DNB Asset Management AS

A company in the DNB Group

DNB Renewable Energy

Sustainable enablers of a better environment

Photo: Unsplash

Article 9 fund

All companies/ product categories assessed by **ISS-ESG** demonstrate **PAE**

We have delivered on our target to engage with **80%** of the portfolio (by weight) on science-based **net zero target** setting[5)]

55%
(up from 35%) of the portfolio has committed to or set a **Science-based target**[1)]

38%
of the portfolio has set a **net-zero target**[3)]

38 meetings (either dedicated ESG or covering ESG) on **151 topics** from September 2021 - September 2022

74%
EU Taxonomy eligibility[2)]

SDG alignment to **SDG 7** (affordable and clean energy), **SDG 9** (industry, innovation and infrastructure), **SDG 11** (sustainable cities and communities) and **SDG 12** (responsible consumption and production)[4)]

transparent

ENG LABEL 2022

ENVIRONMENT
LUXFLAG Label [6)]

1) Based on MSCI ESG + self-collected data
2) Based on BBG data (as at 30.09)
3) Up from 19%) (based on MSCI ESG + self-collected data)
4) SDG alignment for companies using SDG alignment to demonstrate positive contribution (as at 30.09.2022)
5) By 30.09.2022
6) Valid between 01.01.2022–31.12.2022

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1 Reflections from PMs

From left to right: Stian Ueland (Portfolio Manager), Laura McTavish (Analyst), Christian Rom (Portfolio Manager).

Photo: Stig B. Fiksdal

It has been another eventful year for the environmental investor. Extended droughts and heat waves convinced even more people that the climate is changing and impacting businesses and communities. At the same time the war in Ukraine has led to a temporary comeback for coal in Europe, but also elevated energy security as a driver for renewables and energy efficiency. No country wants to be reliant on another for energy. Lastly, the US passed the curiously labelled Inflation Reduction Act, which we expect to significantly accelerate demand for wind, solar, hydrogen, biofuels, and energy efficient technologies.

Pundits claim we live in uncertain times and companies tell us visibility is low. Investing is, of course, the art of decision-making under uncertainty; is the undertaking more difficult now than in the past? We think decisions improve when we focus on what we consider our core skill: bottom-up security selection from the environmental universe. Within this theme we build a portfolio of companies positioned to grow earnings at high rates in the future. In this context, we are not sure uncertainty is higher than normal. Competitive advantage, opportunity to invest in growth, and equity valuation remain key to shareholder returns. Geopolitics and interest rates are, of course, highly uncertain, but was "the cycle" ever predictable?

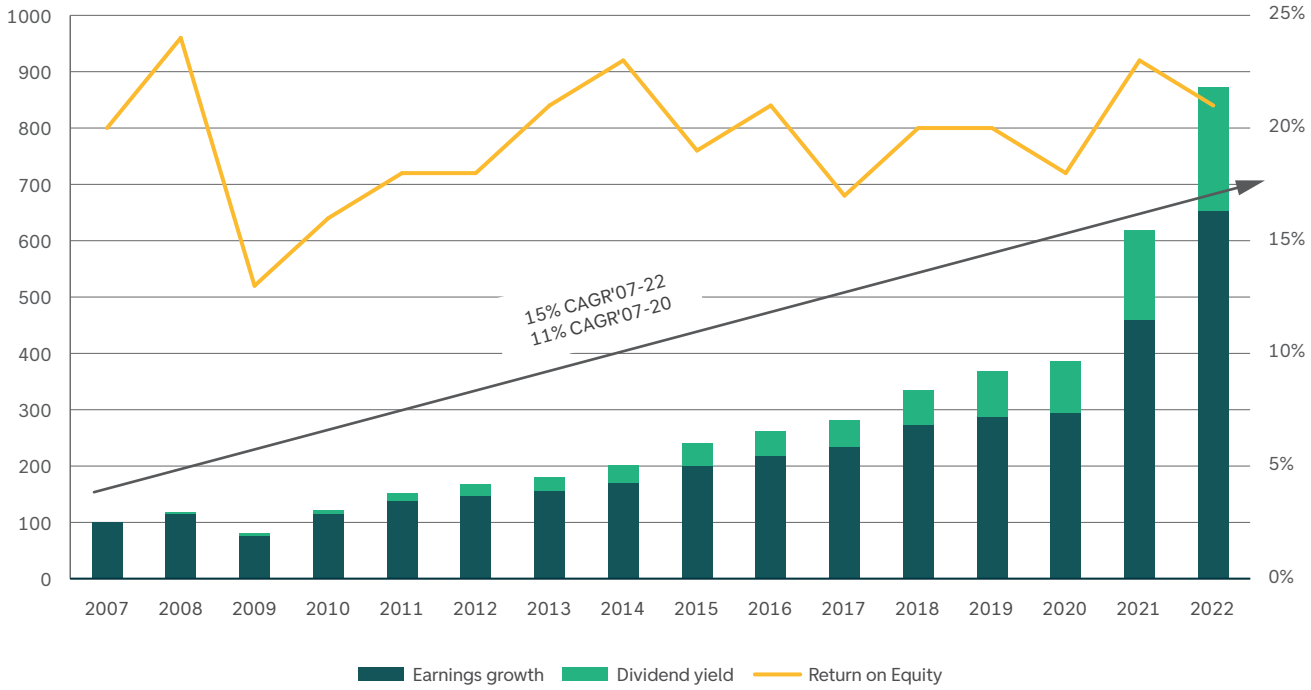
We know little about future macroeconomic events, including the unknown unknowns. Instead, we manage such uncertainties through portfolio construction. Diversification is one way to achieve this and what you should expect is a broad exposure to the environmental theme, including renewable energy, electrification, and resource efficiency. Moreover, we seek a balance between emerging and more established businesses. Pure play cleantech companies

may be at the forefront of building technological solutions with high impact. Incumbents, on the other hand, may transfer existing know-how to drive growth from solving environmental issues. Enabling emissions reductions is at the core of the Renewable Energy portfolio.

More generally, we strive to contain style tilts to reduce adverse impact from popular investment trends. The goal is to construct the portfolio in such a way that security selection drives performance over time. The environmental theme is still in its early innings and fast-growing businesses make up a large part of the universe. Many cleantech companies invest today to build a moat in the future and roughly half of the portfolio holdings have growth attributes. We also think statistically inexpensive equities offer interesting opportunities and balance the exposure to companies with a richer valuation. Roughly one fifth of the portfolio is currently invested in companies with value attributes.

Competitive advantage and culture are particularly strong drivers of share prices over the long term. Roughly one third of the portfolio is invested in companies that have shown quality over long periods of time in their financial statements. This subset has demonstrated impressive ability to grow earnings and dividends historically, as shown in figure 1. Importantly, we believe these companies have underappreciated opportunities to capitalise on the environmental theme by applying their technologies toward a better environment.

Figure 1. Historic development of earnings, dividends and return on equity for a subset of the portfolio with quality attributes (covering roughly one third of the fund today)
Figures in USDm



This report discusses our work on the potential avoided emissions of the portfolio. The companies covered potentially avoided more CO_2 than they emitted. Importantly, the analysis only covers 67% of the portfolio, and there are two reasons for this. First, companies were omitted due to their complex product portfolios: we find it near impossible, especially as outsiders, to estimate the avoided emissions of companies with tens of thousands of different products sold across the world. Second, we left out one company (Signify) as we find the avoided emissions methodology inadequate in describing its environmental impact. We discuss Signify in Chapter 7 and find the case informative for readers interested in the challenges with measuring environmental impact.

The fund has a sustainable investment objective and is therefore regulated by Article 9 of the Sustainable Finance Disclosure Regulation (SFDR). The work presented in this report aims to explain our approach towards attaining our sustainable investment objective. The asset management industry is facing an environment of changing regulations and increased scrutiny around sustainability claims. Indeed, when it comes to deciding between green and non-green investments, we feel to some extent that regulations are running ahead of the data. However, we also find that work performed towards this end improves our understanding of the portfolio companies and their impact on the environment. The goal of any process is to improve investment decisions, whether we live in certain or uncertain times.

2 The time for action is now

"Climate change is already happening – "climate impacts are already being felt through increased frequency and magnitude of extreme weather events from heatwaves, droughts, flooding, winter storms, hurricanes and wildfires" (IPCC, 2021)

"The global mean temperature for 2021 was about 1.11 (+/-0.13)C above the 1850–1900 baseline" (WMO, 2022)

"It is unequivocal that human influence has warmed the atmosphere, ocean and land" (IPCC, 2021)

"For creatures living in areas that are classed as vulnerable biodiversity hotspots, their already very high extinction risk is expected to double as warming rises towards 2C, and to go up tenfold if the world goes to 3C" (IPCC, 2022)

"Over 40% of the world's population are "highly vulnerable" to climate" (IPCC, 2022)

"Monitored wildlife populations - mammals, birds, amphibians, reptiles and fish - have seen a devastating 69% drop on average since 1970, according to WWF's Living Planet Report" (LPR) 2022)

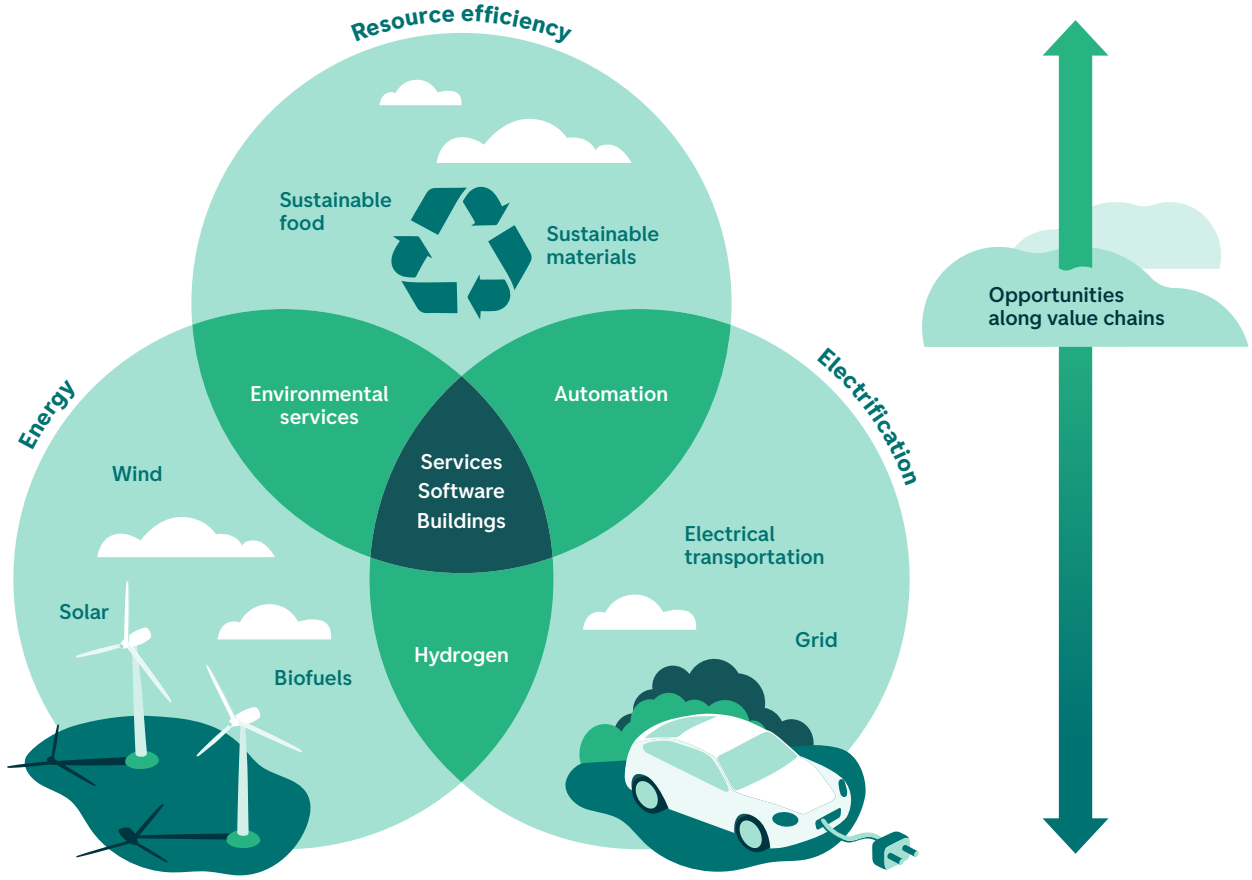
"At current levels of global warming, the world is already at risk of triggering six dangerous tipping points, and risks increase with each tenth of a degree of warming."

(Science, 2022)

3 Our investment universe

To avoid catastrophic, irreversible damage to our planet, the IPCC estimates that we need to halve global emissions by 2030 and reach net-zero by 2050. The next ten years will be critical to delivering an orderly transition in line with the goals of the Paris Agreement. We believe that the companies providing solutions, who understand the drivers behind net zero, and which are prepared for regulatory change, will be well positioned to benefit from the economic opportunities arising from the transition to the low carbon economy.

Figure 2. Our investment universe



A BROAD INTERPRETATION OF THE ENVIRONMENTAL THEME

Before conducting any financial fundamental evaluation of equities, we investigate the environmental angle of a company and seek to understand if the business is significantly driven by enabling a better environment or not. The result is a broad universe of companies with exposure to the environmental theme.

The "obviously green" companies are a natural part of the universe. There is strong consensus that these companies and sectors contribute directly and positively to environmental challenges. An example is renewables – a large part of the decarbonisation story will come from renewables and technology that already exists today. In addition, nascent technology, such as hydrogen, carbon capture and storage, and recycling/circularity solutions still need to be developed and scaled and will also play a significant role. The availability of cheap renewable energy also drives electrification, which enables emissions reductions within hard-to-decarbonise sectors, such as steel production.

However, we also see opportunities within industries providing "less obvious" solutions. These are the companies that deliver products and services that enable emissions reductions along value chains. We believe that some of the most exciting opportunities exist within this category, as you can often find "hidden gems" with attractive business models and strong competitive advantage. The International Energy Agency (IEA) estimates that annual clean energy investment needs to more than triple by 2030 to around 4USDtrn to reach net zero by 2050[1)]. The companies providing or enabling solutions will therefore experience tailwinds in their financials as the world economy makes investments to decarbonise the global capital stock. They are also well-placed to benefit from structural drivers from policy, shifting focus from investors, and increased societal expectations on climate.

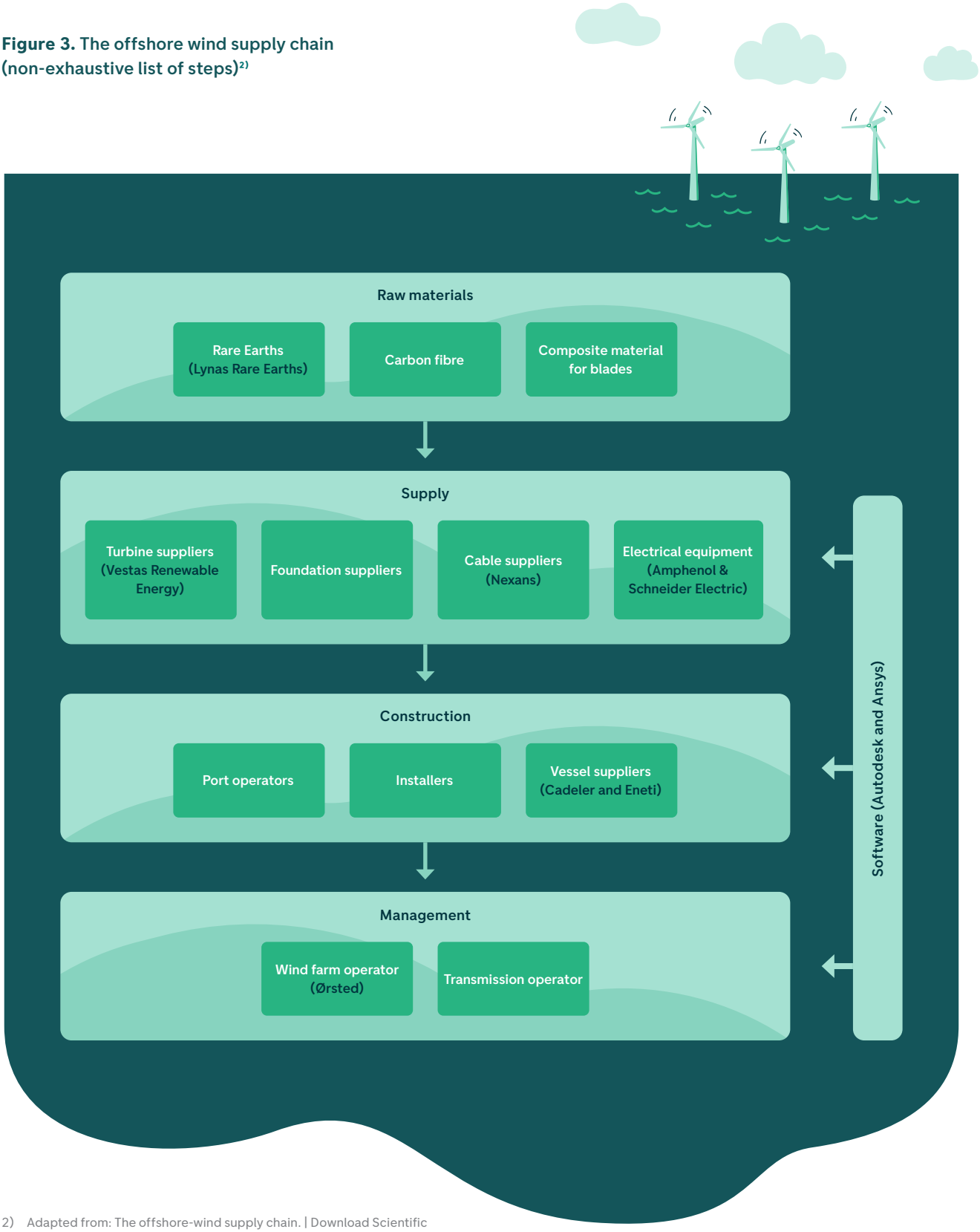
The role of "less obvious" solutions can be better understood by looking at an example. Figure 3 outlines examples of current portfolio holdings and which part of the offshore wind supply chain they feed into. Note that this is not an exhaustive list of all steps in the supply chain. In this example, the renewable energy that is generated is the part of the value chain which can be considered "obviously green". However, the companies providing critical inputs that facilitate the renewable energy generation are also interesting to look at. Without these, it would not be possible to generate this renewable energy.

A DYNAMIC UNIVERSE

Our understanding of the environmental theme is not static – it will continue to evolve over time as expectations, policy and technology develop. Further, there are numerous ways to measure if a company is significantly driven by enabling a better environment. We can look at percentages of revenue, profits, assets, research and development (R&D), capital expenditure (CAPEX), and the sum-of-the-parts value which provide climate and environmental benefits. Data availability may also influence how our view progresses, as even though this information is potentially useful for any investment candidate, in practice, the data will not always be available. Data availability will also be somewhat dependent on which stage of the business lifecycle the company is in. For instance, in earlier phases, such as start-up and growth, R&D and CAPEX will be most relevant. For mature businesses, profits become more important. We also steer clear of businesses with controversial environmental angles, as we see repricing of climate risk as being negatively skewed for such companies. Moreover, clients investing in environmental fund strategies typically do not want this exposure.

1) Net Zero by 2050 – Analysis - IEA

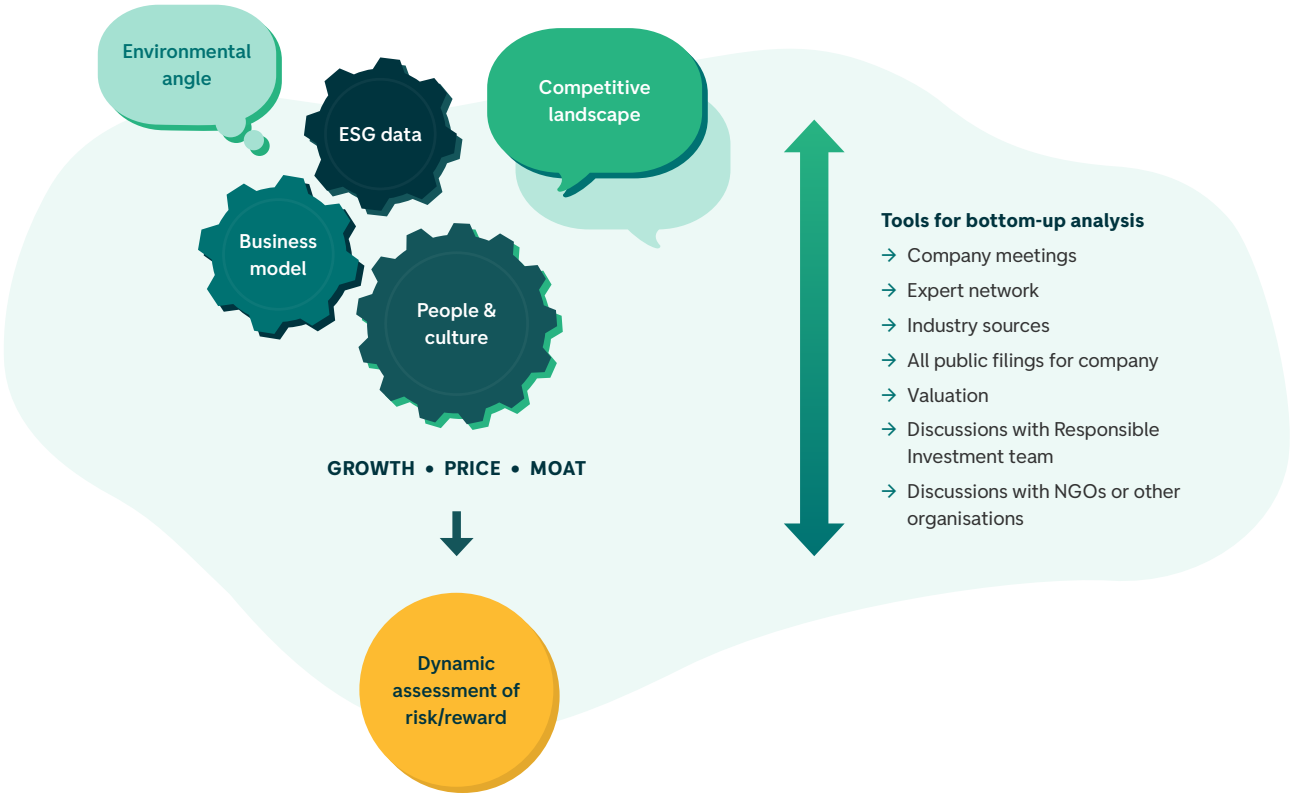
Figure 3. The offshore wind supply chain (non-exhaustive list of steps)[2)]



2) Adapted from: The offshore-wind supply chain. | Download Scientific Diagram (researchgate.net)

4 Our investment process

Figure 4. Our investment process



INVESTMENT PHILOSOPHY AND PROCESS

We believe investment returns are driven by a thorough assessment of competitive advantage, growth opportunities and intrinsic value relative to the share price. The investment process is a set of tools to evaluate and understand these most important aspects of the investment philosophy.

