of a green bond in terms of greenhouse-gas (GHG) emissions avoided through the financed activities. It is an open-access methodology, available for issuers and investors to use.

AIM published a case study on our experience of applying the Carbon Yield, which can be accessed at <http://www.affirmativeim.com/publications>



The impact is expressed in Potential Avoided Emissions (PAE) enabled by the use of proceeds of the bond in terms of tonnes of CO₂e/year/unit of capital.¹

Full details on the Carbon Yield can be found at www.carbonyield.org

1. Projects and activities funded through the issuer's green-bond framework are identified and categorised according to sector and technology.
2. Relevant baselines for each project/activity type are identified. To calculate the abatement potential of an activity, a reference emissions baseline is applied.
3. The potential annual GHG abatement is calculated for each project (and/or activity). This metric is defined as the average GHG abatement for the underlying project's expected lifetime, or the operating GHG abatement, adjusted for the construction years (where relevant). Under the initial proposal, the Carbon Yield is not adjusted for GHG emissions created during the construction phase, although in time and as disclosure improves, the market may move to demand such an adjustment. However, the number of construction years is accounted for within the total project lifetime, so that the average abatement is an average over the whole project lifetime, including the construction phase.
4. The capital cost of the project is determined. Where the full capital cost is not known, it can be imputed from technology benchmarks published by entities such as the International Renewable Energy Agency (IRENA) and other industry organisations.
5. The annual potential GHG abatement per unit of invested capital can be derived using the annual abatement potential and information on the capital cost of, and bond allocations to, the project.

6. Once the annual potential GHG abatement per unit of invested capital is known, an issuer can then allocate that potential abatement to the quantum of capital that they have invested in or committed to the project.
7. By taking a weighted average of the potential abatement impact per capital invested for each activity in the framework, the issuer can then calculate the Carbon Yield per unit of invested capital of their green-bond framework, i.e. the Carbon Yield of the green bonds issued under such a framework. Alternatively, if the issuer does not provide a Carbon Yield for their security, the investor can still use this approach to calculate the Carbon Yield, provided certain base information regarding the use of proceeds is available through the green bond framework.
8. Individual bond Carbon Yields can then be aggregated to determine the portfolio-weighted GHG emissions avoided per US\$1,000 invested.

Independent Funded Projects GHG Emissions Methodologies

Avoided GHG emissions are defined as emissions that would have been released if a particular action or intervention had not taken place. The emissions avoided by using a more efficient product or service are often dependent on either consumer or market behaviour. This analysis does not make absolute predictions about behaviour or market developments. Consequently, the avoided emissions presented are not assured or verified by a third party and are conditional upon certain behaviours, though they do provide an estimate of the climate-change-mitigation impact of impact bonds

We partner with ISS ESG, a leading climate-data-solutions provider, to carry out our portfolio avoided-emissions analysis.

In order to quantify potential avoided GHG emissions, a baseline must be established describing what would have occurred if the product or service had not been made available. The avoided GHG emissions are calculated as the difference in GHG emissions between the baseline and the scenario where the product or service is made available.

Our choice of assumptions and emission factors is conservative i.e. when selecting data points, the value generating the lower amount of avoided GHG emissions has been chosen. Conservative values and assumptions are those that are more likely to underestimate than overestimate GHG reductions, as recommended by the GHG Protocol for Project Accounting.

Methodologies are specific to the technology financed – the following example is used to calculate the avoided emissions of the leading sector supported by the portfolio:

Energy – Renewable Energy Generation

1. The allocation of proceeds for the sector, and per project (where information is available), is acquired. Additionally, where project-level information is available, the total cost of the project is ascertained to understand the percentage of emissions financed by the impact bond allocations.
2. Where available, the geographical location per project is used. Where this is not possible, the geographical distribution is used to allocate weightings to types of renewable energy projects.
3. Where available, the generation capacity in megawatts (MW) is used. Where generation capacity cannot be obtained at project level, the financed capacity is estimated using the cost of MW per geographic location and the total proceeds allocated to the technology.
4. The annual generation megawatt hours (MWh) is calculated using geographical average capacity factors. Where information is available, country-level average-capacity factors are used – otherwise, average-capacity factors at the regional level are used.

5. IEA-grid-emission factors per country, or per region, are used to calculate the emissions that would have been produced with grid-based electricity from equivalent annual generation. IEA-grid emissions factors were chosen to promote consistency across countries, versus using national-grid-emission factors, for example.

