UN environment programme | finance initiative

PRI Principles for Responsible Investment

UN-convened Net-Zero Asset Owner Alliance

Tackling Hidden Emissions for a Net-Zero Transition

A discussion paper on Scope 3 integration

December 2024

Antitrust and Regulatory Disclaimer

The Net-Zero Asset Owner Alliance (the Alliance) and its members are committed to comply with all laws and regulations that apply to them. This includes, amongst others, antitrust and other regulatory laws and regulations and the restrictions on information exchange and other collaborative engagement they impose.

For the avoidance of doubt, the content set out within this paper do not constitute advice to members of the Alliance. This paper is not prescriptive as to actions or decisions to be taken by members—the Alliance's members set individual targets and make their own unilateral decisions. As such, the Alliance takes no liability for actions or decisions taken by members when applying the principles of this paper.

Cover image: unsplash.com/photos/valley-of-the-moon-in-jordan-xsFxnW9_KZ0

Acknowledgements

Pauline Morel (CDC), Mauricio Blancas Bracco (Aegon), Carina Silberg (Alecta), Philip Wikström (Alecta), Cornelia Nissen (Allianz), Maximilian Bong (Allianz), Leander Weigelt (Allianz), Leyla Javadova (Allianz), Patrick Peura (Allianz), Justine Tate (Aviva), Saurabh Singh (Aviva), Penny Apostolaki (Aviva), Martin Taillandier (BPCE), Sophie Constans (CDC), Antti Malava (DanicaPension), Quinn Liu (DanicaPension), Jacopo Cardinali (Generali), Elisa Vergine (Generali), Arianna Pierantoni (Generali), Quentin Braida (Groupama), Querit Tovar (Groupama), Andrea Negri (Intensa Sanpaolo Vita), Moreno Capretti (Intensa Sanpaolo Vita), Francesco Di Muro (Intensa Sanpaolo Vita), Alex Bogun (KENFO), Charlie Miller (Legal&General), Cedric Balton-Stier (MunichRe), Flora Nagy Lomholt (PensionDanmark), Stuart Wilson (Prudential), Jwalant Patel (QBE), Gerald Krückl (R+V Versicherung), Marcel Ullrich (R+V Versicherung), Mark Arrowsmith (Rothesay), Ben Keeling (Rothesay), Yun Wai-Song (SCOR), Ben Weidmann (SwissRe), Dariush Karimi (Unipol), Marjorie Breyton (Unipol), Michael Valenta (WWF), Leonie Ederlie Fickinger (WWF), Pauline Morel (CDC), Teodora Cakarmis (UNEP FI), Mel Peh (UNEP FI), Jesica Andrews (UNEP FI), Carolin Gresch (UNEP FI).

The Alliance extends its sincere gratitude to the data providers, especially MSCI Inc, S&P Global, Moody's and Refinitiv, an LSEG Business. and reviewers whose valuable contributions have been instrumental to the development of this paper.

Abbreviations and acronyms

The Alliance	UN-convened Net-Zero Asset Owner Alliance
GHG	Greenhouse gas
CO_2	Carbon dioxide
IPCC	Intergovernmental Panel on Climate Change
CDP	"CDP" Formerly known as "Carbon Disclosure Project"
HLEG	High-Level Expert Group on the Net Zero Emissions Commitments of Non-State Entities
PCAF	Partnership for Carbon Accounting Financials
SBTi	Science Based Targets Initiative
CSRD	Corporate Sustainability Reporting Directive
ESG	Environmental, Social and Governance
ESRS	European Sustainability Reporting Standards
IFRS	International Financial Reporting Standards
$GtCO_2$	Gigatonnes of carbon dioxide
GHGP	Greenhouse Gas Protocol
WRI	World Resources Institute
FTSE	Financial Times Stock Exchange
OECM	One Earth Climate Model
GICS	Global Industry Classification Standard
LSEG	London Stock Exchange Group
IEA	International Energy Agency
IPIECA	International Petroleum Industry Environmental Conservation Association
TPI	Transition Pathway Initiative
NZBA	Net-Zero Banking Alliance
UNEP FI	United Nations Environment Program Finance Initiative

Contents

1. Importance of Scope 3 emissions for the net-zero transition

Members of the UN-convened Net-Zero Asset Owner Alliance (the Alliance) have committed to achieve net zero greenhouse gas (GHG) emissions in their investment portfolios by 2050, consistent with a maximum temperature rise of 1.5°C. Members have also committed to undertaking portfolio decarbonisation that can emphasise "GHG emissions reduction outcomes in the real economy". Limiting global warming in the real economy to 1.5°C (with a 50 per-cent probability) requires keeping the global cumulative carbon dioxide (CO_2) budget below 300 gigatonnes of CO_2 ($GtCO_2$) (Intergovernmental Panel on Climate Change IPCC, 2023). As capital providers, asset owners are well-placed to encourage company behaviour that remains within the carbon budget.

The Alliance's current Target-Setting Protocol governs how members set their intermediate climate targets. This states that members shall set targets on their own Scope 3 emissions (their investment portfolios), which include the Scope 1 and 2 emissions of their investee companies. However, given that on average 75 per cent of a company's GHG emissions fall under Scope 3 (CDP, 2023), it is crucial for asset owners to also consider the Scope 3 emissions of their invested companies in their portfolio steering and overall climate strategy. This paper discusses the challenges and possibilities of including investee/portfolio company's Scope 3; i.e. including the portfolio company's Scope 3 within the financial institution's Scope 3.

Accounting for financed Scope 3 emissions helps asset owners to understand the high-emitting activities within their investment portfolio and gain insight into transition risk exposure (LGIM, 2023a). This is why Scope 3 emissions are becoming integrated into a growing number of regulatory disclosure frameworks, such as those in the European Union or in the state of California in the United States (see Box 1).

Furthermore, inclusion of Scope 3 in target setting for non-financial companies is increasingly viewed as best practice by many international standard setters. The High-Level Expert Group on the Net Zero Emissions Commitments of Non-State Entities (HLEG), as well as the Partnership for Carbon Accounting Financials (PCAF), stresses that targets set by businesses and financial institutions "must include emissions reductions from a non-state actor's full value chain and activities, including: Scope 1, 2 and 3 emissions for businesses. Where data are missing for Scope 3 emissions, businesses should explain how they are working to get the data or what estimates they are using"

(HLEG, 2023, p.17). Similarly, the Science Based Targets Initiative (SBTi) requires all companies whose Scope 3 emissions account for more than 40 per cent of their total GHG emissions to set a Scope 3 target (SBTi, 2023a).

Nevertheless, as a financial institution, integrating portfolio companies' Scope 3 emissions in carbon accounting and target setting is highly challenging. The accounting is complex due to the lack of a standardised methodology, an overreliance on estimation models, a limited availability of data across sectors, and the ability of companies to select the emission category that is relevant to their specific business activity. In turn, the accounting complexity affects the inclusion of Scope 3 in target setting by asset owners due to changing emission baselines. Asset owners need to ensure that they set targets based on reliable data, as they exercise a fiduciary duty and, in many cases, report these targets externally.

The first objective of this discussion paper is to unpack the various challenges of Scope 3 integration and to formulate concrete calls to action to the most relevant stakeholders (Chapter 2). These challenges will be explored through three sectors where Scope 3 is most significant. The second objective is to offer potential solutions for Scope 3 integration for these three example sectors (Chapter 3). To further support asset owners, this paper offers an outlook and next steps for incorporating Scope 3 emissions consideration in portfolio decarbonisation (Chapter 4). On the whole, the aim of the paper is not to set any standards on the inclusion of investee Scope 3 for Alliance members. Rather, the goal is to open a meaningful discussion among policymakers, data providers, corporates, and asset owners on this topic, as well as to provide recommendations on possible next steps.

Box 1: Jurisdictions with mandatory Scope 3 accounting and disclosure

European Union

The European Parliament adopted the Corporate Sustainability Reporting Directive (CSRD) in November 2022. The directive became effective in January 2023 and will be phased in over the next five years. The CSRD significantly expands the scope of companies subject to reporting requirements in the European Union and requires these companies to provide detailed environmental, social, and governance (ESG) disclosures on limited assurance level. Starting in 2028, reasonable assurance will be required. Climate Change Reporting Standards (ESRS E1) include further detail regarding the requirements to disclose Scope 1, 2, and 3 emissions.

California, United States of America

On 7 October 2023, California enacted S.B. 253, the Climate Corporate Data Accountability Act, which will require certain companies to disclose their direct (Scope 1), indirect (Scope 2), and value chain (Scope 3) GHG emissions. The bill will also require assurance on these disclosures by 2030. The law applies to any reporting entity with annual revenues in excess of USD 1 billion.

Japan

Starting in March 2027, companies including foreign companies listed on the Tokyo Prime Stock Exchange with market value of JPN 3 trillion or more will be required to follow the disclosure framework developed by the newly-established Sustainability Standards Board of Japan. The framework is expected to be in line with International Financial Reporting Standards S1 (IFRS)—General Sustainability-related Disclosures and IFRS S2—Climate-related Disclosures, requiring the disclosure of all three scopes. Such disclosures of Scope 1 and 2 will enable value chain calculation of Scope 3.