The process is bottom-up and driven by a curiosity for businesses models, and, more broadly, an appetite for understanding how the world works. In practice it includes a review of all public company filings and various industry sources. Beyond this we particularly enjoy expert networks and company meetings as they yield good chances of understanding corporate culture. Valuation is another part of the process worth highlighting. We enjoy building models, thinking through scenarios, and comparing our views with those prevailing in the market.

We believe in holding equities for the long term and are attracted to companies with proven value creating capabilities. Over time we believe such companies, properly identified, will continue to generate attractive returns. We also see opportunities with shorter time horizons, for example where investor psychology leads to outsized reactions in the share price. Lastly, we observe a diverse and dynamic investment universe, and we strive for a process that is flexible and adaptable to change.

ESG IS INTEGRATED INTO THE INVESTMENT PROCESS

Environment, Social and Governance (ESG) considerations permeate our investment process. They are not separated from the rest; how could they be? It seems obvious to us that a proper assessment of an investment's risks and rewards must include these considerations.

Addressing climate challenges is at the core of our investment mandate. However, we also believe that other ESG elements are important drivers of value creation. Companies that have a sustainable approach to its employees, corporate culture, products and services, supply chain and corporate governance will attract talent over time, which will in turn develop the best products and services, which will attract customers, which in turn attracts investors. This continuous process results in a lasting competitive advantage for those that are best-in-class.

For example, we believe that businesses offering solutions to lower their customer's carbon footprint often face attractive growth prospects. Additionally, if their environmental innovation velocity is faster than competition, they are likely to grow their competitive advantage in the future. Such findings guide our view on revenue growth and expectations for return on capital.

Culture is another source of competitive advantage. For example, we seek to understand whether the company's sustainability department serves mainly reporting requirements or whether they actively partake in the business' core activities. Do management set the right example by having a thorough understanding of the environmental drivers of the business' products and services? Are salespeople able to sell based on a wholistic value proposition that includes lower emissions or resource intensity?

Figure 5. Our ESG integration process

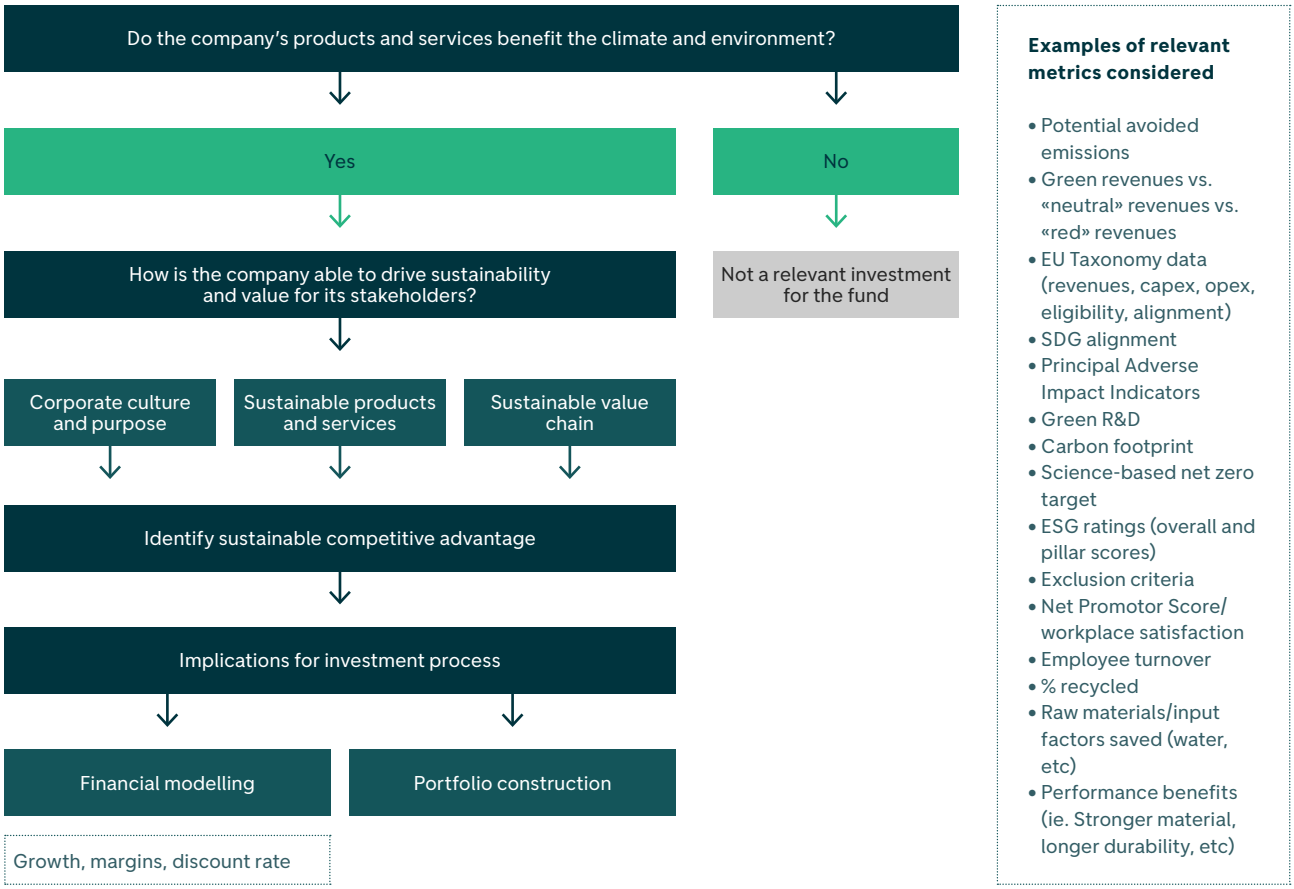


Figure 6. An assessment of Signify using our ESG integration framework[3)]

The flow chart below demonstrates the process by way of a company example.

Do the company's products and services benefit the climate and environment?

Lighting represents a significant portion of global electricity consumption (the UNFCCC estimates that approximately 15% of global power consumption and 5% of worldwide GHG emissions). Signify is the world leader in lighting products, systems, and services, with a strong focus on energy-efficient LED and connected technologies, enabling smarter and more efficient use of lighting. This efficiency leads to CO_2 savings, particularly in regards to the product-use phase. The company states that helping its customers to reduce emissions through energy efficiency is a vital aspect of its innovation process. Signify's climate action revenues accounted for 61-64% of total revenues in 2021, and it has set a target for 72% by 2025. It has also made the energy efficiency criteria to quality for climate action revenues more stringent. Depending on lumen output, products must now have a lumious efficacy of 85 lm/W to 110 lm/W, which is 20-65% higher than the previous threshold.

- EU Taxonomy self-reported eligibility: 45%
- EU Taxonomy self-reported capex: 51%
- EU Taxonomy self-reported opex: 44%
- Carbon footprint (MSCI ESG): 42.90 tCO2e/USDm
- Carbon reduction target: ..... Yes
- Science-based target: ..... Yes
- Carbon-neutral target: ..... Yes
- Net zero target: ..... No
- ESG score (MSCI ESG): 7.8
- SDG alignment (S&P Trucost + DNBAM internal methodology): ..... alignment with SDG 7 and 11
- In breach with DNB Standard for Responsible Investments, additional exclusion criteria from DNB AM, or additional exclusion criteria from FNG Label?: ..... No

Yes

No

How is the company able to drive sustainability and value for its stakeholders?

Corporate culture and purpose

Opportunities:

- The company has a strong sustainability culture, driven from the top. For example, the CEO initiated Signify's zero plastic packaging campaign, despite being told that this would increase costs.
- The company believes that its sustainability strategy and profile is key to ensuring competitive advantage - it attracts talent and is a selling point towards customers.
- All employees are subject to sustainability KPIs, not just executive management.
- Employee Net Promotor Score (company-reported): 30 in 2021, up from 18 in 2019.
- Customer Net Promotor Score: 44 in 2021, up from 41 in 2020.
- Reports employee turnover breakdown (also including voluntary/involuntary turnover).
- Signify Foundation provides access to off-grid communities (7.2m people affected since 2017, targeting 10m by 2025).

Sustainable products and services

Products and services

Opportunities:

- Brighter lives revenues (lights that increase food availability, enables people to see (safety & security) and feel and function better (health & well-being): 25-27% in 2021 (target 32% by 2025)
- Circular revenues: 21-25% in 2021 (target 32% by 2025)
- Climate actions revenues (energy-efficient solutions): 61-64% in 2021 (target 72% by 2025).
- Sales of LED-based products (as a % of sales): 83% in 2021, up from 80% in 2020.
- Designed a new light spectrum that helps maintain a balanced ecosystem by displaying minimal attraction for insects, enabling bats to behave the same way as it is was full darkness and preventing lit roads from acting as borders or obstacles to be crossed at night (minimises negavtive impact on biodiversity).

Sustainable value chain

Opportunities:

- The company works closely with its suppliers and has a programme where suppliers receive scores based on their performance. The programmes cover assessment and development of supplier sustainability performance (audit and training) and responsible minerals sourcing. The Supplier Sustainability Declaration is derived from the Responsible Business Alliance (RBA) Code of Conduct and sets out the standards and behaviours it requires from its suppliers and their suppliers. This covers labour, health and safety, environment, ethics and management systems. For example, if they respond to the CDP, disclose scope 1 and 2 emissions, and/or report efficiency gains they receive extra points in the programme.
- Signify also audits suppliers on an ongoing basis, and will work with them/conduct training if their performance begins to weaken.

3) Kilde: Signyfy

Figure 6. An assessment of Signify using our ESG integration framework continued

Risks:
- High employee turnover (54% in 2021 vs. 32% in 2020, driven mostly by turnover in factory and distribution staff in Mexico).
- Production of lighting products may be labour intensive and MSCI ESG flags that the company's plan to build a leaner central organisation may reduce headcount, leading to workforce complexities. MSCI ESG also flags that Signify lacks industry-common benefits in its compensation structures and lags peers in workforce management. These questions will be addressed in future dialogue with the company.

- Innovation spend is higher than the top 1-3 competitors' combined. Sustainable innovation (as a % of adjusted R&D spend was 93% in 2021, up from 85% in 2020.

Risks:
- Conventional lighting accounted for around 17% of revenues in 2021.

Operations

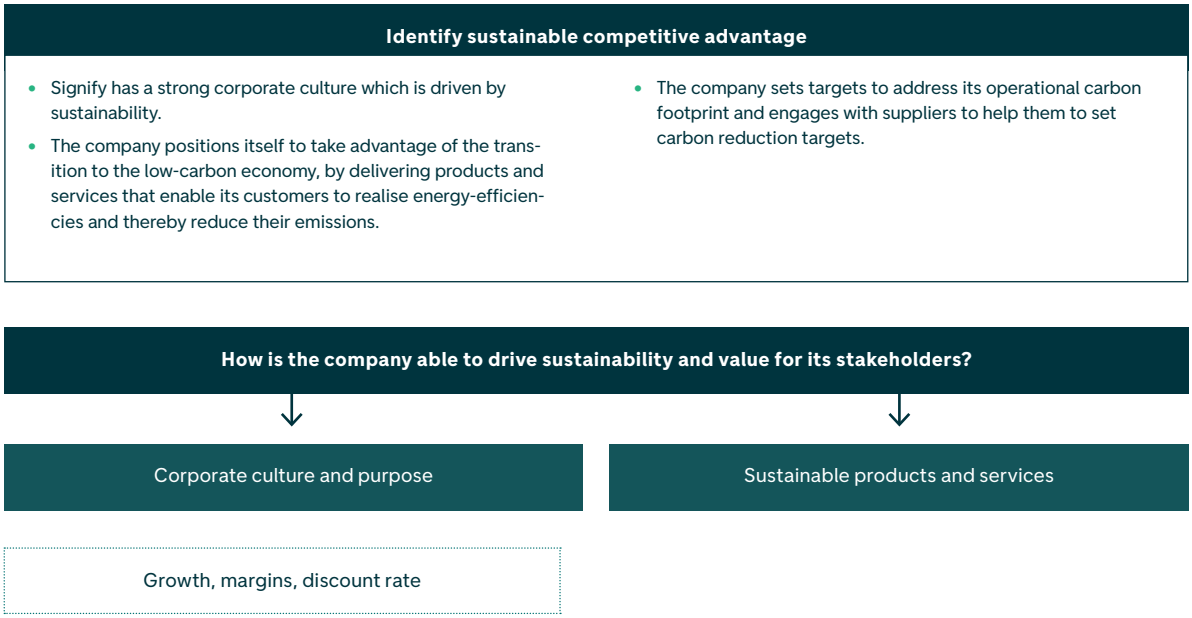
Opportunities:
- SBTi approved 1.5C target – reduce scope 1 and 2 emissions by 70% and scope 3 emissions (use of product) by 30% by 2030 (baseline 2015). The company offsets remaining emissions. In sum, it's operations are carbon neutral.
- Signify sources 100% renewable electricity.
- Safety performance indicator: 0.17 per 100 FTEs in 2021, down from 0.22 in 2020. There were zero fatalities in 2021.
- Board-level oversight of climate change and climate change is integrated into Board remuneration.
- 25% women in leadership in 2021 (as % of total leadership roles) (target 34%).
- Reports in line with the TCFD recommendations and describes climate-related risks and opportunities in reporting.
- 89% of total waste was recycled in 2021, and 100% of metal and glass waste.
- Packaging policy requires the use of 80% recycled paper, and up to 50% of recycled content when plastic is used.
- Plastic-free consumer packaging in most markets (target to eliminate plastic in consumer packaging by the end of 2022).
- Has used the Integrated Biodiversity Assessment tool to identify potential presence in key biodiversity areas or protected areas. The results show that no sites are located in a protected area, but one is located in a key biodiversity area.
- Total waste to landfill: <1% in 2021

Risks:
- 30% of emissions are offset (as at 2020) and Signify have worked with South Pole on this commitment. The company publicly announces that all offsets must be Verra, Gold Standard or UN CDM. However, it does not specify the mix of compensation credits vs. neutralisation credits, nor does it disclose the prices of offsets purchased. Increased transparency in this regard is encouraged.
- Scope 3 emissions are high and difficult to mitigate.
- One site located in a key biodiversity area.

- Progress will be monitored until compliance is achieved.
- Business will be stopped if they don't comply.
- Contract length is not determined by the score the supplier requires.
- In 2021, Signify focused extra training on carbon emissions and reduction activities related to the CDP Supply Chain programme, and initiated a new SBT programme to help suppliers implement SBTs and drive GHG reductions in its supply chain. Signify is one of the first CDP Supply Chain members to start engaging Chinese suppliers on the importance of SBTs to reduce carbon emissions. Nominated four high-impact China-based suppliers, of which two have now formally signed to the SBTi commitment letter.
- 98% supplier sustainability performance in 2021, down from 99% in 2020. Minimum performance rate is 90% and targets 95%.
- Supplier development and quality activities including topical training sessions, industry working groups such as EPRM and RBA, and the commodity management, supplier quality and procurement engineering functions.

Risks:
- Signify's Supplier Sustainability Declaration identifies working hours, wages and benefits, occupation safety and emergency preparedness as achieving between 40-60% conformance. In the case of occupation safety, there was a decrease from 2020.

Figure 6. An assessment of Signify using our ESG integration framework continued



5 Close collaboration with our Responsible Investment team

Successful and thorough integration of ESG into the investment process also requires a close collaboration with DNB Asset Management's (DNB AM) Responsible Investment team. DNB AM's Responsible Investment team is unique, with both broad ESG and climate change competency, as well as portfolio management experience. This experience provides a basis for interesting discussions between teams, and a mutual understanding of how ESG drives value creation.

Read more about how the Responsible Investment team works in our 2021 Annual Report on Responsible Investments.

DNB AM'S RESPONSIBLE INVESTMENT TEAM

Lise Børresen
Head of Responsible Investments

Lise was hired as Head of RI during the fall of 2022, after working as an Analyst in the team since 2021. Her main responsibilities have been related to the oceans, climate change and our work with the TCFD. Lise has also supported the integration of ESG into our fixed income portfolio. Lise holds an MSc in Finance from the Norwegian School of Economics. She has previously worked as an Investment Analyst at the Gjensidige Foundation.

Karl G. Høgtun
Senior Analyst

Karl is recognised in active ownership and governance. He conducts several dialogues with companies related to tax and anti-money laundering. He is also responsible for our work with biodiversity. Karl holds an MBA and MA of International Management and has worked with Norwegian and global capital markets since 1990 in several roles.

Henry Repard
Senior Analyst

Henry leads our work on climate (including TCFD and net zero 2050) and water. Henry holds an MSc from University College London. He has experience as an Analyst from KLP Asset Management and the Carbon Disclosure Project (CDP) before joining the team in 2018.

Ingrid Aashildrød
Analyst

Ingrid works with human rights, value chains, health and food systems. Ingrid holds a double master's degree from NHH and the University of Sydney Business School. She has previously worked as an Analyst at Nordea before joining the team in 2021.

Peder Heiberg Sverdrup
Junior Analyst

Peder works with screening, analysis and reporting. He is also involved in our work on human rights. He holds an MA (Hons) from the University of St Andrews. He has previously worked at Norfund before joining the team in the summer of 2022.

HOW HAS THE APPROACH TO ESG EVOLVED OVER TIME?

ESG integration has not always been central to how asset managers manage sustainability risks and opportunities. The understanding, practices and actors involved have changed and developed since DNB AM first started working with responsible investments in 1988. Previously, the focus has been on excluding "sin stocks", with tobacco, gambling, pornography, weapons, and alcohol considered unethical and consequently excluded from investment universes. ESG has since shed its activist image and is considered mainstream in investment management today. Reporting and integrating ESG risks and opportunities into investment decision making has also been incorporated into regulation, for example through the action points of the European Union's (EU) Action Plan on Sustainable Finance.

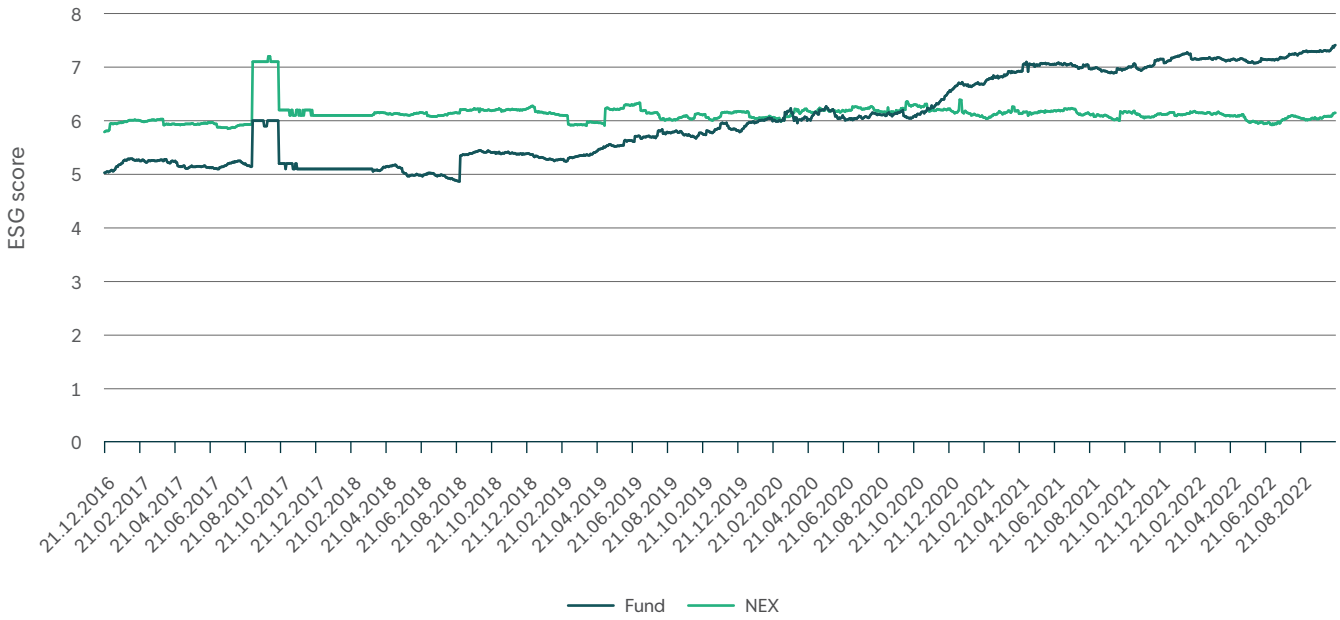
ESG METRICS

ESG score

ESG scores provide a measure of a company's performance with respect to ESG issues. Though some providers seek to include factors to capture opportunities, our opinion is that ESG scores are primarily an indicator of risk. We believe that other metrics and frameworks are better suited to capture opportunities, such as potential avoided emissions.

The challenges associated with ESG scores are well known. Issues include large-cap bias, disclosure bias, backward-looking focus and low correlation between data providers. DNB Renewable Energy does not target an ESG score higher than its benchmark. The portfolio management team is of the view that ESG scores should not be a hinderance for investing per se, especially in cases where the team has identified a strong environmental case for the company. Nonetheless, low ESG ratings are flagged in regular screening, and are a catalyst for dialogue where expectations on sustainability work and reporting is communicated. The portfolio managers believe that this is a good tool for pushing companies in a positive direction, and to benefit from an increased ESG rating over time. Since January 2021 we have experienced a consecutively higher ESG score in the fund compared to the benchmark and the broad MSCI World Index. We can't promise that this will always be the case, but the trend over the past year is in line with our expectations given the new team/ strategy's direction of travel.

Figure 8. Development of ESG rating over time (as at 30.09.2022)[4)]



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FORWARD-LOOKING METRICS

In recent years, the metrics used to understand ESG-related risks and opportunities have become increasingly sophisticated. The conversation has turned from historical, backward-looking data, such as carbon footprint, to metrics that seek to tell us something about direction of travel.

EU Taxonomy

The EU Taxonomy is a classification system that intends to prevent greenwashing and help investors to identify environmentally sustainable economic activities. As of the 01.01.2022, asset managers were required to disclose the proportion of **taxonomy-eligible** investments of financial products that pursue the climate objectives designated in the EU Taxonomy Regulation. By January 2023, asset managers will be required to disclose the proportion of **taxonomy-alignment** for article 8 and 9 funds in line with the Sustainable Finance Disclosure Regulation (SFDR). However, data availability remains challenging. We performed eligibility screening for DNB Renewable Energy as at the 30.09.2022 using data from Bloomberg. The results show that approximately 74% of portfolio holdings were determined to be eligible (i.e., activities that are eligible to be tested for alignment) using data covering 100% of the portfolio. This is a high result. By comparison, the MSCI World (as at the 30.09.2022) shows 38% taxonomy-eligibility, with 100% coverage. As data availability improves and additional layers of screening are applied (threshold, Do No Significant Harm, and minimum social safeguards), the taxonomy-alignment for the portfolio is expected to be considerably lower than taxonomy-eligibility. In general, levels of taxonomy-alignment are expected to be low across the board. Nonetheless, we still expect the portfolio to have a higher taxonomy-alignment than the MSCI World due to its focus on sustainable enablers for a better environment.