6. In the case where the cleaner technology emits a substantial volume of GHGs, these emissions are calculated based on the annual generation (MWh) and the emission intensity of the technology. In the case of most renewable-energy technologies, these emissions are considered negligible.

7. The resulting figure, which is the difference between the emissions from the use of grid-based electricity and those of electricity from renewable sources, equals avoided emissions – the potential amount of avoided emissions when substituting grid electricity with electricity from renewable sources.

8. The results are presented on an annual and lifetime basis.

Impact Bond Proceeds GHG Emissions:

1. Impact-bond issuer and proceeds information is gathered; for example, type of technology financed, allocation of proceeds per technology, geographic location, and project-specific information such as renewable-energy-capacity installed, green-building certification achieved, or rail-length constructed. If data gaps occur, AIM engages with the issuer to gather further information.
2. If the issuer discloses project GHG-emissions data of a high quality, these are used. If the issuer does not adequately disclose project emissions, estimates are made based on the best information available. ISS ESG makes a GHG estimate regardless of whether the company discloses project emissions or not and this is also used as a reference for quality-checking emissions disclosures.
3. GHG estimates are made based on the best information available. If data is available, project-level calculations are made. If project-specific data is lacking, technology-level information is used.
4. GHG estimates are allocated to the green-bond framework, proportional to the investment's share of total project financing. The results are presented on an annual and lifetime basis.

About ISS ESG

ISS ESG is the responsible investment arm of Institutional Shareholder Services Inc, the world's leading provider of environmental, social and governance solutions for asset owners, asset managers, hedge funds and asset servicing providers. With more than 30 years of corporate governance expertise and 25 years of providing in-depth responsible-investment research and analytics, ISS ESG has a unique understanding of the requirements of institutional investors. With its comprehensive offering of solutions, ISS ESG enables investors to develop and integrate responsible investing policies and practices, engage on responsible investment issues, and monitor portfolio company practices through screening solutions. It also provides climate data, analytics and advisory services to help financial market participants understand, measure and act on climate-related risks across all asset classes.

¹ CO₂ equivalent, abbreviated as CO₂e is a metric measure used to compare the emissions from various greenhouse gases on the basis of their global-warming potential (GWP), by converting amounts of other gases to the equivalent amount of carbon dioxide with the same global warming potential.

WACI methodology

As outlined in the Understanding GHG Metrics section, the Weighted Average Carbon Intensity (WACI) is a Task Force on Climate-related Financial Disclosures (TCFD)-recommended carbon-intensity metric used to measure the portfolio's exposure to GHG-intensive issuers.

We calculate the WACI of our portfolios and estimate WACI for the Bloomberg Global Aggregate Bond Index, to provide further context to our portfolio's performance. Both portfolio and benchmark WACI calculations follow the same methodology, which is further outlined in the next sections.

A key change in our methodology this year is that, while previous reports just presented an aggregate WACI figure, we have decided to also include separate WACI figures for corporates and sovereign-related issuers for the portfolio WACI. This is to address the fundamentally different methodological and data challenges related to companies and sovereign-related issuers. We define these two categories as follows:

Sovereign-related issuers: central governments/ treasuries and regional/local governments. This definition fully aligns with the definition of "Treasury" and "Sovereign" issuers from the Bloomberg Fixed Income Classification System (BCLASS), and partially aligns with its definition of "Local Authority".¹

Corporates: all other entities.

We also provide an aggregated WACI, which combines portfolio sovereign and corporate WACIs, for comparison with the estimated aggregated benchmark WACI.

