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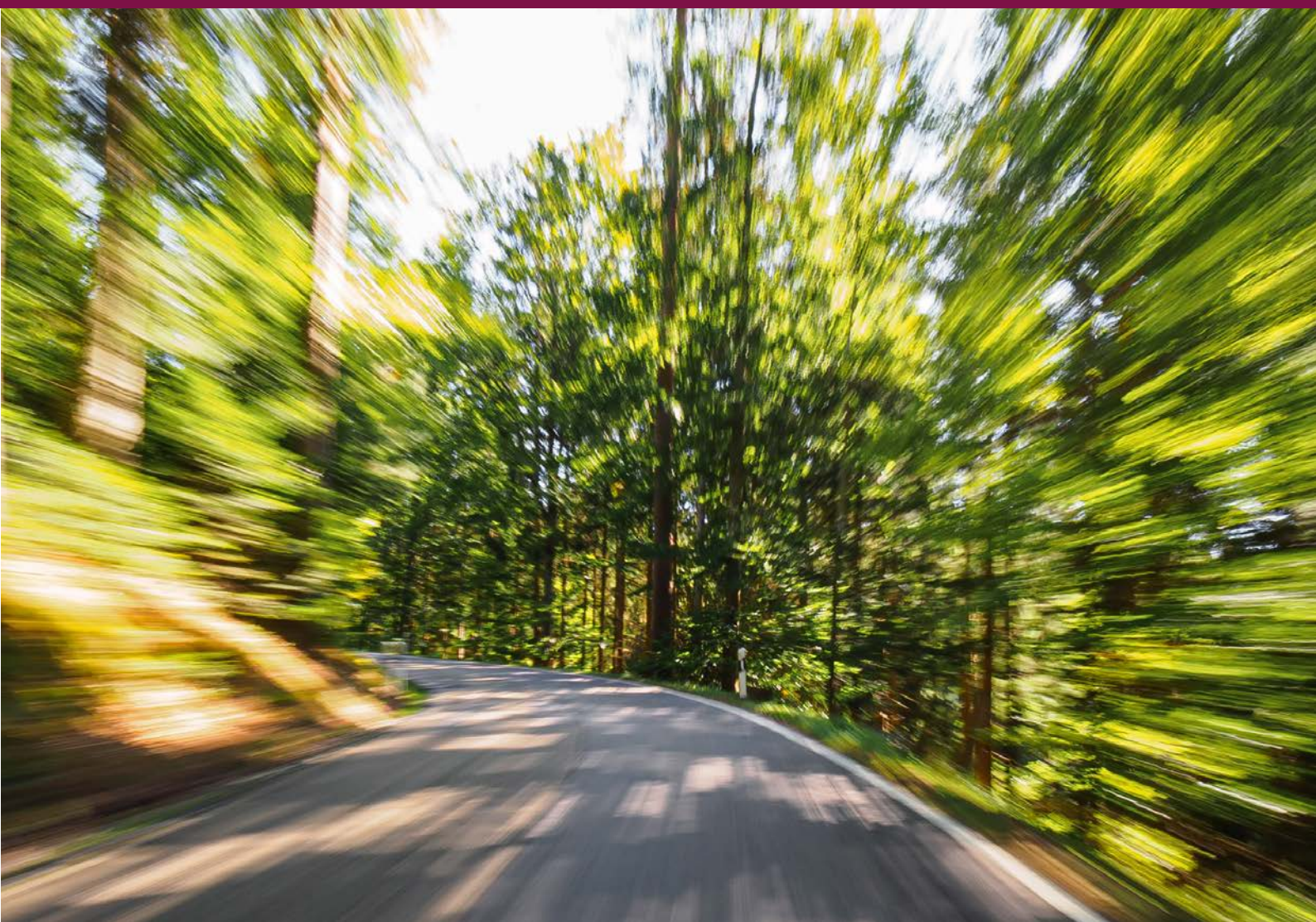
DISCLOSURE INSIGHT ACTION

From stroll to sprint

A race against time for corporate decarbonization

CDP & Capgemini Invent report | July 2023



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Foreword

In recent years, extreme weather events and soaring energy prices have highlighted the inescapable need for companies to adapt for both climatic and economic reasons. These issues are converging and coincide with the same goal: reducing greenhouse gas emissions to protect Europe's energy sovereignty and mitigate climate change to ensure a sustainable future for all.

Today, Europe's sovereignty is threatened by the geopolitical agenda that triggers volatility over energy market prices and double-digit inflation on many essential materials (e.g., steel, aluminum, copper). These historic challenges, both on the social and economic levels, call for emergency actions from companies and governments. Social, economic, and political dimensions are intertwined, and companies have a key role to play along with the public sector to contribute to the paradigm shift.

The latest Assessment Report of the Intergovernmental Panel on Climate Change (IPCC) emphasizes the urgent need to take concrete actions to decrease global emissions by 45% by 2030 compared to 2010 levels in order to keep global warming below 1.5°C.

Nevertheless, the path to overcome these challenges is clear. The IPCC and all independent initiatives, such as the Science Based Targets initiative (SBTi) and CDP, among many others, promote the need for public and private actors to set emissions reduction targets. Such targets must look to both short- and long-term horizons to enable organizations to monitor their decarbonization journey.

Beyond the definition of a roadmap, solutions exist and must be implemented

In this way, these independent initiatives play a critical role in providing transparent and reliable information to companies to monitor their progress in reducing their environmental impacts. Moreover, such information enables citizens to understand these imperative issues.

Beyond the definition of a roadmap, solutions are well known to implement them. Levers, such as energy efficiency measures to reduce both energy bills and consumption, the deployment of renewable energy sources at a large scale, the adoption of contractual instruments to promote them (GOs, RECs, CPPA), and the rise of new technologies, such as low-carbon hydrogen and process electrification, are all effective in the fight against climate change. These levers are actionable through the modification of our attitudes as consumers and citizens. However, they require an evolution of public policies and innovation to be deployed on a massive scale in record time. If we do not want to miss this window of opportunity, we must (re)invent the economy to **get the future you want!**

Roshan Gya, CEO Capgemini Invent

Executive summary

1 A persistent gap between transparency and action

Though the number of European companies disclosing to CDP has grown significantly (+56% between 2019 and 2022), 23% of companies still lacked emissions reduction targets in 2022.

2 Though science-based targets (SBTs) are now mainstream, companies with a disproportionately high emissions impact still lack them

In 2022, 47% of companies had absolute emissions reduction targets approved by the SBTi, compared to only 14% in 2019 – a more than 5-fold increase. However, these targets only covered 13% of the total GHG emissions disclosed by companies to CDP in 2022, suggesting that many high-impact companies must still step up, and that scope 3 remains a challenge. In high impact sectors, too many companies rely on intensity targets.

3 Net-zero targets remain in their nascent stage despite rapid momentum

Just 8% of companies reported having net-zero targets approved by the SBTi, with a further 14% pending validation. However, this means that nearly 1 in 4 companies are set to have science-based net-zero targets in just 18 months since it became possible to set such targets – a positive signal of corporate long-term vision.

4 Energy efficiency remains the most impactful emissions reduction lever

Overall, companies have made progress in reducing their operational impacts – largely through energy efficiency. Reported scope 1 and 2 emissions among the group dropped in most sectors by an average of 14% between 2019 and 2022 – despite revenues increasing 8%. Businesses relying on electricity have more opportunities to decarbonize their energy mix and protect themselves from price fluctuations than others.

5 Representing over 90% of corporate emissions, scope 3 is the key – but actions to tackle are lacking

The overwhelming majority (92%) of emissions disclosed by European companies in 2022 were Scope 3, with the use of sold products (64%) and purchased goods and services (19%) the key hotspots. Despite this, actions taken to reduce these customer - and supplier-related emissions only covered an average of 37% of total emissions from these categories. Companies must engage with their entire value chain and establish a credible climate transition plan, moving from contemplation to decisive actions. This report presents an inventory of high-potential and accessible decarbonization levers for specific sectors.

This report was written by Capgemini Invent in partnership with CDP, leveraging Capgemini Invent knowledge and expertise on decarbonization, quantitative analysis from CDP's 2019 and 2022 public datasets, and qualitative outputs from interviews with 7 selected companies from varied sectors: Bayer, Deutsche Bahn, DP-DHL, Proximus, Sanofi, STMicroelectronics, Thales.

About this report

843

In 2022, 843 European companies in the 17 sectors disclosed publicly to CDP's climate change questionnaire

The analysis covers the 17 sectors listed below and is a rework of CDP sectorization to derive a sample of companies suitable for a detailed analysis:

1. Apparel
2. Biotech, Healthcare and Pharma
3. Cement & concrete
4. Chemicals
5. Construction
6. Electric & electronic manufacturing
7. Financial services
8. Food & beverage processing
9. Light manufacturing
10. Media, telecommunications & Data Centers
11. Metals & mining
12. Other materials (materials for packaging, architecture, etc.)
13. Paper and Pulp
14. Powered machinery
15. Transport OEMS
16. Transport services & logistics
17. Wholesale, retail & distribution

As the analysis includes corporate exposure to energy price fluctuations and the related potential impact on operating costs, all energy sectors were excluded.

In 2022, 843 European companies in the 17 above sectors disclosed publicly to the CDP's climate change questionnaire. This represents an increase of 303 companies (+56%) over the 3-year period. The increase can be attributed to the intensified pressure – both regulatory and market-based - on companies to measure and manage their climate impacts.

75%

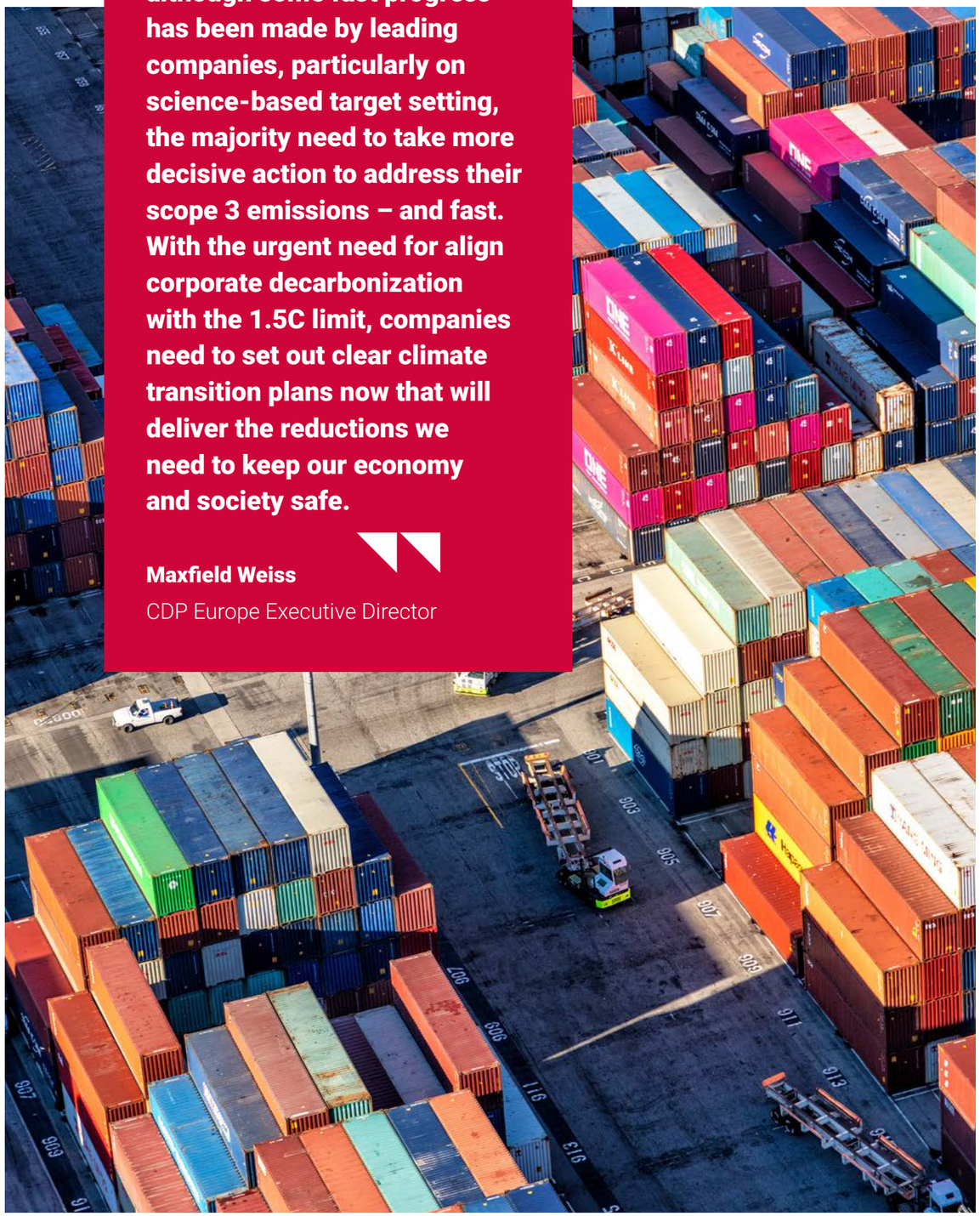
of European companies by market value disclosing to CDP in 2022

The sample for this report includes companies that represent approximately 75-80% of the total market capitalization of European companies.

This report focuses on the trends observed from 2019, asking whether companies are better considering climate change in their strategies, which sectors are most advanced, and which concrete actions they have implemented to mitigate their GHG emissions across their entire value chain. The report aims to provide answers first by analyzing sector maturity and commitments regarding emissions reduction. Secondly, it proposes a deep dive into sector energy consumption and targets to reduce scope 2-related emissions. Finally, the report covers the challenges of addressing scope 3 emissions. In addition to this analysis, the report presents key levers to decarbonize scope 3 in the short term for selected sectors. These levers were collected and benchmarked by Capgemini Invent through support to its clients on decarbonization topics.

Our analysis reveals that although some fast progress has been made by leading companies, particularly on science-based target setting, the majority need to take more decisive action to address their scope 3 emissions – and fast. With the urgent need for align corporate decarbonization with the 1.5C limit, companies need to set out clear climate transition plans now that will deliver the reductions we need to keep our economy and society safe.