2. Integrating Scope 3 emissions as asset owners: the challenges

2.1 Carbon accounting

Asset owners' accounting of their financed emissions in Scope 3 Category 15 relies heavily on the disclosures and methods used by their portfolio companies as well as on estimations from data providers. In recent years, the number of standards in this area have been increasing. The most widely recognised standard is the Greenhouse Gas Protocol (GHGP) and its supplement for corporate value chain accounting and reporting standards (WRI, 2019). This standard allows organisations to categorise and track different types of Scope 3 emissions: it provides guidance on assessing the impact of organisations' value-chain emissions; and it can help organisations identify potential emission-reduction activities. Many other standards build on GHGP. An example is the guidance from the PCAF, which provides sector-specific carbon accounting frameworks tailored for different financial institutions. Nevertheless, these standards provide limited guidance on the accounting of Scope 3 Category 15 data for financial institutions.

Despite GHGP being the common starting point for many standards, organisations face several challenges regarding carbon accounting. Some of the issues mentioned below are more important than others and consequently require varying levels of attention and effort.

Loose interpretation of the framework: GHGP still gives considerable leeway for the interpretation of the framework. The Scope 3 survey by CDP (2023) showed that the interpretation of GHG accounting standards was considered a challenge by 45 per cent of respondents. This set of respondents found the guidelines difficult to interpret correctly and they believed that differing interpretations limit comparability between peers.

Flexible definition of material Scope 3 categories: GHGP defines minimum boundaries and specifies activities for each of the 15 categories of Scope 3 emissions. However, as highlighted by the SBTi's Value Chain Report (SBTi, 2023b), the qualitative nature of the GHGP's criteria for identifying relevant Scope 3 activities leads to ambiguity in their interpretation. Companies may end up measuring and reporting emissions in categories that are easy to calculate (e.g. business travel), rather than categories where most of their emissions occur but are more complex to account for (Kolk *et al.*, 2008).

Unreliable assumptions due to mismatched timeframes: Depending on whether emissions are stemming from upstream or downstream in the value chain, they may have occurred outside of the reporting year or they may be accounted for as future expected emissions. To account for company emissions in a particular year, assumptions need to be made. However, limited precedent, coupled with the lack of experience and appropriate tools for many companies, deter the initiation of Scope 3 reporting. These factors also contribute to inconsistencies over time at the company level.

Deviating consolidation approaches: The GHGP Corporate Value Chain Accounting and Reporting Standard provides three approaches for emissions consolidation: equity share, financial control, and operational control.[1] Each method can yield widely different emissions figures. Here, disparities can occur amongst Alliance members when aggregating their investees' Scope 3 emissions. Although some organisations do provide guidance on this topic, their guidance can differ from sector to sector. For instance, PCAF (2022) states that the operational or financial control approach should be used to ensure consistency for financial institutions.

Changing baselines through emission restatements: When companies expand the Scope 3 emission categories they report, there can be a significant impact on the calculation of financed emissions. The same can occur when they shift organisational or temporal boundaries, or when the coverage of Scope 3 emission data enhances. As these emission figures may be used for baseline calculations for target setting, restatement of financed emissions would be required, making target steering and target achievement challenging for asset owners.

Varying emission factors: In order to calculate the emissions (e.g. CO_2 equivalent [CO_2e]) of a product or activity, emission factors (e.g. CO_2e per kilowatt-hour [kWh]) are being used multiplied with the activity data (kWh). These emission factors vary significantly across various activities. The absence of consistent guidance leads to discrepancies in similar activities and significant variations in conversion values, which materially affect Scope 3 accounting (Downie & Stubbs, 2012).

2.2 Data availability, accuracy, and consistency

Asset owners' ability to make comprehensive assessments of companies' climate profiles relies on being able to analyse trustworthy corporate disclosures of GHG emissions. Yet, the current state of GHG disclosures remains challenging for both data providers and asset owners.

1 The **Equity Share Approach** accounts for emissions based on a company's share of equity in an operation, focusing on economic interest rather than legal ownership. The **Financial Control Approach** accounts for 100 per cent of emissions from operations where a company directs policies for economic gain. The **Operational Control Approach** also accounts for 100 per cent of emissions but is based on the authority to implement policies. Each method can yield widely different emissions figures.

Low number of Scope 3 emission disclosures: A 2024 analysis looking into FTSE All-World found that around 70 per cent of the companies are reporting Scope 1 and 2 emissions but only 45 per cent of the companies disclose Scope 3 emissions (FTSE Russell, 2024). Similar figures are presented in an analysis by Hong Kong and Shanghai Banking Corp (HSBC), which shows that around 38 per cent of the 647 analysed companies in Asia disclose Scope 3 emissions (HSBC, 2024). 'Modelled' Scope 3 emissions account for 72 per cent of total index emissions data (based on number of constituents/ companies in the MSCI World index) of total emissions of companies in the FTSE All World Index (see Annex Figure A.1) (LGIM, 2023).

Low disclosure of material Scope 3 emissions: Looking at the quality of the disclosed Scope 3 data, the FTSE Russell analysis (2024) showed that only 20 per cent of companies disclose information on their material Scope 3 categories. In emerging markets, this number is even lower, at around 5 per cent. Moreover, the analysis recognised high volatilities of such disclosures.

Low data correlation across data providers: Comparative research conducted by Busch, Johnson, and Pioch (2022) demonstrated a significantly lower level of Scope 3 data correlation across data providers when compared to reported Scope 1 and 2 data.

Low quality of estimated Scope 3 data: The disclosed Scope 3 data in many cases serve as a basis for further estimation models. Since disclosed Scope 3 data[2] are already limited in quantity and quality,[3] this also effects the quality of estimated Scope 3 data (FTSE Russell, 2024). Scope 3 estimated data can increase data coverage, but these data are subject to various assumptions and interpretations, which makes such data less comparable and transparent among data providers.

Consequently, it is recommended that asset owners analyse the correlation of reported and estimated Scope 3 data of investee companies to generate estimated minimum and maximum ranges of possible financed Scope 3 emissions within their investment portfolios. This builds both the understanding of data weaknesses for engagement with data providers and assists in identifying possible companies and sectors with higher transition risks.

2 Note: Inconsistencies in reported data can also be caused by different assumptions that companies make to estimate their own Scope 3 emissions and incomplete reporting by companies. Therefore, high-quality estimation models may be more consistent than reported data, as they apply the same assumptions across all companies. These estimation models should be transparently disclosed.

3 A higher data quality should be comprised of transparent disclosure of applied carbon accounting methodology, including assumptions taken around estimation models, third party verification of underlying data at reasonable assurance levels, and coverage of material emission categories.

2.3 Double counting

When the Scope 3 emissions of only one firm within a value chain are being evaluated, the issue of double counting of emissions does not arise. However, including Scope 3 in carbon accounting for multi-asset and multi-sector portfolios can lead to double and, in some cases, multiple counting of emissions and emissions reductions.[4] This can occur because of overlapping emissions scopes, value chains, asset classes, organisational boundaries, and corporate actions (MSCI, 2021). Moreover, double counting can also occur on other levels; namely, between financial institutions that are co-financing the same entity or same activity, between transactions within the same financial institution, and between/within different asset classes (PCAF, 2020). Likewise, double counting can already occur when including Scope 2 emissions, especially when the Utilities sector is overweighted in the portfolio of the asset owner.

First, Scope 3 emissions (Category 15) of an asset owner are by definition double counted as these emissions have already been counted at the level of corporates or assets, as Scope 1 and 2 emissions. In addition, the internal double counting at the level of asset owners' various activities (lending, investment, asset management, and insurance) can result in emissions being counted several times. Such distortions in accuracy could not only bias the reporting of asset owners' GHG emissions, but could also influence the understanding of environmental impact of portfolio companies. Moreover, Gopalakrishnan argues (2020) that, by hindering correct emission allocation, double counting also hinders incentive creation for those portfolio companies to reduce their supply chain footprints.

The most material source for double counting for asset owners stems from including Scope 3 emissions into the portfolio-level carbon inventory. This is due to the fact that two or more companies may account for the same emissions within Scope 3 or that two or more companies may account the same emissions in different scopes. Hence, GHGP (GHGP, 2022) does not recommend institutions aggregating Scope 3 emissions across companies to determine total emissions. In addition, GHGP recommends that Scope 1, 2, and 3 emissions of companies be reported separately as they are, in principle, mutually exclusive. To ensure transparency and avoid misinterpretation of data, companies should acknowledge any potential double counting of reductions or credits when making claims about Scope 3 reductions. Consequently, asset owners should not aggregate Scope 1, 2, and 3 on portfolio level, but should instead treat Scope 3 separately.