According to the regulation, company-reported data should be prioritised, and estimates should be avoided. However, coverage of company-reported taxonomy-alignment for the fund remains low – 16% coverage (covering four companies) as at 30.09.2022 using data from Bloomberg. One reason for current low coverage is that companies in scope are not required to report on their taxonomy alignment until January 2023. However, we expect the taxonomy-alignment of the portfolio to increase alongside increased taxonomy reporting by investee companies, both for the climate objectives and the four remaining environmental objectives of the EU Taxonomy Regulation. Impacts stemming from the scope of the framework should also be considered – not all sectors are covered, and certain technologies or components that play an enabling role may not be sufficiently captured. It is therefore important to note that the EU taxonomy alone may not be adequate to measure the sustainable or environmental qualities of a portfolio.

Scenario analysis

An important recommendation from the Taskforce on Climate-related Financial Disclosures (TCFD) is to conduct scenario analysis. DNB AM's Responsible Investment team has been working on scenario analysis since 2018.

To assess Climate Value-at-Risk (CVaR), we used data from MSCI ESG that utilises the AIM-CGE Integrated Assessment Model (IAM), as this IAM allows for assessment under more than one warming scenario. MSCI ESG offers a range of scenarios and Shared Socioeconomic Pathways (SSP) to conduct CVaR assessments. SSPs are sets of standardised pathways representing different socio-economic challenges faced when balancing demands for climate mitigation and adaptation. The description of the IAMs and the warming scenario(s) under which they were assessed is outlined in the as outlined in table 1.

Table 1. Description of Integrated Assessment Models covered by MSCI ESG

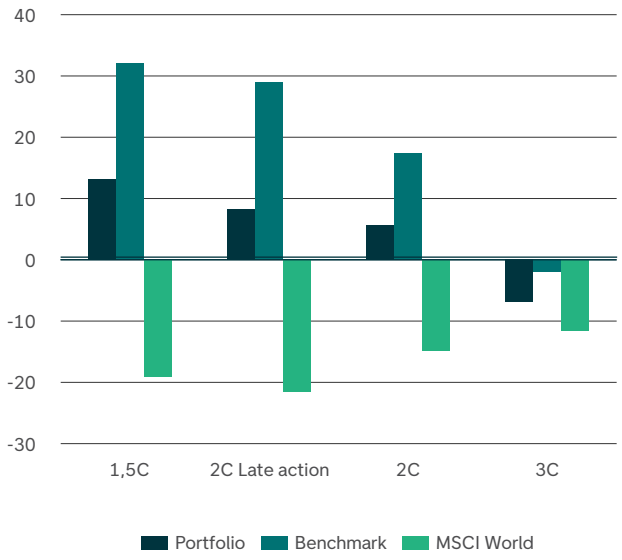
Integrated Assessment Model	Model description	Warming scenario assessed
AIM-CGE	"Computable general equilibrium model, which covers all economic goods while considering production factor interactions in a closed economy. The trade of goods and services is also considered"[5].	1.5°C, 2°C, 3°C
GCAM	"A dynamic-recursive model with technology-rich representations of the economy, energy sector, land use and water linked to a climate model that can be used to explore climate change mitigation policies including carbon taxes, carbon trading, regulations and accelerated deployment of energy technology."	2°C
IMAGE	"A comprehensive integrated modelling framework of interacting human and natural systems. The model identifies socio-economic pathways, and projects the implications for energy, land, water and other natural resources, subject to resource availability and quality.[6]	2°C
REMIND	"An energy-economy general equilibrium model linking a macro-economic growth model with a bottom-up engineering-based energy system model. It covers twelve world regions, differentiates various energy carriers and technologies and represents the dynamics of economic growth and international trade."[7]	2°C

5) From: MSCI ESG Report, "Introduction to Climate Scenarios", August 2020.
6) Integrated Assessment Model Consortium Wiki, Accessed 15 January 2022
7) Integrated Assessment Model Consortium Wiki, Accessed 15 January 2022

MSCI ESG provides an assessment of both average and aggressive physical risk scenarios. The average scenario represents the most likely impact of climate change in the assessed period. The aggressive scenario, which is derived from the 95th percentile of the cost distribution of estimated extreme weather costs, is considered a worst-case scenario. Both scenarios utilise a Business-as-Usual (BAU) approach in modelling physical impacts due to lag within the climate system. The IAM selected does not impact the physical risks and opportunity results.

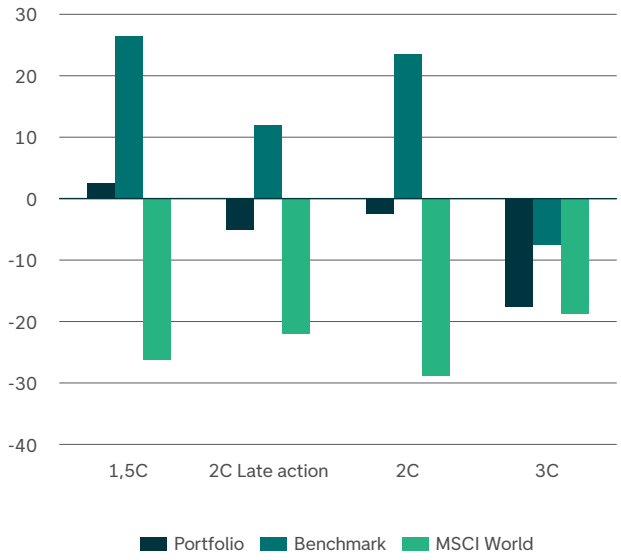
An assessment of DNB Renewable Energy as at 30.09.2022 reveals the following results:

Figure 9. CVaR under 1.5C, 2C late action, 2C and 3C scenarios using AIM-CGE (average)[8)]
Per cent



8) Source: ©2022 MSCI ESG Research LLC. Reproduced by permission

Figure 10. CVaR under 1.5C, 2C late action, 2C and 3C scenarios using AIM-CGE (aggressive)[9)]
Per cent



9) Source: ©2022 MSCI ESG Research LLC. Reproduced by permission

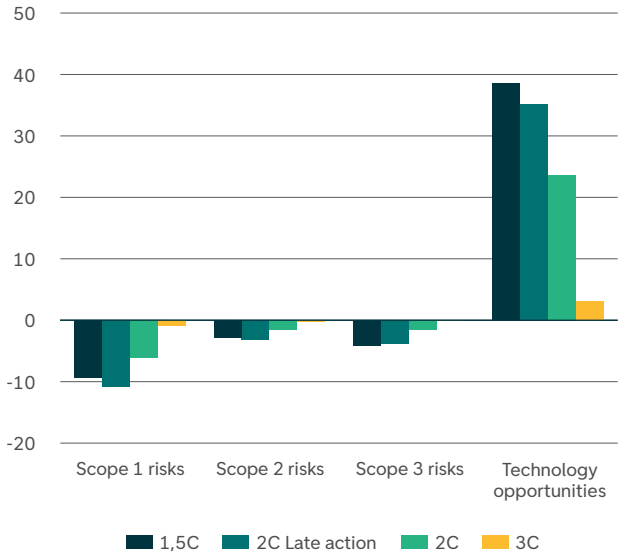
A positive CVaR implies that the overall portfolio-level impact will result in profits under the scenario, whereas a negative CVaR implies that there will be portfolio-level costs associated with the scenario.

The drivers of positive or negative CVaR can be investigated further by examining the transition risks and opportunities and physical risks and opportunities.

As demonstrated in figure 11, technology opportunities are an important driver of positive CVaR for overall transition risks and opportunities under all scenarios. This broadly aligns with our expectations, as the fund specifically invests in sustainable enablers of a better environment. By comparison, the contribution of technology opportunities to the MSCI World's total CVaR in a 1.5C scenario is 9.7% versus DNB Renewable Energy's 38.5%.

Figure 11. CVaR transition risks and opportunities under 1.5C, 2C late action, 2C and 3C scenarios using AIM-CGE[10)]

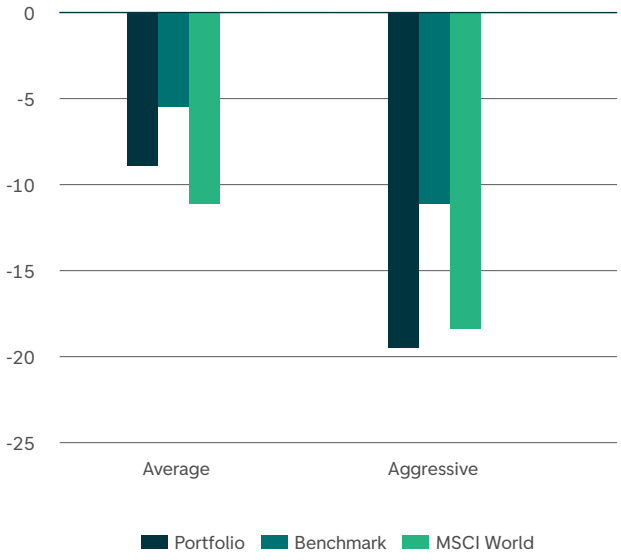
Per cent



10) Source: ©2022 MSCI ESG Research LLC. Reproduced by permission

Figure 12. Physical risks and opportunities under average and aggressive scenarios[11)]

Per cent



11) Source: ©2022 MSCI ESG Research LLC. Reproduced by permission

Physical risks and opportunities must be added to transition risks and opportunities to understand the full CVaR estimated impact. The physical risks resulting from climate change can be "event driven (acute) or longer-term (chronic) changes in climate patterns". Examples of acute physical risks can include flooding, wildfires or severe storms, while chronic risks can include sea level rises and heat waves. As demonstrated below, the aggregated physical risks and opportunities are negative for the fund, its benchmark and the MSCI world in both the average and the aggressive AIM-CGE scenarios. Naturally, asset-level regional exposure is the main driver behind differences between portfolios. For DNB Renewable Energy, extreme heat is the hazard that contributes the most to physical climate risk in both scenarios. At company level, coastal flooding in the highest risk type in the aggressive scenario. We see these results as interesting starting points for discussion with companies, to understand how they are managing these risks in the listed assets.

There are a number of factors which may have influenced the findings observed in the analysis. These include:

- Company weights in portfolios
- Sector weighting within funds (and associated greenhouse gas (GHG) emissions)
- Estimation of scope 3 emissions

Therefore, these scenario analyses are only one input into our company analysis regarding climate risk. We continually look for products and tools which can provide insight into these risks and opportunities, to ensure we are implementing a best-in-class approach.

Implied Temperature Rise

The final forward-looking metric worth noting is Implied Temperature Rise (ITR). MSCI ESG's metric aims to provide an indication of how companies and investment portfolios align to global targets. In recent months, there has been increasing interest in demonstrating the temperature

trajectory of funds. However, data providers have also received scrutiny for their methodologies. Critics question the helpfulness of such scores, given their heavy reliance on assumptions and estimates, and the preciseness of the output, providing ITR down to two decimal places of warming. This criticism prompted MSCI ESG to change its temperature scores so that they now only show warming down to one decimal place. We believe the criticisms are relevant. There are also some company-level results that are difficult to understand. For example, we believe that focusing on avoided emissions is necessary to deliver on global climate change goals, however, companies' emissions avoiding capabilities do not appear to be captured by the methodology. For example, we question whether it makes sense that independent power producers, such as Scatec and Neoen, which develop and own solar and wind, receive ITR scores of almost 3°C in the current version of the methodology. Nonetheless, this metric is interesting to keep track of, and monitor changes in over time. It may also help us to prioritise company engagements, should there be any noticeable outliers. We are also hopeful that companies' emissions-avoiding capabilities will be better captured in future iterations of the methodology as it develops over time.

REGULATION

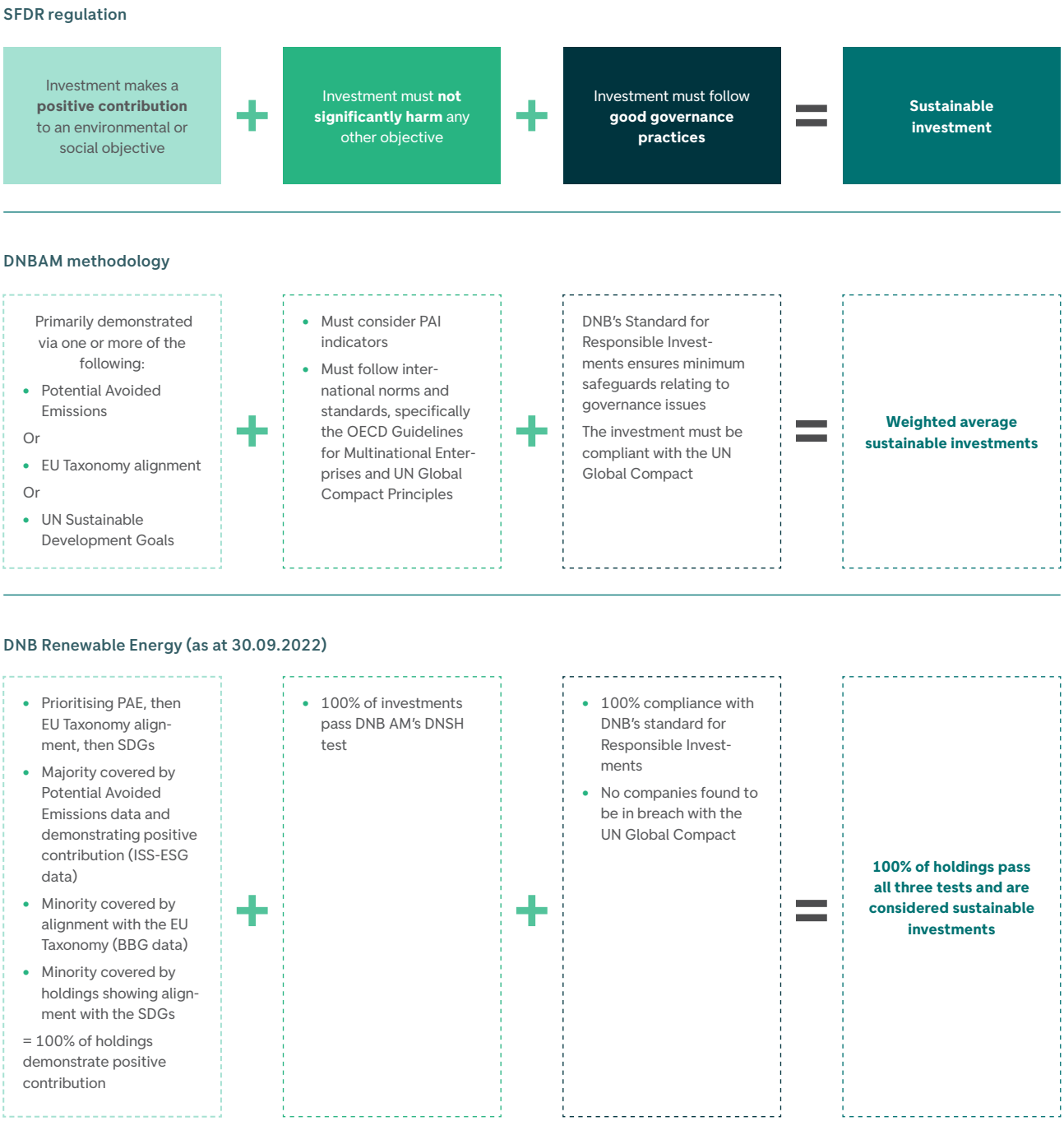
ESG-related regulatory requirements have developed quickly over the past year. In Europe, discussions have centred on whether natural gas and nuclear should be included within the EU Taxonomy, and on the effectiveness of SFDR requirements. In the United States, the Securities and Exchange Commission's (SEC) ruling on climate disclosure proposes a requirement for companies to increase their reporting on climate risk, including scope 3 data – the potential impacts have been widely debated.

A clear trend within ESG investing is the move towards increased quantification. The most direct impact for DNB Renewable Energy is the requirement to demonstrate sustainable investments as an article 9 fund under the SFDR. The regulation stipulates three steps to arrive at the conclusion that an investment is sustainable – the company must show positive contribution, it must fulfil the Do No Significant Harm (DNSH) criteria (using the Principal Adverse Impact Indicators (PAII)), and it must follow good governance practices.

Figure 13 demonstrates DNB AM's methodology for determining sustainable investment, and how this is applied for DNB Renewable Energy as an article 9 fund.

"We believe that focusing on avoided emissions is necessary to deliver on global climate change goals."

Figure 13. Determining Sustainable Investments under the SFDR



Note that the methodology outlined above is still in development due to challenges related to data availability. Clarifications from the EU Commission and the European Securities and Markets Authority (ESMA) may also influence further development.

6. Active ownership

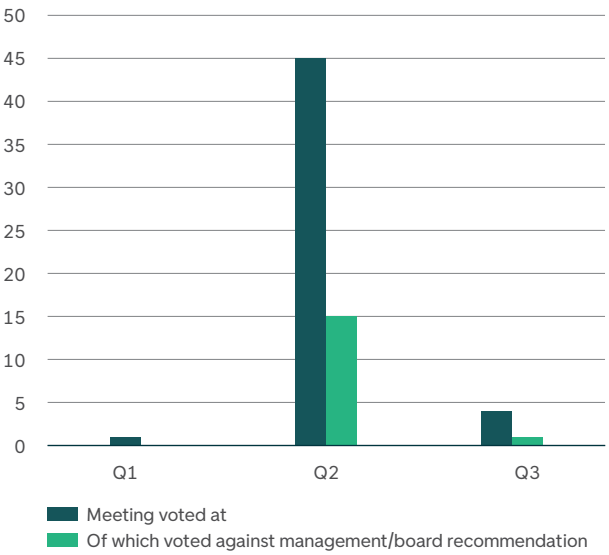
In our view, the most important tools for implementing ESG now and moving forward are ESG integration, and active ownership through engagement and voting. This said, exclusions remain important as a last resort – see appendix 9.1 for exclusion criteria that the fund applies. Chapter 4 describes how ESG is integrated into the investment process, and here we cover our active ownership approach.

VOTING

As an active owner, DNB AM exercises its voting rights as shareholders for all holdings in active portfolios and all Norwegian general meetings, as well as strategically important items and ESG-related topics. This is the case if the fund held the position at the time of the company meeting.

By the end of Q3 2022, we had voted at a total of 50 company general meetings. By comparison, during 2021 we voted at a total of 43 company general meetings by year end.

Figure 14. Number of company meetings voted at during Q1-Q3 2022



ENGAGEMENTS

Another key tool at our disposal as active owners is engagements with companies' management and sustainability teams. Our overarching goal is to influence companies to improve their practices, thereby securing long-term shareholder value and mitigating ESG risks in the best interest of our clients, as required as part of our fiduciary duty.

Company engagements may be conducted for several reasons. It may be to understand how companies' sustainability work drives competitive advantage, and how this may impact future earnings potential. It may also be to investigate potential ESG weaknesses highlighted in ESG scores, or to address controversies. In the case of the latter, milestones for engagement are defined and followed-up over time. See case study on Lenzing as an example of a company engagement.

Case study:

Company engagement with Lenzing

Photo: Unsplash

Around 90% of textile brands' emissions come from scope 3, of which 25–30% of emissions come from raw materials. Lenzing's products address this share of its customers' emissions.

Lenzing manufactures textile fibres and pulp raw materials. The fibres are primarily used by the clothing industry and to manufacture non-woven fabrics, technical textiles, furniture textiles, curtains, and towels. The company's sustainable fibre products enable emissions reductions and save water for customers along the value chain.

We reached out to the company in June 2022 to gain insight into water management, progress towards managing scope 3 emissions, and policies and processes utilised regarding sourcing, particularly with respect to Brazil. We learned the following:

Carbon emissions/Carbon reduction target - The company set a science-based target in 2019. Delivering on this requires working with the whole company and integrating climate-related thinking in all functions. This includes speaking to procurement and working with Investor Relations to understand how investors are thinking. The company also thinks about how it can support its customers and help them to achieve their own science-based targets. Regarding carbon neutral products, there are internal criteria that must be met (i.e. emissions lower than a certain threshold, 100% renewable electricity at the facility, etc). Lenzing wants to create internal competition and a drive to improve products that qualify for this product portfolio.

Lenzing has identified 200–250 textiles brands that have set or committed to science-based targets. This is used as a guide as to who to reach out to communicate the benefits of its products. Around 90% of textile brands' emissions come from scope 3, of which 25–30% of emissions come from raw materials. Lenzing's products address this share of its customers' emissions. The company notes growing interest and a positive trend for its carbon neutral fibres. The brands Lenzing works with can apply for a license to use handtags (such as the Tencel logo). They see this as an advantage because the brand is increasingly recognised by the end consumer - the end consumer knows what Tencel stands for and what it is. This increases the buying intention for customers. On avoided emissions, claims around this is what is used to market and sell branded products. I.e. Ecovero claims a 20% lower CO_2 compared to generic viscose in the market. Lenzing calculates this for all branded products where a baseline is available, but it has not quantified avoided emissions at group level. Lenzing sells product to a spinner, which makes yarn. However, commercial discussions take place with the brands, meaning that Lenzing goes to brands and communicates the advantages they would get by using Lenzing's fibres. Lifecycle Analysis (LCA) is used to support decisions. For example, it can be used when choosing which supplier to use, as this will shape the product's final footprint. It may

also influence long-term supplier relationships. Another example is within R&D - LCA is used to help compare impacts of various choices and to guide final decisions. A concrete example here is Lenzing's facility in Thailand (largest Lyocell facility in the world) - here a decision was made as to which energy source to utilise (coal, natural gas, or biomass) - biomass had a lower carbon-intensity but was more expensive. This was considered against what a potential carbon tax would add to the cost if using natural gas or coal. Lenzing tried to understand the full picture by including externalities into its decision making. In the end, the company decided to use biomass-based energy.

Biodiversity and land-use/Deforestation/Human rights and indigenous peoples' rights - Lenzing has achieved its target for physical traceability from fibre to garment using blockchain technology (target is that 100% of speciality products have achieved traceability). Traceability enables visibility throughout the whole value chain such that the end-customer can scan labels and see where the fibre comes from (H&M, etc). This has been implemented for more than 600 value chain members. Lenzing has a policy of only sourcing certified wood and pulp - 100% of product comes from certified and controlled sources. Lenzing's Brazil operations are located in the South of Brazil, far away from the Amazon. It is one of the first plantations to achieve the Forest Stewardship Council (FSC) certification in Brazil. Vertical integration ensures that the company knows that it is primarily sourcing only from farms that are certified. The mill is built at the plantation site and supplies most of the wood necessary to run the mill. Once this is fully operational, there may be a need for additional inputs, but the exact share of external inputs was not clear. Lenzing doesn't identify any noteworthy sustainability risks at its Brazilian site, as its funding is from the IFC, which requires detailed environmental and social impact assessments. To achieve FSC certification, there are also requirements (country-dependent) on how much of the plantation should be kept unchanged for biodiversity considerations/ maintain biodiversity corridors. Though some of Lenzing's fibres are 100% biodegradable, the biodegradability of the end-product may vary, as it depends on what other fibres are mixed in. Lenzing does try to influence how brands use its fibres, but Lenzing is at the beginning of the value chain, so its influence is limited. Lenzing recognises that biodiversity is one area in which it wants to improve. It plans to set targets and identify more metrics as the science progresses.