Maxfield Weiss
CDP Europe Executive Director



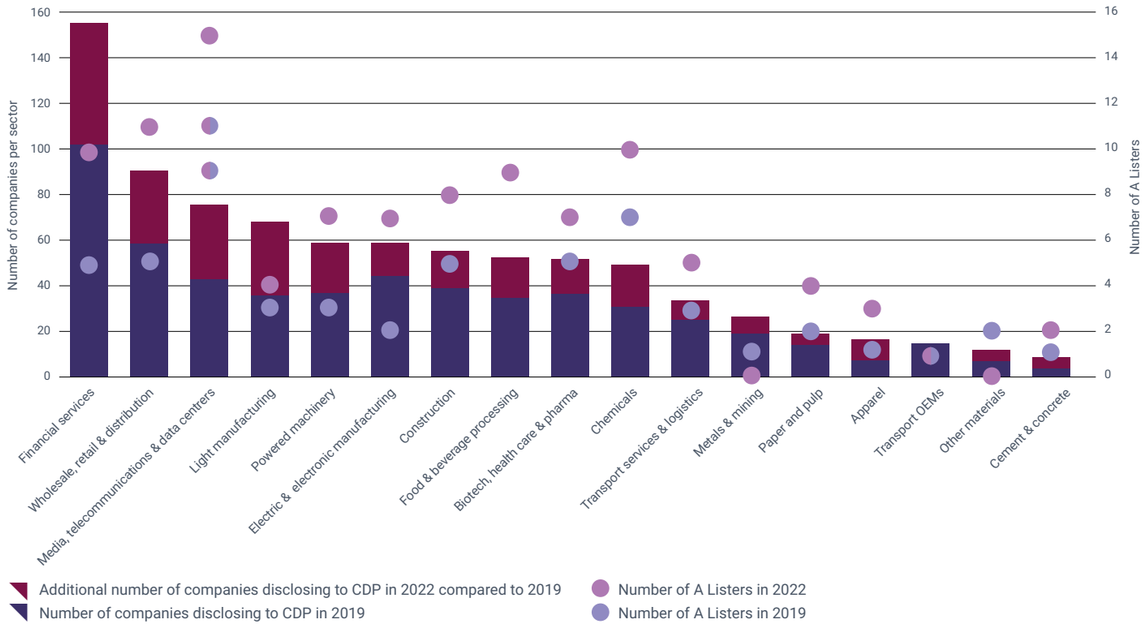
Sectoral decarbonization maturity and targets

1. Sectoral decarbonization maturity and targets

Figure 1
The number of companies disclosing to CDP rose in 16 out of 17 sectors between 2019 and 2022

The Media, Telecommunications, and Data Centers sector has shown the most progress on disclosure growth (83%) and companies scoring A (+67%) since 2019

From 2019 to 2022, the number of companies disclosing to the CDP rose in 16 out of 17 sectors, excluding the **Transport OEMs** sector. European companies disclosing publicly to the CDP grew by over 300, a 56% increase compared to 2019. Additionally, 15 out of 17 sectors saw growth in the number of companies scoring A, excluding **Metals & Mining** and **Transport OEMs sectors.**



Sample includes 912 European companies publicly disclosing to CDP's Climate Change questionnaire in 2019 and/or 2022 for the 17 sectors studied. ***Of the 912 companies, 471 disclosed to CDP both in 2019 and 2022.135 companies were rated A in 2022*** *in Europe, 103 of them are included in our sample.*

The **Media, Telecommunication & Data Centers** sector underwent the most progress of all sectors, both in terms of the number of companies disclosing to the CDP (in absolute terms) and benefitting from the highest increase in the number of A List companies. The **Cement & Concrete** (25%) and **Paper & Pulp** (21%) sectors had the highest proportion of A List companies in 2022.

To assess the companies' maturity on reducing emissions, two main dimensions were included: **Emissions and energy efficiency** and **Engagement.** As the quality of reporting on scope 3 emissions was inconsistent from one sector to another in 2022, scope 3 was not included in the **emissions and energy efficiency** dimension.

Mapping these sectors across their performance on **engagement** and **emissions / energy efficiency** reveals **4 main maturity groups in 2022**.

+56%

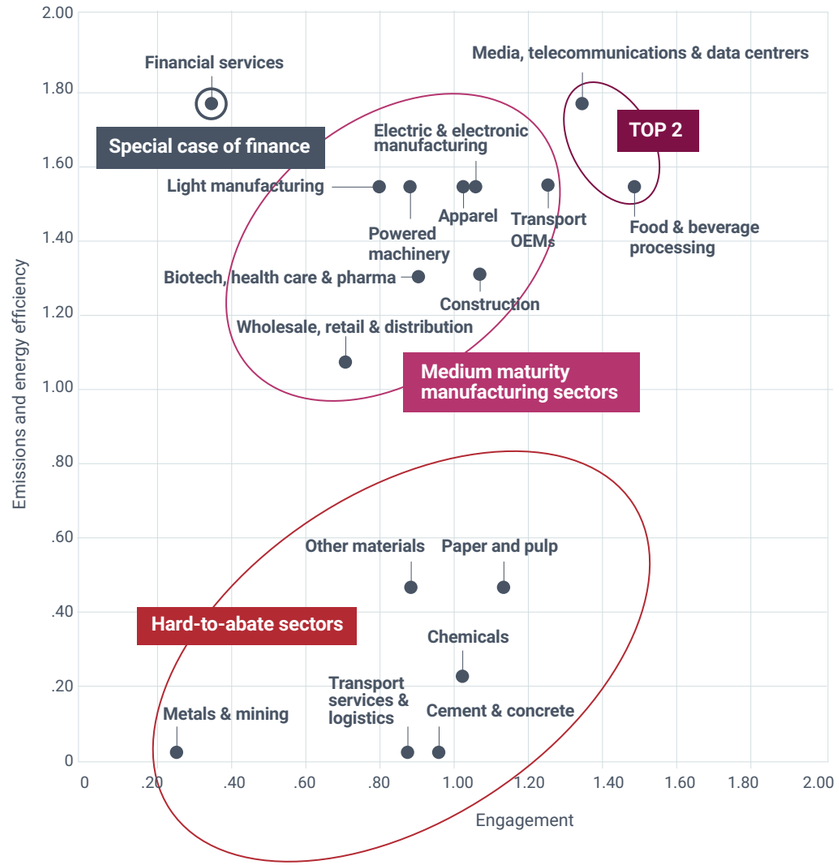
An increase of 303 companies (+56%) over the 3-year period

The hard-to-abate sector group consists of energy- and emission-intensive companies with energy intensities between 1,000 and 4,000 MWh per million EUR of turnover. Their manufacturing processes are carbon-intensive and primarily rely on fossil fuels, leading to lower performance on emissions and engagement. Their large carbon footprint and the lack of readily available solutions to expect short-time results impact them both on the emission and engagement axes.

The medium-maturity manufacturing sector group includes 8 out of the 17 industries. In this group, manufacturing processes require a smaller proportion of energy (energy intensities between 100 and 800 MWh per million EUR of turnover) and decarbonization strategies are increasingly well framed and already underway.

Media, Telecommunications & Data centers, and **Food & Beverage processing** are leaders in terms of decarbonization maturity. Companies disclosing to the CDP in these sectors often have approved science-based targets that include scope 3. They have high shares of renewables in their energy mix and have in place concrete actions to decarbonize their operations and value chain according to steep emissions reduction trajectories.

Figure 2
Sectoral comparison of emissions and energy efficiencies and climate engagements in 2022



Graph based on 493 out of 843 companies disclosing to CDP's climate change questionnaire in 2019 and 2022 for the 17 sectors studied. Engagement *scores are based on CDP company scores, the number of targets that are either SBTi-approved or being revised by the SBTi per company, the number of targets that include scope 3 per company, the share of the total emissions of the sector companies are committed to reduce, and commitments to RE100/EV100/EP100 (with a lighter weight). Emission and energy efficiency scores include turnover energy intensity, turnover emissions intensity, and share of renewables in the total energy consumption.*

1. Sectoral decarbonization maturity and targets

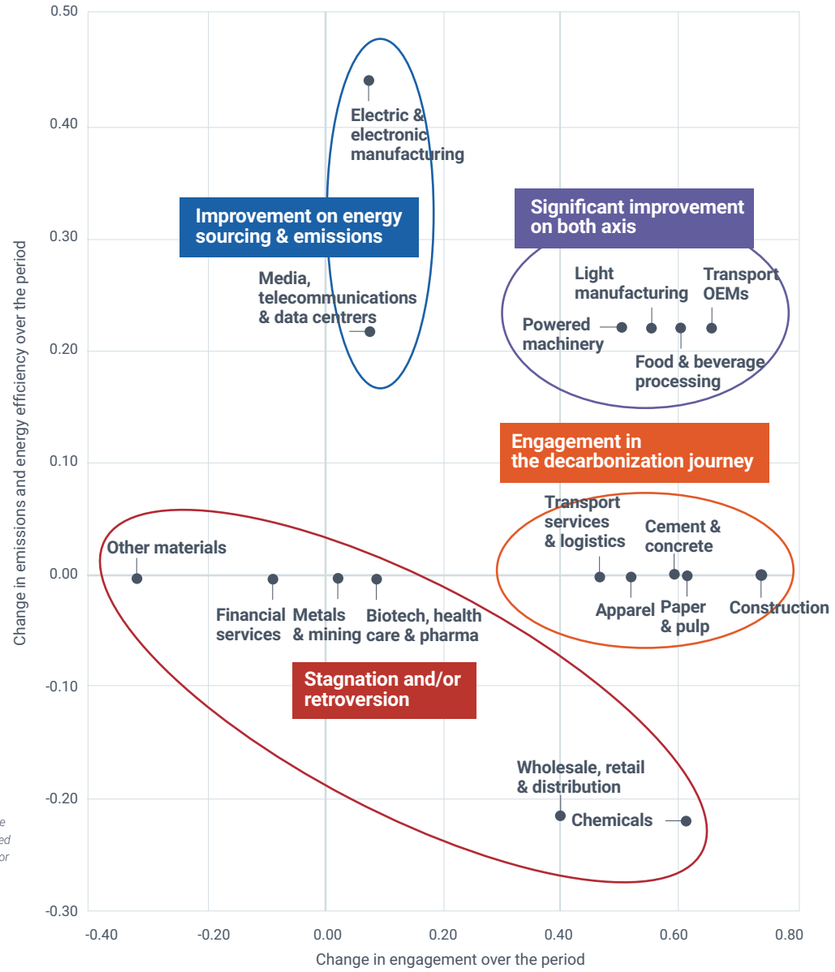
64%

of companies have set absolute emissions reduction targets

The last sector is **Financial Services**, positioned among the top sectors on the emissions and energy efficiency axis but lagging on the engagement dimension. The engagement score can be partly explained by the only recent development and availability of science-based methodologies for emission targets for this sector. Moreover, scope 3 emissions in the Financial sector are estimated to be up to 700 times higher than scopes 1 & 2 combined. Since this analysis excludes scope 3, the exceptionally high score on the emissions and energy efficiency axis can be considered irrelevant to assess the decarbonization performance of this sector.

One major trend emerged between 2019 and 2022: companies progressed in setting emissions reduction targets, but few implemented impactful initiatives to reduce energy and carbon intensity.

Figure 3
Sectoral decarbonization maturity changes between 2019 and 2022



Sample includes companies disclosing to CDP's climate change questionnaire in 2019 and/or 2022 for the 17 sectors studied: 371 companies in 2019 and 493 companies in 2022. *In total, for both 2019 and 2022, 415 were removed because of missing turnover data, 64 companies were removed because of missing data on scope 2 emissions location-based, and 40 companies were removed because of missing data on their total energy consumption or not disclosed CDP score.*

1 The SBTi methodology for financial institutions was launched in 2021.
2 CDP (2020) Time to Green Finance

Mapping these sectors across their evolution on **Engagement** and **Emissions and energy efficiency** between 2019 and 2022 reveals **4 main trends**.

4 sectors combined pledges and actions and moved forward on both axes.

2 sectors moved from pledges to actions resorting to renewables and reducing their scope 1&2 emissions.

5 sectors mostly made pledges and set up decarbonization targets. This group includes 3 **hard-to-abate sectors (Transport Services & Logistics, Paper & Pulp** and **Cement & Concrete)** that progressed markedly in their engagement over the past 3 years.

6 sectors stagnated and/or went backwards. This group includes 3 **hard-to-abate sectors (Metals and Mining, Other Materials and Chemicals)** as they made little improvement on energy or emissions intensities or on the share of renewables in their energy mix. The **Chemicals** sector, for instance, has increased its energy intensity over the period (1330 MWh per million EUR of turnover in 2022 versus 920 MWh per million EUR of turnover in 2019). **Financial services** are also included in this category, partly due to the later availability of sectoral science-based methodologies.