TCFD reporting (scope 1 and 2)	
Aggregated WACI (tCO ₂ e/US\$m)	corporate scope 1 and 2 WACI + sovereign WACI (production-based approach)
Corporate WACI (tCO ₂ e/US\$m revenue) ³	$\sum_i \left(\frac{\text{current value of investment}_i}{\text{current portfolio value}} \times \frac{\text{issuer's scope 1 and 2 GHG emissions}_i}{\text{issuer's US$m revenue}_i} \right)$
Sovereign WACI (tCO ₂ e/PPP GDP US\$m) ⁴	$\sum_i \left(\frac{\text{current value of investment}_i}{\text{current portfolio value}} \times \frac{\text{country's GHG emissions (production-based approach)}_i}{\text{issuer's US$m revenue}_i} \right)$
SFDR reporting (scope 1, 2 and 3) ²	
Aggregated WACI (tCO ₂ e/US\$m)	corporate scope 1, 2 and 3 WACI + sovereign WACI (territorial approach)
Corporate WACI (tCO ₂ e/US\$m revenue) ³	$\sum_i \left(\frac{\text{current value of investment}_i}{\text{current portfolio value (US$m)}} \times \frac{\text{issuer's scope 1,2 and 3 GHG emissions}_i}{\text{issuer's US$m revenue}_i} \right)$
Sovereign WACI (tCO ₂ e/PPP GDP US\$m) ⁴	$\sum_i \left(\frac{\text{current value of investment}_i}{\text{current portfolio value (US$m)}} \times \frac{\text{country's GHG emissions (territorial approach)}_i}{\text{country's PPP-adjusted GDP US$m}_i} \right)$

Table 1: Formulas used to derive TCFD WACI and SFDR-equivalent metrics. Based on: TCFD, Implementing the Recommendations of the Task Force on Climate-related Financial Disclosures, 2017; Joint Committee of the European Supervisory Authorities, Final Report on draft Regulatory Technical Standards, 2021; PCAF, draft new methods for public consultation – For financial institutions measuring and reporting scope 3 category 15 emissions, 2021

¹ Bloomberg, Bloomberg Fixed Income Index Methodology, 2021. Available at: <https://assets.bbhub.io/professional/sites/27/Fixed-Income-Index-Methodology.pdf>

² SFDR carbon metrics' denominators are in EUR. We are reporting these based on USD this year to enable an easier comparison with the TCFD-aligned metrics. However, we will report EUR-denominated metrics from our impact report for 2022 holdings once SFDR reporting becomes mandatory.

³ Corresponding SFDR metric name: GHG intensity of investee companies (tCO₂e/

EURm revenue).

⁴ Corresponding SFDR metric name: GHG intensity of sovereigns (tCO₂e/EURm GDP). SFDR requires country scopes 1, 2 and 3 emissions to be covered, but does not specify the approach to be taken for sovereign emissions accounting. The territorial approach meets this coverage requirement. Additionally, the official SFDR metric does not specify whether GDP should be computed on a nominal, real or PPP-adjusted basis. The latter has been selected to align with PCAF recommendations.

Corporate WACI

- For each corporate-issued bond held in the portfolio or benchmark, the issuer is mapped to the most relevant entity for emissions reporting. This is an important step as, while in some cases the issuer coincides with the entity reporting emissions, in other cases bonds are issued by specific financing subsidiaries or subsidiaries of companies that only report emissions at group/parent level.
- Issuer scope 1, 2 and 3 GHG emission-intensity data (by revenue) is collected for each bond for the calendar year 2020, where available, or 2019. Where possible we take reported emissions data, but if absent we take estimated emissions, both types of data are supplied from one of our leading climate data partners, S&P Trucost. Reported or estimated scope 2 emissions reflect location-based emissions, which leads to more conservative figures compared to using markets-based emissions.
- For bonds where emissions data is available, the sum of scope 1 and 2 or scope 1, 2 and 3 GHG intensities for TCFD and Sustainable Finance Disclosure Regulation (SFDR) metrics respectively are multiplied by each bond's portfolio or benchmark annual average weight. The weighted intensities are then aggregated at the portfolio/benchmark level to produce the final corporate WACI figure.
- Corporate WACI coverage is determined by summing up portfolio/benchmark annual average weights for bonds covered by the WACI aggregated figure.

Sovereign WACI

- Sovereign-related entities are identified through the following screening process, using a combination of Bloomberg Fixed Income Classification System (BCLASS), security types, and manual checks:
 - Issuers classified as "Treasury", "sovereigns" or, "Local Authority" according to the BCLASS) Level 2 are identified.
 - Bonds from issuers classified as "Local Authority" for which the security type is classified as "sovereign Debt", "Govt", and "Local/Regional Govt Debt" are manually checked to screen out any entities that are not local/regional government authorities, but are entities majority owned by local authorities.
- All sovereign-related issuers (both at national and sub-national level) are mapped to their relevant country and are then assigned country-level emission intensities (tCO₂e/Purchase Power Parity-adjusted GDP) for calendar year 2020, based on data provided by S&P.
- Sovereign emission intensities are calculated both using a production-based and a territorial approach to emissions accounting. The territorial approach is aligned with the SFDR requirements for calculating the "GHG intensity of sovereigns" metric as it covers the equivalent of scope 1, 2 and 3 emissions, as outlined by Partnership for Carbon Accounting Financials (PCAF).¹
 - Country emissions used in the production-based approach cover production-related emissions from domestically consumed, as well as exported goods