4 Both types will be referred to as "double counting" in the rest of the paper.

Box 2: OECM's Approach to Mitigate the Risk of Double Counting

Appropriate attribution rules can help avoid the sources of double counting for co-financing institutions and for transactions within the same asset class of one financial institution. One exemplary approach for mitigating the risk of double counting is the One Earth Climate Model (OECM), which aligns with the IPCC's Socioeconomic Pathways 1 scenario aiming to restrict global warming to a maximum of 1.5°C with no or limited overshoot. OECM translates emissions from Scope 1, 2, and 3 into specific emission trajectories for various industries, in accordance with the Global Industry Classification Standard (GICS) (Teske *et al.*, 2020). In this context, Scope 3 emissions are seen as indirect emissions associated with sector-specific activities and/or products categorised under GICS. OECM exclusively reports emissions directly linked to activities falling within the GICS classification, categorising them into three classes: primary class, secondary class, and end-use activity class. To reduce the risk of double counting, a primary class is defined for the primary energy sector, a secondary class for supply utilities, and an end-use class for all economic activities that use energy from companies classified under the primary and secondary classes (Teske *et al.*, 2022). Consequently, OECM adopts a "production-centric view", reallocating specific activities to Scope 1 rather than Scope 3. Subsequently, the mapping of Scope 3 activities for companies in OECM deviates from the GHGP definition, creating a disparity between what companies report and how the OECM method evaluates emissions.[5]

5 Next to this approach, the scientific community is exploring new approaches to mitigate double counting, as discussed in "Principles and Content for Downstream Emissions Disclosures" by Robert S. Kaplan and Karthik Ramanna (2024).

3. Material sectors on Scope 3 emissions: a sector-level deep dive

Scope 3 emissions account for a material part of total emissions for many sectors, for example Oil and Gas, Utilities and Financials. For these sectors, CDP (2023) found that Scope 3 emissions make up 89 per cent (Oil and Gas), 49 per cent (Utilities) and almost 92 per cent (Financials), respectively (see Figure 1).

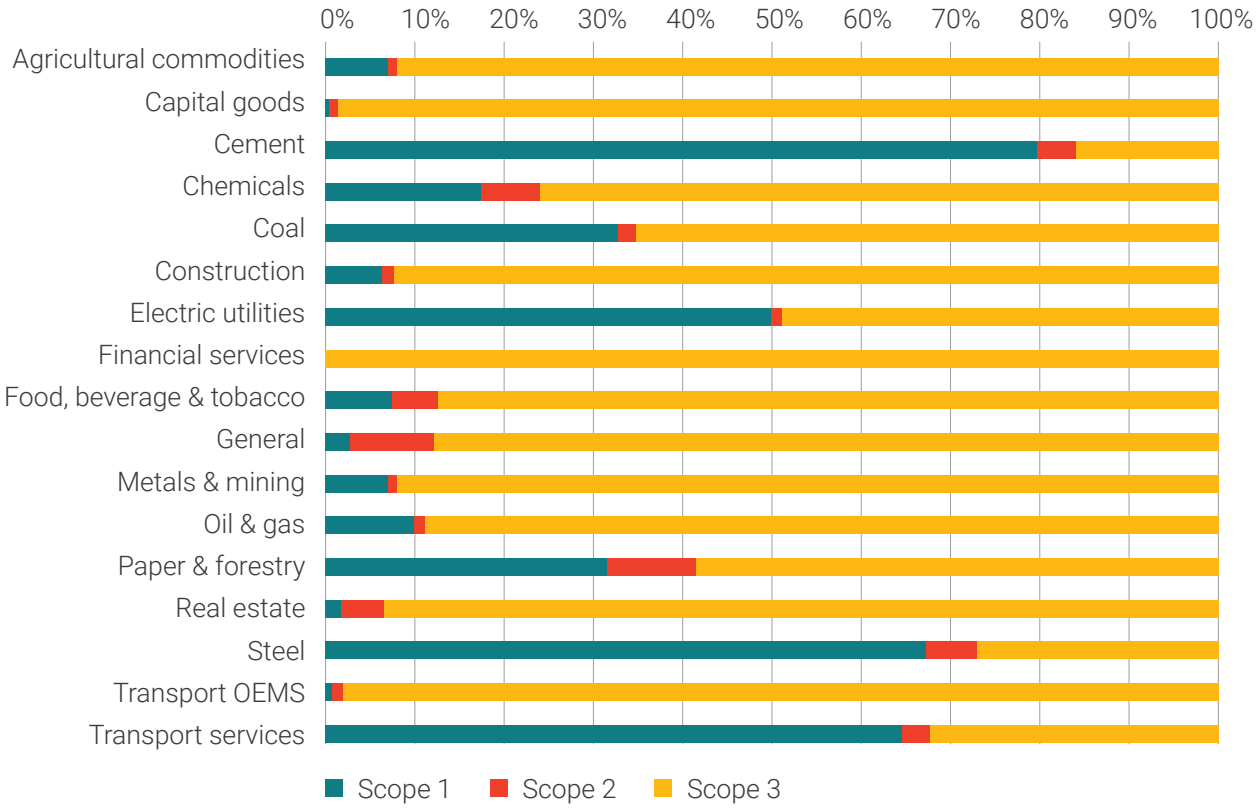

Figure 1: Scope 1, 2, and 3 emissions distribution by sector (CDP, 2023)

Thus, understanding investees Scope 3 emissions in climate commitments supports an asset owner's overall climate strategy, adding transparency on the full life-cycle sustainability of companies' products and services. Subsequently, this understanding supports the decarbonisation strategy of asset owners and helps them to integrate this knowledge into their climate actions and engagement plans.

This chapter conducts an in-depth analysis of some of those sectors that present particular challenges, entail significant transition risk for asset owners. The main objectives of

this chapter are to address the different challenges of Scope 3 within these sectors and to propose recommendations and avenues for action and further research. To facilitate the sector analysis, emission data from a predefined set of 53 companies (22 Oil and Gas companies, 15 utilities companies, 16 banks) were compared. These were provided by four data providers: MSCI, S&P Global, Moody's and Refinitiv, an LSEG Business. Example extracts for each sector are displayed in the Annex, extracted from a data set provided by MSCI. Relevant parts of the data templates submitted for the analysis are captured in the annex. The selection focuses on large-cap companies that hold large enterprise value weight and/or demonstrate relevance in benchmarking assessments.

3.1 Oil and Gas

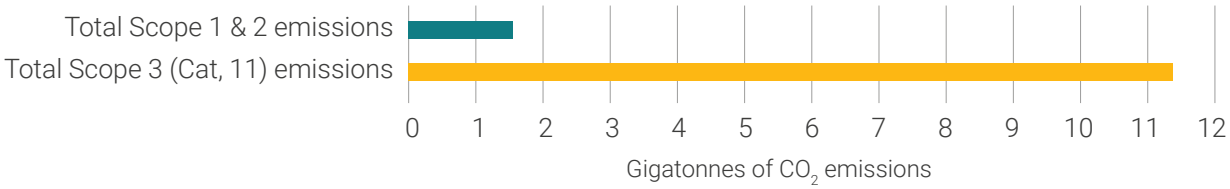

Figure 2: Total annual emissions integrated oil and gas constituents of MSCI ACWI Index

Sector description

The International Energy Agency (IEA) is calculating that the production, transport, and processing of oil and gas is responsible for just under 15 per cent of total energy-related GHG emissions. The use of the Oil and Gas results in another 40 per cent of emissions (IEA, 2023a). The sector encompasses activities such as Oil and Gas production, refining, petrochemical activities, and the sale of hydrocarbon products. The energy sector (including Oil and Gas, Coal, and Bioenergy) accounts for around 40 per cent of methane emissions from human activity (IEA, 2023b). In 2022 alone, IEA estimates that the methane emissions accounted by the Energy sector to be at around 135 million tonnes, with more than 60 per cent stemming from Oil and Gas activities (IEA, 2023b). Moreover, according to IEA, 40 per cent of these emissions within the sector can be avoided by using well-known existing technologies at no net cost (IEA, 2023b).

Key Scope 3 emissions category

Scope 1 and 2 emissions make up around 10 per cent and 1 per cent of total CO_2e emissions for the Oil and Gas industry, respectively, with the remaining 89 per cent attributed to Scope 3 (CDP, 2023). For Oil and Gas, Scope 3 emissions primarily focus on the final use (burning) of hydrocarbons produced. The GHG Protocol's Category 11 ('Use of Sold Products') is the most crucial category and often contributes to over 80 per cent (IPIECA, 2016) of total Scope 3 emissions.

Scope 3 data analysis

Oil and Gas sector Scope 3 emissions have a myriad of caveats of which asset owners need to be mindful when measuring and reporting the financed emissions. Firstly, if liquid fuel products are accounted for in Category 11 ('Use of Sold Products'), there is a risk of double counting emissions in other categories that are involved in the burning of these fuels for transportation (i.e. Category 4, 6, 7 and 9). A similar issue can arise with natural gas, which may be used to produce electricity or as a fuel input in manufacturing or processing products. As a result, since Category 11 is usually by far the most significant subcategory, companies can often exclude reporting on these other categories. Looking at the pre-defined data set, MSCI, Moody's and Refinitiv, an LSEG Business provided reported Scope 3 data for, 17 out of the 22 companies analysed. Compared to MSCI data, the estimated data are higher for 55 per cent of firms. This is due to the different estimations of other Scope 3 categories (see Table A.1).