6

6 sectors stagnated or regressed since 2019

1. Sectoral decarbonization maturity and targets

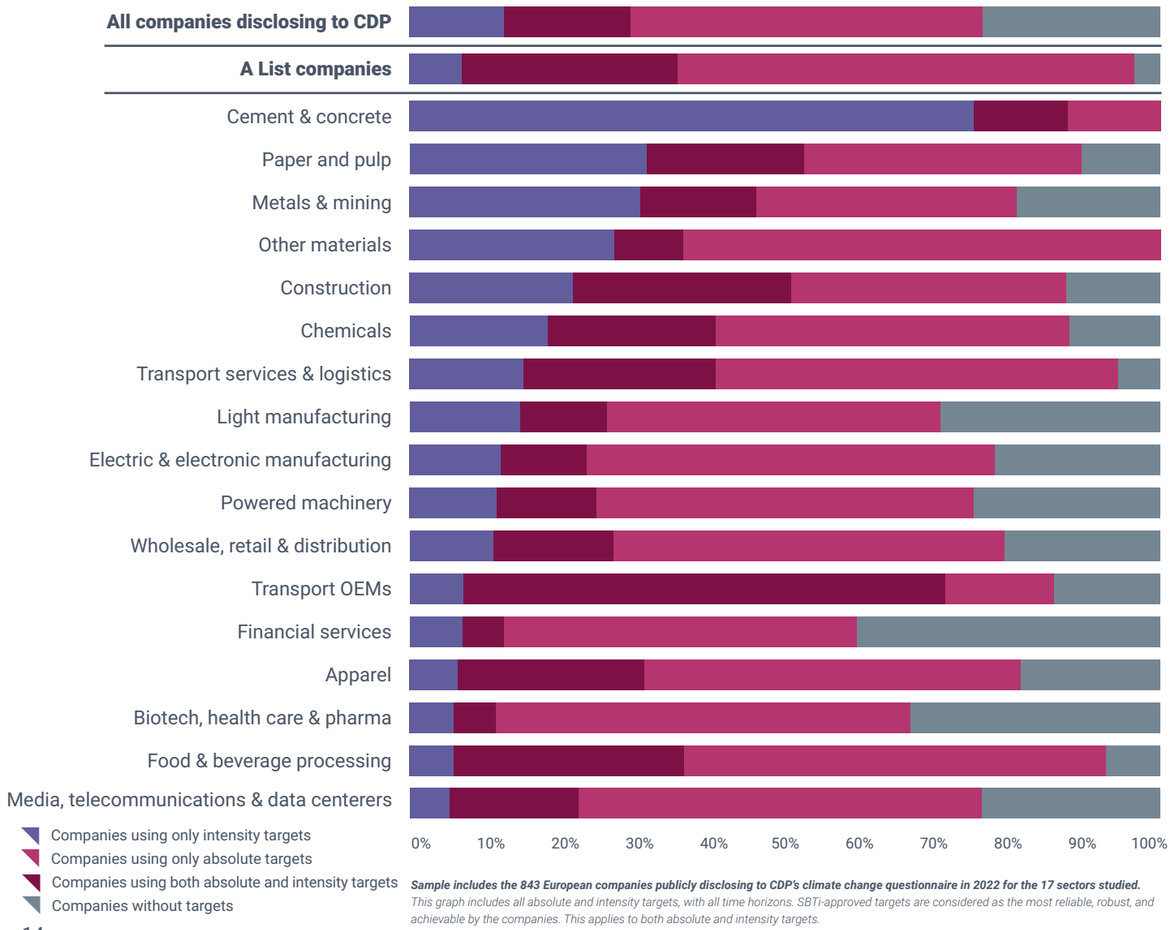
77% of companies set emissions reduction targets to establish a compass for their decarbonization journey - 64% of them using absolute targets

Companies can set absolute or intensity emissions reduction targets (or both).

Overall, in 2022, 23% of all companies had no emissions reduction targets. On the other hand, more than 95% of companies scoring A with CDP in 2022 had at least one decarbonization target in 2022, either an intensity or an absolute target.

Intensity targets, expressed in tons of CO2 equivalent (tCO2e) per unit produced or per Euro of turnover generated, commit to a relative emissions reduction rather than a net overall reduction. In 2022, most hard-to-abate sectors favored intensity targets over absolute targets.

Figure 4
In 2022, mature sectors tended to use absolute targets, whereas less mature sectors preferred intensity targets

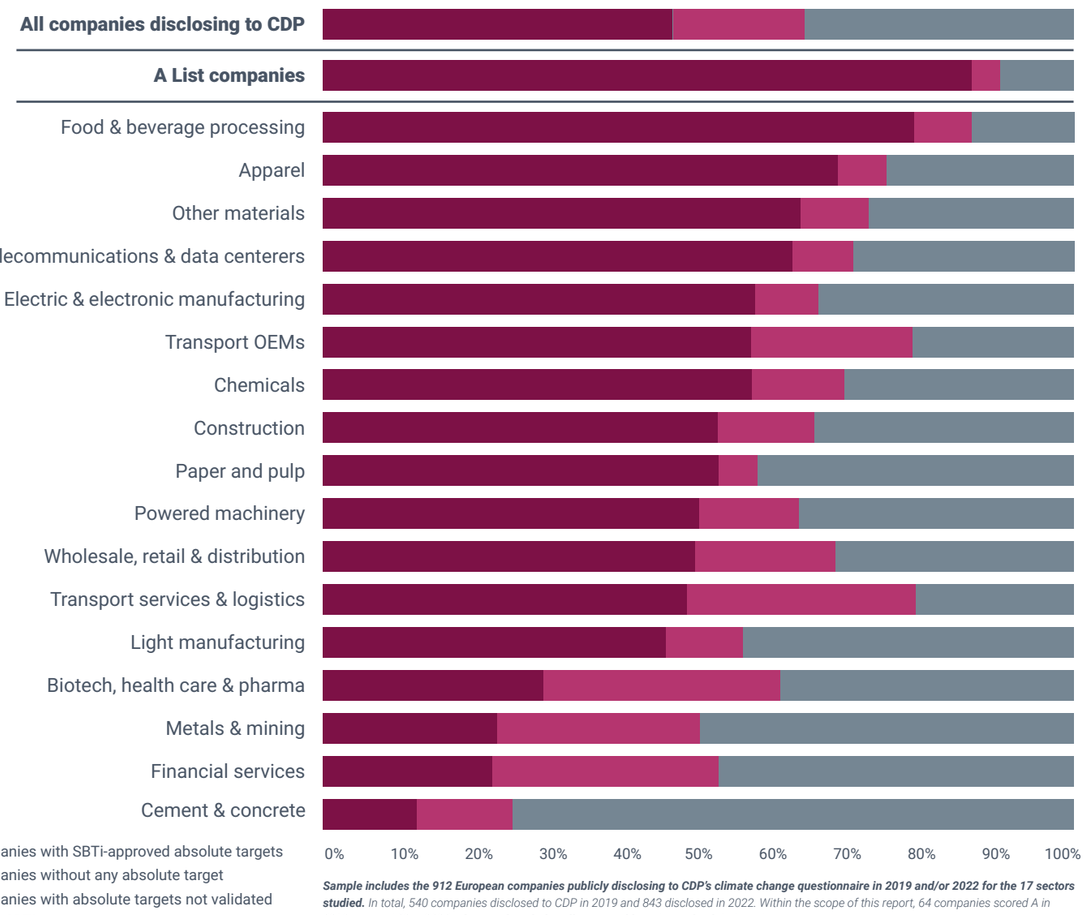


Sample includes the 843 European companies publicly disclosing to CDP's climate change questionnaire in 2022 for the 17 sectors studied. *This graph includes all absolute and intensity targets, with all time horizons. SBTi-approved targets are considered as the most reliable, robust, and achievable by the companies. This applies to both absolute and intensity targets.*

Indeed, in 2022, 25% of the companies in the hard-to-abate sectors disclosed only intensity targets, versus 10% of the companies in the other sectors. This strategy enables them to secure their trajectory in the event of increased activity, as their production and revenue are highly carbon sensitive.

In 2022, 394 (47%) European companies had at least one absolute SBTi-approved target to reduce emissions, compared to 73 (14%) in 2019, a 5.4-fold increase. Such sectors as **Financial Services** (from 1% to 22%), **Light Manufacturing** (from 3% to 46%), and **Transport OEMs** (from 0% to 57%) experienced the highest growth in companies setting absolute SBTi-approved targets from 2019 to 2022. The **Food and Beverage** and **Media and Telecommunications** sectors, the top two sectors, had 79% and 63% of companies with absolute SBTi-approved targets, respectively.

Figure 5
In 2022, 47% European companies had at least one absolute SBTi-approved target to reduce emissions



Sample includes the 912 European companies publicly disclosing to CDP's climate change questionnaire in 2019 and/or 2022 for the 17 sectors studied. *In total, 540 companies disclosed to CDP in 2019 and 843 disclosed in 2022. Within the scope of this report, 64 companies scored A in 2019, versus 103 in 2022.* ***This graph includes all near- and long-term absolute targets.***

1. Sectoral decarbonization maturity and targets

45%

A 45% decrease in emissions is needed to keep global warming to below 1.5 °C

On the other hand**, 36% of companies have no absolute emissions reduction target**, especially hard-to-abate sectors **(Cement and Concrete** and **Metals and Mining**) and 17% have an absolute target that is not SBTi approved.

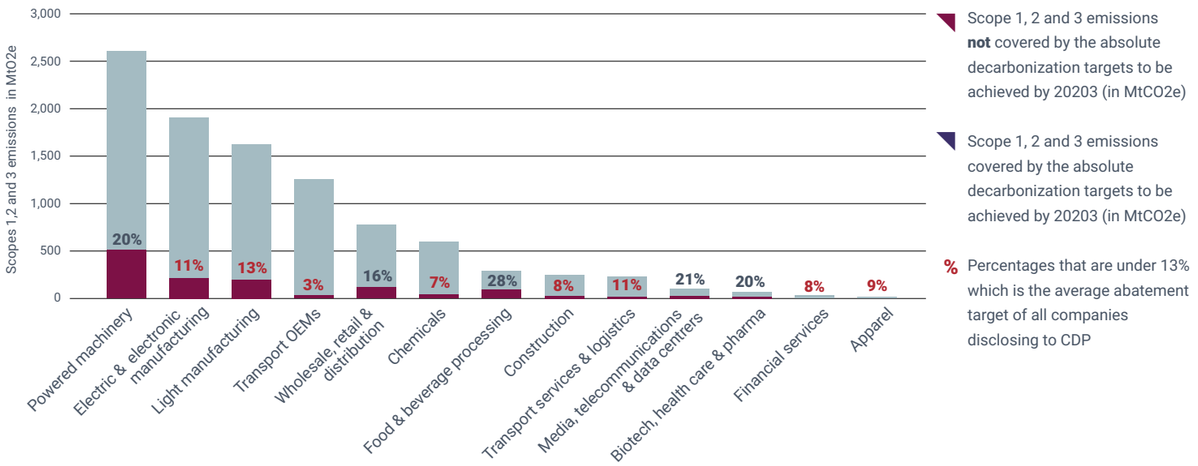
Absolute targets only cover 13% of the total emissions disclosed by European companies to CDP

A 45% decrease in emissions by 2030 compared to 2010 levels[3] is needed to keep global warming below 1.5°C. Current corporate targets are far from sufficient. Companies must therefore rapidly reinforce their commitment to build net-zero emissions business models in the long term that cover all of their value chain impacts.

Despite the increasing number of companies setting targets, **absolute targets** to be achieved by 2030 only covered 13% of the total disclosed emissions in 2022, and 21% for 2050 targets. Overall, many high-impact companies have not yet set ambitious targets, and absolute targets covering Scope 3 are still not widespread.

The **Food and Beverage processing**, **Media, Telecommunications, and Data Centers, Powered Machinery,** and **Biotech, Healthcare,** and Pharma sectors have the highest use of absolute targets. However, they cover less than 30% of the emissions disclosed in 2022, far from sufficient to overcome the decarbonization challenge. The **Powered Machinery** sector is the largest emitter; however, it is also one of the sectors whose absolute targets cover the largest share of disclosed emissions. The **Metals and Mining** sector, the fourth top emitter, uses intensity rather than absolute targets.

Figure 6
In 2022, absolute targets covered between 3% and 28% of the total disclosed emissions per sector



Sample includes 725 European companies publicly disclosing to CDP's climate change questionnaire in 2022 for 13 sectors (out of the 17 sectors studied). All the 103 A Listers in 2022 are also included in the sample of 725 companies. *Of the 843 companies publicly disclosing to CDP's Climate Change report in 2022, 64 were removed because of missing data on scope 1 & 2 emissions, and 54 companies were removed as part of Cement and Concrete, Metals and Mining, Paper and Pulp, and Other Materials. The 4 sectors were not considered in this analysis as more than 25% of their companies used only intensity targets in 2022. However, the 2022 A List companies belonging to Cement and Concrete and Paper and Pulp sectors were kept in the sample (there were no A List companies belonging to Metals and Mining or Other Materials sectors in 2022).* ***This graph includes all absolute targets with time horizons earlier or equal to 2030.***

77%

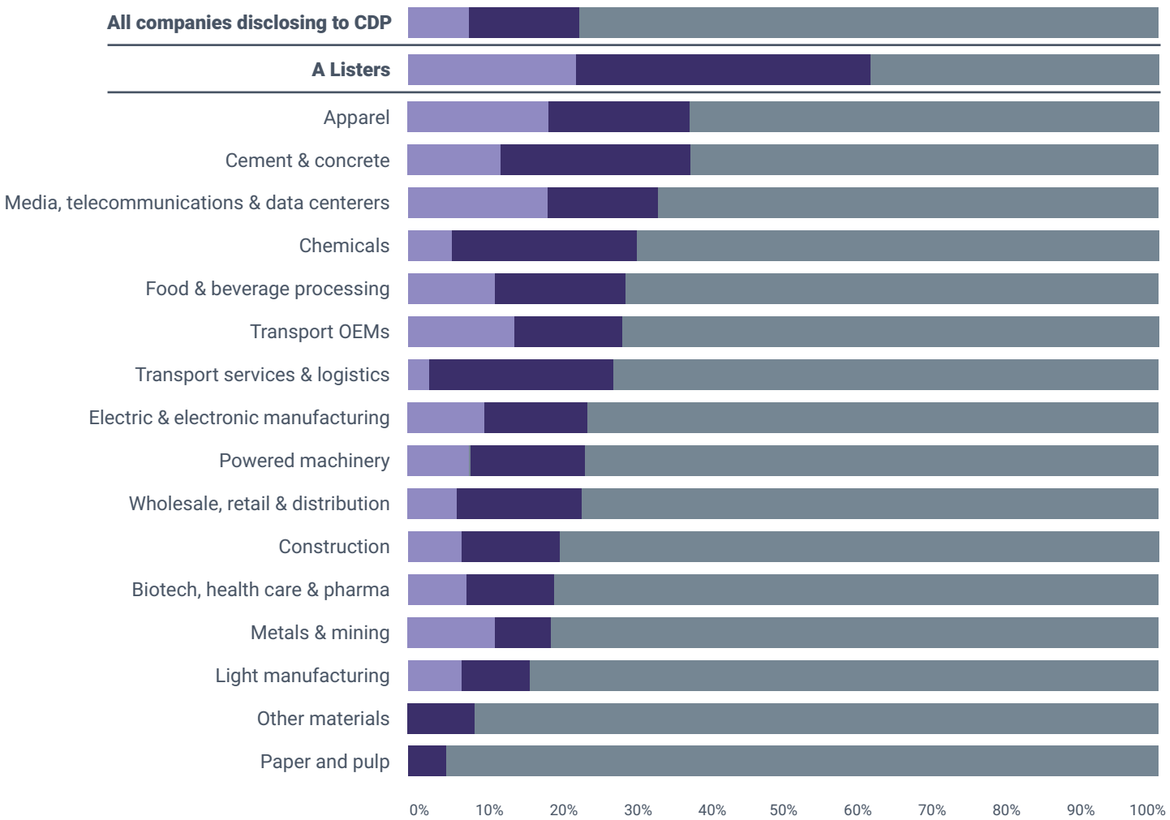
of CDP respondents had not set net-zero targets in 2022

Net-zero targets are crucial as they provide long-term guidance for companies on their decarbonization journey and set clear, validated objectives for realistic strategies to reach these goals.