¹ According to PCAF's "Draft new methods for public consultation – For financial institutions measuring and reporting scope 3 category 15 emissions", emissions covered in the territorial approach can be mapped to the GHG Protocol's emissions scopes as follows: scope 1 emissions are equivalent to domestic production emissions excluding emissions from exports, scope 2 emissions are equivalent to emissions from imports and scope 3 emissions to emissions from exports.

and services. This scope aligns with the UNFCCC's definition of territorial emissions adopted for annual national GHG inventories. There is a lack of broad consensus around whether country emissions from land-use, land-use change, and forestry (LULUCF) should be accounted for in emissions reporting, given high data uncertainty, high annual fluctuations, and impacts on a country's total emissions. For our calculations, we have aligned with PCAF's recommendation to include LULUCF in production-based emissions figures.²

- Country emissions used in the territorial approach cover production-based emissions, plus emissions linked to imports.
- Country Purchase Power Parity-adjusted (PPP) GDP: PPP-adjusted GDP is used as the denominator for country emission intensity as opposed to nominal or real GDP to facilitate comparisons of country outputs without taking into account the effects of market exchange rates, in line with PCAF recommendations.³ PPP-adjusted GDP, measured in current international US\$, is calculated by dividing a country's nominal GDP in local currency by the PPP exchange rate.⁴
- For all sovereign-related bonds where emission intensity data is available, emission intensity is multiplied by portfolio/benchmark annual average weight and then aggregated to produce the final sovereign WACI figure.
- Sovereign WACI coverage is determined by summing up portfolio/benchmark annual average weights for bonds covered by the sovereign WACI aggregated figure.

Aggregated WACI

- While not required by either TCFD nor SFDR, we report aggregated WACI figures for our portfolios and for the Bloomberg Global Aggregate Bond Index to provide:
 - Scope 1 and 2 aggregated WACI figure – determined by summing the scope 1 and 2 corporate WACI and the production-based sovereign WACI. According to PCAF's proposed classification, the production-based WACI can be approximated to covering the GHG Protocol's definition of scopes 1 and 3 emissions. However, this metric has been selected for scope 1 and 2 aggregated WACI as it is a key standardised metric used to capture a country's emissions produced within its territorial boundaries and aligned with annual national emission inventory requirements.
 - Scope 1, 2 and 3 aggregated WACI – derived by adding up scope 1, 2 and 3 corporate WACI and territorial sovereign WACI.

About S&P Global Trucost

Since 2000, S&P Global Trucost has been providing data on multi-asset-class entities relating to climate change, natural-resource constraints, and broader ESG factors, including environmental performance profile encompassing carbon emissions and other pollutant impacts, water use, and natural-resource dependency.

² PCAF, Draft new methods for public consultation – For financial institutions measuring and reporting scope 3 category 15 emissions, 2021. Available at: <https://carbonaccountingfinancials.com/files/consultation-2021/pcaf-draft-new-methods-public-consultation.pdf>

³ Ibid.

⁴ <https://www.imf.org/external/pubs/ft/weo/faq.htm>

Issuer GHG emissions footprint methodology

Beyond WACI, we also calculate other issuer GHG metrics for our portfolios following TCFD and SFDR recommendations/requirements.

These metrics have only been calculated for companies and not for sovereign-related issuers, in line with TCFD and SFDR metrics definitions. The table below summarises the formulae we used to calculate carbon metrics.