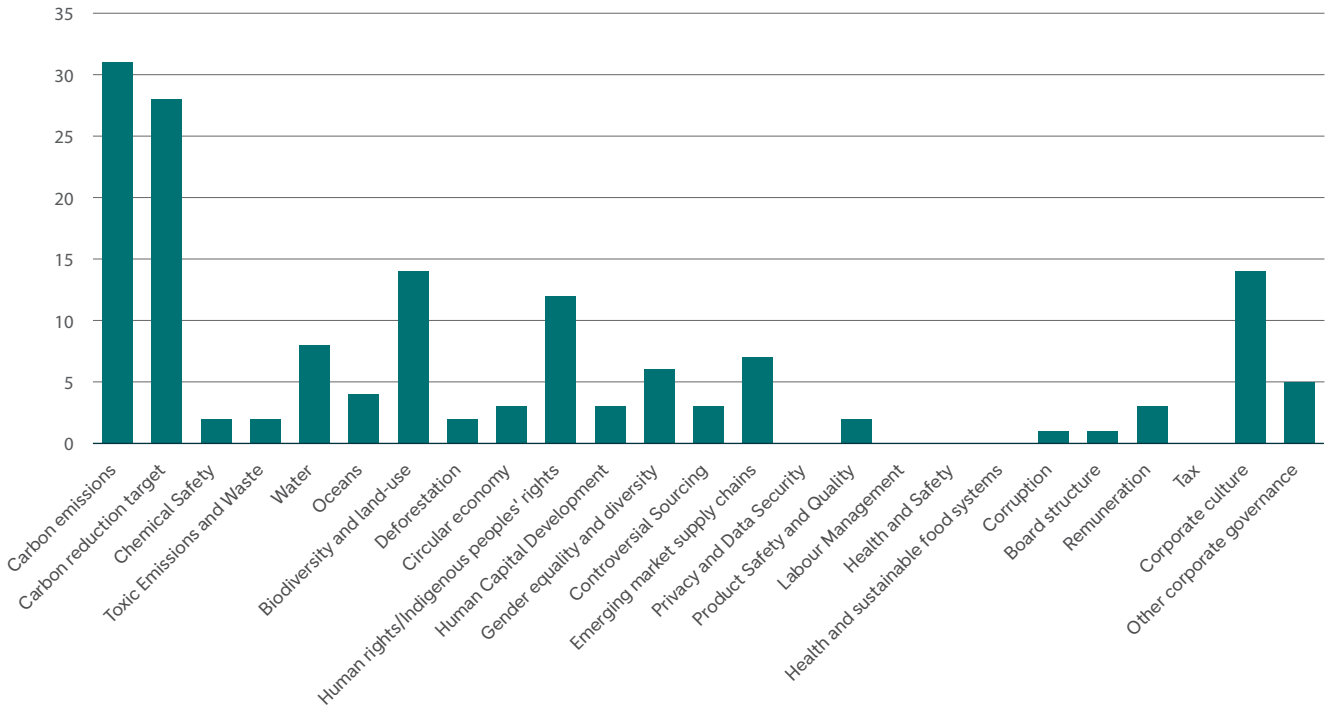
Corporate culture/gender equality and diversity - As Lenzing operates in the textiles industry, its employees are skilled and educated. As a result, everyone is paid a living wage and there are better occupational regulations, due to the nature of its business. The company is working to improve gender equality and diversity, as well as inclusion. It finds it difficult to improve female representation in particular - there are many qualified people, but it is difficult to attract them to work at its facilities. Lenzing's sustainability mission has been a driver for attracting talent, with some employees having left other companies to work for Lenzing due to its sustainability profile. However, for younger people, there is still room for improvement, given that Lenzing operates in a historically conservative sector. Lenzing is also located in rural areas, which perhaps limits/ restricts what kinds of people it can attract to work for it. The company offers hybrid working for its employees.

Water - Lenzing believes there is a mismatch between how it works and reports on water and how some ESG data providers assesses its work. It has communicated this to the relevant data provider, but the data provider continues to flag weaknesses. Our opinion is that these weaknesses do not appear warranted, as the company comprehensively describes its water management processes.

General - Sustainability is the main selling point for Lenzing, but there is still need for education, from customers to salespeople. On pricing, there is a premium for sustainable clothing, but the share of this that is attributed to sustainable fibres is small relative to the end-market price.

"The company notes growing interest and a positive trend for its carbon neutral fibres."

Figure 15. Number of dialogues per ESG topic between September 2021–September 2022



Dedicated ESG dialogues will always be conducted as a collaborative effort between the Responsible Investment team and portfolio management team. However, ESG topics are also raised in company meetings conducted solely by the portfolio management team, alongside discussions of strategy, earnings, etc. From September 2021 to September 2022, we had 38 ESG-related company engagements covering 151 topics. This is a noteworthy increase from the same period one year ago, where we engaged with companies on 79 topics.

These figures only cover direct engagement that has happened in the form of meetings with companies. In addition to the above, collaborative engagements are conducted together with Sustainalytics and through investor initiatives, such as Climate Action 100+, FAIRR, and the investor engagement on forced labour risks in the solar supply chain led by Share.

Other forms of engagement include questionnaires and discussions with peers, NGOs, or other organisations. We have had 4 such meetings between September 2021 and September 2022.

Figure 16. Other types of ESG-related engagements between September 2021–September 2022

Peer: 1
Expert: 3
Non-Governmental Organisation: 1

When looking at the topic of discussion during these 38 meetings, carbon emissions was the most-discussed topic (see figure 15). Discussions on carbon emissions include both how companies' products and services enable emissions reductions, but also how companies manage their own carbon footprint, including by setting carbon emissions reductions targets. In 2022, we have also separated out the dialogues which have specifically address carbon emissions reduction targets, as we have been tracking our progress towards our commitment to engage with 80% of the portfolio (by weight) on science-based net zero target setting.

COMMITMENT TO ENGAGE ON SCIENCE-BASED NET ZERO TARGET SETTING

Though the portfolio specifically invests in companies that demonstrate a solid ability to reduce or avoid emissions for their customers or their customer's customers, we strongly believe that these companies should also be addressing their own operational and supply chain emissions. The Science-based Targets Initiative (SBTi) considers a model that "leaves a source of emissions unbated for every volume of emissions avoided [is] not compatible with the global goal of reaching net-zero emissions at the global level". In the absence of a strong carbon mitigation strategy, the companies' activities will continue to lead to increased level of GHG emissions in the atmosphere. Such companies therefore remain exposed to transition risk. We also believe that companies striving for leadership in this area will be able to tap into this as an additional source of competitive moat over time.

In 2021, we committed to engaging with 80% of the portfolio (by weight) on science-based net zero targets starting in 2022. This engagement has included both companies that have already set net-zero targets, and those which are yet to set a target. The need for this commitment came from a realisation that many companies are now setting net zero targets, but it is necessary to investigate how these are set in order to determine the quality of the target setting. We also saw a need to collect standardised data, to ease comparison between companies. This need is also recognised by the Glasgow Financial Alliance for Net Zero (GFANZ), which was launched during Conference of Parties' (COP) 26th climate change conference in Glasgow. The coalition seek to "bring together existing and new net zero finance initiatives to broaden, deepen and raise ambition in the financial sector" and "catalyse strategic and technical coordination on steps firms need to align with a net zero future".[12)]

In association with this commitment, we worked closely with DNB AM's Responsible Investment team to develop a framework for assessing the quality of net zero targets, in order to understand company progress over time. The framework was developed based on Climate Action 100+'s (CA100) framework (to which DNB AM is a member), and inputs from other sources including the CDP, TCFD, and the SBTi. We see that our approach is also well-aligned with sell-side frameworks.

12) GFANZ.pdf (unfccc.int)

Figure 17. Framework for understanding and tracking carbon reduction targets

Targets
- Long-term, medium-term, short-term
- Unabated emissions
- Carbon offsets
- Nature-based solutions

Strategy
- Decarbonisation strategy
- Green revenues
- Avoided emissions
- Capex
- Alignment with Paris Agreement

Governance
- Review of trade associations
- Board oversight of climate change
- Remuneration
- Just transition

Reporting
- TCFD

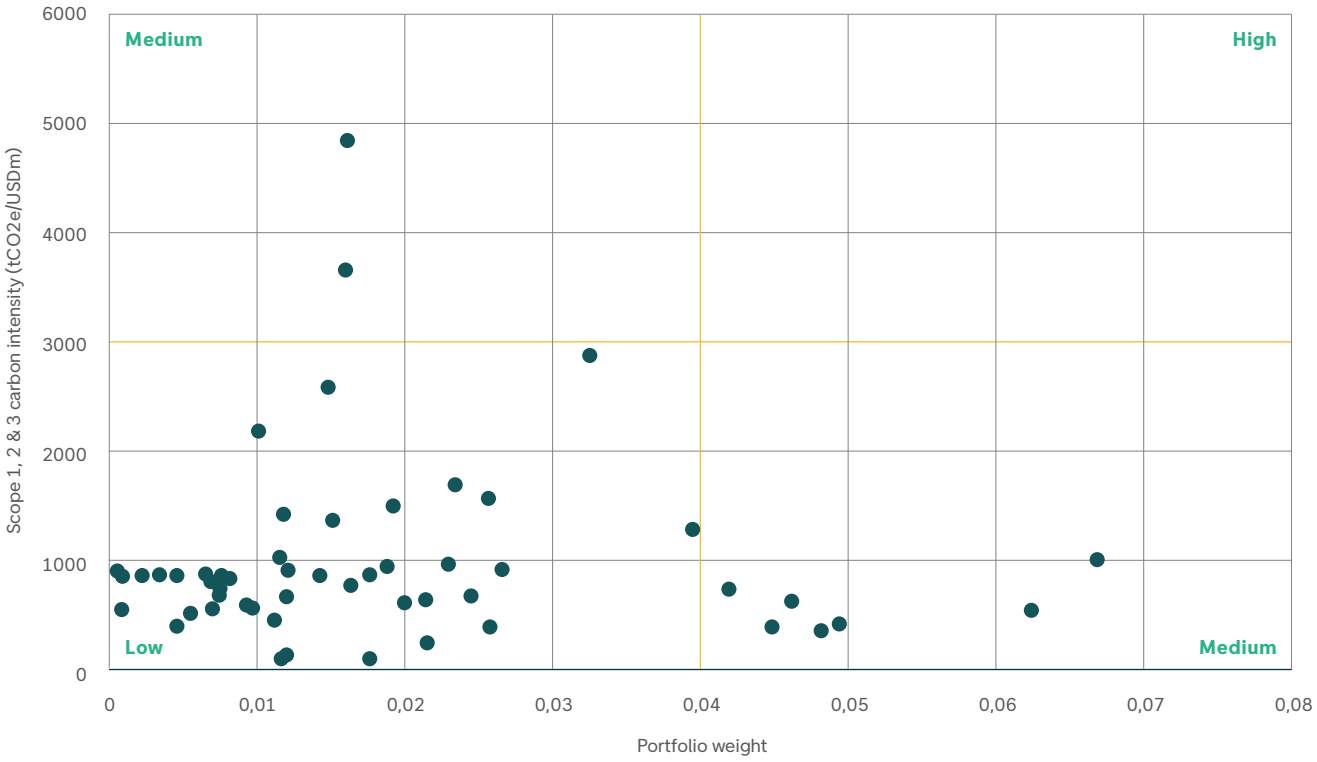
The framework places emphasis on momentum/progress, and the output is a heat map.

Figure 18. Heatmap of status of net zero

The heat map only includes information that has been provided by companies directly through the questionnaire. In some cases, we have pre-filled the questionnaires to ease the process for the responding company. After receiving the responses, we have gone through them to ensure consistency in approach/treatment, and that claims are evidenced. Where there are uncertainties, the company is flagged for follow-up. Note that these results should not be taken at face value, as they should be considered together with information obtained through other active ownership activity, such as company engagements.

Engagements on net zero science-based targets have been prioritised based on size of holding and carbon intensity. The quadrants indicate prioritisation of engagements as low, medium, or high priority.

Figure 19. Size of holding vs. carbon intensity*[13)]

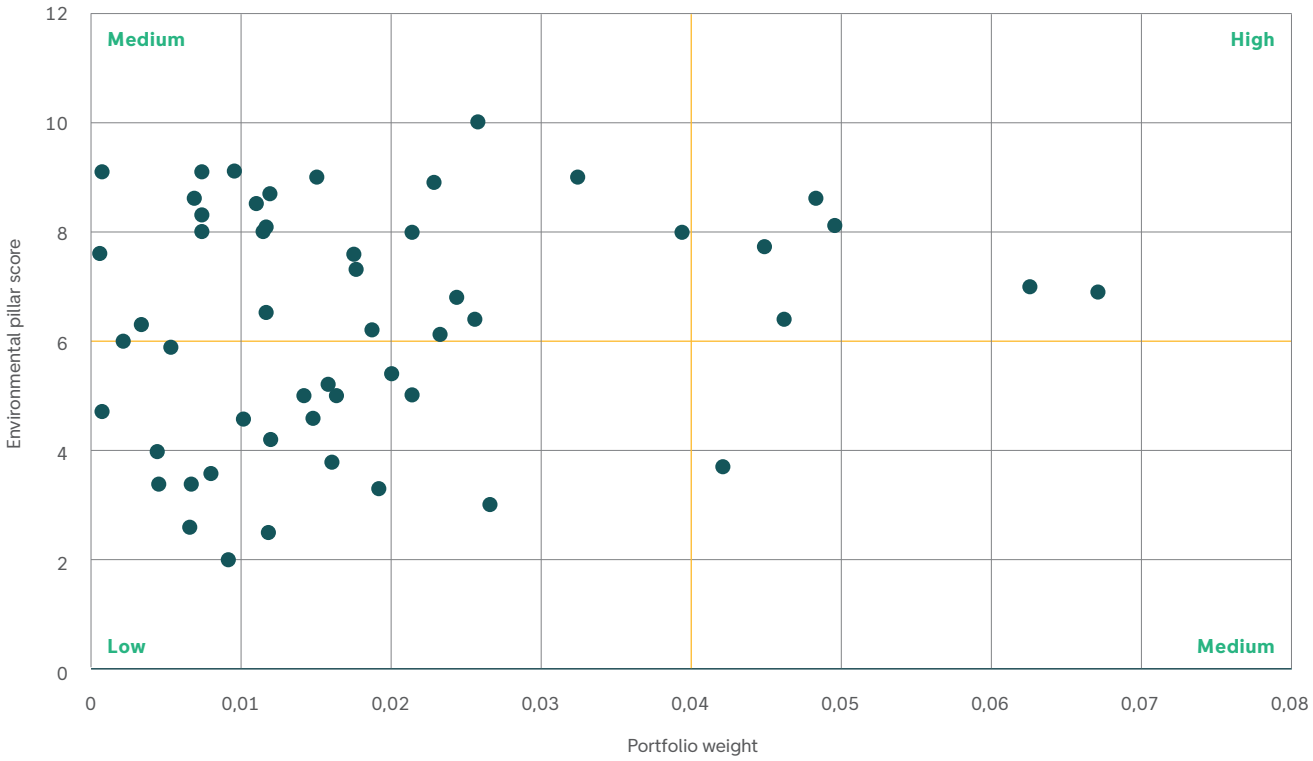


** Note that the graph uses emissions data from MSCI ESG. This data may therefore differ from emissions data from ISS-ESG which is used in the potential avoided emissions analysis due to differences in methodology and how quickly new data has been captured.*

Though carbon footprint is important and guides engagement on net zero, the fund strategy does not target a carbon intensity lower than its benchmark, as some companies that have higher levels of carbon emissions deliver products and services that are necessary to deliver transition to the low carbon economy. This is described in more detail in chapter 7.

13) Source: ©2022 MSCI ESG Research LLC. Reproduced by permission

Figure 20. Size of holding vs. environmental pillar score[14)]



In addition, size of holding and environmental pillar score and/or Portfolio Managers' view of companies' sustainability practices may also be useful in prioritising engagements.

In addition to providing standardised data allowing for comparison (between companies and with the same company over time), the framework has also led to further company engagement in several cases to clarify certain points.

14) Source: ©2022 MSCI ESG Research LLC. Reproduced by permission

Figure 21. Status of engagement on net zero science-based target setting YTD

Engaged with via call (individual and/or collaborative) and questionnaire (in some cases): ..... 46,3 %
Engaged with via questionnaire (has responded): ..... 33,6 %
Engaged with via sent questionnaire (not responded yet): .... 13,6 %
Not engaged with yet: ..... 6,6 %

We have delivered on our target to engage with 80% of the portfolio on science-based net zero target setting.

We note the following insights from our first year of engagement on our commitment on net zero science-based target setting:

- There often appears to be confusion between the terms "net zero" and "carbon neutral" and "climate neutral". In some cases, some of these terms are used interchangeably.
- Some responses are inconsistent. All responses are fact-checked, as we are aware that misinterpretation of some questions may lead to misleading responses. Alternatively, this may also indicate a lack of understanding in regard to certain themes addressed by the questionnaire.
- Some companies were unable to respond to our request, as they receive a lot of ad hoc, bespoke ESG requests and some already have comprehensive reporting. In some cases a call was arranged instead. We have sympathy for this, but this also demonstrates that there is demand for data. As regulatory requirements come into effect, the need for bespoke ESG requests may be reduced.
- Many companies have plans to set targets in coming years – we therefore expect to see more green in our heatmap over time, though we will continue to be critical as to the quality of target-setting.

Case study:

Engagement on net zero science-based target setting: Air Liquide

Air Liquide has committed to reducing its absolute scope 1 and 2 carbon emissions by 33% by 2035, and to become net zero by 2050.

Photo: Getty Images

Air Liquide produces, markets, and sells industrial gases, including liquid nitrogen, argon, carbon dioxide, and oxygen worldwide.

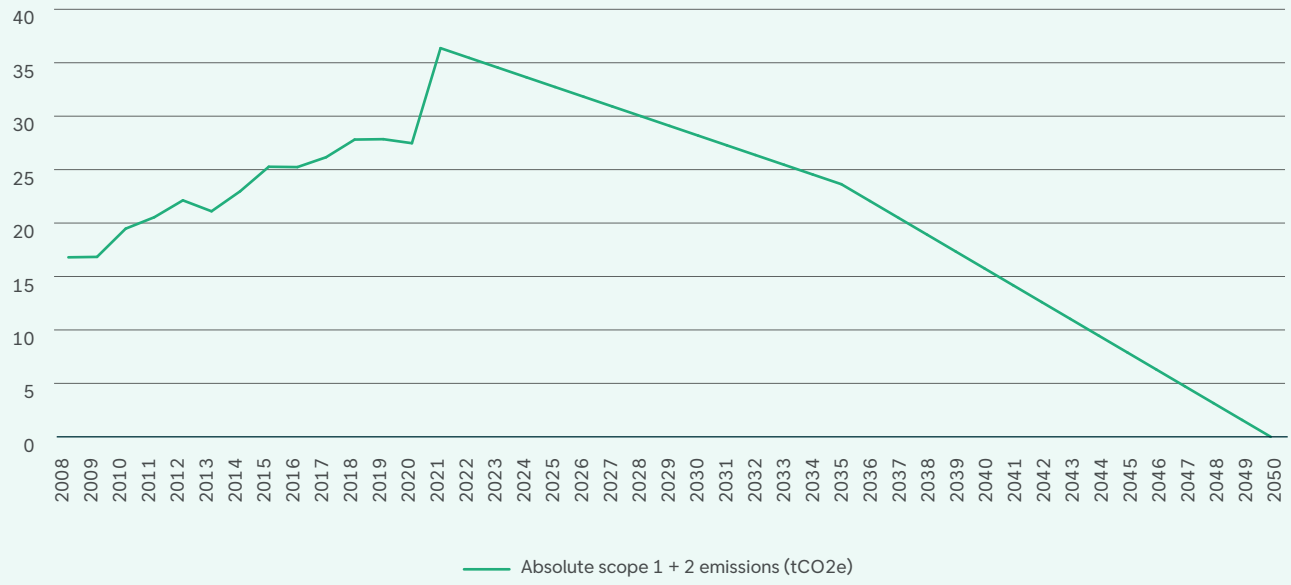
When first analysing the company, the company's significant carbon footprint was assessed a risk factor, resulting in the decision to utilise a high discount rate in the financial model. This led us to prioritise the company regarding our engagement on science-based net zero target setting.

We engaged with the company through company meetings first in November 2021, and again in May 2022. Air Liquide also received our questionnaire in 2022. We learned the following on carbon emissions/carbon reduction targets:

- The company has committed to reducing its absolute scope 1 and 2 carbon emissions by 33% by 2035, and to become net zero by 2050. The target covers all GHGs, not just CO_2. The company's 2035 target has been verified by the SBTi as a well-below 2C target. Note though that this is currently no dedicated framework for industrial gases. However, Air Liquide is in the working group to help the SBTi to develop this framework.
- Air Liquide recognises that significant renewable energy is needed to address its scope 2 emissions. Renewables must be available, accessible, and affordable. The company signs Power Purchase Agreements (PPAs) and in some cases enables the development of renewable megaprojects, due to its position as a large energy consumer (projects often need to be able to guarantee offtake and look to the end consumer to demonstrate this). The company can also offer the renewable energy manufacturers visibility, as it often signs for 15 years to guarantee a supply of renewable electricity. Air Liquide is currently negotiating a major contract in South Africa (600GW, will grow to 900MW). The policy frameworks also need to be in place - taxation, incentivisation, involvement of government. The company also considers carbon budget per geography to understand how much it can afford to emit per geography.
- Offsets will be used to address residual emissions (after exhausting all decarbonisation options); however, the company says that this is still so far away that they have not yet considered which types of offsets will be used (compensation vs. neutralisation, price of offsets, verified, etc). We believe the company should have considered this when setting its target and be clear about its plans. We would also have liked to see the company making a greater push to further develop its own expertise within, for example, Carbon Capture and Storage (CCS), to address emissions.

- The company also says it does not include scope 3 in its target because it is not well defined. It does, however, support customers and suppliers, many of which have made their own net zero commitments. We would've liked to see Air Liquide taking a more active role in addressing scope 3 by, for example, actively engaging with suppliers.
- In terms of climate lobbying - this has been an area that the company has been focusing on recently. It published its first climate charter on its website recently. By the end of 2022, it will conduct its first assessment of trade associations. It will define actions if inconsistency in climate policy is identified - Air Liquide has already done this with one US organisation (sent a letter to the association saying it was not fully aligned). When possible, all public positions will be made available online (on major topics).
- The company's strategy within hydrogen and CCS have also been discussed. Though the company is working to address these markets, they do face risks from new entrants, such as Plug Power. The company is well-placed given its locations at the source of CO_2 emissions – we believe the company can leverage this access (and its existing infrastructure) in the future.