In 2022, 77% of CDP respondents had not yet set net-zero targets. 14% had targets pending validation by the SBTi and 8% had already had targets approved. However, this represents nearly 1 in 4 companies potentially having net-zero targets once those pending validation are included – fast momentum in the 18 months since the launch of the SBTi Net-Zero Standard. 22% of CDP A List companies reported an SBTi-approved net-zero target in 2022.

Overall, the **Media, Telecommunications, and Data Centers** sector is one of the best-in-class sectors. It ranks among the most mature according to the decarbonization maturity matrix and has set absolute reduction targets covering 21% of the sector's disclosed emissions, with 20% of companies having net-zero targets. Furthermore, the sector made significant efforts in energy sourcing models between 2019 and 2022 (details in Chapter 2).

Figure 7
In 2022, Net-zero targets were still a niche affair



Sample includes the 843 European companies publicly disclosing to CDP's climate change questionnaire in 2022 for the 17 sectors studied. *Within the scope of this report, 103 companies were nominated as A List companies in 2022. The Financial Services sector was withdrawn as the sectorial guidance is not available yet, meaning that companies in this sector cannot have SBTi-approved net-zero targets.*

3 IPCC (March 2023) AR6 Synthesis Report

Electric & Electronic manufacturing sector

Pascal Roquet, Corporate Environment and Health Director at STMicroelectronics, explains the challenges related to reducing GHG emissions in the Electric and Electronic Manufacturing sector whilst meeting the growing global demand for semiconductors.

"This growth raises challenges in terms of environmental protection: indeed, the semiconductor industry generates perfluorocarbons (PFCs), essential gases in the production of microchips which have a significant Global Warming Potential (GWP).

STMicroelectronics set-up sustainability as a guiding principle 25 years ago, which led us to set PCFs eradication as a key priority to meet our GHG emissions reduction targets. To do so, PFCs abatement systems (Thermal Process Units, TPU) have been deployed within our chip production plants. To put it simply: once used in the production processes, the PFCs are heated to extreme high temperature to crack the molecules, and then are washed with « scrubbers » before being released into the atmosphere.

Even though the natural gas or electricity used to burn those PFCs is also generating CO2 emissions, the benefit for the planet linked to the overall emissions reduction is huge, considering the much lower GWP of natural gas and/or electricity. This continuous effort of decarbonization by implementing those types of equipment, engaging in significant investments within all our manufacturing plants, and even if they are “invisible” to the public, this is one of our key proofs of engagement towards the planet.

We have reduced those PFC emissions per uit of production by 83% since 1994. We are now accelerating this effort: we aim to halve our scope 1 & 2 emissions by 2025 versus 2018, and this target has been approved by the SBTi as being compliant with a 1.5°C scenario. It therefore supports our commitment to become carbon neutral in 2027."

Reducing scope 1 and 2 emissions and hedging against energy prices

2

2. Reducing scope 1 and 2 emissions and hedging against energy prices

14%

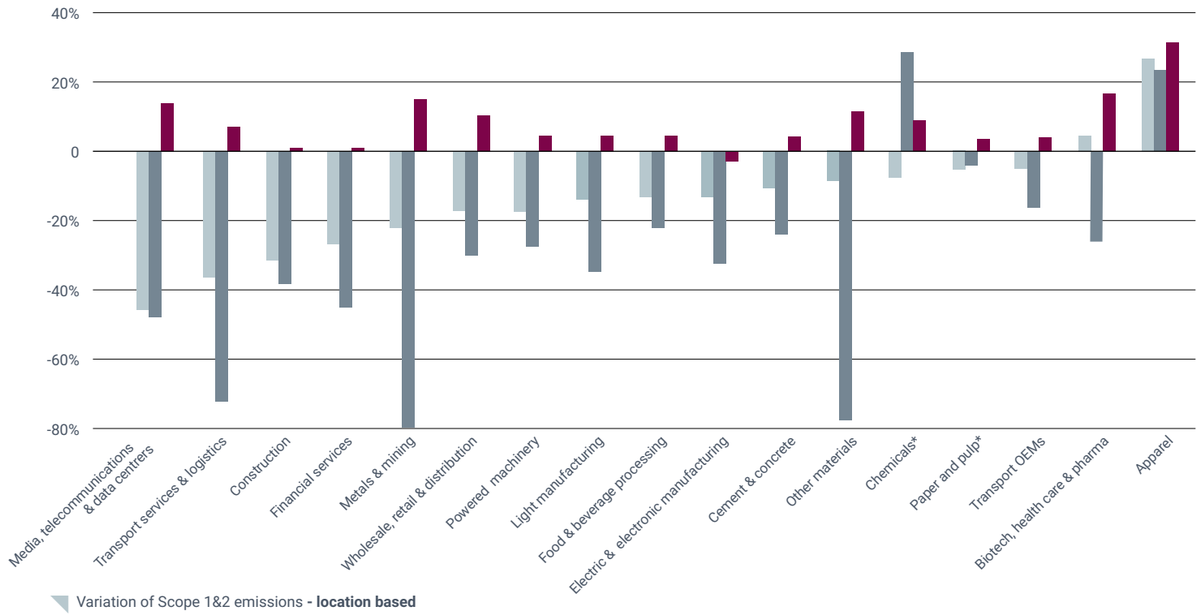
On average, companies in our sample successfully reduced their scope 1 & 2 emissions by 14%

On average, companies in our sample successfully reduced their scope 1 & 2 emissions by 14% while increasing their turnover by 8% between 2019 and 2022. This demonstrates that emissions reduction did not come at the expense of competitiveness.

During this period, most sectors have experienced a decrease in location-based emissions due to energy efficiency measures and an increasing rate of renewable energy sourcing. The use of contractual instruments like Renewable Energy Certificates (RECs) and Guarantees of Origin (GOs) also contributed to the reduction of scope 2 emissions.

Each REC and GO certifies that 1 MWh of renewable electricity has been produced by a **qualified renewable energy resource** (typically grid-connected) for the purpose of electric utility compliance tracking for renewable energy regulatory quotas (i.e., renewable portfolio standard or clean energy standard). However, these market tools do not always lead to additional renewable electricity generation infrastructure, as they often concern pre-existing assets (i.e., old generation utility, such as hydraulic infrastructures).

Figure 8
13 out of 17 sectors successfully reduced their scope 1 & 2 emissions while increasing their turnover between 2019 and 2022



Sample includes 349 European companies publicly disclosing to CDP's climate change questionnaire in 2019 and 2022 for the 17 sectors studied. *Of the 471 companies publicly disclosing to the CDP's Climate Change report in both 2019 and 2022, 100 were removed because of missing turnover data and 22 were removed because of missing data on scope 1 & 2 emissions. The sample of companies is identical for the 2 years studied.*

** The evolution of market-based emissions associated to Paper & Pulp and Chemicals sectors are not the result of an additional abatement on location-based emissions. This may be due either to a significant reduction of the use of RECs and GOs over the period, or to the use of RECs and GOs which are associated to higher emissions factors than the local network. This second case may occur when the activity of a sector is concentrated in regions supplied by old nuclear, where the emissions factors associated to the local grid are particularly low*

33%

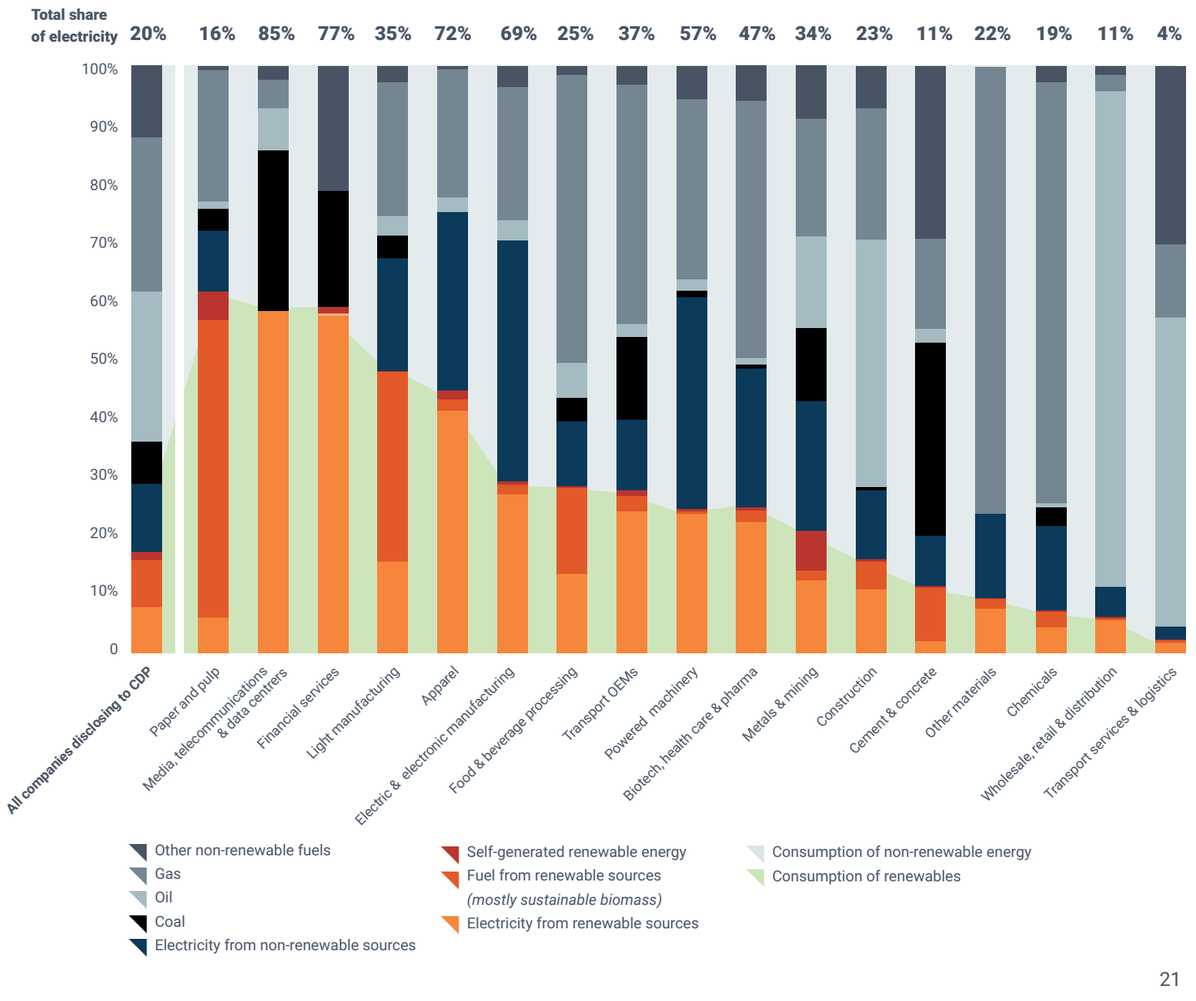
Renewables covered less than a third of the energy used in the vast majority of sectors

High-quality alternatives exist from renewable sourcing such as on-site generation power plant and Corporate Power Purchase Agreements (CPPA), which foster the implementation of concrete renewable energy consumption actions (cf. Figure 10 for more details).

In 2022, most sectors primarily consumed non-renewable energy, excepting **Paper and Pulp** and **Media, Telecommunication and Data Centers** sectors.

The **Paper and Pulp** sector relies mostly on biomass – such as wastes from wood preparation or pulp and paper manufacturing processes – to supply part of their energy needs with renewable sources. As for the Light Manufacturing sector, players burn the byproducts of their production processes, such as wood chips, black liquor, and cork dust, but also purchase biogas or bioethanol for their industrial processes.

Figure 9
In 2022, renewables covered less than one third of the energy consumption of 12 out of 17 sectors



2. Reducing scope 1 and 2 emissions and hedging against energy prices

59%

In 2022 renewables represented 59% of the Media, Telecommunications & Data centers sector's energy consumption

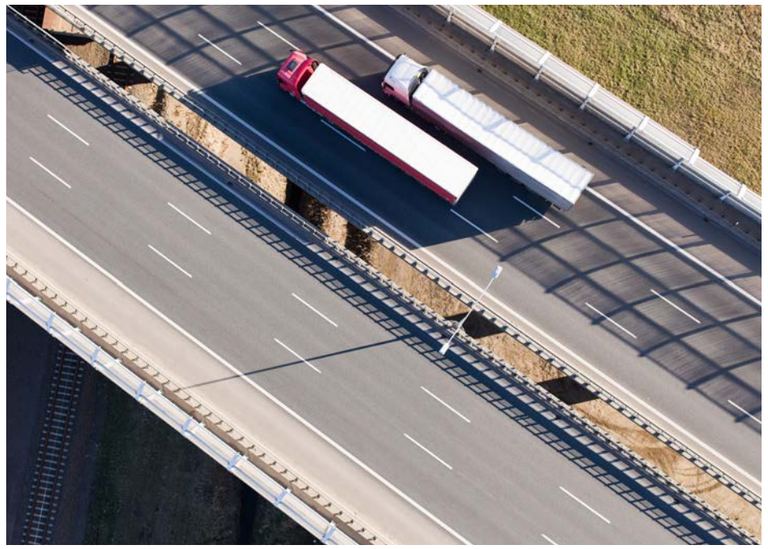
The Media, Telecommunications, and Data Centers sector initiated a major shift towards renewables in 2019.