Estimating Scope 3 emissions often depends on various assumptions, although there is guidance on methodologies surrounding their application, such as IPIECA (most relevant for Oil and Gas). Ideally, an estimate requires knowledge of both the quantity of products sold and the type of final product; if the latter is unknown, a 'carbon content' approach can be applied (using a standard metric for the CO_2e content of the product initially sold). In the case of integrated Oil and Gas companies, it is important to choose the stage of operations where the largest amount of potential products is transferred (IPIECA, 2016) for the calculation. Differences in choices here can lead to material differences in estimations.

Analysis of emissions disclosures reveals sizeable disparities in approach, although broad correlation exists between reported Use of Sold Products emissions and production levels.

Data are generally available for the larger listed Oil and Gas companies that asset owners are likely to own. Unsurprisingly, data disclosure was higher among European Oil and Gas majors, but variations exist even there. Additionally, the choice of the value chain point for measuring volumes varies widely among integrated Oil and Gas majors (i.e. production, refining throughput for oil, or final sales), with implications for emission numbers. For example, companies that disclose estimated emissions at all three points (e.g. Exxon and TotalEnergies) show that this choice can impact emissions by as much as 30 per cent (see Table A.1).

Key takeaways for asset owners

- Careful consideration is necessary when interpreting and using Scope 3 emissions data for the sector Oil and Gas, as the diverse approaches to calculating Scope 3 emissions can significantly impact final numbers. However, reflecting on the research and analysis of the predefined data set of 22 listed companies of the Scope 3 emissions data shows that Scope 3 data are reasonable consistent for European Oil and Gas majors.
- When integrating Scope 3 emissions, the focus should primarily be on Category 11 emissions. Emissions from trading should be addressed separately. This is also true for estimated Oil and Gas Scope 3 emissions, as disparity between data vendors is much greater here. An understanding of the emissions data is important before making any comparisons or taking actions based on the analysis.

- Asset owners invested in the Oil and Gas sector should not be deterred by potential data quality and coverage issues. Instead, they can consider sector-specific, productivity-based intensity targets based on the available data provided by initiatives such as the Transition Pathway Initiative Centre (TPI Centre).

3.2 Utilities

Sector description

The Utilities sector includes water, gas, and electric utilities. The electric utilities sector focuses on electricity, with a value chain consisting of electricity generation, purchase, transportation, and distribution to the final market. Not all companies within this sector operate at the same stage of the value chain. Some utilities solely generate or distribute electricity, while others are vertically integrated and operate across the entire value chain. The average share of Scope 3 emissions for the Utilities sector is at least 49 per cent (CDP, 2023). The analysis of over 250 companies worldwide, based on Carbon-4finance data, reveals that Scope 3 emissions are especially significant for the gas distribution subsector, as seen in Figure 3.

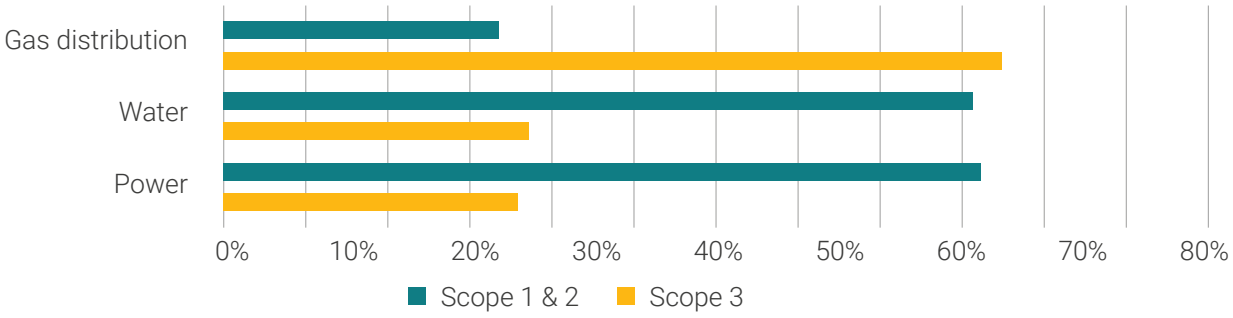

Figure 3: Scope 1, 2 and, 3 split in the utility sector

Key Scope 3 emissions category

For the Utilities sector in general, the two most significant Scope 3 categories are Category 11 ('Use of Sold Products'), followed by Category 1 ('Purchased Goods'). Purchased Goods is, to a large extent, electricity bought that is distributed through the networks to clients. In particular, the Scope 1 and 2 emissions from Utilities are covered by Scope 3 Category 11 Use of Sold Product emissions in the Oil and Gas sector. This is a clear example of double counting of emissions between sectors. It affects asset owners who have holdings in both Utilities and Oil and Gas, for example.[6] Both comprise Scope 3 emissions within the investors' own Scope 3 Category 15.

Scope 3 data analysis

Gaps exist when comparing primary data provided by companies to data published by data providers. Discrepancies arise due to different views on which Scope 3 categories are relevant. For example, a study by MSCI highlights that Use of Sold Product represents 36 per cent of the total emissions, but 32 per cent of Utilities companies do not consider

6 The same emissions reported to the investor for downstream Scope 3 Category 11 of Oil and Gas are the same as the upstream Scope 3 Category 1 of Utilities that are also reported to the investor.

this topic as relevant (MSCI, 2022). This can contribute to lower data reliability.

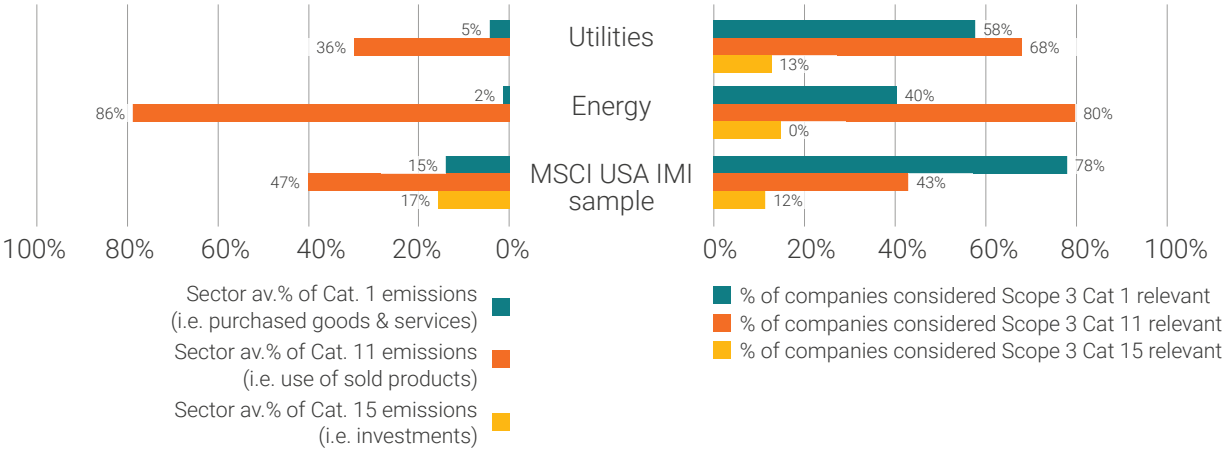

Figure 4: Comparison of Scope 3 emissions intensities and percentage of companies considering Scope 3 emissions categories (1, 11, and 15) relevant. Based on CDP 2021 reports (MSCI, 2022)

Out of the 15 companies analysed, the coverage from MSCI for reported and estimated data measured is both at 93 per cent, same as Refinitiv, an LSEG Business for reported data. Moreover, for 88 per cent of companies analysed based on MSCI data, the estimations fell lower than the reported data, leading to deviations of up to 93 per cent. For Moody's the coverage of reported data is at 73 per cent and estimated data at 67 per cent, where estimations for all issuers covered fell significantly lower than reported data. These deviations stem from intensity estimations within the sector by data vendors that give rise to overestimations or underestimations (see Table A.2).

In the Utilities sector, aggregating Scope 3 emissions presents challenges due to varying business models. For instance, some firms have a significant portion of their business dedicated to selling gas directly to end customers, leading to high Scope 3 Category 11 emissions. In contrast, other firms focus primarily on electricity production, resulting in a different emissions profile. An analysis of the sustainability reports of seven leading European electric utility companies illustrates these differences in Scope 1, 2, and 3 emissions; see Figure 5 (RWE, 2023; Enel, 2023; Iberdrola, 2023; Vattenfall, 2023; Ørsted, 2023; EnBW, 2023; E.ON, 2023).

