

Mirova for Climate

Net Zero Roadmap



Financing a carbon neutral world

The issue of climate change has now become a key focus for everyone operating in the realm of finance. However, discussions over the right angle for tackling the subject are ongoing. Should we maintain investments in companies with high emissions to better support them in their transition? Should we start to withdraw from the least efficient players? Should we channel investments towards new types of actors likely to provide solutions to the climate crisis? And how can we measure and compare the effectiveness of these actions? There are many such debates across the world of finance, especially within asset management. And rightly so, because the subject is both complex and compelling.

In this context, one concept has become increasingly popular in recent months: that of 'carbon neutrality' or the 'net zero' objective. The phrase is very catchy. In terms of communication, it's very tempting for a business to define itself as a 'Carbon Neutral' player as a means of advertising climate virtue. Nevertheless, the concept is not without its ambiguities. While carbon neutrality is well defined on a global scale, it is – as is so often the case – its implementation that poses a problem.

A telling example of this difficulty in translating the concept of 'Neutrality' for economic actors is the gap between those measures actually needed to achieve carbon neutrality in 2050, according to [the 'Net Zero' report published in May by the International Energy Agency \(IEA\)](#), and the unambitious goals set in the pledges we hear from companies.

For financial players as well, this transition also has very strong implications. The sector plays a central role in the economy and the shift to a carbon-neutral world requires a profound transformation of all finance-related businesses. Such a shift is the ambition that Mirova has set for itself since its creation in 2014: to use the leverage of investment in the fight against global warming.

Our industry is currently undergoing a major transformation. A growing number of players are committing to neutrality in France, Europe, and the United States. These announcements give us hope that the contribution of investments to the transition will accelerate. Even as we write these words, the [COP26](#) is being held in Glasgow at the beginning of November 2021; let us hope that its voices will be a source of inspiration to launch a movement for profound transformation.

**WE HAVE SET FOUR MAIN
OBJECTIVES FOR OURSELVES:**

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Introduction

For several decades now, we have been increasingly affected by the consequences of climate change. Droughts, heat waves, heavy rains, floods, and landslides are becoming more frequent and widespread, and regularly make headlines. Meanwhile, global warming continues to cause rises in sea levels and ocean acidification. We also know that climate change is accelerating the decline of [biodiversity](#), which is already endangered by human activities, independently of climate issues.

If we fail in bringing our greenhouse gas emissions to zero before the end of the century, the consequences of climate change will take on a scale sufficient to profoundly destabilise our civilizations. To achieve this zero-emissions goal, we need to fundamentally restructure our production and consumption patterns, i.e. the entire economy. And because the financial sector is in constant interaction with all economic agents, it must also rethink the way it operates to enable the emergence of a carbon-neutral economy, and to better incorporate the financial consequences of the transformations underway.

At Mirova, we have established four levers of action to accelerate this transformation:

- Understanding the magnitude of the changes taking place
- Changing investment patterns
- Rethinking measurement tools
- Engaging in dialogue with all our stakeholders

These levers, which are all linked, constitute the backbone of our roadmap for financing and bringing about a carbon-neutral world.

What is carbon neutrality?

The global warming underway is due to an increase in the concentration of greenhouse gases in the atmosphere, which can be directly attributed to the increasing emissions generated by human activity. Concentrations of CO₂, the gas that contributes most to warming, have reached 410ppm,¹ whereas for hundreds of thousands of years these levels had remained below 300ppm (NOAA² / Our World in Data, 2018).

However, there are several ways to reduce the concentration of greenhouse gases in the atmosphere:

- Increase the number of 'natural' sinks, usually by increasing the forest cover. The carbon captured during tree growth is thus maintained in solid form as organic material.
- Capture and store greenhouse gases associated with the combustion of biomass (wood, plant matter). For example, the CO₂ captured by plants during their growth is stored, for example underground in geological layers.
- Use machines to absorb and store captured CO₂ directly into the atmosphere ('Direct Air Capture').