Figure 22. Extrapolation of Air Liquide's carbon reduction targets[15)]
Tonnes CO2e in million



15) Source: ©2022 MSCI ESG Research LLC. Reproduced by permission

Carbon reduction targets explained[16)]

- **Science-based targets:** targets that are aligned with what the latest climate science deems necessary to meet the goals of the Paris Agreement – limiting global warming to well-below 2C above pre-industrial levels and pursuing efforts to limit warming to 1.5C. Companies that have a target approved by the Science-based Target Initiative (SBTi) have targets that have been validated by SBTi's technical experts. Those who have signed a commitment letter are recognised as "committed" and have two years to submit their target and have it validated and published by the SBTi.

- **Carbon neutral:** Carbon neutral refers to a policy of not increasing carbon emissions and achieving a carbon reduction of remaining emissions through offsets.

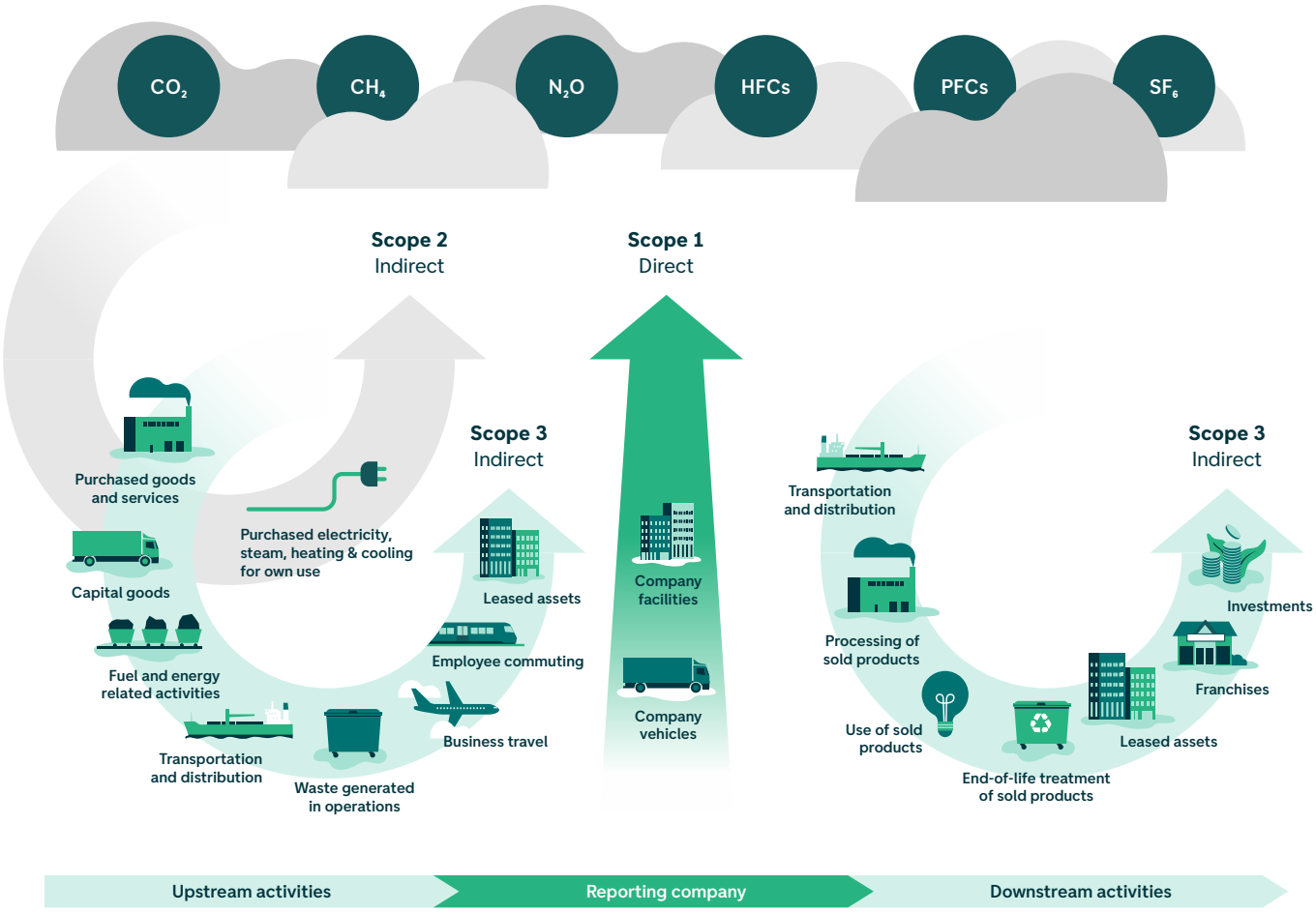
- **Climate neutral:** Same as the above, except all greenhouse gases are addressed, not just carbon dioxide.

- **Net-zero:** The IPCC estimates that limiting global warming to 1.5C above pre-industrial levels by 2100 will require a halving of global emissions by 2030 and reaching net-zero by 2050. By net-zero, the IPCC means that remaining emissions in 2050 would need to be balanced by removing CO_2 from the air. Companies may contribute to this by either reducing the energy intensity of their operations, or by sequestering carbon from the atmosphere, or by combing both approaches. Net zero targets focus on decarbonising as much as possible and business transformation. Unabated emissions will not be offset, rather, residual emissions will be removed (i.e., CCS or other).

16) Sources: How it works – Science Based Targets, FAQs – Science Based Targets, foundations-for-net-zero-full-paper.pdf (sciencebasedtargets.org)

7. Key findings of potential avoided emissions analysis

Figure 23. Greenhouse gas emissions across the value chain[17)]



Scope 1: All direct GHG emissions.

Scope 2: Indirect GHG emissions from consumption of purchased electricity or steam.

Scope 3: GHG emissions relating to up- and downstream activities in the value chain of the company's product/service.

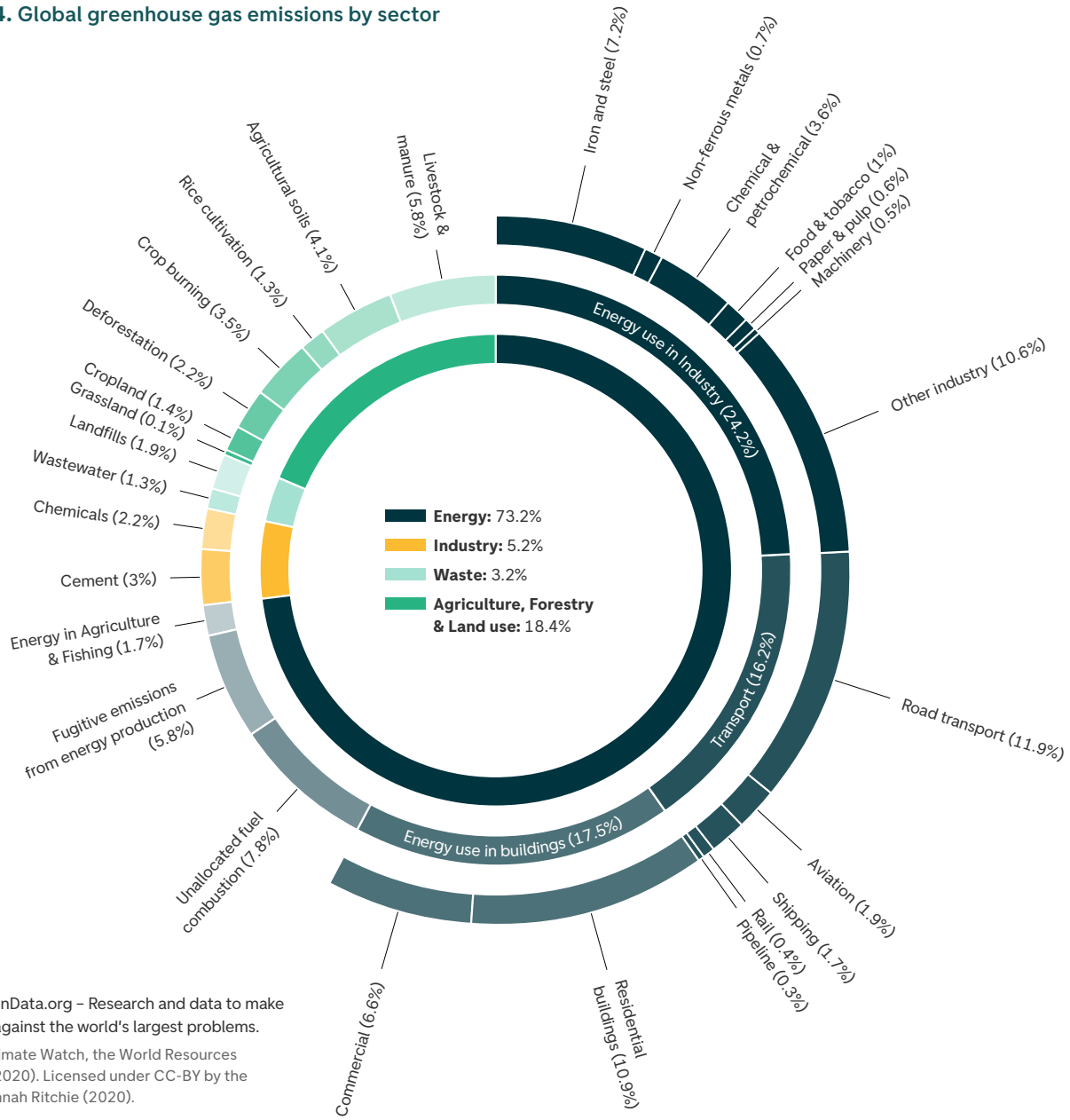
CARBON FOOTPRINT VERSUS AVOIDED EMISSIONS

Carbon footprint, also called carbon intensity, is the measurement of a company's greenhouse gas emissions relative to a company's turnover and is one of several factors that says something about a company's climate risk and impact. Companies and investors use carbon footprint to help identify and address carbon-related risks.

Considering the contribution from various sectors to global GHG emissions may be a useful starting point for identifying how to prioritise emissions reductions.

17) Original illustration from the GHG Protocol: www.ghgprotocol.org/sites/default/files/ghgp/standards_supporting/Diagram%20of%20scopes%20and%20emissions%20across%20the%20value%20chain.pdf

Figure 24. Global greenhouse gas emissions by sector



OurWorldinData.org – Research and data to make progress against the world's largest problems.

Source: Climate Watch, the World Resources Institute (2020). Licensed under CC-BY by the author Hannah Ritchie (2020).

Carbon footprint analysis considers a company's direct and indirect emissions to produce its product(s) and/or service(s). The GHG Protocol defines these emissions as scope 1 and scope 2 emissions (see Figure 23). These data are relatively easy to measure and are widely available. Many green investment strategies have therefore been directed into companies and sectors that are carbon efficient in terms of their scope 1 & 2 emissions.

However, we see great value in looking beyond scope 1 & 2. Scope 3 emissions are emissions that happen because of a company's activities but are not owned or controlled by the company. These emissions are complex to measure, and double counting is a concern. As a result, these are typically not reported, or are reported, but not in their entirety. Though some ESG data providers estimate these emissions, it is still not common practice for these to be included in investors' carbon footprinting. It is also important to note that these underreported scope 3 emissions often represent the largest source of emissions for some sectors, such as oil and gas (approximately 80%). Ignoring these emissions may therefore underestimate the transition risks faced by the underlying company and may raise questions as to the validity of its profile as a "green" company.

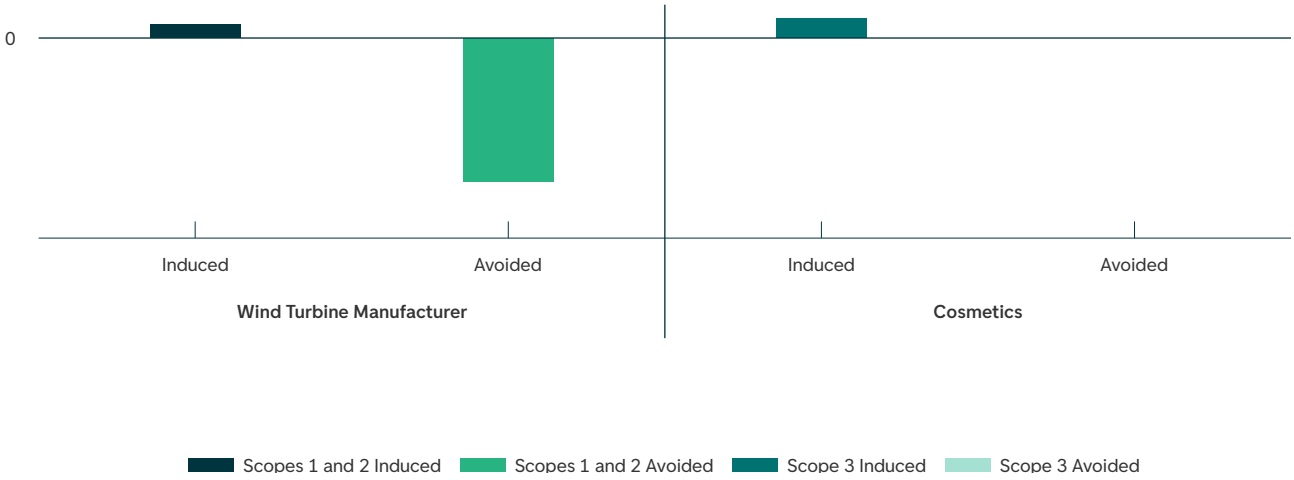
Due to these challenges, we believe that considering all scopes of emissions (1, 2 & 3), coupled with an assessment of a company's emissions-avoiding capabilities,

represents a fairer assessment of its true climate impact and positive contribution. We therefore engaged ISS-ESG to help us measure the Potential Avoided Emissions (PAE) associated with the fund for the third time. PAE is a useful quantification that seeks to evidence the solutions-providing capabilities of our fund holdings. We believe that the companies providing these solutions are best positioned to capitalise on the world's requirement to cut emissions.

Figure 25 demonstrates the avoided emissions concept. The two companies have similar emissions profiles in terms of their scope 1, 2 & 3 emissions, but vary vastly in regard to PAE. If we were only to focus on scope 1, 2 & 3 emissions, we would potentially be overlooking the opportunity to invest in companies providing real climate change solutions.

Figure 25. Emissions comparison for cosmetics company and wind turbine manufacturer[18)]

Both companies have similar induced emissions…

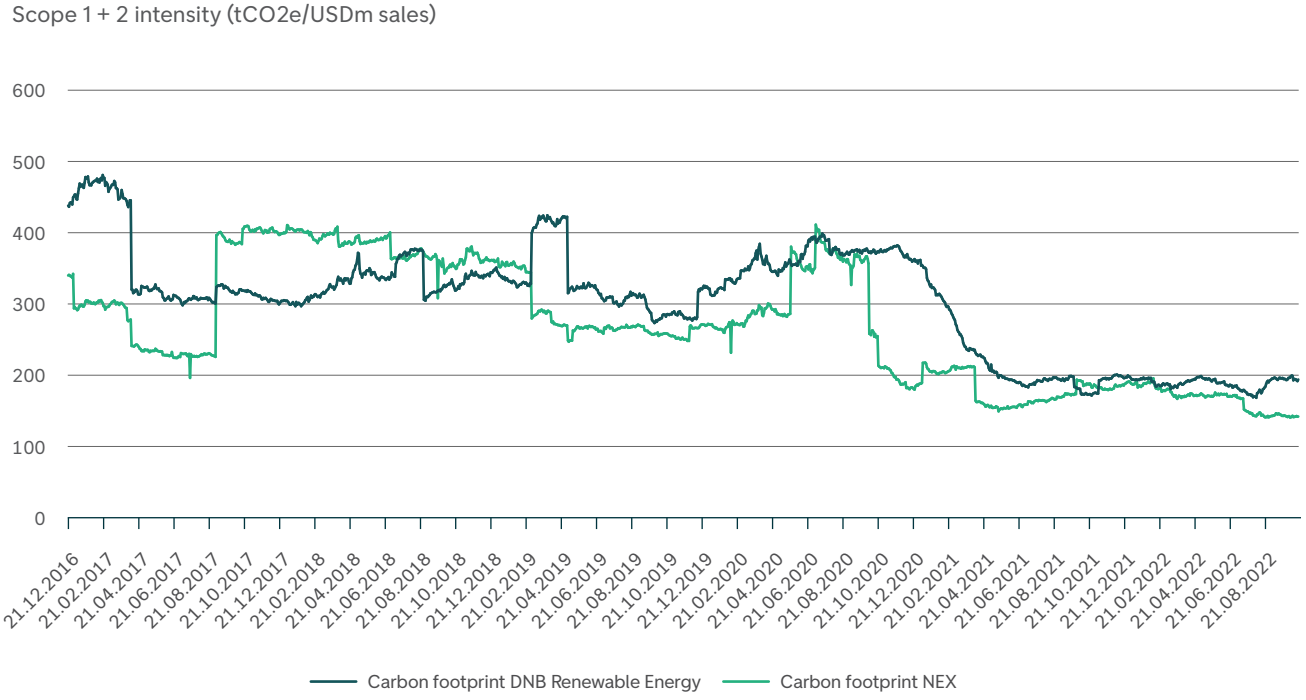


…but calculating avoided emissions highlights wind turbines' climate benefit

Though the fund does not target a weighted average carbon footprint lower than its benchmark, we monitor carbon footprint over time and changes at company and portfolio level do lead to engagement.

18) Source: Mirova/Carbon4

Figure 26. Development of carbon footprint over time (as at 30.09.2022)[19]



19) Source: ©2022 MSCI ESG Research LLC. Reproduced by permission

Figure 27. Results of 2022 PAE analysis under STEPS scenario[20)]

Sector	Scope 1 & 2 emissions	Scope 3 emissions	PAE	Net PAE
Wind	0,36	35,87	-414	-377
Solar	5,18	13,26	-308	-289
Materials	4,06	7,58	-179	-168
Energy saving	0,08	3,69	-74	-70
Biofuels	0,66	4,37	-68	-63
Power generation	27,99	36,90	-116	-51
Other	0,01	0,05	-1	-1
Power storage	0,24	1,84	-1	1
Fuel cells	14,65	11,70	-5	22
Grid	0,16	78,52	-42	37
Total	**53**	**194**	**-1 208**	**-961**

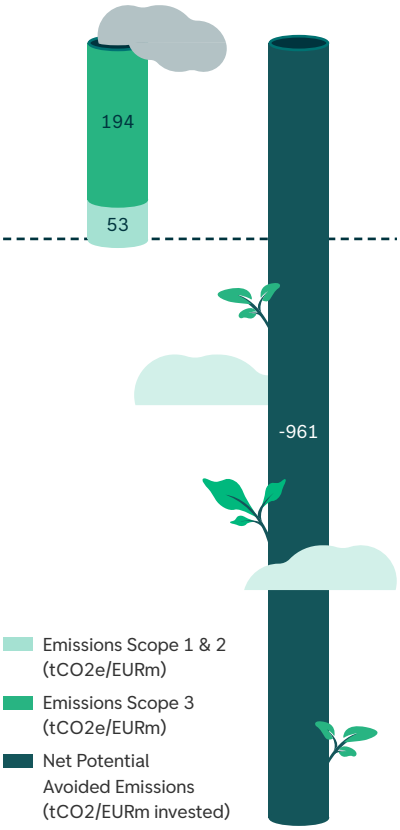
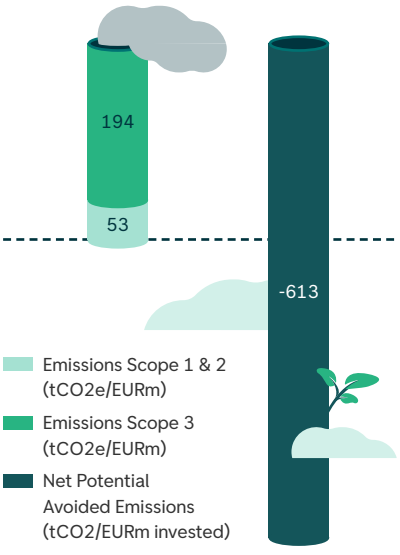


Figure 28. Results of 2022 PAE analysis under NZ scenario[21)]

Sector	Scope 1 & 2 emissions	Scope 3 emissions	PAE	Net PAE
Wind	0,36	36	-218	-182
Materials	4,06	8	-180	-168
Solar	5,18	13	-169	-150
Energy saving	0,08	4	-74	-70
Biofuels	0,66	4	-68	-63
Power generation	27,99	37	-108	-43
Other	0,01	0	-1	-1
Power storage	0,24	2	-3	-1
Fuel cells	14,65	12	-5	22
Grid	0,16	79	-35	44
Total	**53**	**194**	**-860**	**-613**



20) Source: ISS-ESG
21) Source: ISS-ESG

Table 2. – IEA scenarios[22)]

Net Zero Emissions by 2050 Scenario	Announced Pledges Scenario	Stated Policies Scenario
Definitions		
A scenario which sets out a pathway for the global energy sector to achieve net zero CO_2 emissions by 2050. It doesn't rely on emissions reductions from outside the energy sector to achieve its goals. Universal access to electricity and clean cooking are achieved by 2030.	A scenario which assumes that all climate commitments made by governments around the world, including Nationally Determined Contributions (NDCs) and longer-term net zero targets, as well as targets for access to electricity and clean cooking, will be met in full and on time.	A scenario which reflects current policy settings based on a sector-by-sector and country by country assessment of the specific policies that are in place, as well as those that have been announced by governments around the world.
Objectives		
To show what is needed across the main sectors by various actors, and by when, for the world to achieve net zero energy related and industrial process CO_2 emissions by 2050 while meeting other energy-related sustainable development goals such as universal energy access.	To show how close do current pledges get the world towards the target of limiting global warming to 1.5 °C, it highlights the "ambition gap" that needs to be closed to achieve the goals agreed at Paris in 2015. It also shows the gap between current targets and achieving universal energy access.	To provide a benchmark to assess the potential achievements (and limitations) of recent developments in energy and climate policy.

22) Source: https://www.iea.org/reports/world-energy-model/understanding-weo-scenarios#abstract

As shown in Figures 28 and 29, the fund's underlying holdings potentially avoid more carbon than they emit. Two scenarios have been assessed – IEA Stated Policies Scenario (STEPS) and IEA Net Zero Emissions by 2050 (NZ). See table 2 for more information on what these scenarios measure. In previous years, only IEA STEPS has been assessed.

To calculate the carbon footprint, we have scaled down the scope 1, 2 and 3 emissions provided by ISS-ESG in line with the percentage of revenues that the PAE analysis covers per company. As we will discuss in more detail, the PAE analysis focuses on one primary product category per company. In practice, by scaling down the carbon footprint in this way we are assuming that the remaining revenue streams have a similar emissions profile to those covered by the analysis. Utilities have 100% PAE coverage and, as such, 100% of scope 1, 2 and 3 emissions are included in our total carbon intensity figure. Note that this additional analysis we have conducted to understand net PAE is not based on an established methodology.