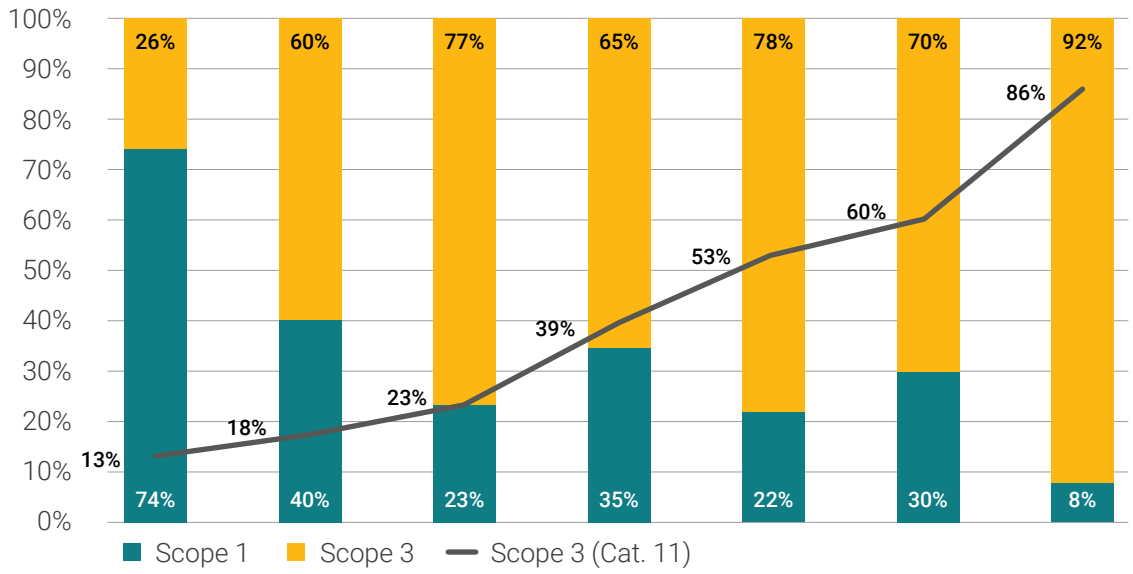

Figure 5: Comparison of Scope 1 and 2, Scope 3, and Scope 3 (Category 11), of seven European utility companies

The analysis illustrates that firms like RWE have the majority of their GHG emissions concentrated in Scope 1 and 2, with only 26 per cent falling under Scope 3. In contrast, most of the other firms analysed show a larger proportion of their emissions in Scope 3. However, it is important to differentiate within Scope 3 emissions, particularly with Category 11 on the Use of Sold Products. For example, companies like EnBW and E.ON have the majority of their GHG emissions concentrated in Scope 3, predominantly driven by Category 11 through downstream gas sales. On the other hand, firms like Enel have a different emissions profile, with only 18 per cent of their total emissions under Category 11 and the other 42 per cent of Scope 3 emissions in other categories (Enel, 2023).

The Transition Pathway Initiative (TPI) assesses how electric utilities are managing their carbon emissions as they transition to a low-carbon economy. TPI evaluates these companies based on their carbon intensity, measured in metric tonnes of CO_2 per megawatt-hour (MWh) of electricity generation. This focus on Scope 1 emissions offers valuable insights into direct emissions from electricity production. However, TPI does not currently include Scope 3 emissions, which can be a substantial part of a utility company's overall carbon footprint, especially in areas like the Use of Sold Products (Category 11).

The electric utility sector is witnessing significant advancements regarding Scope 3 emissions management. According to SBTi, companies are required to establish Scope 3 targets if these emissions account for 40 per cent or more of their combined Scope 1, 2, and 3 emissions (SBTi, 2020). Additionally, guidance from the Institutional Investors Group on Climate Change (IIGCC) emphasises the inclusion of Scope 3 Category 3 in target-setting for electric utilities. The IIGCC recommends a hybrid approach with SBTi, whereby companies with more than 40 per cent of emissions in Scope 3—particularly those involved in fossil fuel distribution—are required to set specific targets for Categories 3 and 11.

An analysis of sustainability reports from major European utility companies indicates that many have already established targets for reducing Scope 3 emissions. To provide an illustrative example, Vattenfall, one of the largest electricity and heat producers and retailers in Europe, has committed to a substantial reduction in GHG emissions in alignment with SBTi certification. The company has expanded its Scope 1 and 2 targets and aims to reduce absolute Scope 3 emissions from the Use of Sold Products by 54.6 per cent by 2030, using 2017 as the baseline. By 2040, meanwhile, Vattenfall plans to decrease Scope 1 and 3 emissions from sold electricity by 94 per cent per kWh and reduce absolute Scope 3 emissions from sold products by 90 per cent. Currently, emissions from sold products constitute more than 39 per cent of the company's total emissions (Vattenfall, 2023). Similarly, E.ON, one of Germany's largest electric utility firms, aims to reduce absolute Scope 3 emissions by 50 per cent by 2030. It anticipates that most of these emissions will come from Category 3; i.e. purchased power sold to end-customers (E.ON, 2023).

Key takeaways for asset owners

- Reflecting on the analysis of the Scope 3 emissions data for the Utilities sector, overall the data coverage and quality for such emissions is better than for other sectors (FTSE Russell, 2024). However, estimation models must be quite advanced to capture the sector's wide variety of business models and to make correct estimations. Based on the data set analysed, it may be useful to follow the same recommendation as with the Oil and Gas sector and utilise reported data instead of estimated data. This is due to understated volume of estimated emissions.
- There has been significant progress in the electric utilities sector with regard to target setting, as outlined by existing guidelines from IIGCC and SBTi. This momentum is particularly evident in Europe, where utility companies are increasingly setting reduction targets for Scope 3 emissions in alignment with these frameworks.
- Asset owners may utilise sector-specific, productivity-based intensity targets employing the available data provided by the TPI Centre or similar initiatives. Likewise, asset owners are encouraged to support utility companies that are committed to net-zero targets across all their emission scopes, including the Use of Sold Products from fossil fuels and transitioning to cleaner energy sources.

3.3 Financials: Banks (including investment banks)

Sector description

This section focuses on traditional lending and investment banks due to their higher likelihood of being publicly listed, systemically important, and subject to emissions disclosure regulations. These banks play a critical role as financiers of carbon-intensive industries and are commonly included in investment portfolios. Investors can more easily shift between high- and low-emitting sectors due to the liquidity of their portfolios. In contrast, banks provide long-term loans to these sectors and must wait until loan maturity to reallocate capital. As such, they are left exposed to prolonged climate-related and transition-related risks.

Financial institutions have complicated relationships with one another. Asset owners who are shareholders and bondholders of banks, often have additional relationships with them, such as the provision of custodian services, liquidity facilitation, or derivative counterparties. Untangling the web of emissions therefore presents a unique challenge for members of the Alliance who are seeking to manage climate-related financial risks within their portfolios and achieve real-world emissions reductions. Ultimately, this challenge can only be met by working cooperatively.

Key Scope 3 emissions category

Due to the nature of financial institutions' businesses, Scope 1 and 2 emissions are relatively immaterial compared to Scope 3 emissions. Scope 3 emissions, including purchased goods and services, employee commuting, business travel, and investment emissions, account for over 92 per cent of financial institutions emissions on average (MSCI, 2022). Therefore, the significance of Scope 3 emissions in the context of financial institutions cannot be overstated. Category 15[7] investments include emissions related to equity and debt investments made by financial institutions in companies and businesses that produce GHG emissions through their direct operations and value chains (WRI, 2015). Reported financed emissions are on average over 750 times greater than operational emissions from Scope 1, 2, and all 14 categories of Scope 3 together (CDP, 2023).

Alongside financed emissions are facilitated emissions. Facilitated emissions are those emissions associated with the provision of time-bound services to capital markets activity. They differ from financed emissions in two ways. Firstly, they are almost never included on a financial institution's balance sheet (i.e. representing services rather than financing); and secondly, a financial institution's engagement with the activity is temporary.[8]

Data analysis

As cited before in this paper, corporate emissions reporting is focused on Scope 1 and 2 emissions, with reporting much scarcer with respect to Scope 3: this holds also for banks, with investment book emissions reporting often based solely on the reported or estimated Scope 1 and 2 emissions of the investee company.

Analysing emission data from the pre-defined data sets of 16 major financial companies found similar results. The coverage for reported and estimated data by MSCI was at 75 per cent. Moreover, for all 75 per cent of companies the reported figures are significantly lower than estimated emissions, suggesting substantial underreporting. This discrepancy indicates that financial companies are not transparent about their Scope 3 emissions, particularly in Category 15 (see Table A.3).The actual reported numbers are insufficient compared to the estimates.

Difficulties in capturing reliable and auditable data systematically across the value chain is a commonly cited barrier to reporting by banks of companies' Scope 3 emissions. While disclosure of investment book emissions by financial institutions is in its early stages and varies by region, reporting often relies heavily on Scope 1 and 2 emissions of

7 Often referred to as "Financed emissions"

8 PCAF has released a Facilitated emissions standard. The PCAF standard covers facilitated issuance of new public debt and equity, facilitated equity investments in private companies (including private placements), facilitated debt investments in private companies (including private credit), and syndicated loans.

investee companies. This incomplete accounting of emissions hinders the setting and reporting of decarbonisation targets within financial institutions.

A significant gap exists in financial institutions' net-zero plans, as less than a quarter have committed to reducing their financed emissions, according to the latest S&P Global Corporate Sustainability Assessment (CSA) data (S&P Global, 2023). Despite the rising awareness of the economic risks associated with climate change, many financial institutions have yet to perform scenario analysis on their climate-related risks, and few have pledged to address their Scope 3 financed emissions. Data from S&P Global show that only 42 per cent of financial institutions have committed to reducing Scope 1 and 2 emissions. Just over 20 per cent have addressed Scope 3 emissions from investments and loans, which represent the most significant climate impact for these institutions (S&P Global, 2023).