TCFD reporting (scope 1 and 2)	
Scope 1 GHG emissions (tCO ₂ e)	$\sum_n \left(\frac{\text{current value of investment}_i}{\text{issuer's EVIC or total equity+debt}} \times \text{issuer's scope 1 GHG emissions} \right)$
Scope 2 GHG emissions (tCO ₂ e)	$\sum_n \left(\frac{\text{current value of investment}_i}{\text{issuer's EVIC or total equity+debt}} \times \text{issuer's scope 2 GHG emissions} \right)$
Total carbon emissions (tCO ₂ e)	$\sum_n \left(\frac{\text{current value of investment}_i}{\text{issuer's EVIC or total equity+debt}} \times \text{issuer's scope 1 and 2 GHG emissions} \right)$
Carbon footprint (tCO ₂ e/US\$m)	$\frac{\sum_n \left(\frac{\text{current value of investment}_i}{\text{issuer's EVIC or total equity+debt}} \times \text{issuer's scope 1 and 2 GHG emissions} \right)}{\text{current portfolio value US$m}}$

TCFD reporting (scope 1,2 and 3)	
Scope 1 GHG emissions (tCO ₂ e)	$\sum_n \left(\frac{\text{current value of investment}_i}{\text{issuer's EVIC or total equity+debt}} \times \text{issuer's scope 1 GHG emissions} \right)$
Scope 2 GHG emissions (tCO ₂ e)	$\sum_n \left(\frac{\text{current value of investment}_i}{\text{issuer's EVIC or total equity+debt}} \times \text{issuer's scope 2 GHG emissions} \right)$
Scope 3 GHG emissions (tCO ₂ e)	$\sum_n \left(\frac{\text{current value of investment}_i}{\text{issuer's EVIC or total equity+debt}} \times \text{issuer's scope 3 GHG emissions} \right)$
Total carbon emissions (tCO ₂ e)	$\sum_n \left(\frac{\text{current value of investment}_i}{\text{issuer's EVIC or total equity+debt}} \times \text{issuer's scope 1,2 and 3 GHG emissions} \right)$
Carbon footprint (tCO ₂ e/US\$m)	$\frac{\sum_n \left(\frac{\text{current value of investment}_i}{\text{issuer's EVIC or total equity+debt}} \times \text{issuer's scope 1,2 and 3 GHG emissions} \right)}{\text{current portfolio value US$m}}$

Table 2: Formulas used to derive other carbon metrics. Based on: TCFD, Implementing the Recommendations of the Task Force on Climate-related Financial Disclosures, 2017; Joint Committee of the European Supervisory Authorities, Final Report on draft Regulatory Technical Standards, 2021; PCAF, draft new methods for public consultation – For financial institutions measuring and reporting scope 3 category 15 emissions, 2021

Some methodological considerations are outlined below:

1. The metrics attribute GHG emissions across the total capital structure of a company, which enables both shareholders and bondholders to account for issuer-level GHG emissions attributable to their equity/fixed income portfolios, while avoiding double counting. We follow PCAF's definitions of capital structure for listed and non-listed companies.¹
2. For listed companies, the capital structure is represented by the Enterprise Value Including Cash (EVIC), as per the definition provided by the EU Technical Expert Group on Sustainable Finance: EVIC "is defined as the sum of the market capitalisation of ordinary shares at fiscal year end, the market capitalisation of preferred shares at fiscal year end, and the book values of total debt and minorities' interests. No deductions of cash or cash equivalents are made to avoid the possibility of negative enterprise values."²
3. For private companies, capital structure is calculated as the sum of total company equity and debt, as disclosed within the issuer's balance sheet.
4. Data for GHG emissions, EVIC for listed companies, and total equity and debt (for private companies) was taken from S&P Capital IQ.
5. Values are aggregated as per the formulae in the table.



¹ PCAF, The Global GHG Accounting and Reporting Standard for the Financial Industry, 2020. Available at: <https://carbonaccountingfinancials.com/files/downloads/PCAF-Global-GHG-Standard.pdf>
² Report on Benchmarks, p 11, December 2019.

Greenhouse-gas metrics index

Project metrics

Project metrics reflect the carbon abatement impact of the projects funded by the bond proceeds held in the portfolio. These metrics are calculated based on a bottom-up assessment, conducted in partnership with ISS ESG.