On a global scale, we will be carbon neutral when greenhouse gas emissions from human activity are fully offset by the absorption of carbon from the atmosphere. However, the prospects for capturing carbon from the atmosphere remain limited, which means that carbon neutrality requires, first and foremost, a drastic reduction in emissions.

To limit the temperature rise to 1.5°C and avoid the most serious consequences of climate change, we must achieve carbon neutrality on a global scale before 2050.

¹ Parts per million

² <https://ourworldindata.org/grapher/co2-concentration-long-term?time=803719..2018>

1 | Towards a carbon neutral world?

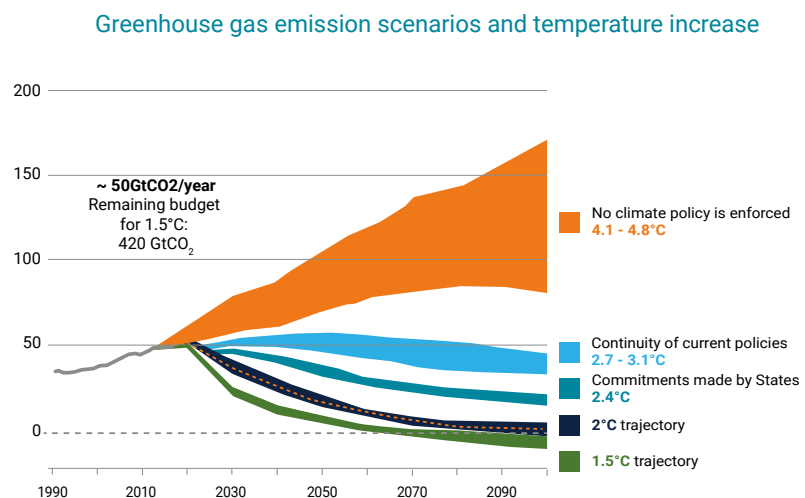
It has now been established, without any ambiguity, that greenhouse gas emissions linked to human activity are the cause of the increase in global temperatures and will continue to be so. However, despite the growing number of scientific publications on the subject, the measures taken by public and private decision-makers to reduce emissions and adapt to unavoidable climate change remain insufficient, given the magnitude of this topic.

Climate scenarios: do we really have a choice?

Our emissions of CO₂, methane and other greenhouse gas are already responsible for a temperature increase of +1.1°C (IPCC, 2021)³. Climate models predict that if greenhouse gas emissions continue to rise in the coming decades, the average temperature increase on Earth compared to the pre-industrial era could reach +5°C⁴ by the end of the century. In this scenario, areas currently inhabited by hundreds of millions of people will become unliveable. Beyond the economic consequences, it will be extremely difficult to guarantee the food and physical security of a very large part of the population, even in areas that remain habitable.

To date, current State policies could limit the increase in average temperature to 2.5-3.0°C by 2100. Such warming would also have very serious consequences. For example, the latest IPCC⁵ models predict a rise in sea levels of 40 to 80 cm in the event of a temperature increase of +2.7°C⁶. This level is enough to affect many densely populated coastal areas.

To avoid the most serious consequences of climate change, the international community adopted



Source: Mirova / Our World in Data, 2020⁹ / Climate Action Tracker, 2021⁹ / IPCC, 2018¹⁰

the Paris Agreement in 2015. Among other things, it aims at 'holding the increase in the global average temperature to well below 2°C above pre-industrial levels and pursuing efforts to limit the temperature increase to 1.5°C above pre-industrial levels' (UNFCCC, 2015)⁷. **To achieve this objective, 'net' global CO₂ emissions must be reduced to zero as soon as possible: around 2050 in order to limit the temperature increase**

to +1.5°C, and by around 2070 to contain temperatures below +2°C. Even with very optimistic assumptions regarding reforestation or CO₂ capture and storage, the use of fossil fuels, which still represent nearly 80% of our energy consumption, will have to be drastically reduced by 2050.