The PAE estimate covers 67% of the fund holdings with the PAE estimates covering 74% of the revenues of these holdings. There are two reasons for this. First, companies were omitted due to their complex product portfolios: we find it near impossible, especially as outsiders, to estimate the avoided emissions of companies with tens of thousands of different products sold across the world. See our case study on IMCD for more information on this. Second, we left out one company (Signify) as we find the avoided emissions methodology inadequate in describing its environmental impact.

The calculations are based on backward-looking figures from 2020 or 2021 (based on data availability at the time of analysis). We expect that significantly better avoided emissions results would have been achieved if based on forward-looking estimates. This is because the portfolio companies have business models centred on products and services that enable a better environment and should experience growth over the cycle.

Since this is our third-year conducing PAE analysis it is also interesting to have a look at how the results compare year on year for the portfolio (see Figure 29). The main take away is that PAE/EURm invested has declined over time. In addition to impacts arising from changes in methodology (see "key changes in methodology" for more information), repricing of environmental stocks and the fund over the last 12 months and changes to the portfolio mix, driven by changes in the risk/reward assessment, are the primary drivers of the declining PAE. At the same time, scope 1 and 2 emissions have been reduced from 74 tCO2/EURm to 53tCO2/EURm compared to last year's analysis. However, scope 3 emissions have increased from 172 tCO2/EURm to 194 tCO2/EURm – the main driver for this is changes to ISS-ESG's scope 3 estimation methodology and increased reporting from companies.

Figure 29. PAE for the fund – 2020, 2021 and 2022 results[23)]

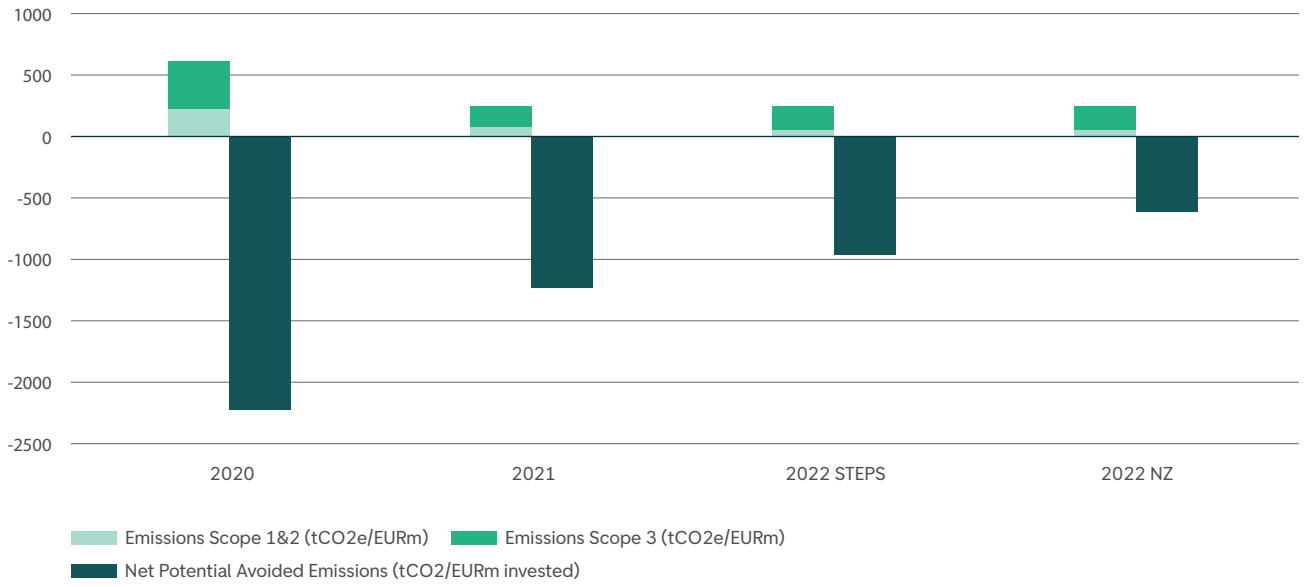


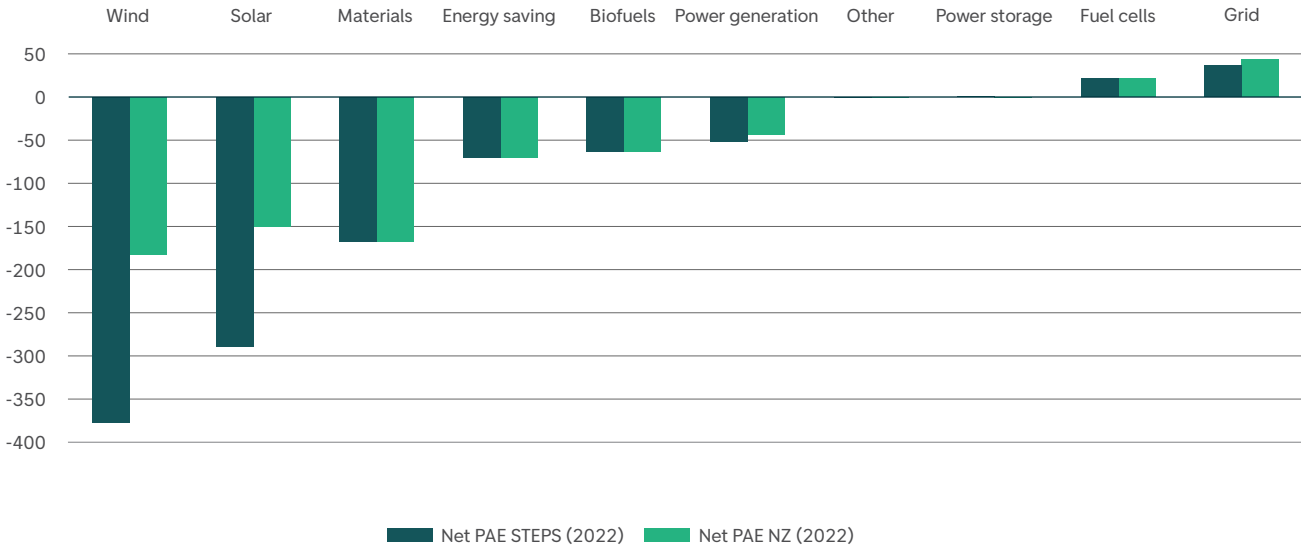
Table 3. Top ten contributors to PAE in the fund[24)]

Company	Weight (%)	Fund PAE (tCO2)	% of total portfolio	Environmental angle
Vestas Wind Systems A/S	4,3 %	150 969 030	21 %	Wind equipment
Siemens Gamesa Renewable Energy SA	0,8 %	86 713 544	12 %	Wind equipment
Schneider Electric SE	2,4 %	83 639 228	12 %	Software/efficiency
Novozymes A/S	1,9 %	60 000 000	8 %	Enabling materials
Sika AG	2,5 %	56 691 250	8 %	Building materials
Canadian Solar Inc.	2,0 %	53 639 503	8 %	Solar equipment
Enel SpA	5,9 %	46 003 181	7 %	Power generation
First Solar, Inc.	2,6 %	27 490 189	4 %	Solar equipment
Tomra Systems ASA	0,9 %	19 500 000	3 %	Enabling infrastructure
BYD Company Limited	1,4 %	12 083 487	2 %	Power storage
Total	**25 %**	**596 729 412**	**84 %**	

23) Source: ISS-ESG
24) Source: ISS-ESG

It is also useful to consider how different sectors contribute to the overall PAE result. As shown in Figure 30, the net PAE per sector varies considerably. The net results show that wind delivers the strongest contribution by sector, while grid shows the weakest contribution. The ranking of greatest contributing sector to lowest contributing sector is the same for both STEPS and NZ scenarios. Though the analysis reveals net more emissions emitted than avoided for some sectors, all underlying companies demonstrate PAE.

Figure 30. Net PAE breakdown by sector[25)]



As in previous years, **wind and solar** come out on top. The sectors' strong contribution to net PAE is partially explained by the fact that the PAE methodology favours technology providers, who are allocated PAEs over the full lifetime of their products installed in the measuring year. The lifetime assumption for both solar and wind is 20 years. In this year's assessment, which relies on data from IRENA's Renewable Power Generation Costs in 2021, the load factors for offshore wind, onshore wind and solar happen to be quite similar. This contrasts with last year's assessment, where offshore and onshore wind received superior load factors compared to solar, and thereby influenced the PAE allocated to companies within these sectors. In addition, two main drivers behind wind's outperformance against solar this year are Vestas Wind Systems' lower market capitalisation compared to its annual supplied capacity, and Cadeler's increase in capacity.

The **materials** sector is the third strongest contributor to PAE by sector. As in last year's analysis, this is primarily driven by AMG Advanced Metallurgical Group. The company has a portfolio of CO_2-reducing business areas, but for this exercise we focused on the product categories "thermal barrier coatings and turbocharger wheel castings" and "lithium". The first product category refers to proprietary AMG technology enables aircraft engine manufacturers to increase operating temperatures beyond the physical limitations of the base materials by coating nickel-based superalloy blades in the high-pressure combustion section of the engine. This dramatically increases aerospace fuel efficiency. Lithium has two CO_2 advantages, 1) by using tailings waste instead of a more CO_2 intensive primary mining operation, and 2) enabling wind power production when used in a grid stabilisation battery displacing coal power generation. In previous

25) Source: ISS-ESG

years, "thermal barrier coatings and turbocharger wheel castings" was the only product category analysed, and the category constituted only 4% of the company's revenues. The inclusion of lithium this year has increased coverage to 21% of company revenues. Nonetheless, we still consider the result to be highly conservative, as if we had used the company's own reported avoided emissions figures (covering additional product categories) we would have gotten a substantially higher result.

Energy saving comes in fourth place. The companies in this category typically have broad product portfolios. As the PAE analysis focuses on one primary product category, the average share of revenues covered by the analysis for this sector are lower (65%) than for all companies covered by ISS-ESG (70%). However, the average is higher this year than last year (41%). Subsequently, the results are likely to be conservative. Again, Sika is the company which contributes the most to overall PAE within this category. The company delivers concrete admixture – the result is stronger concrete that requires less inputs, such as water and raw materials. IMCD has been one of the fund's largest holdings year-to-date and would be classified under energy saving. However, the company has not been included in the PAE analysis. Read our case study on IMCD to learn why it was not possible to include the company in the assessment.

Biofuels is fifth, with Darling Ingredients as the biggest contributor. The company procures and processes waste fats and oils as feedstocks and non-food-based oils. Through its 50/50 joint venture with Valero, called Diamond Green Diesel (DGD), these waste feedstocks are used to make renewable diesel. Renewable diesel reduces greenhouse gas emissions by up to 85% compared to traditional fossil fuels. The company's waste feedstock model has two main benefits compared to vegetable oil feedstocks: 1) they are not food crop products, and 2) they have a lower carbon intensity than fuels made from vegetable oils. We believe that Darling Ingredients' PAE should grow significantly over time, given the company is on track to meet its goal of increasing production by 150%.

Power generation is sixth, showing a similar level of net PAE as last year. The PAE contribution from the category is lower than last year (236 tCO2/EURm invested vs. 116 tCO2/EURm invested), but scope 1, 2 and 3 intensity has also been reduced (from 187tCO2/EURm to 65 tCO2/EURm). All companies within this category, with the exception of Concord New Energy Group, now use ISS-ESG's primary model for applying emissions factors. In ISS-ESG's primary model, the amount of renewable energy is allocated by country and type of technology using the geographic revenue distribution of a company adjusted for differences in Levelised Cost of Electricity (LCOE). LCOE is a measure of the average net present cost of electricity generation for a generating plant over its lifetime. The amount of renewable power expected to be generated by country is multiplied with the respective average of yearly national emission factors. The emission factors are sourced from the IFI Default Grid Factors dataset and extrapolated over the product lifetime based on the two scenarios assessed (STEPS and NZ). Aggregating over countries in which revenue is generated allows for computation of total potential avoided emissions from products sold in a given year. Considering differences in carbon intensity and decarbonisation pathways between countries' energy generation over product lifetimes provides a more nuanced baseline scenario. In case of data gaps, the estimation falls back to a secondary model based the global average grid emissions factor for the next 20 years (2021-2042). This two-tiered approach differs from last year, where the now secondary model was applied for all companies. Scatec

"The fund's underlying holdings potentially avoid more carbon than they emit."

"Research by Corporate Knights has discovered that Enel has cut more carbon than any other company on Earth over the past decade."

is the greatest beneficiary of the change in approach in this year's assessment, resulting in a 333% increase in PAE compared to last year. The methodology now reflects that Scatec's installs, operates, and maintains renewable energy projects primarily in developing markets which have dirtier grid mixes. As with last year, the biggest detractor to net PAE for the category is Enel, again demonstrating that the company is still in a transition phase. We still firmly believe that Enel is amongst the greatest contributors to the energy transition, as one of the world's largest renewables developers, adding 3-5GW of renewable capacity annually. This figure will increase to >10GW by the second half of this decade. The company's carbon footprint is driven by its coal exposure, which is due to be retired by 2027. Enel's combined scope 1, 2 and 3 carbon intensity has decreased from 1,947 tCO2/EURm 2020 to 1,232 tCO2/EURm in 2021 - a 37% decrease. Though the company is a large emitter, research by Corporate Knights has discovered that Enel has cut more carbon than any other company on Earth over the past decade[26]. At the same time, PAE remained relatively stable (48,781,680 tCO2 last year versus 46,003,181 this year), likely primarily driven by the change in methodology.

There is one company categorised as **other renewables** – Chr. Hansen. The company's bioprotection segment has been analysed. Bioprotection involves the use of natural microbial food cultures to inhibit unwanted contaminants. This helps to prevent food spoilage and enhance food safety. Increased preservation reduces food waste and therefore emissions. We believe that emissions-saving investment opportunities within sustainable food and agriculture will be of increasing importance moving forward given that agriculture and land-use change accounts for approximately 25% of global GHG emissions. However, as demonstrated in figure 31, the net PAE result for the company is low. We estimate that bioprotection accounts for 6% of the company's total revenues. As a result, we believe the estimated PAE to be conservative, as the company has additional emissions-enabling capabilities beyond bioprotection. In our most recent company engagement, the company informed us that it had closed three pilot projects together with a third party before summer calculating the avoided emissions of three products (non-alcoholic yeast, milk to cheese, and probiotic products). The third party confirmed that the principles behind the calculations were in line with best practice. The results were in line with expectations and the company is now thinking about how best to implement/ integrate this kind of data into sales processes. Moving forward, it hopes to improve collection of supplier-specific data and connect this to the climate programme (decarbonising scope 3 and supply chain). The company is clear that being able to demonstrate the CO_2 benefits of its products is valuable and increasingly being requested

26) Which company cut the most carbon | Corporate Knights

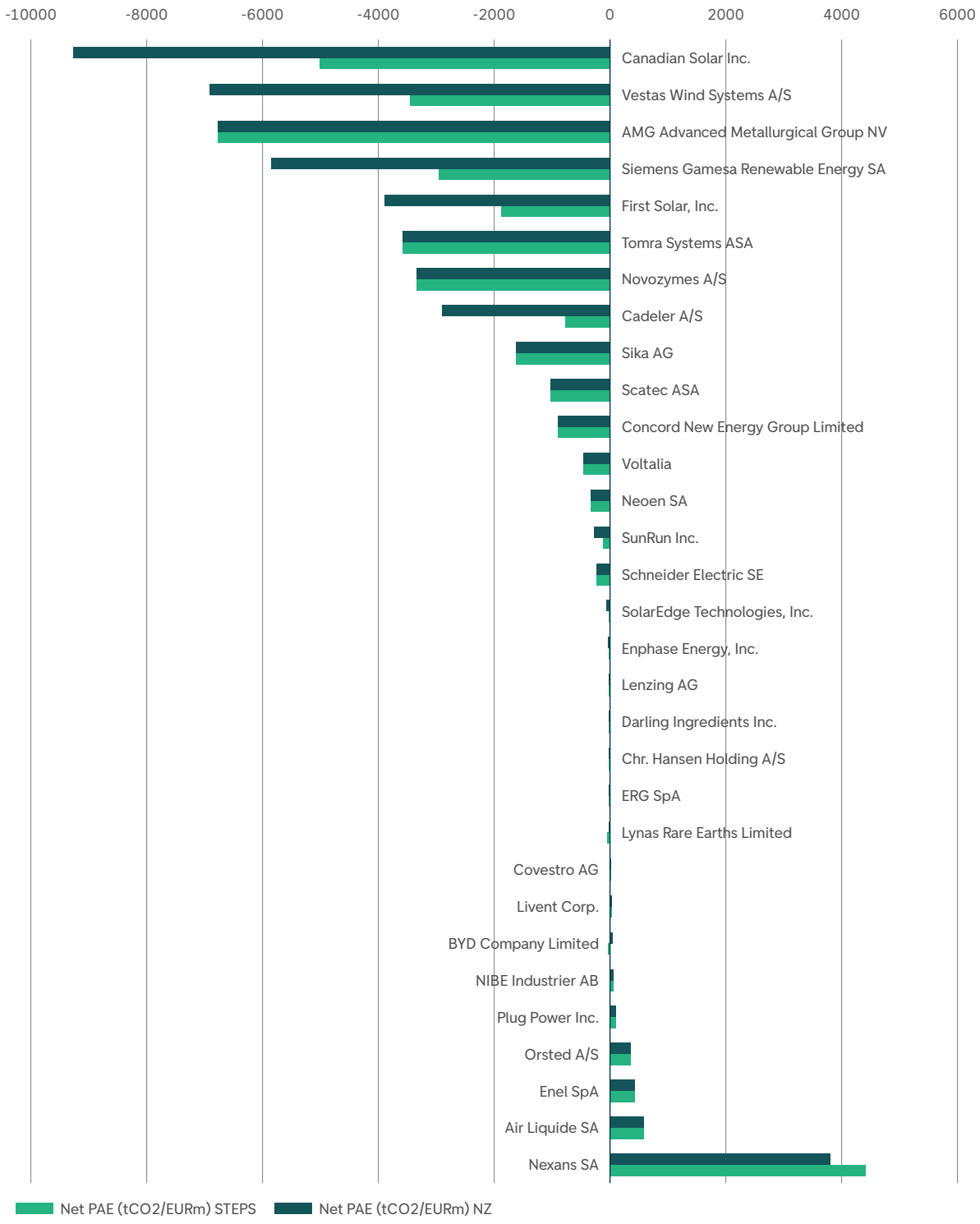
by customers and investors, and the aim is to conduct these calculations and build a database that can be used throughout the organisation. Therefore, in the future, we expect more data to become available from the company on its emissions-saving capabilities.

Power storage comes in eighth place, with BYD as the only company included within the category. This category has not been included in previous assessments. BYD manufactures automotive products, and the PAE assessment has focused on the company's electric vehicles. The analysis finds that the company emits more than it avoids. This result is primarily driven by the company's high scope 3 emissions, a dynamic that is discussed in more detail with the Signify case study.

Fuels cells in another category not previously included. There are two companies included within this category – Plug Power and Air Liquide. The former is at the forefront of building the future hydrogen economy through fuel cells, electrolysers, and an integrated value chain. The latter is an established company with potential to transfer existing know-how to drive growth from emerging hydrogen and carbon capture technologies. The PAE assessments for the companies reveal net higher emissions emitted than emissions avoided. For Plug Power, scope 3 is the main culprit behind this result, whereas for Air Liquide, the company's high scope 1 and 2 emissions create challenges in term of net PAE. However, over time we expect the scope 1 and 2 emission for Air Liquide to be reduced, as the company has set short, medium and long-term carbon reduction targets. See our case study on Air Liquide for more information on how the company is working to address its emissions.

Finally, **grid** comes in last place when looking at the net result. Schneider Electric and Nexans are the portfolio companies exposed to this theme, playing a key role in electrification. Nexans manufactures cables. The company's cables for offshore wind parks have been assessed for the PAE analysis. All of Schneider Electric's products are covered by the analysis, as self-reported avoided emissions have been used by ISS-ESG as a starting point. However, both show net higher emissions emitted than avoided. For both companies, scope 3 is again the challenge. Scope 3 emissions represent over 99% of the companies' absolute emissions according to data from ISS-ESG. It is a reoccurring theme in this year's results that scope 3 in many cases challenges the net PAE calculation – see our case study on Signify, which also discusses challenges with scope 3 emissions, to learn more. We have engaged with Schneider Electric on carbon emissions and biodiversity several times, and we believe the company to be best in class in regards to its management of both. On scope 3 in particular, the company has set a target to reduce its carbon emissions by 50% for its top 1,000 suppliers' operations by 2025. The intention is to provide guidance, share practices, develop tools, etc together with its suppliers. The company has communicated to its suppliers that this will create value for their businesses by making them more resilient, providing cost savings, and differentiating with greener offers. So far 95% of its suppliers have committed to join the programme. This goes beyond screening that has been done before and asks the suppliers to deliver results. The 1,000 suppliers have been picked because they are significant in terms of business and because Schneider wants to develop long-term strategic partnerships with them. Climate is a topic that will be considered in this relationship. Schneider Electric sees this effort as an opportunity to concentrate business and increase supply chain resiliency.

Figure 31. Net PAE per company (tCO2/EURm)[27]



27) Source: ISS-ESG

Case study:

IMCD

WHY WAS IMCD NOT INCLUDED IN THE PAE ASSESSMENT?

IMCD helps its suppliers to simplify and grow their business operations through its extensive local network, market intelligence and technical expertise. Its expertise helps deliver more sustainable applications, formulations, and solutions, and enhance efficiency in the use of resources while reducing emissions, energy consumption and waste reduction. The company was the largest holding in the portfolio as at the 30.09.2022.

The reason for not including IMCD in the PAE assessment reflects the challenges associated with the PAE methodology. The PAE assessment struggles to quantify PAE for a company with a broad product portfolio, as it requires a baseline to be set for each product. This becomes an onerous task for companies providing thousands of products. This is also why we struggle to understand avoided emissions offerings providing broad coverage and scalability. Intuitively, we believe that such offerings must utilise broad estimates.

WHY IS IMCD DIFFICULT TO SCORE?

In addition to the above, arriving at a sensible ESG score for the company is also challenging. ESG scores attempt to capture both risks and opportunities. However, our interpretation is that capturing opportunities is more challenging – this is particularly true for the "less obviously green" companies, which is how we would classify the company. Understanding these opportunities is therefore better captured through deep, bottom-up analysis, a process which heavily depends on company engagement.