Metric	Units	Emission scopes covered	Project or Issuer	Description	Report page reference
Scope 1 and 2 emissions	(tCO ₂ e/yr)	1 and 2	Project	Scope 1 and 2 emissions associated with funded projects, aimed at measuring the operational carbon footprint of projects.	p30
Scope 1, 2 and 3 emissions	(tCO ₂ e/yr)	1, 2 and 3	Project	The scope 1, 2 and 3 emissions associated with funded projects. This metric captures the carbon footprint from operations, as well as construction and material use of the funded projects.	p30
Emissions avoided per year	(tCO ₂ e/yr)	1 and 2	Project	Avoided emissions associated with the projects funded by the bonds held, compared to a reasonable baseline.	p30
Carbon Yield™ – emissions avoided per US\$ invested per year	(tCO ₂ e/US\$m/yr) (tCO ₂ e/US\$1,000/yr)	1 and 2	Project	Avoided emissions associated with the funded projects, normalised by the portfolio value. It allows investors into the fund to understand the avoided emissions associated with their investment.	p27
GHG emissions savings	%	1 and 2	Project	% emissions savings from the funded projects compared to a state where reasonable baseline projects had been implemented. This figure puts the emissions avoided per year into context.	p27

Issuer metrics

Issuer metrics highlighting the portfolio's carbon profile based on the issuers held. Disclosed metrics include those recommended by both TCFD and SFDR. All metrics calculated using S&P data.

Metric	Units	Emission scopes covered	Project or Issuer	Description	Alignment	Report page reference
Scope 1 emissions	(tCO ₂ e)	1	Issuer	Absolute scope 1 emissions associated with the fund based on an ownership approach, ¹ using the issuer's adjusted enterprise value. ²	SFDR Input to TCFD carbon metrics ³	p31
Scope 2 emissions	(tCO ₂ e)	2	Issuer	Absolute scope 2 emissions associated with the fund based on an ownership approach, using the issuer's adjusted enterprise value.	SFDR Input to TCFD carbon metrics ³	p31
Scope 3 emissions	(tCO ₂ e)	3	Issuer	Absolute scope 3 emissions associated with the fund based on an ownership approach, using the issuer's adjusted enterprise value.	SFDR	p31
Corporate Weighted Average Carbon Intensity of portfolio (WACI)	(tCO ₂ e/US\$m revenue)	1 and 2	Issuer	A carbon-intensity metric of the fund based on held corporate issuers' scope 1 and 2 emissions intensity (by revenue) and portfolio weights. It allows for comparison across portfolios and benchmarks.	TCFD – recommended metric for Asset Managers	p31 and 38
GHG intensity of investee companies	(tCO ₂ e/US\$) or per EUR m	1, 2 and 3	Issuer	A carbon-intensity metric of the fund based on held corporate issuers' scope 1, 2 and 3 emissions intensity (by revenue) and portfolio weights. It allows for comparison across portfolios and benchmarks.	SFDR ⁴	p31 and 38
Sovereign Weighted Average Carbon Intensity (WACI)	(tCO ₂ e/PPP-adjusted GDP)	1 and 2	Issuer	A carbon-intensity metric of the fund based on held sovereign and sub-sovereign issuers' production-based emissions (domestic + export emissions) intensity (by PPP-adjusted GDP). It allows for comparison across portfolios and benchmarks.	TCFD	p31 and 38
GHG intensity of sovereigns	tCO ₂ e/PPP-adjusted GDP	1, 2 and 3	Issuer	A carbon-intensity metric of the fund based on held sovereign and sub-sovereign issuers' production-based emissions and imports emission intensity (by PPP-adjusted GDP). It allows for comparison across portfolios and benchmarks.	SFDR ⁴	p31 and 38
Total Carbon Emissions	tCO ₂ e	1 and 2	Issuer	Absolute GHG emissions associated with the fund. Metric reflecting an issuer's scope 1 and 2 GHG emissions are allocated to a portfolio based on an ownership approach, using the issuer's adjusted enterprise value.	TCFD	p31
Total Carbon Emissions	tCO ₂ e	1, 2 and 3	Issuer	Absolute GHG emissions associated with the fund. Metric reflecting an issuer's scope 1, 2 and 3 GHG emissions are allocated to a portfolio based on an ownership approach, using the issuer's adjusted enterprise value.	SFDR	p31
Carbon footprint	(tCO ₂ e/\$m)	1 and 2	Issuer	Total scope 1 and 2 emissions for a portfolio normalised by the market value of the fund. This metric expresses the amount of GHG emissions associated with an investment of 1 million (of the relevant currency) into a portfolio. It allows for comparison across portfolios and benchmarks.	TCFD	p31
Carbon footprint	(tCO ₂ e/\$m)	1, 2 and 3	Issuer	Total scope 1, 2 and 3 emissions for a portfolio normalised by the market value of the fund. This metric expresses the amount of GHG emissions associated with an investment of 1 million (of the relevant currency) into a portfolio. It allows for comparison across portfolios and benchmarks.	SFDR ⁴	p31

¹ Under the ownership approach, emissions from a held issuer are allocated to the portfolio based on the share of an issuer's total capital structure owned by the portfolio. For example, if a portfolio's investment in a given issuer accounts for 0.1% of the issuer's total capital structure (equity + debt), then 0.1% of the issuer's scope 1 and 2 GHG emissions are allocated to the portfolio.