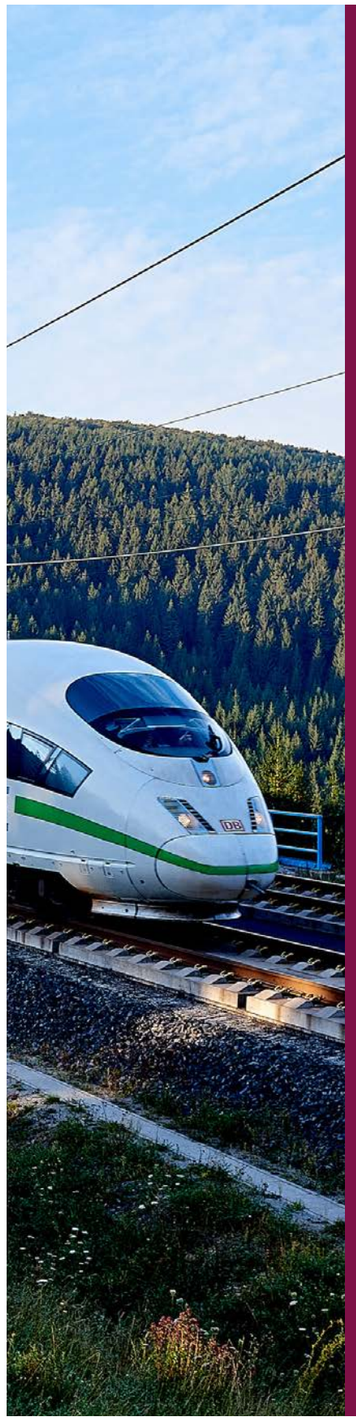
Between 2019 and 2022, the **Media, Telecommunications, and Data Centers** sector has increased its consumption of renewable electricity by +37% compared to 2019, and in 2022, renewables represented 59% of the sector's energy consumption. When combined with energy efficiency measures, this change of mix (Figure 11) is the reason the sector decreased its scopes 1 & 2 emissions by -45% over the period (Figure 8).

Other industries are lagging in terms of low-carbon energy sourcing due to the inadequate maturity of alternative sourcing, such as hydrogen or renewable electricity, in some areas. This is the case for **Transport Services and Logistics** and **Wholesale, Retail, and Distribution**, where 90% of energy consumptions were covered by non-renewable fuels in 2022, and especially oil for the transport of goods. This also applies to the **Chemicals** sector, which is highly dependent on gas for chemical reactions – such as to produce ammonia – and drying processes. Technologies to substitute these fossil fuels with renewable sources, such as the use of green hydrogen, are emerging, but will take time to scale up.

90%

Transport services & logistics and Wholesale, Retail & Distribution energy consumptions were covered at 90% by non-renewable fuels in 2022.





Transport services & Logistics sector

Andreas Gehlhaar, Head of Sustainability and Environment at Deutsche Bahn, shares his insights on the electrification and renewable energy sourcing of the Transport Services and Logistics sector.

Deutsche Bahn will be climate neutral by 2040 at the latest. To achieve this, we are utilizing three critical levers: the shift to 100% renewable power, the end of diesel and the start of the heat transition. To get to fully green traction current, we are continuously increasing our share of renewables in the traction current mix. In 2022, it was already around 65 percent. By 2025, we will utilize 100% renewable power in all our depots, office buildings and stations in Germany. And by 2038 at the latest, we aim to switch our traction current mix exclusively to electricity from renewable sources.

One of the key instruments we are using and wish to develop further to shift to renewables are Power Purchase Agreements (PPAs) – i.e., long-term electricity supply contracts signed directly with renewable developers. With the 15-year agreement to purchase energy supplied by the Amrumbank-West offshore wind farm off Helgoland, for instance, about 190 GWh of additional power will be purchased each year from 2025. This quantity alone corresponds to the electricity needs for almost six days of electric rail operations throughout Germany. The agreement will also save up to 153,000 t of CO2 each year in comparison to electricity supplied by coal power.

As part of our mission to transform Deutsche Bahn into a climate neutral company, we plan to end all use of fossil fuels. Already, around 90% of our passenger and freight transport runs on electricity, primarily on green electricity. In addition, we are adopting a technology-open approach with alternative drives and fuels and work together with partners: In the area of alternative drives, we are currently testing an innovative hydrogen system consisting of a refueling station, train and maintenance infrastructure in partnership with Siemens Mobility.

Last year, we successfully tested Alstom's first battery train in passenger service and gained experience in operation and maintenance. Regarding alternative fuels, our focus is on biofuels such as hydrotreated vegetable oil (HVO). This is produced exclusively from biological residual and waste materials and produces around 90 percent fewer GHG- emissions than conventional diesel.

Sustainability efforts must go beyond the mere decarbonization of operations: we believe a holistic approach is necessary to tackle not only climate matters but also to promote biodiversity or resource protection as all these topics are interdependent. Thus, we are driving the Green Transformation of DB forward in the four environmental fields of action of climate protection, nature conservation, resource protection and noise reduction. Although the Transport services and Logistics sector still has a long way to go to reach climate neutrality and match a 1.5°C path, there also lies a great chance as long as we work together collaboratively and follow an ambitious and holistic approach that addresses all facets of sustainability.

Transport services & Logistics sector

Andreas Muendel, responsible for Key Operations at DP-DHL, and Klaus Hufschlag, responsible for ESG reporting & controlling, share their views on alternative energy sourcing for the Transport services & Logistics sector.

"The Deutsche Post DHL (DP-DHL) Group is a global leading transportation and logistics company, with DHL offering a comprehensive range of parcel and international express services, and with Deutsche Post (DP) being Europe's leading postal and parcel service provider. The group has committed to being net-zero for its logistics-related emissions by 2050, and in the short term, to reduce its emissions by 28.2% in absolute terms.

We are confronted with two main challenges: the decarbonization of heavy-duty trucks over long distances, and airplanes.

The electrification of Transport Services and of Logistics is one of the key levers to decarbonize the industry, however it appears to be more complicated than anticipated for heavy-duty vehicles The problem is not the weight of the vehicles but the distances to be travelled: indeed, electrification is possible for short distances, and it has been part of DP-DHL's decarbonization plan for quite some time. However, the associated network and related electricity consumption are the main complexity drivers in the equation: you need an appropriately sized charging pod network with the right number of compatible pods per charging station and charging stations which are at the right distance from one another. Another key challenge for us is our reliance on our subcontractors: the electrification of DP-DHL's heavy-road assets is slowed down by their reluctance to shift to electricity-based technologies. Indeed, the recent energy crisis has increased transition risks for these small actors, thus explaining their caution on the matter.

Sustainable fuels seem to be a very promising alternative in the short term, but we are convinced that these will only be interim technologies. Moreover, DP-DHL does not consider fuel cells as a scalable technology for heavy-road operations in the foreseeable future: too many uncertainties surround hydrogen roll-out and industrialization. Additionally, we expect other sectors to have priority on hydrogen use – like steel or cement – over the Transport Services and Logistics sector. For aviation, SAFs could be a game changer, but beyond their scarce availability, industry standards and regulations around them are still missing. Moreover, not all types of SAFs are equal, and the reduction of emissions varies from one to another. Actually, we expect CO2 reductions to increase once Power-to-Liquid SAF technologies become available. Overall, SAF-related CO2 reductions must be very closely accounted for.

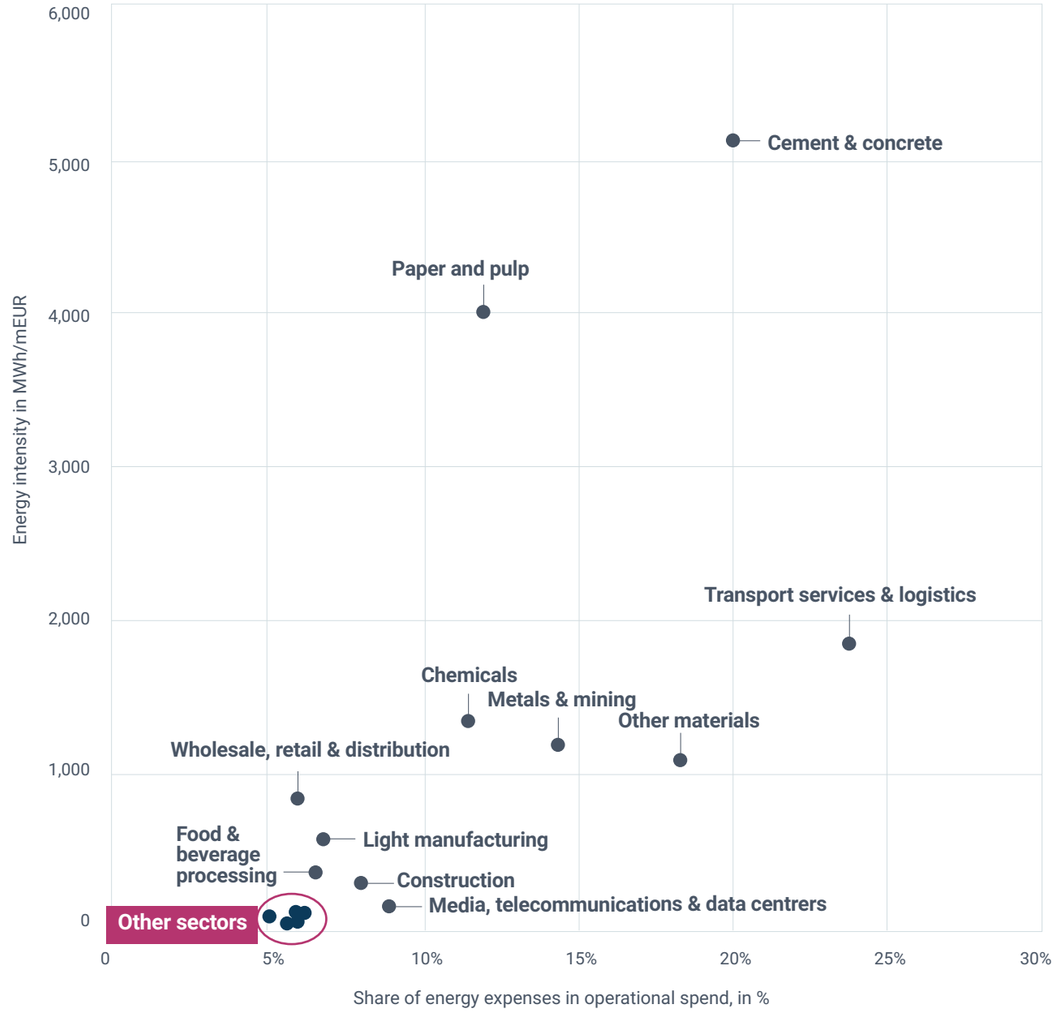
To address our airplanes' decarbonization, we also bet on energy efficiency: we have been buying factory-new airplanes to guarantee massive fuel consumption efficiency gains. Acquiring brand new air assets sometimes represents a quantum leap of twenty years in R&D on engine fuel consumption efficiency."

Companies that spend a lot in energy bills and have high energy intensities are particularly exposed to the fluctuations of energy market prices.

Hard-to-abate sectors are most willing to hedge against fluctuations in energy prices, as they allocate a large portion of their OPEX to energy bills. Indeed, in 2022, between 11% and 24% of their operational spending went toward energy bills, while other sectors dedicated between 5% and 8% of their operational expenses. These figures have remained stable over the period.

Actions to reduce exposure to energy prices exist, such as energy efficiency actions or long-term energy contracts called Power Purchased Agreements (PPAs) or Gas Purchase Agreements (GPAs). These energy contracts enable companies to secure a fixed electricity or gas price over the long term (15 to 20 years). They initially emerged due to their carbon benefits and are now becoming financially competitive, as they give long-term visibility on energy expenses.

Figure 10
In 2022, the most energy-intensive sectors were also the ones with the highest energy-related operational spends



Sample includes 515 European companies publicly disclosing to CDP's climate change questionnaire in 2022 for the 17 sectors studied. *Of the 843 companies publicly disclosing to CDP's climate change questionnaire in 2022, 292 were removed because of missing turnover, 10 companies were removed because of missing data on energy consumptions, and 26 companies were additionally removed because of missing information on energy expenses.*

2. Reducing scope 1 and 2 emissions and hedging against energy prices

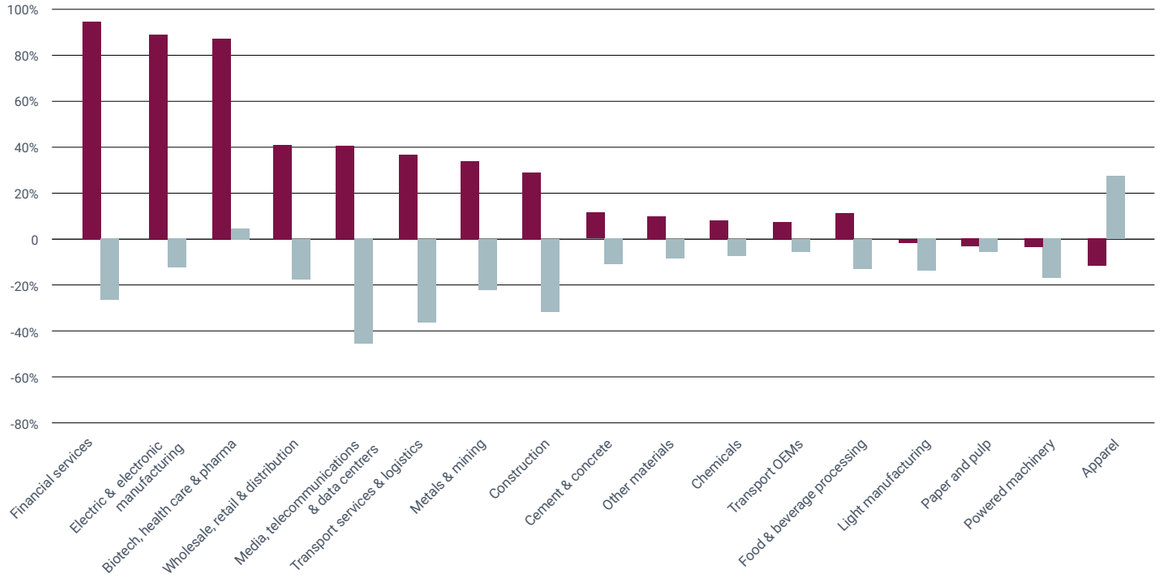
Energy efficiency and consumption optimization are additional levers to limit the impact of energy price volatility, which can be achieved activating by optimization of heating, ventilation, and air conditioning systems, to name but a few actions.