COMPANY ENGAGEMENT

We have engaged with the company several times. In May 2022 we learned the following:

Carbon emissions/carbon reduction target - Sustainability is embedded in the organisation. Each business group has identified which products can help customers to achieve greener and healthier results. For the food segment, this could be in terms of less sugar or less salt in food products. For other business areas, it could be in terms of recyclability and/or biodegradability. IMCD offers formulation support, helping its customers to replace 1-2 ingredients so that the end-product has a better outcome (such as making the end-product more recyclable). In terms of CO_2 avoided, IMCD has been discussing LCA with its customers, but does not conduct this on its own, as they have a very extensive product portfolio. CO_2 avoided would likely be interesting for customers to understand, but in most business groups, the product advantages related to water and recyclability are more top of mind. IMCD has been discussing carbon data internally - the company operates a lean business model, where warehousing and transport are decentralised. This means that a lot of optimisation focuses on transport and working with the client. For example, IMCD may approach the client to inform them of potential for efficiency gains by combining deliveries (once a week vs. twice) based on information collected and presented in dashboards. They explain to the customer that it can benefit from less frequent travelling or optimising for volume. This is something that IMCD works to educate its sellers on as this is often a key selling point. Calculating the exact CO_2 avoided from choices like these is still difficult to quantify, given the number of factors that impact the result (fuel choice, choices made by the transport company, kms travelled, etc). Also, in some cases it will not be possible to optimise in this way due to the requirements of its production cycle, for example (i.e. with food). Setting a science-based net zero target is top of mind for IMCD's sustainability director, but it doesn't expect to set a target until its current target is delivered in 2024 (IMCD's target remains to deliver a 15% reduction in our GHG emissions per EURm operating EBITDA by 2024, compared to a 2019 baseline). Scope 3 represents 97% of IMCD's emissions, so delivering on a net zero target will be challenging.

Human rights/indigenous peoples' rights/supply chain labour standards - IMCD has two types of suppliers (principal suppliers (produce products) and supply chain partners (used to provide IMCD's services)). IMCD's updated materiality assessment revealed that supply chain decarbonisation is very important. It is installing a programme to work with its supply chain partners (2,000 logistics partners) and to conduct ESG assessments (covering 80% of revenues). This engagement also helps IMCD to gather more exact data, by requesting data from supply chain partners instead of relying on estimates. Asking suppliers to address their own emissions will be a more long-term task. In the meantime, there is an ongoing process, including semi-annual reviews, asking them to report their carbon emissions, and helping them to discuss potential

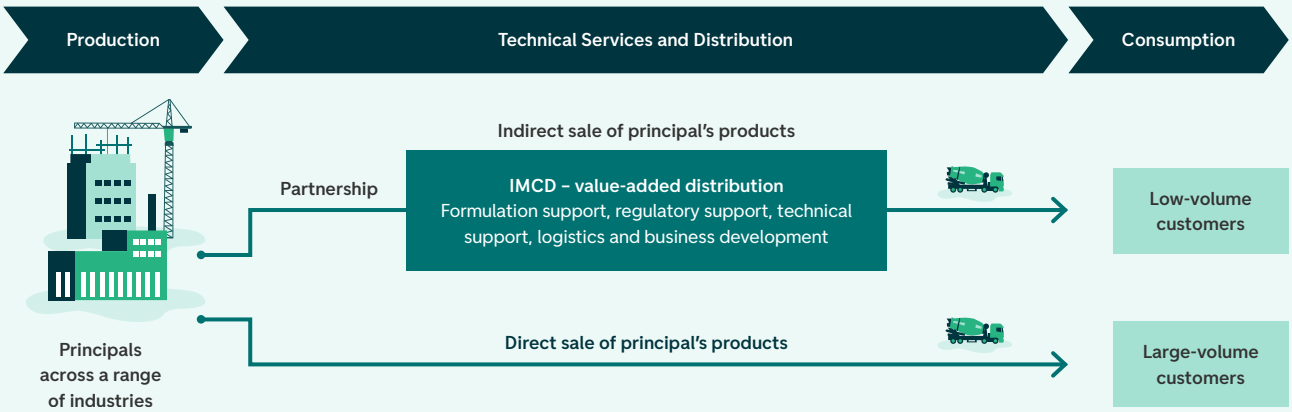
improvements. In terms of leverage - in most cases, 80% of revenues are served by bigger partners which already have certain ESG ratings or certifications - these players are not helped by entering IMCD's programme. However, 20% of revenues are served by smaller, niche players. Here IMCD can help these suppliers to improve their sustainability practices and to achieve a minimum standard (not just on environmental factors, could also be grievance system, etc). The company implemented ESG standards for its business partners related to human rights in 2021. It requires its partners to align with the UN Global Compact - this must be signed by all suppliers and warehousing companies. IMCD's risk assessment has shown that human rights risks are highest for its warehousing partners. The standards will be audited annually through self-assessment questionnaires and on-site visits. It also uses a screening tool which checks for flags on a daily basis. Any flags will be addressed by an internal procedure - so far, no flags have led to any repairs or actions (for human rights specifically).

Corporate culture – IMCD's culture sets it apart – the culture is informal, with short lines to senior management, an open-door policy and entrepreneurial spirit.

Biodiversity/water - IMCD does not have any specific expectations towards its suppliers regarding biodiversity. The most quantifiable items are on recyclability, water, and energy use - IMCD uses data on efficiency gains to demonstrate benefits to customers.

General - Sustainability is headed up by a Global Director - it is a standalone function with supply chain management and HSEQ managers, making it easier to execute on actions and policy decisions. The supply chain management team is global with regional functions - each function has local responsibility for each country and entity IMCD owns. On reporting, IMCD has published an annual sustainability report since 2018. Its ESG data has improved since then, and all ESG data is internally verified with the same team that verifies financial data. This also helps to create awareness within the group and management and ensure that this data is considered as important as financial data. Some ESG data is collected on a semi-annual basis, whereas other data is collected more regularly - this helps to inform decision making. The company says that sustainability is its most important selling point. Governance, including human rights, is a corporate hygiene factor - a breach or incident has potential to damage IMCD's good reputation. However, the innovation that can be offered, the formulation and regulatory support is a key driver that also has a commercial benefit. When looking at competitors, IMCD has a few more objective data points on sustainability, and has recently been included in a special index in the Netherlands (considered a blue-chip company for ESG). It also scores well with Sustainalytics, amongst other traders and distributors (including competitors).

Figure 32. IMCD's position in the supply chain



Case study

Signify

Photo: Getty Images

Consistent with our reasoning for focusing on avoided emissions in the first place, we do not believe that avoiding high-emitting sectors is the solution, as many of the most important and necessary decarbonisation opportunities can often be found within these.

Signify is the world leader in lighting products, systems, and services, with a strong focus on energy-efficient LED and connected technologies, enabling smarter and more efficient use of lighting. This efficiency leads to CO_2 savings, particularly in the product-use phase. Lighting represents a significant portion of global electricity consumption (the United Nations Framework Convention on Climate Change (UNFCCC) estimates that approximately 15% of global power consumption and 5% of worldwide GHG emissions) and replacing energy-inefficient lighting with energy efficient lighting is a low-hanging fruit. Read more about our ESG assessment of the company in chapter 4.

At the same time, like other Capital Goods companies, the scope 3 category "use of sold products" represents the largest share of emissions for Signify. According to the CDP, the use of sold products category (scope 3 category 11) comprised 91% of total scope 3 emissions and 90% of total scope 1, 2 and 3 emissions reported by the sector. Therefore, targeting emissions reductions efforts on category 11 is key to the sector's position in delivering carbon savings through its products in the end markets where decarbonisation needs to take place.

The company's high scope 3 emissions (which accounted for 95% of its value chain carbon footprint in 2021), creates challenges for the net PAE calculation for the company – the results show that the company emits significantly more than it avoids – so much so, that this result would skew the result for the portfolio level assessment. We have chosen to emit the company from the aggregated results, as we believe the results are not an accurate representation of the company's positive contribution.

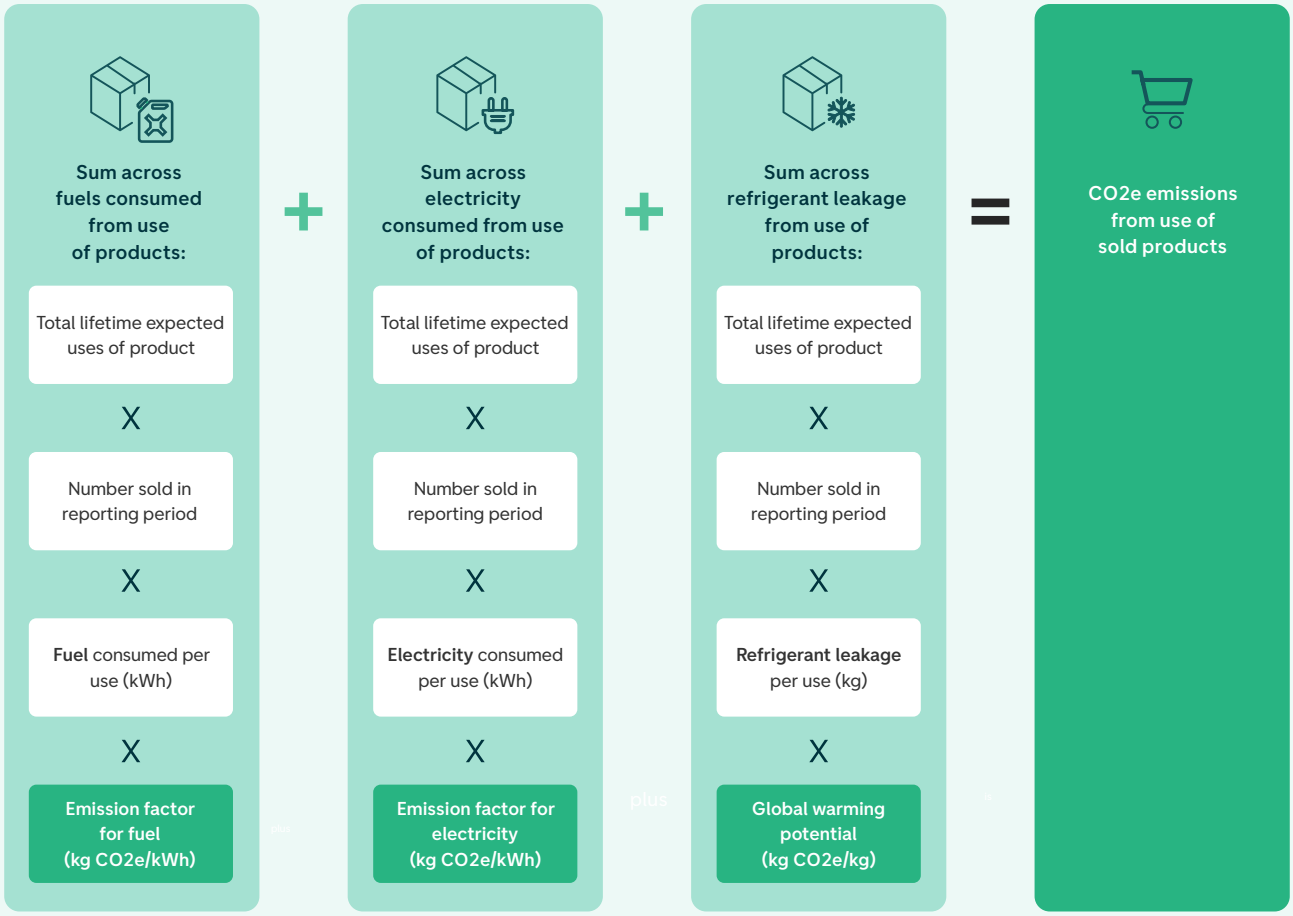
WHY ARE SIGNIFY'S PAE RESULTS NOT REPRESENTATIVE OF ITS POSITIVE CONTRIBUTION?

Though there is no denying that Signify's scope 3 emissions from use of sold products are enormous and measures must be implemented to address these. There are two main factors driving the size of the company's scope 3 emissions:

- Signify's industry-leading product lifetimes negatively impacts the size of its scope 3 category 11 emissions due to the way that these emissions are calculated under the GHG Protocol's scope 3 guidance.
- Signify has limited influence on the carbon intensiveness of the grid mix in the countries where its products are sold and used.

The last point should be elaborated on. Calculating use of sold products typically requires product design specifications and assumptions about how consumers use products.

Figure 33. GHG Protocol Guidance on scope 3 calculation for category 11 (use of sold products)

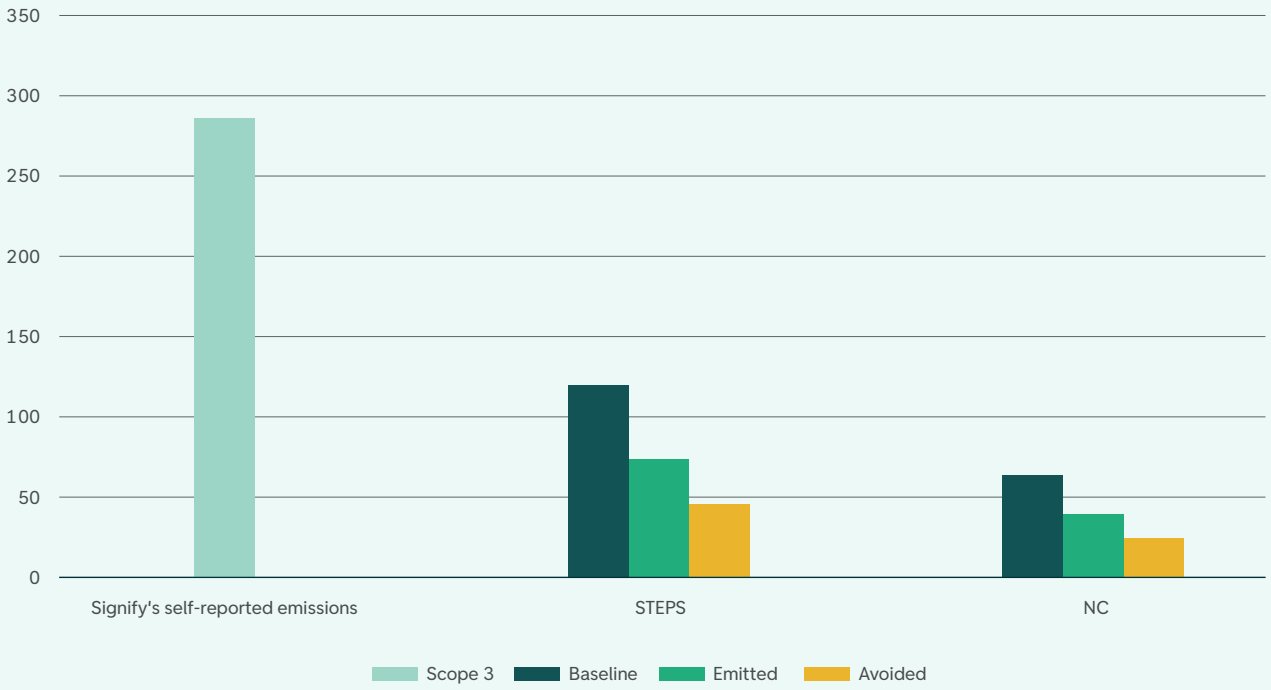


Given that the product lifetime is part of this calculation, when Signify improves its technology to enable longer product lifetimes, which clearly provides environmental benefits in terms of circularly, it ironically leads to increased scope 3 emissions. This is the case even when applying emissions factors reflecting scenarios where grid mixes improve over time. It is also worth noting that it is difficult to compare Signify's scope 3 emissions against peers, as the lumen per Watt differs significantly between different products (i.e. outdoor vs. indoor lighting or connected vs unconnected lightning).

For competitive reasons, the company does not publicly disclose detailed product-by-product specifications which would enable more accurate calculations. In lieu of this, ISS-ESG has made assumptions around the number of lightbulbs sold in each market, lumens per Watt, and lifetime of the bulbs. In the case of the latter two, averages have been used and likely have a major impact on the final calculations, making the result highly conservative.

To demonstrate the scale of the impact of such assumptions, figure 34 shows the calculations for the company under the STEPS and NZ scenarios. By comparison, Signify's scope 3 emissions, as reported to the CDP, were 286,292,744 tCO2 in 2020 – over 3x higher than estimated emissions emitted under the STEPS scenario.

Figure 34. PAE calculation for Signify[28)]
Numbers in million



After adjustments for revenue coverage, ownership, and portfolio weight, we arrive at a net PAE of 1,420,738tCO2/EURm for the company. As the result is highly positive, it shows that the company emits considerably more than it avoids. Including this result in the portfolio level results would bring the scope 3 emissions of the energy saving category from 4tCO2/EURm to 1,535tCO2/EURm.

DOES THIS MEAN THAT THE COMPANY'S PRODUCTS AND SERVICES DO NOT BENEFIT THE CLIMATE AND ENVIRONMENT?

We do not believe that this is the case. Consistent with our reasoning for focusing on avoided emissions in the first place, we do not believe that avoiding high-emitting sectors is the solution, as many of the most important and necessary decarbonisation opportunities can often be found within these. Rather, we believe that this finding highlights a point that we have been clear about previously – avoided emissions is not a perfect metric either. We know that the results depend on many assumptions, and that the result is sensitive to how those assumptions are set. Scatec is a good example of this – the move from using global average emissions factors to using country-specific emissions factors resulted in a substantial increase in the company's PAE in this year's assessment.

It is also important to emphasise that though not all companies' assessments demonstrated net negative PAE (more emissions avoided than emitted), all companies demonstrated PAE, and, in many cases, we believe PAE assumptions to be conservative. Challenges related to scope 3 also illustrate the importance of active ownership, in particular our commitment to engage with companies on science-based net zero target setting. In Signify's case, the company is already carbon neutral in terms of its scope 1, 2 and 3 emissions (covering upstream/downstream logistics and business travel). Around 30% of its emissions are currently offset to achieve this, but the company will continue to work to decarbonise further and reduce reliance on offsets. It has also set a target to reduce scope 3 emissions from use of sold product by 30% by 2030. Delivering on this is dependent on the company's ability to achieve efficiency gains through technology improvement.

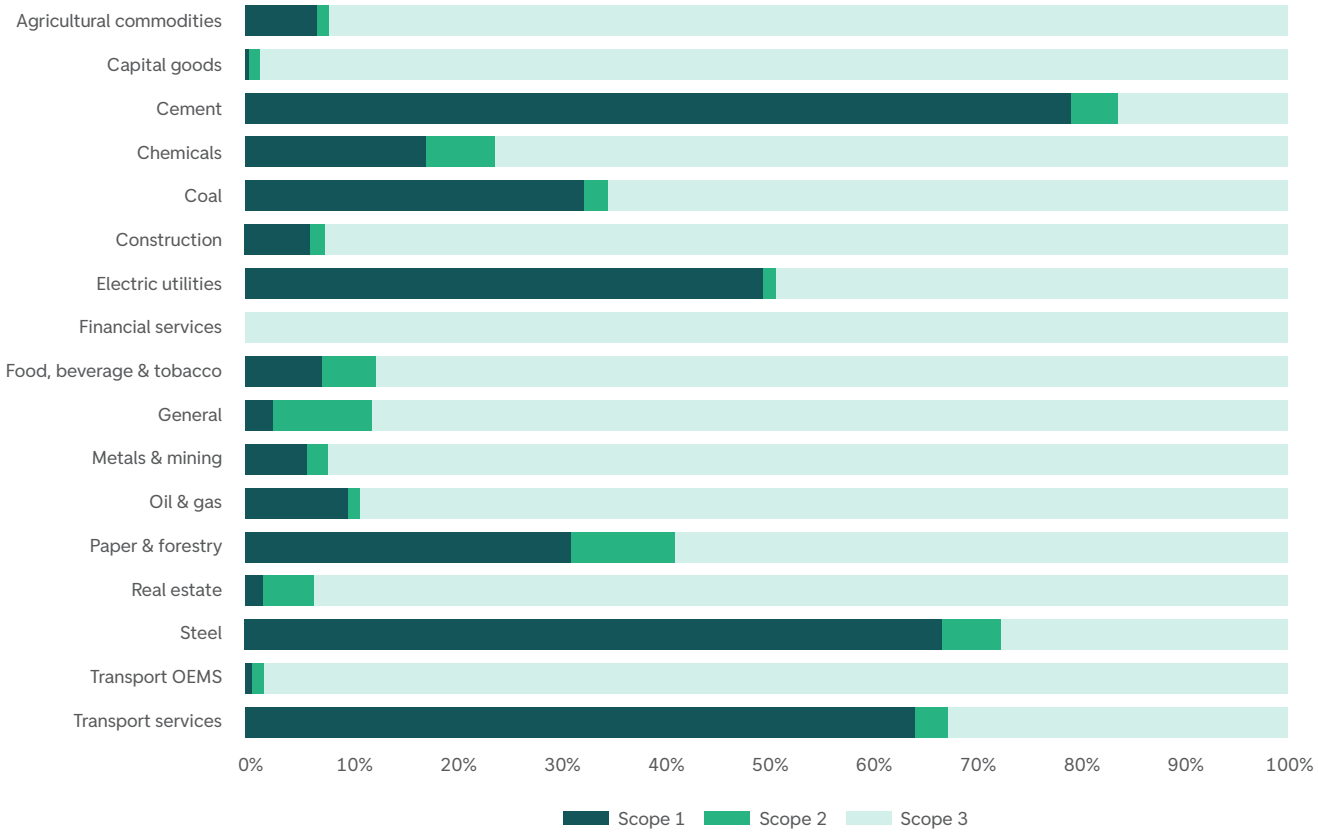
28) Source: ISS-ESG, CDP

CHALLENGES WITH SCOPE 3

In addition to highlighting challenges related to the avoided emissions metric, this case also serves as a reminder of the challenges and importance of scope 3 emissions. Scope 3 emissions are emissions that arise because of a company's activities but are not owned or controlled by the company. Due to challenges related to measuring and reporting scope 3, these are often not reported, or are not reported in their entirety. Ignoring these emissions may underestimate the transition risks faced by the underlying company.

The share of scope 3 emissions as a proportion of companies' total emissions varies by sector, but often represents the bulk of emissions. Effectively tracking and calculating scope 3 emissions is therefore necessary to provide the visibility and traceability needed to collaborate on achieving emissions reductions to deliver a net zero future.

Figure 35. Scope 1, 2 and 3 emissions by Sector (CDP)[29)]



29) Source: CDP-technical-note-scope-3-relevance-by-sector.pdf

In addition to developing products and services that enable emissions reduction, companies should be leveraging data to focus efforts where they will have the greatest impact. The work that companies do to tackle scope 3 emissions can help to strengthen relationships with suppliers and customers, as well as improve collaboration – actions that can lead to competitive advantage through efficiencies, new revenue-generating opportunities, improving credibility and brand reputation, providing important information to aid investors' decision making, and increasing resilience against upcoming regulation.

This reporting may soon no longer be a choice. Scope 3 has until now been mostly voluntary, but pressure to make it mandatory is growing. The International Sustainability Standards Board (ISSB) and US SEC have both drafted recommendations requiring some disclosure of scope 3 emissions, with the ISSB also requiring qualitative information to explain how reported emissions were calculated.

WHY ARE SCOPE 3 EMISSIONS SO DIFFICULT TO MEASURE AND REPORT?

Scope 3 emissions are notoriously complex to measure. Less than 60% of companies reported their scope 3 emissions to the CDP in 2021, and most do not report on all scope 3 categories.