² Adjusted Enterprise Value, or Enterprise Value Including Cash (EVIC), is the sum of the market capitalisation of ordinary shares at fiscal year end, the market capitalisation of preferred shares at fiscal year end, and the book values of total debt and minorities' interests. No deductions of cash or cash equivalents are made to avoid the possibility of negative enterprise values. In the case of bonds from private companies, an issuer's total equity and debt is used instead of EVIC.

³ Not included among TCFD carbon footprinting and exposure metrics, however it is an input to deriving Total Carbon Emissions and Carbon Footprint metrics.

⁴ This year we have reported it per \$m to be consistent with the reporting of the other carbon metrics. SFDR requires it to be reported per EURm and we will add that metric in next year when SFDR reporting becomes compulsory on some of our funds.



Glossary and disclaimers

Glossary

ADB – Asian Development Bank	IRENA – International Renewable Energy Agency
AFD – Agence Française de Développement	ISS – Institutional Shareholder Services
AIM – Affirmative Investment Management	JFM – Japan Finance Organisation for Municipalities
ASEAN – Association of Southeast Asian Nations	KPI – Key Performance Indicator
BCLASS – Bloomberg Classification System	kW – Kilowatt (1,000 watts)
BREEAM – Building research establishment environmental assessment method	kWh – Kilowatt hour
CBI – Climate Bonds Initiative	LO – Lombard Odier
CAF – Corporación Andina de Fomento	LOIM – Lombard Odier Investment Managers
CCUS – Carbon capture, utilisation and storage	LULUCF – Land use, land-use change and forestry
CERs – Certified Emissions Reductions	MW – Megawatt (1,000,000 watts)
CICERO – Centre for International Climate and Environmental Research Oslo	MWh – Megawatt hour
CMIP5 – Coupled Model Intercomparison Project Phase 5	MWp – Megawatt peak
COP – Conference of the Parties	NIB – Nordic Investment Bank
CO₂ – Carbon dioxide	NZAM – Net Zero Asset Managers Initiative
CO₂e – Carbon dioxide equivalent	OECD – Organisation for Economic Co-operation and Development
CRREM – Carbon Risk Real Estate Monitor	PAE – Potential avoided emissions
CSP – Concentrated solar power	PAI – Principal Adverse Impacts
DNSH – Do no significant harm	PCAF – Partnership for Carbon Accounting Financials
EIB – European Investment Bank	PPP – Purchasing power parity
ESG – Environmental, Social and Governance	PRI – Principles for Responsible Investment
EU – European Union	PV – Photovoltaic
EURm – Euros (€) millions	S&P – Standard & Poor
EVIC – Enterprise value including cash	SDGs – UN Sustainable Development Goals
GCB – Global Climate Bond Fund	SDS – Sustainable Development Scenario
GDP – Gross Domestic Product	SEB – Skandinaviska Enskilda Banken AB
GHG – Greenhouse gas	SFDR – Sustainable Finance Disclosure Regulation
GIZ – Deutsche Gesellschaft für Internationale Zusammenarbeit	SME – Small and medium-sized enterprises
GRI – Global Reporting Initiative	STEPS – Stated Policies Scenario
GW – Gigawatt (1,000 megawatts)	TCFD – Taskforce on Climate-Related Financial Disclosures
GWh – Gigawatt hour	tCO₂e – Tonnes of carbon dioxide equivalent
ha – Hectare	UN – United Nations
IBRD – International Bank for Reconstruction and Development	UNFCCC – United Nations Framework Convention on Climate Change
ICMA – International Capital Markets Association	UNGC – United Nations Global Compact
IEA – International Energy Agency	UNIDO – United Nations Industrial Development Organisation
ILO – International Labour Organisation	UNITAR – United Nations Institute for Training and Research
IMP – Impact Management Project	VIC – Value including cash
IPCC – Intergovernmental Panel on Climate Change	WACI – Weighted Average Carbon Intensity

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