Energy efficiency gains or losses are assessed here through the evolution of energy intensities (in MWh per million Euro of turnover) over the 2 years.

The most efficient optimizations have often been years in the making in the most energy-intensive sectors, as it is a crucial matter of competitiveness. Thus, the remaining margin for additional efficiency optimization is narrowing and difficult to leverage for the most energy-intensive players (costly or time-consuming). However, some **Hard-to-abate sectors**, such as **Cement and Concrete** (-12% MWh consumed per million Euro of turnover generated in 2022 versus 2019), **Metals and Mining** (-34%), and **Transport Services and Logistics** (-37%), succeeded in making efforts on energy efficiency measures.

Some other sectors, such as **Financial Services** and **Electric and Electronics**, have made significant efforts at energy efficiency over the period studied, achieving +94% and +84% respectively in 2022 when compared with 2019. These efficiency gains led to reductions in scopes 1 & 2 emissions of -27% and -13%, respectively.

Figure 11
Efforts on efficiency contributed to reducing location-based scopes 1 & 2 emissions between 2019 and 2022



Sample includes 349 European companies publicly disclosing to CDP's climate change questionnaire in 2019 and 2022 for the 17 sectors studied. *Of the 471 companies publicly disclosing to CDP's Climate Change report in both 2019 and 2022, 100 were removed because of missing turnover data (turnover is used to compute the energy efficiency in MWh/million EUR of turnover), and 22 companies were removed because of missing data on scope 1 & 2 location-based emissions. The sample of companies is identical for the 2 years studied.*

Electricity serves as the primary energy vector in Scope 2, with electrification currently the most effective and rapid method to substantially decarbonize Scopes 1 and 2, but only if it utilizes low-carbon electricity sources. However, electricity prices may be subject to considerable market fluctuations based on numerous factors, such as the limited availability of renewable energy infrastructure production, increases in carbon quotas, or geopolitical agendas (e.g., conflict between Russia and Ukraine). Consequently, sectors must establish mechanisms to shield themselves from price fluctuations, thereby gaining independence from geopolitical and influences.

Hard-to-abate sectors, except for **Transport Services & Logistics**, are all electricity-intensive. However, only the **Paper & Pulp** sector has significantly implemented PPAs and self-consumption actions to cover a large share of its electricity consumption. Thus, other **hard-to-abate sectors** largely rely on GOs and RECs for their green electricity supply and remain exposed to energy market price volatility.

The PPA market is flourishing in Europe but with supply struggles, it faces immense pressure to keep up with the unprecedented corporate demand from all sectors.[4] All interviewed companies are considering PPAs, particularly amid the energy crisis.

Figure 12
In 2022, most sectors were not protected against electricity price fluctuations in 2022

Sample includes 504 European companies publicly disclosing to CDP's climate change questionnaire in 2022 for the 17 sectors studied. *Of the 843 companies publicly disclosing to CDP's climate change questionnaire in 2022, 292 were removed because of missing turnover, 10 companies were removed because of missing data on energy consumptions, and 26 companies were removed because of missing information on energy expenses. Moreover, 9 companies were taken out of the sample because of mistaken reporting on energy consumptions and generations.*

4 Capgemini Invent (December 2022) Baromètre des achats d'énergie verte en France

Scope 3 is the main challenge

Biotech, health care & pharma sector

José-Francisco Vallejo Carrera, Global Head of Environment and Environmental Sustainability at Sanofi (Biotech, Healthcare, and Pharma sector), explains Sanofi's two-phased strategy for energy sourcing

"Today, nearly every industry around the world has one thing in common: We're all racing towards net-zero. Sanofi, a global healthcare company, has set an ambitious climate strategy towards net-zero GHG emissions by 2045, with carbon neutrality by 2030 as an intermediate milestone. And because all healthcare companies must collectively accelerate our efforts to reduce supply chain emissions, The Sustainable Markets Initiative's (SMI) Health Systems Taskforce was launched at the 26th United Nations Climate Change Conference (COP26). To accelerate the delivery of net-zero health systems, we announced last November, ahead of COP2 7, the launch of sector-first commitments with actions and recommendations to deliver near-term targets and support the transition to net-zero, sustainable healthcare.

At Sanofi, we're committed to minimizing the environmental impacts of our products and activities while strengthening our resilience to the environmental challenges. To do so, we have set up action plans to reduce our activities' GHG emissions by 55% (compared with 2019) across scopes 1 & 2, use 100% of renewable electricity across our operations by 2030, foster an eco-fleet, and work with suppliers to reduce GHG emissions across our full value chain by 30% (scope 3) by 2030. In addition, we are accelerating energy consumption as well as designing new factories with the lowest environmental footprints. In the short term, we are minimizing energy usage with an energy efficiency program and maximizing the use of renewable energies, such as the installation of PV Solar on sites. In Australia, India, and Italy, we are delivering a total of 8.6 GWh per year of renewable electricity. During the first half of 2023, we will start delivering a total of 11 GWh per year of renewable electricity in two of our French sites, covering 13% of our sites' total consumption.

Moreover, we will gradually transition towards long term renewable energy contracts (PPAs), with the aim to cover most of our energy supply by 2030. In the meantime, we are leveraging market tools, such as RECs and Guaranties of Origins, adopting these short-term quick-win methods as temporary and flexible solutions to accelerate our transition.

While the European energy price crisis has not caused us to question our energy strategy and targets, energy efficiency remains a key driver of our strategy."

3. Scope 3 is the main challenge

92%

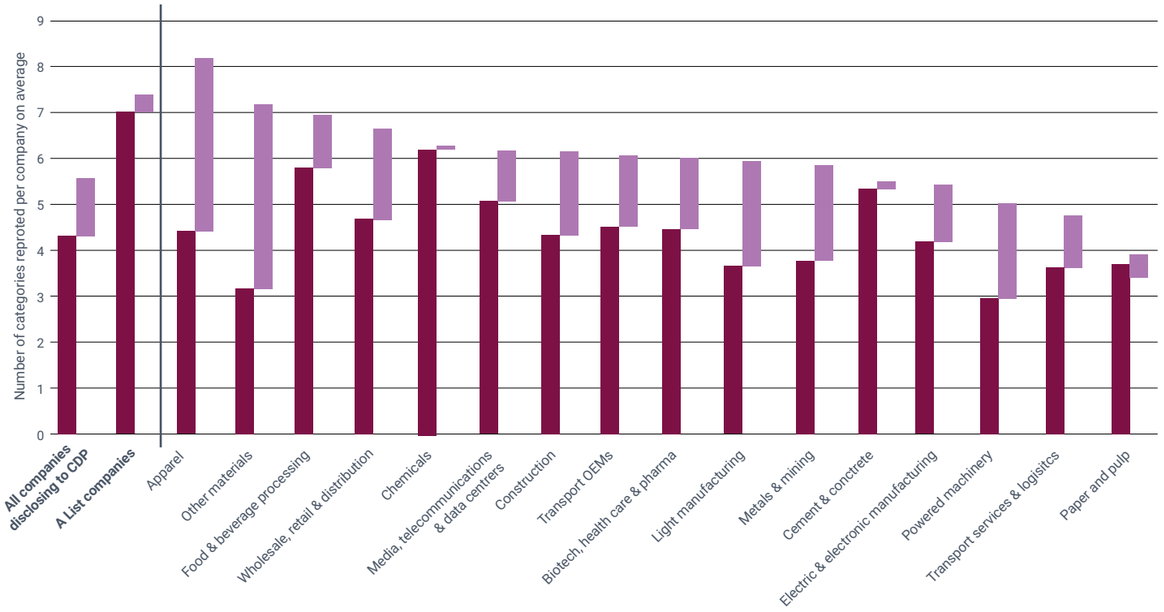
Scope 3 represented nearly all of the emissions disclosed by European companies in 2022

Companies do not have full control over scope 3, as it depends on suppliers, consumers, external stakeholders, employees, and adjacent value chains. The first challenge is to quantify emissions accurately and comprehensively.

Companies have made progress on how to assess their scope 3 emissions, with the number of reported categories increasing for all sectors between 2019 and 2022. This improvement implies that their reporting is more comprehensive and value chain impacts are better addressed.

On average, companies disclosed between 5 and 6 scope 3 categories in 2022, a 28% increase compared to 2019. A List companies did not make substantial progress since they were already relatively advanced on scope 3 in 2019, disclosing emissions for 7 categories on average. Furthermore, 38% of scope 3 categories were considered "Relevant and calculated" by companies in 2022, compared to 30% in 2019. Conversely, the percentage of Scope 3 categories considered either "Not relevant" or "Not evaluated" decreased from 58% in 2019 to 53% in 2022.

Figure 13
All sectors improved on how to assess their scope 3 categories between 2019 and 2022

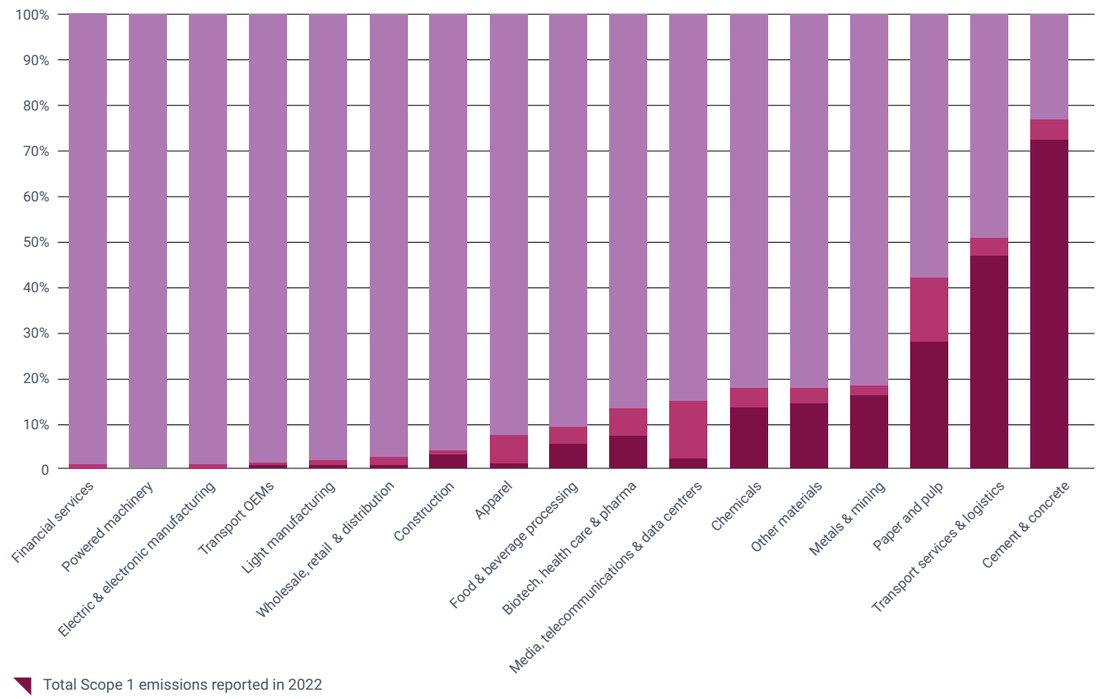


Sample includes 702 European companies publicly disclosing to CDP's climate change questionnaire in 2022 for 16 sectors (out of the 17 sectors studied). *All the 103 A List companies in 2022 are also included. Of the 843 companies publicly disclosing to CDP's climate change questionnaire in 2022, 131 were removed as part of the Financial Services sector. Indeed, this was excluded from the analysis because CDP created a sector-specific questionnaire during the period studied, resulting in a different reporting methodology for this sector. However, the 2022 A List companies belonging to Financial Services were kept in the sample.*

In 2022, a company's value chain represented 92% of total disclosed emissions, while scopes 1 and 2 accounted for 6% and 1%, respectively.

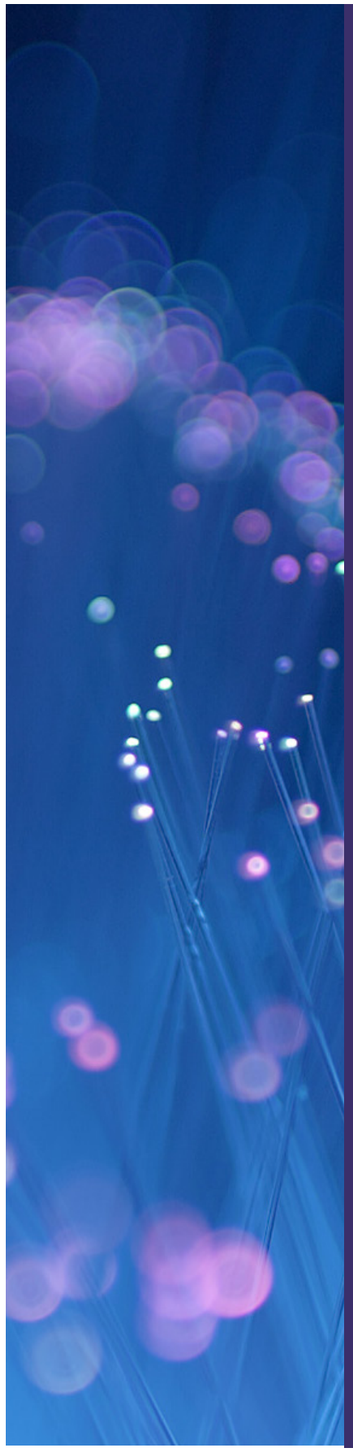
Scope 3 emissions constituted between 60% and 99% of total GHG emissions for 15 out of 17 sectors in 2022. As scope 3 encompasses the entire value chain, only a few companies systematically include scope 3 in their emissions reduction targets, even though it represents the most significant emissions source for all of them[5].