Important steps toward addressing Scope 3 emissions in the banking sector are taken through initiatives such as the Net-Zero Banking Alliance (NZBA). Members of the NZBA commit to transition all operational and attributable GHG emissions from their lending and investment portfolios, which includes their own Scope 1, 2 and 3 emissions. Members are encouraged to include their clients' Scope 1 and 2 emissions, as well as their Scope 3 emissions where significant and where data allow (UNEP FI, 2024). For example, Deutsche Bank, a major global financial institution, has committed to reaching net zero emissions across its own operations (Scope 1 and 2); supply chain (Scope 3, Categories 1–14); and financing provided to clients (Scope 3, Category 15) by 2050 (Deutsche Bank, 2023). Central to this strategy is its focus on sectorial decarbonisation within Scope 3 Category 15 of its corporate loan portfolio. This would ensure that its financial activities align with global climate goals as well as setting a new standard for the banking sector. Since autumn 2023, Deutsche Bank has expanded these efforts to include new reduction targets for the Coal Mining, Cement, and Shipping sectors, further reinforcing its commitment to decarbonisation (Deutsche Bank, 2023).[9] Société Générale, a major European bank, is dedicated to aligning its financial activities with the climate goals set by the Paris Agreement. As with Deutsche bank, it is therefore also striving for carbon neutrality by 2050 (Société Générale, 2023).[10] The bank's strategy involves focusing on key high-emission sectors, such as Oil and Gas, Coal, Real Estate, and Cement, where it has set decarbonisation targets. For instance, in the Oil and Gas sector, Société Générale aims for an 80 per-cent reduction in financing exposure to upstream activities by 2030, along with an absolute reduction target for GHG emissions across the entire Oil and Gas chain of 70 per cent by 2030, compared to 2019 (Société Générale, 2023).

Challenges to date in data availability should not serve as a reason to disregard Scope 3 emissions. The long-term effective reduction of Scope 3 emissions for banks will come through engagement with high emitting industries. Alongside this, it is necessary to create appropriate policies to phase out the financing of activities with high climate

9 From Media Release (Frankfurt am Main, October 19, 2023), "Deutsche Bank publishes initial Transition Plan and further net-zero targets for high-emitting sectors". Accessible here: db.com/news/detail/20231019-deutsche-bank-publishes-initial-transition-plan-and-further-net-zero-targets-for-high-emitting-sectors?language_id=1

10 From Media Release (November 27, 2023), "Societe Generale group is committed to the transition to a sustainable world". Accessible here: societegenerale.com/en/news/press-release/societe-generale-committed-transition-sustainable-world

impacts, such as the fossil fuel sector, and to set ambitious targets in line with 1.5°C pathway. A sector-based approach with robust due diligence procedures that asses the environmental impact of potential financing activities is needed.

Box 2: Case study on measuring and assessing Scope 3 emissions on banks: Legal & General

Case study: Pushing for further direct disclosure and tracking associated target setting—the case of Legal & General

Legal & General (L&G) actively manages financed emissions portfolio Scope 3 exposure from the banking sector through its **LGIM Climate Impact Pledge**, complemented by its **temperature alignment metrics.**

Given the aforementioned relative sizes of Scope 1, 2, and 3 emissions in the banking sector, L&G's focus is to push for **further direct disclosure from the sector itself** via engagement activities. L&G sets out engagement expectations of the banking sector within the **LGIM Climate Impact Pledge**, where the Banking Sector Guide includes questions around net-zero commitment, strategy, resilience, targets, collaboration, and red lines. The net-zero commitment expectation is a comprehensive target for net zero by 2050 or earlier. It covers Scopes 1 and 2 emissions, as well as material Scope 3 emissions, including financed emissions. To enable a target, a company must calculate and disclose their material Scope 3 emissions. L&G has set **an engagement red line where a bank does not disclose its Scope 3 emissions associated with its financed emissions**. Currently, L&G has investment restrictions on two "dial-mover" banks that have been called out within the pledge for, in part, failing to disclose Scope 3 emissions.

Building on this engagement activity, L&G then moves onto **tracking associated target-setting and emission trends** from the bank holdings within its portfolios and funds. This is done through an in-house temperature alignment metric and its SBTi-aligned portfolio temperature rating target, at company as well as portfolio level. This works through tracking targets covering companies' Scope 3 emissions (using the SBTi metric). Where reliable data are available, L&G also tracks the trend in material categories of Scope 3 emissions intensity using its in-house temperature alignment metric.

In relation to this in-house metric, the scores are constructed to follow TCFD recommendations and are a quantitative expression of LGIM modelling and assumptions under a range of transition scenarios.

Further information is given in L&G's 2024 Climate Impact Report and the associated Banking Sector Guide, plus a related blog on "Scope 3 Omission Impossible".

Key takeaways for asset owners

- The persistent reporting gap in Scope 3 emissions among the highest-emitting industries necessitates efforts to increase transparency of banks' financed and facilitated Scope 3 emissions.
- Where regulatory measures do not currently cover such disclosure, asset owners are encouraged to engage with banks to promote disclosure aligned with their own regulatory or climate initiative targets.
- Asset owners should support banks with ambitious net-zero 2050 targets that cover the lending and investment activities of banks and require the systematic reduction of Scope 3 emissions.
- Asset owners can start working on the Scope 3 emissions of banks by including additional publicly available information; e.g. examining their policies on fossil fuel financing within their Scope 3 assessments.
- Engagement with banks should extend to their banking relationships, allowing for improved value chain reporting and potential divestment from high-emitting sectors.

4. Suggestions for next steps on incorporating Scope 3 emissions considerations in portfolio decarbonisation

The discussion around Scope 3 integration can amplify the decarbonisation efforts of financial institutions and can enhance the understanding of long-term transition risks inherent in investment portfolios. However, several challenges with Scope 3 emission accounting were named in this paper, including data reliability and double counting. The sector analysis also showed the discrepancies among the different sectors analysed. Nevertheless, these challenges were outlined to start a discussion on potential solutions. To address the aforementioned challenges, asset owners should:

- Account for Scope 3 emissions separately and avoid aggregating all emission scopes on portfolio level.
- Focus on enhancing voluntary disclosures by companies and promoting standardisation.
- Engage with data vendors to improve data quality[11] and ensure a clear understanding of the different Scope 3 estimation models.
- Disclose details of data quality and limitations in their disclosure, plus assumptions and judgments.

To further support asset owners' climate ambitions, this discussion paper also suggests several starting points for asset owners to include Scope 3 into their climate actions and engagement plans. Examples include setting objectives to interact with relevant emission issuers and disclosing targets to encourage improved emission disclosures. Notably, sector-level target setting emerged as a promising approach for integrating Scope 3 emissions (see Box 2). To transform these suggestions into an implementable plan, the Alliance outlines five key action points for asset owners. These action points can be implemented concurrently (to enhance their impact) or sequentially; i.e. with disclosure and engagement objectives pursued first, followed by sector-specific targets that encompass Scope 3 emissions (as data and disclosures mature).

1. **Disclosure ambition:** Asset owners can seek improved emissions disclosures from issuers, including independently verified or audited annual Scope 3 emissions estimates. The use of the PCAF data quality score can be considered as part of the

11 For data vendors, high data quality includes sufficient verification of data reported and transparent disclosure of estimation models applied.

target, aiming to enhance both portfolio coverage and data quality. The European Union has already initiated an ambitious disclosure framework for all emission scopes through regulations such as the Corporate Sustainability Reporting Directive (CSRD) Framework.

2. **Relying on corporates with Scope 3 targets:** By valuing corporates' transparency on Scope 3 emissions, asset owners may over time and on an individual basis start to shift towards investments in underlying issuers with approved Scope 3 targets. For example, 96 per cent of corporates with science-based targets validated by SBTi have commitments on Scope 3 emissions (SBTi, 2023b). Increasing exposure to such issuers will contribute to better and more timely reductions in Scope 3 emissions over time.

3. **Engagement objectives:** Asset owners can focus specific engagement with issuers or sectors where Scope 3 emissions are deemed most significant or where disclosure is lacking. Escalation measures may be necessary if progress lags. Publications by the Alliance, such as *Aligning Climate Policy Engagement with Net-Zero Commitments* (2023) and the *Position on the Oil and Gas Sector* (2023), provide guidance for members to engage not only with corporates but also with policymakers and asset managers. Engagement with the latter should include both a focus on asset managers' own climate policy engagement and their stewardship of issuers' climate policy engagement.

4. **Specific sector targets:** Asset owners may include Scope 3 emissions in sectoral reduction targets for financed emissions, as already outlined in the Alliance's TSP (2024). Individual sector targets partially address the issue of double counting as they do not encompass companies throughout the entire value chain. Moreover, Scope 3 can be included in target setting gradually, starting with those sectors that already have reliable data sets.

5. **All-encompassing reductions:** In case Asset Owners chose to include investees' Scope 3 emissions in their reduction targets, these may be kept separate from established Scope 1 and 2 targets to avoid confounding the original measures due to the significant size and varying data quality of Scope 3 emissions. As a minimum, they should track Scope 3 emissions as outlined in the TSP (2024).