³ https://www.ipcc.ch/report/ar6/wg1/downloads/report/IPCC_AR6_WGI_SPM.pdf

⁴ An average temperature increase of +5°C may seem small at first, given the extent of temperature variations during the day or from one season to another. But this average variation corresponds to a disruption of the ecological balance. For example, 20,000 years ago, during the last ice age, the average temperature on earth was 5°C lower. Several kilometres of ice-covered North America and Europe. The sea level was about 100 meters lower than today.

⁵ Intergovernmental Panel on Climate Change.

⁶ The forecasted rise in water levels ranges from 60 cm to 1 meter for an average warming of +4.4°C.

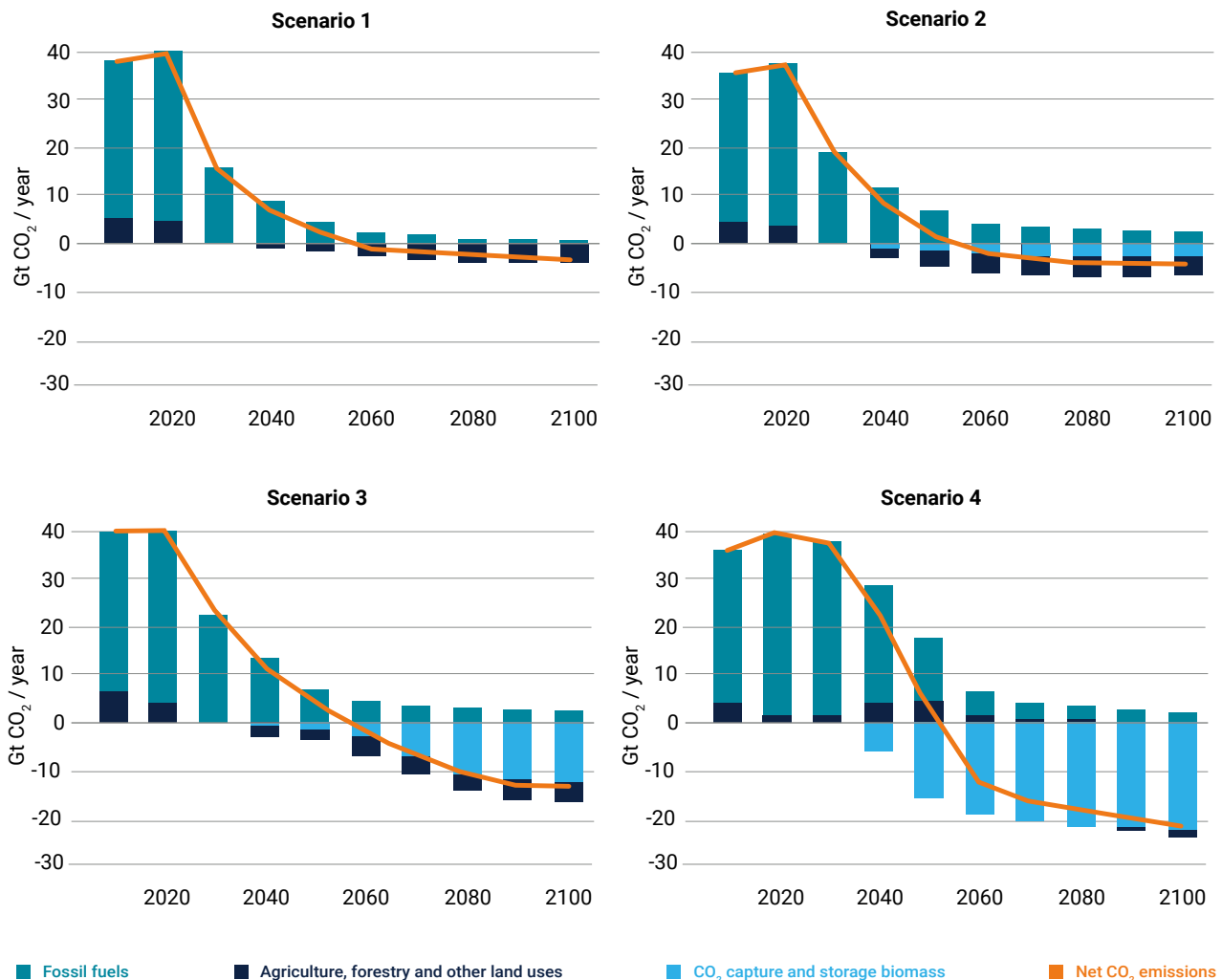
⁷ https://unfccc.int/sites/default/files/english_paris_agreement.pdf