Figure 14
In 2022, scope 3 emissions represented more than 80% of the total disclosed emissions for 14 out of 17 sectors



Sample includes 720 European companies publicly disclosing to CDP's climate change questionnaire in 2022 for the 17 sectors studied. *Of the 843 companies publicly disclosing to CDP's climate change questionnaire in 2022, 123 were removed because of missing data on scope 2 location-based emissions and/or scope 3 emissions. Only targets with the status "New", "Underway" and "Revised" were kept in the analysis, thus excluding "Achieved," "Expired," and "Replaced" targets.*

5 This includes absolute and intensity targets associated to quantified emission reductions, as disclosed by companies through CDP climate change questionnaire in 2022. However, all companies that submit a target for SBTi-validation must complete a scope 3 inventory, and 96% of SBTi-validated targets include commitments to reduce the impact of the company's supply chain whose impact on emissions is not always quantified.



Media, telecommunications & data centers sector

Catherine Bals, Sustainability Department Lead at Proximus, explains Proximus' holistic approach to reduce the emissions from scope 3 upstream and downstream in the Media, Telecommunications, and Data Centers sector.

"Proximus is a telecommunications company and digital service provider. We have an ambitious climate strategy, including a net-zero target by 2040, following a 1.5°C trajectory.

As we have already significantly reduced our emissions from scopes 1 & 2 (-81% in 2022 versus a 2007 baseline), our major challenge today is addressing our scope 3. To do so, we have set plans to foster both internal and external change.

First, we want to encourage external change and action from our suppliers and customers. For our suppliers, this means setting up a supplier engagement program and integrating new requirements in our contracts and RFPs, such as the obligation for all of them to have SBTi-approved targets. For our customers, we try to nudge them to repair more and reduce the frequency of renewal. We want to make them aware of the impact of their equipment and lifestyles on the climate.

We have a large fleet of equipment on lease to our customers, such as boxes, decoders, and TV sets. To limit the impact of these leased assets, they are reconditioned following circularity principles in our warehouse in Courcelles, which is also an adapted work facility. Each item of leased equipment can be repaired and reconditioned up to 4 times in our workshops. Moreover, as these devices are marketed under our own name, we have enough influence on our suppliers to initiate eco-design dynamics with them. This enables us to challenge the materials used, facilitate reconditioning, reduce size, packaging, and power consumption of equipment.

Second, we need to push for internal change. We are working with our teams to educate them on their impact and give them key enablers. In addition, teams are incentivized to reduce the carbon impact of their activities.

We are investigating how we can rethink our business model to move towards increasing dematerialization and thus drastically reduce our purchased goods, which is our scope 3 main emissions hotspot. The primary impact areas are devices and the network: for example, we rolled-out our new 4G/5G network together with Orange, thus limiting usage of pylons by 40% and energy by 20%. For incompressible purchases, the new requirements for our suppliers should help limit our impact. We are deeply convinced that one of the main levers for quick and efficient action at industry level is collaboration between peers. Industry initiatives help save time and resources, share good practices, and work together on optimizing the processes we all use. We are also suppliers, and we measure how much it might be difficult to answer all clients' imperatives when they are not coordinated. In that sense, industry-wide standardization is paramount!"

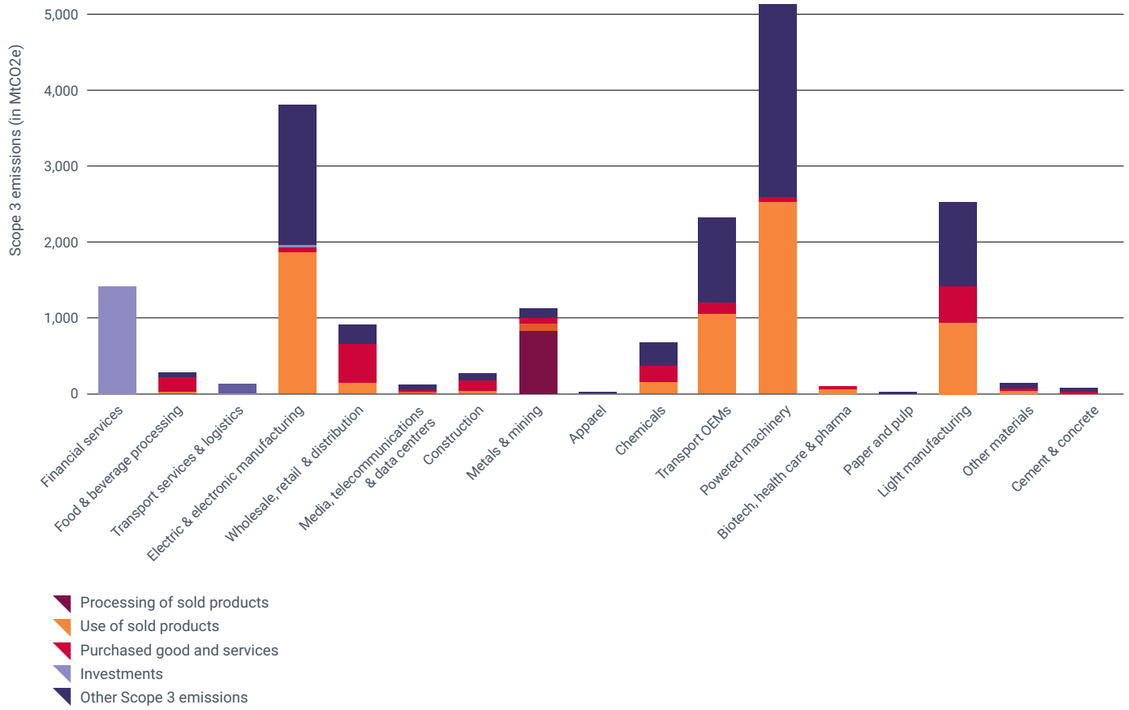
37%

Reported actions to cut scope 3 hotspots cover just 37% of total emissions

The "Purchased goods and services" and "Use of sold products" categories accounted for 74% of scope 3 emissions disclosed in 2022, but only 37% of these emissions were covered by corporate decarbonization initiatives.

In 2022, the *Use of sold products* represented 57% of total scope 3 emissions disclosed to CDP, while *Purchased goods and services* accounted for 17%. Other categories represented, on average, 2% or less of total disclosed emissions for scope 3, except for *Investments* (12%) for the **Financial services** sector and *Processing of sold products* (7%) for the **Metals & Mining** sector.

Figure 15
In 2022, the 4 most intensive scope 3 categories represented 93% of the total scope 3 emissions disclosed



Sample includes the 843 European companies publicly disclosing to CDP's climate change questionnaire in 2022 for the 17 sectors studied.

3. Scope 3 is the main challenge

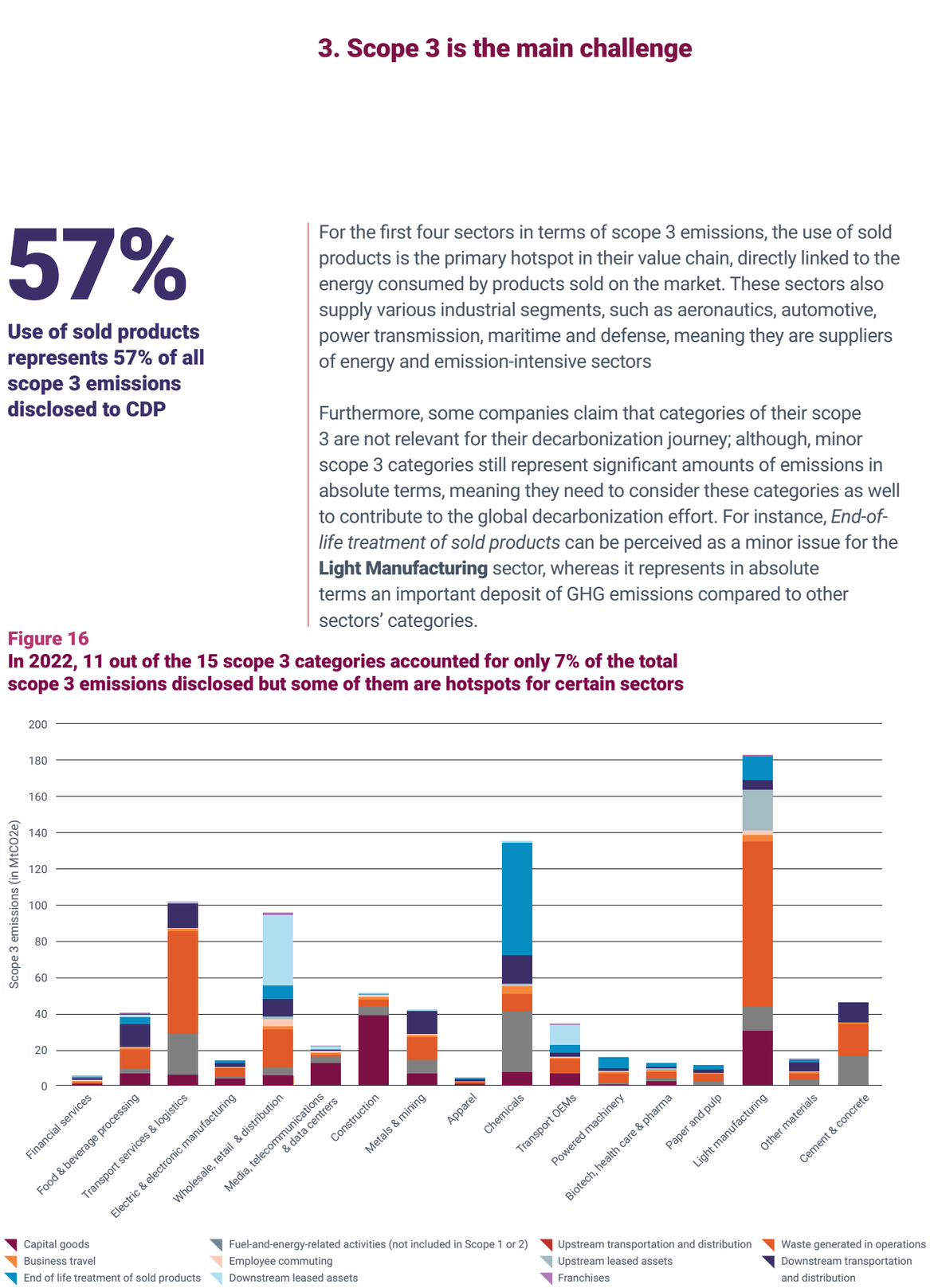
57%

Use of sold products represents 57% of all scope 3 emissions disclosed to CDP

For the first four sectors in terms of scope 3 emissions, the use of sold products is the primary hotspot in their value chain, directly linked to the energy consumed by products sold on the market. These sectors also supply various industrial segments, such as aeronautics, automotive, power transmission, maritime and defense, meaning they are suppliers of energy and emission-intensive sectors

Furthermore, some companies claim that categories of their scope 3 are not relevant for their decarbonization journey; although, minor scope 3 categories still represent significant amounts of emissions in absolute terms, meaning they need to consider these categories as well to contribute to the global decarbonization effort. For instance, *End-of-life treatment of sold products* can be perceived as a minor issue for the **Light Manufacturing** sector, whereas it represents in absolute terms an important deposit of GHG emissions compared to other sectors' categories.

Figure 16
In 2022, 11 out of the 15 scope 3 categories accounted for only 7% of the total scope 3 emissions disclosed but some of them are hotspots for certain sectors



Sample includes the 843 European companies publicly disclosing to CDP's climate change questionnaire in 2022 for the 17 sectors studied.

Transport OEMS sector

Sophie Le Pennec, HSE Director, and Raphaëlle Tissot, HSE Sustainable Performance Manager, address emissions from Thales' two main scope 3 hotspots (Purchased Goods and Services and Use of Sold Products) in the Transport OEMs sector.

"Thales is an aerospace and defense company with leading-edge expertise in four areas: aeronautics, space, identity and security, and defense. Thalès has committed to reaching carbon neutrality on scopes 1, 2 and Business Travel by 2040, and to reach a decrease of 15% by 2030 on both Purchased Goods and Services and the Use of Sold Products. Use of Sold Products and Purchased Goods and Services are our largest scope 3 categories in terms of GHG emissions, since they respectively represented 90% and 10% of our scope 3 emissions in 2021.

When we defined our objectives on Purchased Goods and Services, we anticipated the future adaptations of our responsible procurement strategy and started to engage with our suppliers early on in the process. For instance, we have been discussing with our suppliers about (1) gradually shifting to carbon footprint monitoring based on real data regarding their GHG emissions, (2) collaborating on a roadmap to reduce our supply chain's carbon footprint, and (3) implementing a responsible procurement policy to select suppliers with lower carbon footprints. Coordinating all along the upstream value chain is a complex part. In 2022, we successfully agreed on more than 110 roadmaps with key suppliers amongst our most emissive ones.

The Use of Sold Products requires the involvement of many stakeholders to build a clear and comprehensive view of our emissions. Thales experts are currently combining in-house analyses with market assumptions and sector publications to quantify product-use related emissions.

Additionally, some of our products also contribute to the decarbonization, through technologies and innovation related to earth observation, weather predictions, air traffic optimization or aeronautics management. For example, Thales's PureFlyt Flight management which will equip Airbus main fleet, and TopSky air traffic control systems for airports will enable to reduce aviation CO2 emissions by 10% by 2040. Broadly speaking, we believe that actions must be taken in collaboration with our suppliers and clients to be credible and maximize our impact globally.