Box 2: Including Scope 3 emissions in sector targets: the case of PensionDanmark

Case study: Including Scope 3 in target setting—the case of PensionDanmark

In order to achieve its sub-portfolio targets and to support its transition towards a portfolio aligned with a net-zero economy by 2050, PensionDanmark set sector-specific decarbonisation targets in 2020 in line with the Alliance's Target-Setting Protocol. Denmark's largest labour-market pension fund's inaugural reduction targets were originally set for the CO_2 footprint of its listed equities in three hard-to-abate sectors—Oil and Gas, Shipping, and Cement—that are expected to be particularly challenged by the green transition. In 2022, PensionDanmark reformulated these targets in terms of physical intensities to ensure that it is working towards genuine change in the real economy.

According to chapter 3 above, companies' Scope 3 emissions—especially in emission-heavy sectors—constitute a large part and sometimes the bulk of companies' total emissions. As a consequence, these are also a large part of the emissions that asset owners finance via their portfolio investments. Therefore, including them in sector targets, where the challenge of double-counting is less material, has been instrumental for PensionDanmark's target development.

Drawing on TPI data and the One Earth Climate Model (OECM), coupled with desktop research, PensionDanmark included Scope 3 emissions in two particular sector targets—namely, Oil and Gas, and Utilities. Influencing the decision was that fact that data were accurate and readily available, and Scope 3 emissions were very significant. By the end of 2022, PensionDanmark's sector targets covered over 50 per cent of the Scope 1 and 2 emissions of its listed equities, and it was well on its way to cover more than the target level of 70 per cent required by the Alliance before 2025.

Sector	Unit	Target 2024	Progress, 2022	Base year 2019
Cement	gCO_2e/tonnes cementious product	-10%	0.65	0.72
Oil and Gas	gCO_2e/Mt	-11%*	68.6	72.4
Shipping	gCO_2e/tkm	-15%	6.6	7.1
Utilities	gCO_2e/MWH	-35%	0.69	0.96

*Reduction target revised compared to inaugural target, which included coal

Note: Target set for portfolio of listed equitied. Scope 3 emissions included for oil & gas and utilities sectors.

Source: TPI, OECM and desktop research.

There are, however, challenges that remain beyond asset owners' purview. Thus, the Alliance calls on companies and regulators to enable greater integration of Scope 3 emissions. Specifically, companies should disclose Scope 3 emissions, focusing in the first instance on their two most significant categories. This would allow them to cover, on average, 81 per cent of the overall Scope 3 emissions intensity in each sector (FTSE Russell, 2024).

Regulators, for their part, should:

- Provide more guidance on Scope 3 material categories for each sector, as well as standardised estimation models and verification of data to increase coverage, credibility and comparability.
- Mandate Scope 3 disclosure to increase data credibility and comparability (as has been done in the European Union and Japan).

To chart a path forward, the paper underscores the importance of three key requirements:

- First, reliable emission data should become available at company level.
- Second, policies that require transparent disclosures should be established across different jurisdictions.
- Third, asset owners should capitalise on increased data transparency and reliability.

Although complex and based on involvement of multiple stakeholders, this path shows how progress could be made towards integrating Scope 3 into Asset Owners climate actions.

References

Busch, T., Johnson, M., and Pioch, T. (2022). *Corporate carbon performance data: Quo vadis?* Journal of Industrial Ecology, 26(1), 350–363. onlinelibrary.wiley.com/toc/15309290/2022/26/1

CDP (2023). *Technical note: Relevance of Scope 3 categories by sector*. cdn.cdp.net/cdp-production/cms/guidance_docs/pdfs/000/003/504/original/CDP-technical-note-scope-3-relevance-by-sector.pdf

Deutsche Bank (2023). *Deutsche Bank publishes initial Transition Plan and further net-zero targets for high-emitting sectors*. db.com/news/detail/20231019-deutsche-bank-publishes-initial-transition-plan-and-further-net-zero-targets-for-high-emitting-sectors?language_id=1

EnBW (2023). *Integrated Annual Report 2023*. enbw.com/media/report/report-2023/downloads/integrated-annual-report-2023.pdf

Enel (2023). *Sustainability Report 2023*. enel.com/content/dam/enel-com/documenti/investitori/sostenibilita/2023/sustainability-report_2023.pdf

E.ON (2023). *Integrated Annual Report 2023*. eon.com/content/dam/eon/eon-com/eon-com-assets/documents/investor-relations/en/annual-report/EON_GB23_engl_gesamt_final.pdf

FTSE Russell (2024). *Scope for Improvement—Solving the Scope 3 conundrum*. lseg.com/en/ftse-russell/research/solving-scope-3-conundrum

Gopalakrishnan S., Granot D., Granot F., Sošić G., Cui H. (2020). *Incentives and Emission Responsibility Allocation in Supply Chains*. Management Science, 67(7): 4172–4190. 10.1287/mnsc.2020.3724

HLEG (2023). I*ntegrity matters: Net zero commitments by businesses, financial institutions, cities and regions*. un.org/sites/un2.un.org/files/high-level_expert_group_n7b.pdf

HSBC (2024). *ESG Integrated 3.0—Scope 3 emissions: The next great challenge*. research.hsbc.com/C/1/1/320/D6qCHQs

Iberdrola (2023). *Statement of Non-Financial Information. Sustainability Report 2023*. iberdrola.com/documents/20125/3643974/gsm24-sustainability-report-2023.pdf

IEA (2023a). *Emissions from Oil and Gas Operations in Net Zero Transitions*. iea.blob.core.windows.net/assets/743af33c-b2f5-4a93-a925-1b08f6438e61/EmissionsfromOilandGasOperationinNetZeroTransitions.pdf

IEA (2023b). *Global Methane Tracker 2023*. iea.org/reports/global-methane-tracker-2023/overview

Intergovernmental Panel on Climate Change (2023). *Climate Change 2023. Summary for Policymakers*. ipcc.ch/report/ar6/syr/downloads/report/IPCC_AR6_SYR_SPM.pdf

IPIECA (2016). *Estimating petroleum industry value chain (Scope 3) greenhouse gas emissions. Overview of methodologies*. ipieca.org/resources/estimating-petroleum-industry-value-chain-scope-3-greenhouse-gas-emissions-overview-of-methodologies

Kaplan, Robert S. and Ramanna, K. (2024). *Principles and Content for Downstream Emissions Disclosures*. Blavatnik School of Government Working Paper 2024-058, Harvard Business School Accounting & Management Unit Working Paper No. 24-050. ssrn.com/abstract=4721926

Kolk, A., Levy, D., & Pinkse, J. (2008). *Corporate responses in an emerging climate regime: The institutionalization and commensuration of carbon disclosure*. European Accounting Review, 17(4): 719–745.

LGIM (2023a). *Climate and nature report 2023*, group.legalandgeneral.com/media/bekgmh51/legal-and-general_2023-climate-and-nature-report.pdf

LGIM (2023b). *Scope 3: Omission Impossible*. lgim.com/landg-assets/lgim/_document-library/capabilities/defined-benefit/db-scope-3-omission-impossible-final.pdf

LGIM (2024). *Climate Impact Pledge*. lgim.com/uk/en/responsible-investing/climate-impact-pledge/

MSCI (2021). *Overcoming Double Counting in Scope 3 emissions—A practical approach summarizing why double counting occurs in Scope 3 greenhouse gas emissions accounting, and how to address it in forward-looking climate risk metrics*.

MSCI (2022). *Which Scope 3 Emissions will the SEC deem "material"?* msci.com/www/blog-posts/which-scope-3-emissions-will/03153333292

NZAOA (2023). *Aligning Climate Policy Engagement with Net-Zero Commitments*. unepfi.org/industries/aligning-climate-policy-engagement-with-net-zero-commitments/

NZAOA (2023). *Oil and Gas Position Paper*. unepfi.org/wordpress/wp-content/uploads/2023/03/NZAOA-Position-on-the-Oil-and-Gas-Sector.pdf

NZAOA (2024). *Fourth Version of Target-Setting Protocol*. unepfi.org/industries/target-setting-protocol-fourth-edition/

Ørsted (2023). *Annual Report 2023*. orstedcdn.azureedge.net/-/media/annual-report-2023/orsted-ar-2023.pdf?rev=526307f68e2047b3a1df8dd2cdf719ec&hash=E6069E12C1792AD620FA12898587394C

PCAF (2020). *The Global Carbon Accounting for the Financial Industry Standard*. carbonaccountingfinancials.com/files/downloads/PCAF-Global-GHG-Standard.pdf

PCAF (2022). *The Global Carbon Accounting for the Financial Industry Standard*. carbonaccountingfinancials.com/files/downloads/PCAF-Global-GHG-Standard.pdf

RWE (2023). *Sustainability Strategy Report 2023*. rwe.com/-/media/RWE/documents/09-verantwortung-nachhaltigkeit/cr-berichte/sustainability-strategy-report-2023.pdf

SBTi (2020). *A quick start guide for electric utilities*. sciencebasedtargets.org/resources/legacy/2020/06/SBTi-Power-Sector-15C-guide-FINAL.pdf

SBTi (2023a). *Corporate Near-Term Criteria*. sciencebasedtargets.org/resources/files/SBTi-criteria.pdf