Figure 36. Number of companies that publicly disclose scope 3 (WRI)

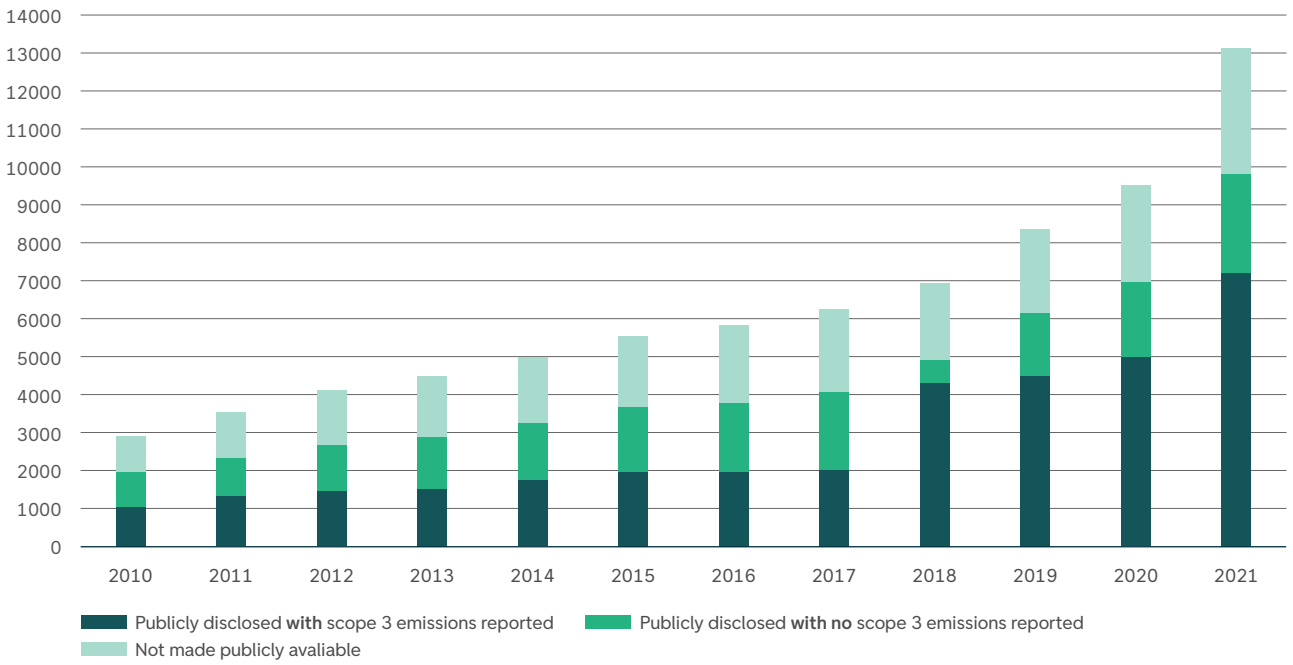


Figure 37. Average number of scope 3 categories reported (WRI)

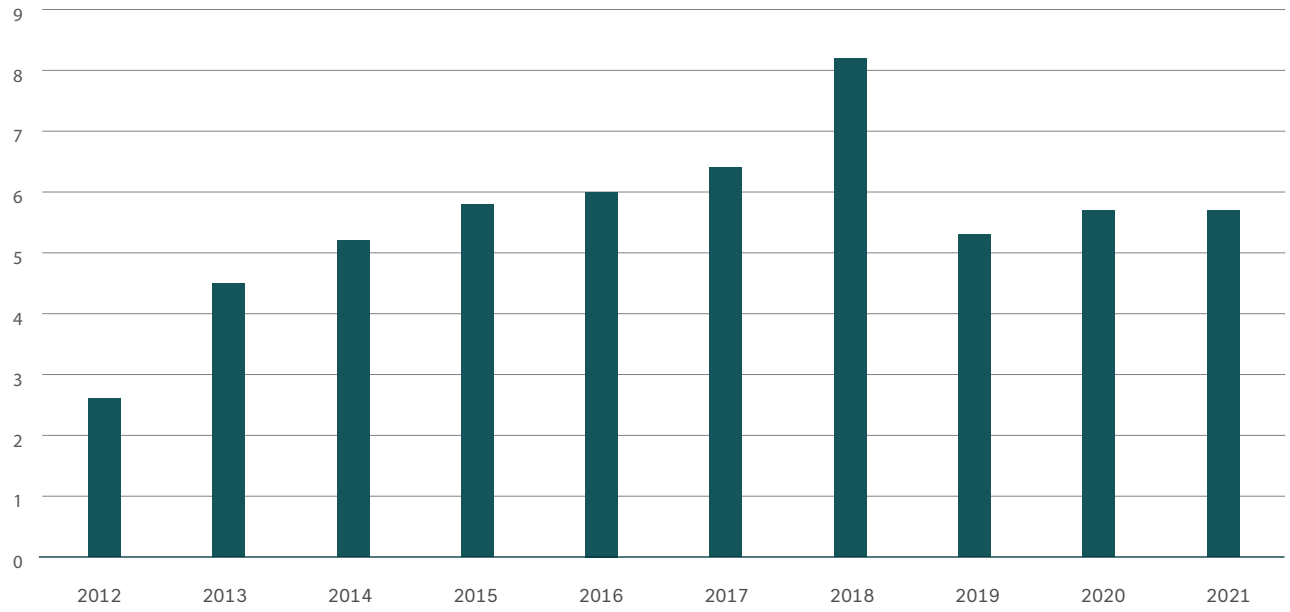
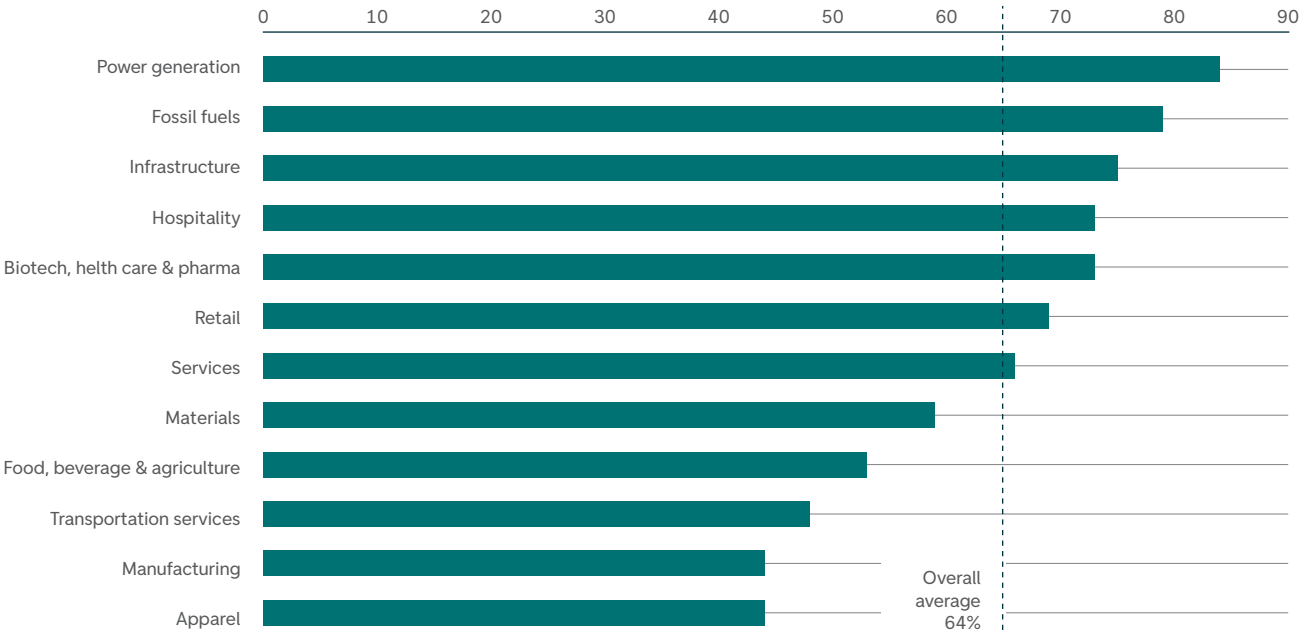


Figure 38. Scope 3 reporting by industry (WRI)

Percent



Some companies have thousands of suppliers and customers, and the data needed lies outside a company's direct control. The GHG Protocol's technical guidance for calculating scope 3 emission recommends prioritising primary data. Where primary data is lacking, the protocol allows the use of industry averages, proxies, or other sources – but this also poses challenges, for example, regarding how to account for uncertainties arising from data collection or quality, or whether values accurately represent the underlying activities. It may be difficult to determine whether variation in calculated emissions is driven by methodological choices, or due to limitations resulting from the modelling approaches used.

Boundary is another issue. While the fifteen scope categories are designed to be mutually exclusive, overlap is possible if an organisation is involved in multiple stages in the life cycle of products. Double counting can arise as a result. The challenge with double counting is particularly prominent when aggregating to portfolio level, as underlying companies may have interlinked value chains, particularly in sector funds.

Finally, calculating scope 3 is expensive and time consuming, as it requires personnel, resources, expertise and data management and quality processes - all of which requires good management and leadership support. Even with good leadership support, the data may not be detailed enough (or of good enough quality) to support better management decisions or identify distinct opportunities for a company to lower emissions. Overreliance on modelling may also tempt managers to pay too much attention to the model rather than taking actions to make real improvements to scope 3 emissions. This is particularly true when executive remuneration is linked to the model's output. Consequently, there is a risk that the only things included in the reporting are those areas which are most easily measured, rather than the most material items.

ESG DATA PROVIDERS HAVE ESTIMATED SCOPE 3 EMISSIONS

Due to incomplete reporting from companies, ESG data providers now often estimate these emissions. Though this is an important step, providing high level signals that are useful for company engagement, estimation methodologies necessarily rely on assumptions to offer sufficient coverage. Consistency between estimated scope 3 emissions between providers is low, with correlations as low as 1% according to research from Stanford University. Another study comparing the scope 3 emissions datasets of three of the largest data providers (Bloomberg, Refinitiv Eikon, and ISS) also found considerable divergence between the providers – it found only 68% identical datapoints between Bloomberg and Refinitiv Eikon for company-reported scope 3 data (despite high correlation levels (95%)), and 0% identical datapoints when Bloomberg and Refinitiv Eikon were compared to ISS due to ISS' proprietary estimation model (within 1% error), coupled with low correlation (55-56%). On average, we found a 77% difference between modelled scope 3 emissions from ISS-ESG and those using MSCI ESG's estimation model, though it should be noted that this test was performed on a relatively small sample (17 companies).

Sources:

SEC.gov
wri.org
cdn.cdp.net
energy.stanford.edu
bde.es
Claims Carbon Institute
pwc.com
tridentutilities.co.uk

METHODOLOGY

Below we summarise the ISS-ESG PAE methodology along with some of our own observations. The PAE assessment considers a single product category per company, sometimes covering as little as 6% of the revenues. This approach reduces the total PAE attributed to each company compared to if the analysis had covered the entire product portfolio. The analysis covers, on average, 70% of company revenues for the 31 names – this represents 67% of the portfolio by weight as at the 04.05.2022 when Signify is not included.

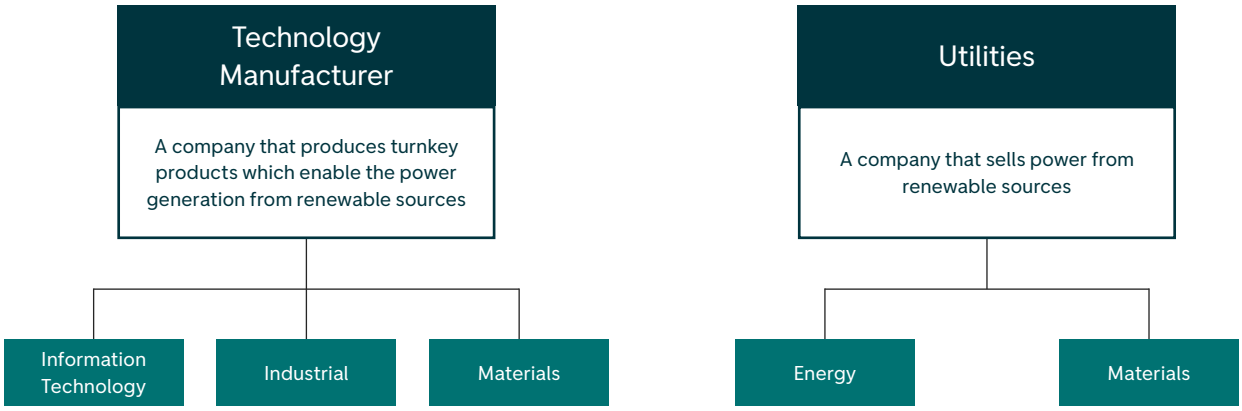
Avoided emissions are "emissions that would have been released if a particular action or intervention had not taken place". Avoided emissions can appear throughout third parties' value chains depending on the type of product or service offered and how this product or service affects operations. See example outlined in Figure 25.

To quantify an amount of PAE, a baseline must be established. The baseline describes what would have occurred if the product or service had not been made available. The PAE are obtained from the difference in GHG emissions between the baseline level and the scenario where the product or service is made available[30]. The emissions avoided by using a more efficient product or service are often conditional to either consumer or market behaviour, although this analysis does not make absolute predictions about behaviour or market developments. Consequently, ISS-ESG has chosen to use the expression potential avoided emissions to underline that the avoided emissions presented in this report are not assured or verified by a third party and are dependent on certain behaviours. Furthermore, the companies included in this analysis provide popular services with a proven market demand, sometimes using infrastructure that has been in place for over a century. It is therefore difficult to establish additionality. For instance, if one company were to cease operation; it is likely that a company with a similar offering would take its place in the market. Further, the source of finance is arguably primarily driven by market demand and financial opportunity rather than a motivation to support activities with proven climate change mitigating effects. Most stakeholders therefore agree that climate mitigating contributions from products and services that are financed through traditional financial markets may not be additional in that they are already taking place in a business-as-usual scenario.

Nonetheless, this should not discourage investors from assessing positive impact. The products and services that are financed via investments, such as renewable energy or LED lights, are vital to transitioning away from carbon intensive activities. The private sector and investors are therefore expected to play a crucial role in the implementation of the Paris Agreement. The policy environments created by Nationally Determined Contributions (NDCs) are making low-carbon technologies attractive for investors, for example through renewable energy auctions. This encourages the private sector to contribute to reaching climate targets. Evaluating the climate change mitigating effects of an investment is a complex exercise. This methodology provides a simplified approach that can be applied at portfolio level. The methodology focuses on investments involved in the production and/or distribution of renewable energy. With a wide array of actors ranging from component manufacturers and material suppliers to wholly integrated manufacturers, project developers and operators to utility providers, the renewable energy sector is highly diverse. ISS-ESG defines two primary groups within this (see Figure 39): renewable energy technology manufacturers and utilities.

30) CDP, Technical note: Glossary terms.

Figure 39. ISS-ESG defines two primary products within the renewable energy sector



KEY METHODOLOGICAL CHANGES IN THIS YEAR'S ASSESSMENT

- **Emissions factors:** Introduction of a two-tiered approach for applying emissions factors. The primary model utilises country-by-country emissions factors, whereas the secondary model utilises a global average. In previous years, the (now) secondary model has been applied for all holdings.
- **Scenarios:** Two scenarios have been measured. Previously only the IEA STEPS scenario has been applied. In this year's assessment, the NZ scenario has also been tested.
- **One product category:** Previously, in cases where the company has not reported company-wide avoided emissions that have been accepted by ISS-ESG after quality checks, only one product category per company has been assessed. This remains the case for most companies in this year's assessment, except for AMG Advanced Metallurgical Group.
- **Scope 3 emissions:** ISS-ESG has further developed its scope 3 estimation model compared to last year. As a result, some companies' modelled scope 3 emissions have changed compared to previous years.

SHORTCOMINGS OF POTENTIAL AVOIDED EMISSIONS ANALYSIS

Our assessment of the shortcomings of the PAE analysis can be found in their entirety in our 2020 report. Here we summarise the main points:

- **Double counting:** in an interlinked society with complex value chains, it is nearly impossible to completely exclude double counting.
- PAE assessment only considers a **single product category per company:** Sometimes as little as 4% of company revenues have been covered by the assessment. Though this approach is considered best-practice today, we believe that the final result is highly conservative.
- The results rely on the **quality of available data:** we note a substantial difference in the quality and volume in company responses. For companies that were not able to provide data but whose offering enables PAEs, generic data has been used. In some cases, the calculations are based on generic estimates.
- **Calculations are based on backward-looking data:** Investors invest based on the prospect of what companies will deliver in the future.
- **Conservative assumptions:** For instance, the lifetime assumption of an asset is a key consideration. If we change the assumption around the number of years a solar park will be in operation in our discounted cash flow analysis, it will yield different results. For many of the products we have used conservative lifetime assumptions while, in reality, they will be in operation longer, thereby saving more emissions.
- **Determining the baseline:** The baseline itself introduces uncertainty. For instance, for the power generation sector, the local grid emission factor can vary substantially between regions. In practice, it is also difficult to obtain accurate data. The calculation for the baseline comparison is therefore based more on high-level and readily available data.
- **Additionality:** It is difficult to establish additionality.

8. Alignment to the United Nations Sustainable Development Goals

The United Nations (UN) Sustainable Development Goals (SDGs) were adopted by all UN Member States in 2015. The goals provide a shared blueprint for peace and prosperity for people and the planet, now and in the future. The SDGs consist of 17 goals and 169 targets which aim to address the greatest challenges faced by the global community by 2030. Along with governments, the SDGs call on private sector participation to solve some of the world's most urgent problems this decade.

THE SDGS ARE PART OF OUR STRATEGY

As described in chapter 5, the SDGs are an interesting framework to consider, and are an important part of our ability to demonstrate positive contribution as defined by the SFDR regulation.

MAPPING SDG ALIGNMENT

Our portfolio specifically targets investments in companies that provide positive environmental and climate benefits through their products and services. In previous years, we have mapped company revenues to the SDGs using Bloomberg's SDG model to demonstrate potential portfolio revenue exposure to the SDGs. However, over the past year, the methodological approach and framework has developed. The new framework relies on data from S&P Trucost on SDG alignment and additionality. DNB AM builds on this data with a proprietary methodology, mapping revenue streams that are not covered by S&P Trucost and overriding data in cases where DNB AM is not in agreement with S&P Trucost's approach and/or revenue split. Any changes to SDG data must undergo a thorough governance process, documenting rationale for changes which must be approved by a committee. Risk management, equity investments, and responsible investments are amongst those disciplines represented in the committee.

As discussed in chapter 5, the SDG framework is used to demonstrate positive contribution as an article 9 fund under the SFDR. For companies using this framework (as at 30.09.2022), the following preliminary SDG alignment is observed:

Figure 40. SDG alignment for companies using SDG alignment to demonstrate positive contribution (as at 30.09.2022)

Figure 41. Potential SDG revenue alignment based on previous methodology using Bloomberg data (as at 30.09.2021)

Figure 42. Potential SDG revenue alignment based on previous methodology using Bloomberg data (as at 30.09.2020)

In line with previous years, SDG 7 (affordable and clean energy), SDG 9 (industry, innovation, and infrastructure), and SDG 11 (sustainable cities and communities) are dominant. However, we also see substantial alignment from SDG 12 (responsible consumption and production) and SDG 14 (life below water), which is new compared to previous years. IMCD is the most significant contributor to alignment to SDG 9, whereas Benchmark Holdings and Wartsila show alignment to SDG 14.

Note that only 23/53 portfolio holdings are included in the assessment as at 30.09.2022 – this is because the remainder of the portfolio demonstrates positive contribution using PAE or taxonomy-alignment. Also, it is important to highlight that the methodology for measuring SDG alignment and positive contribution are still under development. As such, results may vary in future reporting.

9. Appendix

9.1 Exclusion criteria

The fund applies several layers of exclusion criteria:

Excludes	Based On
Companies found to be in breach of:	DNB's Standard for Responsible Investments
→ Product-based criteria (production of tobacco, production of pornography, controversial weapons)	
→ International norms and standards	
Companies with >5% of revenues from:	Additional exclusion criteria
→ Alcohol production	
→ Gambling	
→ Conventional weapons	
Companies with >5% of revenues (unless otherwise specified) from:	FNG Label
→ Manufacturers that mine uranium	
→ Companies that base their electricity generation on nuclear energy	
→ Operators of nuclear power plants and manufacturers of essential components for nuclear power plants	
→ Companies which use and/or produce hydraulic fracking technologies	
→ Manufacturers of conventional weapons	
→ Coal mining companies*	
→ Companies with base their power production on coal energy (less than 10% of revenues)	
→ Companies which exploit and/or concentrate oil sands*	

*Stricter threshold than the DNB Standard for Responsible Investments

9.2 Disclaimers

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The European SRI Transparency logo signifies that DNB Asset Management commits to provide accurate, adequate and timely information to enable stakeholders, in particular consumers, to understand the Socially Responsible Investment (SRI) policies and practices relating to the fund. Detailed information about the European SRI Transparency Guidelines can be found on www.eurosif.org, and information of the SRI policies and practices of the DNB Asset Management can be found at: https://www.dnb.no/en/about-us/csr/sustainability-library.html. The Transparency Guidelines are managed by Eurosif, an independent organisation. The European SRI Transparency Logo reflects the fund manager's commitment as detailed above and should not be taken as an endorsement of any particular company, organisation or individual.

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FNG LABEL

The FNG-Label is the quality standard for sustainable investments on the German-speaking financial market. It was launched in 2015 after a three-year development process involving key stakeholders. The sustainability certification must be renewed annually.

The FNG-Label gives the German-speaking countries a quality standard for sustainable mutual funds. The holistic methodology of the FNG-Label is based on a minimum standard. This includes transparency criteria and the consideration of labour & human rights, environmental protection and anti-corruption as summarised in the globally recognised UN Global Compact. In addition, all companies in the respective fund must be explicitly analysed in terms of sustainability criteria. Investments in nuclear power, coal mining, significant coal-fired power generation, fracking, oil sands, weapons and armaments are taboo.

High-quality sustainability funds that excel in the areas of "institutional credibility", "product standards" and "impact" (title selection, engagement and KPIs) are awarded up to three stars. The FNG-Label goes far beyond a mere portfolio assessment and is holistic and meaningful. With more than 80 questions, the Label analyses and evaluates, for example, the sustainable investment style, the associated investment process, the associated ESG research capacities and a possibly accompanying engagement process. In addition, elements such as reporting, the investment company as such, an external sustainability advisory board and issues of good corporate governance play an important role.

The auditor of the FNG-Label is the University of Hamburg. The Qualitätssicherungsgesellschaft Nachhaltiger Geldanlagen (QNG) bears overall responsibility, especially for coordination, awarding and marketing. An independent committee with interdisciplinary expertise also accompanies the audit process. The FNG-Label has been awarded the title "highly recommended" by the consumer portal www.label-online.de and has been added to the shopping basket of the German Council for Sustainable Development. The EU, together with the other national, governmental label systems, has also invited it to join a working group within the framework of the EU Action Plan for financing sustainable growth.

Detailed information on the methodology can be found in the rules of procedure.

Further information on the FNG-Label: www.fng-siegel.org.

Photo: Unsplash

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