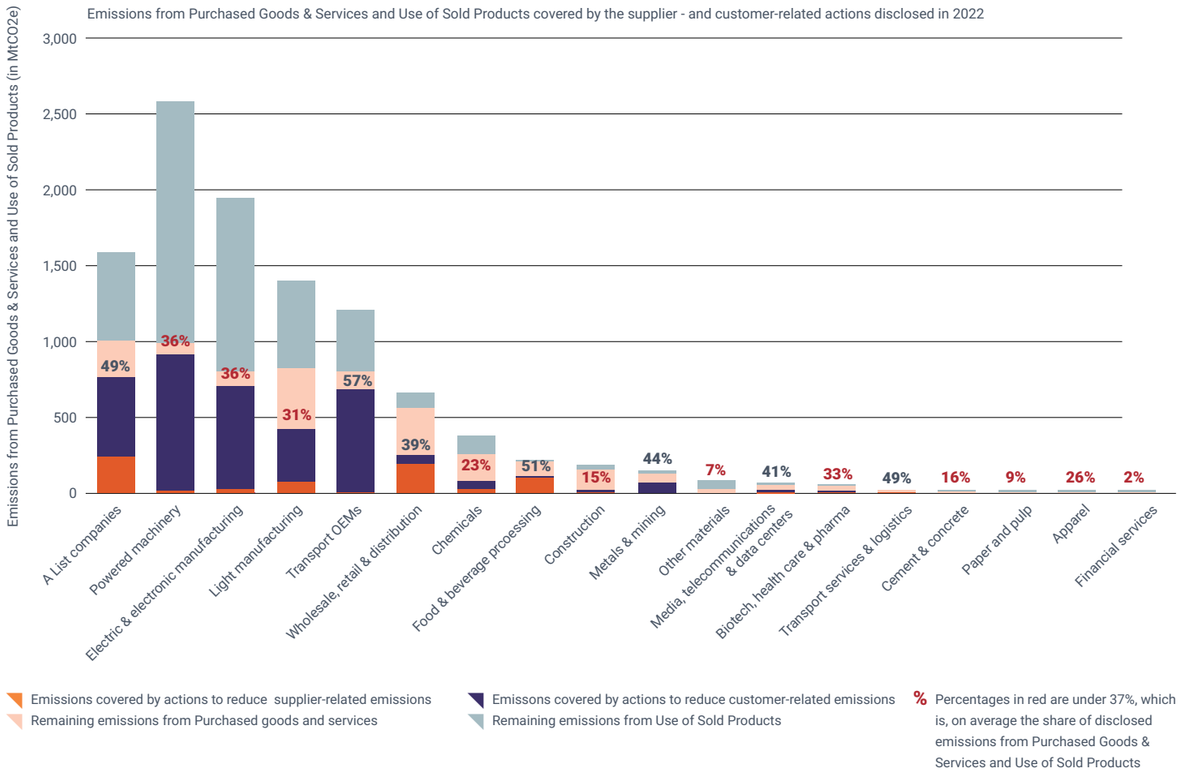
We have been working with industry peers to propose a harmonized methodological approach to assess scope 3 emissions of an aircraft or its parts regardless of their manufacturer. This cross-industry dynamic is now global through the International Aerospace Environmental Group. All the aerospace stakeholders concerned can benefit from the results of this collaboration, which has been recognized by SBTi, through the recent validation of our targets. Our objective is now to replicate the same initiative in the defense sector."

3. Scope 3 is the main challenge

In 2022, companies disclosed actions to reduce customer- and supplier-related emissions, covering on average 37% of total emissions from *Purchased Goods and Services* and *Use of sold products* categories. Considering the significance of these two categories in companies' scope 3, this coverage is insufficient.

Out of the 624 companies that disclosed emissions related to *Purchased Goods and Services* in 2022, 59% did not report any mitigation action with quantified abatement rates to reduce supplier-related emissions, similar to the 60% of companies among the 164 that disclosed emissions from the *Use of sold products*.

Figure 17
In 2022, companies disclosed actions to reduce customer- and supplier-related emissions, covering on average 37% of total emissions from Purchased Goods and Services and Use of Sold Products categories



Sample includes the 843 European companies publicly disclosing to CDP's climate change questionnaire in 2022 for the 17 sectors studied.

Drawing from Capgemini Invent's experience, we identified numerous existing solutions to reduce Scope 3 emissions, yielding between 50 and 80 levers for each sector. Implementing these levers demands the full mobilization of all company functions and departments to engage stakeholders at every step of the value chain, from industry-level collaboration to supplier engagement, employee incentivization, and consumer education. Adding to the challenge, addressing scope 3 emissions is not solely a company's responsibility, unlike scopes 1 and 2.

We present a few examples of levers to decarbonize scope 3 activities, resulting from a cross-reference between CDP data and Capgemini Invent expertise, for five selected sectors including the four sectors interviewed and **Food and Beverage Processing** which is one of the best-in-class sectors

Electric and Electronic Manufacturing disclosed scope 3 emissions that accounted for 99% of the total emissions disclosed by the sector in 2022. The *Use of sold products* represented 94% of the total scope 3 emissions disclosed, while *Purchased Goods and Services* represented 4%.

Examples of levers to decarbonize scope 3

Procurement and transportation	Product design and R&D	New business models
Levers with high accessibility and medium to high potential (beyond 10 MtCO2e/year) • Implement a carbon price on purchases among the parameters for the selection of suppliers • Foster the rework of packaging to make it more sustainable • Optimize logistics to reduce distances travelled • Decentralize equipment storage to reduce the need to transport equipment	*Levers with high accessibility and medium to high potential (beyond 10 MtCO2e/year)* • Develop products with advanced power management feature • Improve material efficiency by minimizing the use of rare earth elements • Source alternative raw material such as recycled gold and silver, low-carbon aluminum, or alternative metals instead of	*Levers with high accessibility and medium to high potential (beyond 10 MtCO2e/year)* • Provide repairing services to give a second life to semiconductors • Implement a take-back and recycling offer

3. Scope 3 is the main challenge

Transport OEMS (focusing on road transportation and aviation) disclosed scope 3 emissions that accounted for 99% of the total emissions disclosed by the sector in 2022. The *Use of sold products* represented 87% of the total scope 3 emissions disclosed, while Purchased Goods and Services represented 11%.

Customer	Product design and R&D	Procurement
Levers with high accessibility and medium potential (<50MtCO2e/year) • Raise awareness of sustainable flight among B2B and B2C customers and propose offsetting alternatives	*Levers with high accessibility and medium potential (<50MtCO2e/year)* • Improve aircraft design to reduce fuel consumption • Use Green Electric Taxiing for takeoff and landing • Implement efficient air traffic management systems Levers with medium accessibility (below 150€/tCO2e) and high potential (around 100MtCO2e/year) • Promote the development and use of sustainable aviation fuels (SAFs): hydrogenated esters and fatty acids (HEFA), alcohol-to-jet, gasification/FT • Design aircraft to be fueled with green hydrogen for short distance	*Levers with high accessibility and medium potential (<50MtCO2e/year)* • Source alternative raw material such as recycled steel and titanium, low-carbon aluminum through inert anode electrolysis powered by green electricity, bio-composites as an alternative to conventional carbon fiber

Media, Telecommunications, and Data Centers disclosed scope 3 emissions that accounted for 85% of the total emissions disclosed by the sector in 2022. *Purchased Goods and Services* represented 38% of the total scope 3 emissions disclosed, while the *Use of sold products* represented 35%.

Procurement	Education of customers and employees	New business models
Levers with high accessibility and potential expected (between 25 and 50 MtCO2e/year) • Source reconditioned devices for sale to end customers • Work with suppliers and promote the reintegration of e-waste • Develop innovative commercial models with suppliers, e.g., ESaaS	*Levers with high accessibility and potential expected (between 25 and 50 MtCO2e/year)* • Provide all employees with reconditioned devices • Raise customers' awareness on the carbon impact of digital technology and promote the sober use of electronic terminals	*Levers with high accessibility and potential expected (between 25 and 50 MtCO2e/year)* • Develop repair services to extend life of electronic equipment • Develop a product-as-a-service rental service for electronic terminals • Create an internal market to reuse electronic assets

Transport Services and Logistics disclosed scope 3 emissions that accounted for 49% of the total emissions disclosed by the sector in 2022. Upstream transportation and distribution represented 45% of the total scope 3 emissions disclosed, while fuel-and-energy related activities represented 18%.

Customer	Choice of vehicles	Optimization of flows
Levers with high accessibility and medium to high potential (beyond 100 MtCO2e/year) • Reduce home deliveries by implementing click & collect and click & mag	*Levers with high accessibility and medium to high potential (beyond 100 MtCO2e/year)* • Implement last mile delivery with alternative vehicles • Source and use electric heavy road transportation vehicle • Use biofuels to power heavy road vehicle *Levers with medium accessibility (below 150€/tCO2e) and high potential (around 100MtCO2e/year)* • Acquire heavy road transportation vehicle made from responsible sourcing (recycled materials or green materials) • Source operational and design efficient heavy road transportation vehicle • Move from carbon-intensive fuel to ammonia for shipping • Optimize the propulsion system of vessels • Use of methanol (advance biofuel) for shipping transportation • Use of high-capacity vehicles (duo trailers) for road transportation	*Levers with high accessibility and medium to high potential (beyond 100 MtCO2e/year)* • Reduce transit packaging • Increase backhauls practices to reduce empty trips in road transportation • Avoid empty containers by developing leasing for shipping transportation *Levers with medium accessibility (below 150€/tCO2e) and high potential (around 100MtCO2e/year)* • Consolidate load and share assets through digitally enabled aggregators for shipping industry • Develop open warehouses and transport networks • Develop backhauling practices to reduce empty journey for shipping industry

3. Scope 3 is the main challenge

Food and Beverage processing disclosed scope 3 emissions that accounted for 91% of the total emissions disclosed by the sector in 2022. *Purchased goods and services* represented 75% of the total scope 3 emissions disclosed, while the *Use of sold products* represented 9%.

Production	Education of customers	Distribution
Levers with high accessibility and potential expected (between 25 and 50 MtCO2e/year) • Reduce agro industrial food waste • Recycle cooking oil into fuel	*Levers with high accessibility (cost negative) and high potential (upon 300 MtCO2e/year)* • Promote less carbon intensive diets • Promote plant-based alternatives to meat proteins Promote the practice of food sharing	*Levers with high accessibility and potential expected (between 25 and 50 MtCO2e/year)* • Partnerships with platforms or applications to reduce food waste • Reduce food waste generated downstream by retailers • Use of sustainable material for take away packaging • Improve transit retail plastic material with recycled paper

Biotech, Healthcare, and Pharma disclosed scope 3 emissions that accounted for 87% of the total emissions disclosed by the sector in 2022. *Purchased goods and services* represented 58% of the total scope 3 emissions disclosed, while the *Use of sold products* represented 24%.

Products design	Customer Education and Procurement
Levers with high accessibility and high potential (upon 80MtCO2/year) • Switch from desflurane to sevoflurane for anesthetic drugs • Implement eco design tools to reduce the use of plastic for life sciences products • Develop made-for-reuse personal protective equipment (PPE) items in the pharmaceutical industry • Reduce Process Mass Intensity (PMI) in the production process of monoclonal antibodies/biologics in the pharmaceutical industry • Switch from propellant-based to dry powder inhaler in the pharmaceutical industry	*Levers with high accessibility and high potential (upon 80MtCO2/year)* • Educate upon the reduction of nitrogen fertilizer overapplication in China and India • Educate upon the restoration of organic soils • In the fertilizer industry, educate upon grassland and cropland nutrient management • Source ammonia produced with biomethane Steam Methane Reformation (SMR)

Biotech, health care & pharma sector.

Daniel Schneiders, Director of Climate Program at Bayer's, shares some innovative ideas on how to foster change and reduce emissions in the supply chain in the Biotech, Healthcare, and Pharma sector.

"Bayer has been in CDP's A list almost every year for the past decade and is committed to reduce its scope 3 emissions by 90% before 2030. Bayer's scope 3 represented 72% of the Bayer's emissions in 2022 and Purchased Goods & Services alone accounted for 48% of the total company's emissions. Thus, addressing our supplier-related emissions is key to reach our decarbonization objectives.

To achieve significant reductions in the supply chain in the coming years, we are intensifying our collaboration with suppliers. We are trying to understand how we could work together so that they can reduce their emissions, in particular through shifting to renewable energies. We have also updated Supplier Code of Conduct. Beginning in 2023, we also aim to develop an internal CO2 price to manage our Scope 3 emissions. This should create an incentive internally to purchase products with a lower carbon footprint, so that our colleagues from the procurement teams can decide which supplier to choose not only based on financials and qualitative parameters but also on carbon emissions. With this tool, we want to give the signal to the market that we are ready to pay a bonus for low-carbon products or carbon-free products in the future.

However, access to emission data from suppliers is a challenge as, for instance, they do not necessarily have dedicated processes or IT infrastructures to gather and monitor data. Additionally, with lacking standards, data is hard to compare. Therefore, as of today, a complete and precise assessment as a foundation for steering Scope 3 emissions remains complicated.

As the ability of one company to reduce greenhouse gas emissions along the value chain on its own is very limited, Bayer has joined various industry-level initiatives. Together with other companies, we aim to ascertain the level of greenhouse gas emissions and climate risks and develop reduction targets and strategies within the scope of programs such as the Together for Sustainability (TfS) initiative of the chemical industry.

Bayer heads up the working group on reducing greenhouse gas emissions in the supply chain. The goal is to standardize the calculation of a product-related carbon footprint (PCF) for the chemical industry. At the same time, an approach is being developed to pass on the PCF within the value chain."

Conclusion

Climate actions overlook biggest emissions hotspots.

This report illustrates that European companies have shown promising progress to engage with climate transparency and action since 2019. Since 2019, there has been a remarkable increase in the number of companies disclosing to the CDP up of 56% in 2022. This is a concrete example of the trend towards greater sustainability. However, this is only the tip of the iceberg, as targets set currently cover only 21% of the total emissions by the companies analyzed in this report.

While commendable efforts have been made in some sectors to reduce scopes 1 & 2, the crux of the issue lies in scope 3, which accounts for an overwhelming 92% of total emissions in the report sample. It is time for companies to shift gears and accelerate their emissions reduction initiatives by actively involving their entire value chain.

As the title of this report highlights, the clock is indeed ticking. It is now more crucial than ever for companies to not only set ambitious goals but also to take bold, tangible actions to achieve them.

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