SBTi (2023b). *Catalyzing value chain decarbonisation, Corporate Survey Results*. sciencebasedtargets.org/resources/files/SBTi-The-Scope-3-challenge-survey-results.pdf

Société Générale (2023). *Société Générale group is committed to the transition to a sustainable world*, 27 November. societegenerale.com/en/news/press-release/societe-generale-committed-transition-sustainable-world

S&P Global (2023). *Financed emissions are missing from many firms' net zero plans*. spglobal.com/esg/insights/financed-emissions-are-missing-from-many-firms-net-zero-plans

Teske, S., Niklas, S., Nagrath, K., Talwar S., Atherton, A., and Guerrero Orbe, J. (2020). *Sectoral pathways and Key Performance Indicators: aluminium, chemical, cement, steel, textile & leather industry, power utilities, gas utilities, agriculture, forestry, the aviation and shipping industry, road transport, and the real estate & building industry. UTS: Institute for Sustainable Futures*. unepfi.org/wordpress/wp-content/ uploads/2022/05/UTS_Limit-global-warming_Sectoral-Pathways-and-Key-KPIs.pdf

Teske, S., Nagrath, K., and Niklas, S. (2022). *Decarbonisation Pathways for Services. In: Teske, S. (eds) Achieving the Paris Climate Agreement Goals*. Springer, Cham. doi.org/10.1007/978-3-030-99177-7_6

TPI Centre (2023). *Banks and the net zero transition*. transitionpathwayinitiative.org/publications/uploads/2023-banks-and-the-net-zero-transition-tracking-progress-with-the-tpi-net-zero-banking-assessment-framework.pdf

TPI Centre (2023). *Net Zero Banking Assessment Framework*. transitionpathwayinitiative.org/publications/uploads/2023-net-zero-banking-assessment-framework.pdf

TPI Centre (2024). *State of the transition in the banking sector*. transitionpathwayinitiative.org/publications/uploads/2024-state-of-transition-in-the-banking-sector-report-2024.pdf

UNEP FI (2024). *Guidelines for Climate Target Setting for Banks, version 2*. unepfi.org/wordpress/wp-content/uploads/2024/03/Guidelines-for-Climate-Target-Setting-for-Banks-Version-2.pdf

Vattenfall, (2023). *Annual and Sustainability Report 2023*. group.vattenfall.com/globalassets/corporate/who-we-are/sustainability/vattenfall-annual-and-sustainability-report-2023.pdf

WRI (2015). *Corporate Value Chain (Scope 3) Accounting and Reporting Standard—Supplement to the GHG Protocol Corporate Accounting and Reporting Standard*. ghgprotocol.org/sites/default/files/standards/Corporate-Value-Chain-Accounting-Reporing-Standard_041613_2.pdf

WRI (2019). *The Greenhouse Gas Protocol—A corporate Accounting and Reporting Standard*. Revised Edition. ghgprotocol.org/corporate-standard

Annex

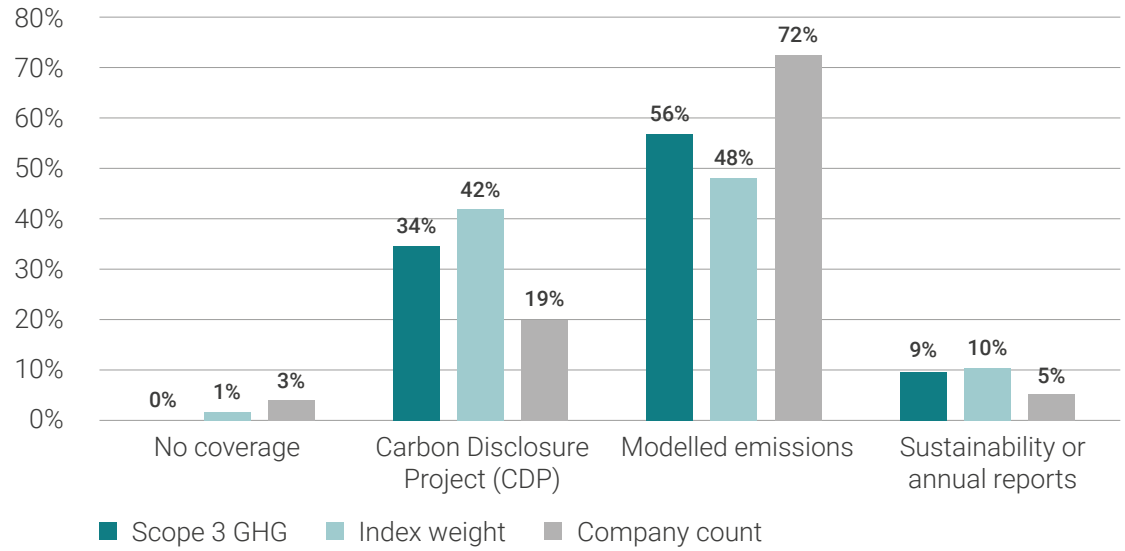

Figure A.1: Source of data for Scope 3 emissions for companies in the FTSE All World Index (LGIM, 2023b)[12]

Table A.1: Data Sets Sector Oil and Gas/Energy (Source: MSCI Inc.)[13]

Company Name	Scope 3 emissions total (tGHGe) reported	Scope 3 emissions total (tGHGe) estimated
Totalenergies SE	446,000,000	391,563,285
Equinor ASA	246,850,000	494,769,743
Repsol SA	76,000,000	180,726,984
Neste OYJ	41,700,000	41,335,135
Polski Koncern Naftowy Orlen SA		38,331,862
Chevron	391,000,000	830,155,790
Exxon	540,000,000	1,050,265,102
BP	306,700,000	645,522,390
Shell	1,174,000,000	700,841,627
ENI	179,282,684	256,307,226
EQT	17,830	12,519,931

12 Primary Source: ISS, Carbon Disclosure Project (CDP), LGIM analysis. Carbon data as of 31/12/2021. Secondary source: LGIM Scope 3: Omission impossible (April 2023, Chart 1, P.3)

13 Data provided by MSCI ESG Research LLC as of October 25th, 2024.

Occidental Petroleum	217,000,000	145,178,692
Conocophillips	235,000,000	298,567,383
Marathon Petroleum Corp	404,000,000	433,406,504
Phillips 66	354,000,000	310,370,772
Valero Energy Corporation		386,795,500
Kinder Morgan Inc		38,514,484
Reliance Industries Ltd		81,314,419
Woodside Energy Group Ltd	53,188,000	34,408,586
Saudi Arabian Oil Co		2,662,669,458
Santos Ltd	30,000,000	32,758,324
Sk Innovation Co Ltd	132,092,979	42,590,333

Table A.2: Data Sets Sector Utilities (Source: MSCI Inc.)[14]

Company Name	Scope 3 emissions total (tGHGe) reported	Scope 3 emissions total (tGHGe) estimated
Iberdrola SA	42,679,206	22,720,133
Enel SPA	70,062,662	49,101,846
National Grid Plc	55,758,254	14,234,999
Orsted A/S	10,983,000	10,097,029
Red Electrica Corporacion SA	465,821	450,557
Sempra Energy	66,700,000	12,442,963
Consolidated Edison Inc	32,400,000	7,292,624
Eversource Energy	28,758,858	4,751,028
American Water Works Company Inc	594,000	960,498
Fortis Inc	108,090,000	7,144,945
Adani Total Gas Ltd		0
Enn Group International Investment Ltd	60,812,674	36,490,868
Hong Kong And China Gas Co Ltd	22,016,000	17,047,096
Tokyo Gas Co Ltd	52,778,306	35,545,500
Osaka Gas Co Ltd	21,246,841	27,997,668

14 Data provided by MSCI ESG Research LLC as of 25/10/2024.

Table A.3: Data Sets Sector Financials (Source: MSCI Inc.)[15]

Company Name	Scope 3 emissions total (tGHGe) reported	Scope 3 emissions total (tGHGe) estimated[16]
BNP Paribas SA	75,850	241,770,390
ING Groep NV	11,000	37,501,931
Intesa Sanpaolo SPA	50,745	111,323,358
HSBC Holdings Plc	42,000	152,988,674
Sumitomo	1,314,406	85,870,632
Mitsubishi UFJ	11,373	66,242,743
Bank of America	3,023,784	303,710,321
Wells Fargo	2,047,109	130,009,872
The Toronto-Dominion Bank	1,170,329	82,230,673
Morgan Stanley	57,268	255,739,036
Blackrock Inc		
Aia Group Ltd	3,890	2,312,622
China Construction Bank Corp		
Housing Development Finance Corporation Ltd		
Royal Bank Of Canada		
Mizuho Financial Group Inc	60,709	55,926,651

15 Data provided by MSCI ESG Research LLC as of 25/10/2024.

16 The total estimated Scope 3 emissions (tGHGe) included Scope 3 Category 15 emissions from investments (all) as defined by the Greenhouse Gas Protocol [tCO_2e/yr]. This category includes emissions associated with both investments that the GHG Protocol requires accounting for (debt investments with known use of proceeds) as well as those that companies may optionally report (debt investments without known use of proceeds or managed investments).

UN environment programme | finance initiative

PRI Principles for Responsible Investment

UN-convened Net-Zero Asset Owner Alliance

unepfi.org/net-zero-alliance/