⁸ CO₂ and Greenhouse Gas Emissions

⁹ <https://climateactiontracker.org/global/temperatures/>

¹⁰ [Global Warming of 1.5 °C - Special Report](#)

Four possible carbon neutrality scenarios for CO₂ emissions



Only CO₂ emissions are taken into account in these scenarios. The different scenarios illustrate that even in very optimistic reforestation and CO₂ biomass capture scenarios, we will have to do without fossil fuels almost entirely before 2050. Source: Mirova / IPCC, 2018¹¹

Permits to decarbonise

Nearly 75% of global greenhouse gas emissions come from our consumption of fossil fuels (World Resources Institute, Climate Watch):¹² coal, oil, and gas. The climate challenge therefore involves, first of all, structural changes in the energy production sector. It also involves a complete overhaul of the functioning of the

sectors with the highest energy consumption, such as transport, construction, and industry, which will have to be both more energy efficient and more capable of using decarbonised energy.

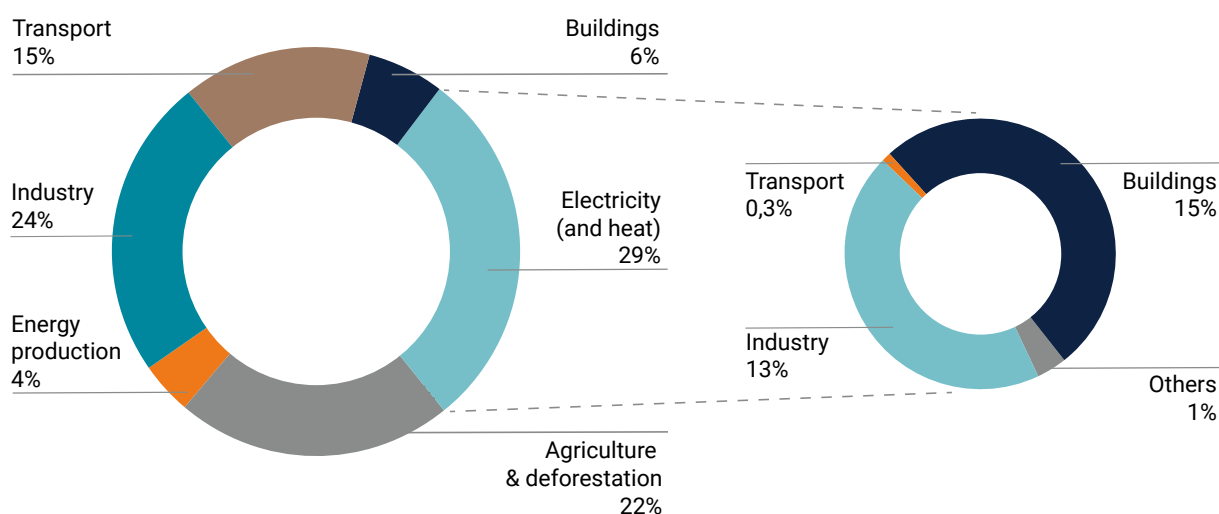
In addition to energy-related issues, drastically reducing emissions will entail profound changes

in the agriculture, livestock, and forest management sectors, which account for nearly a quarter of global emissions. **Achieving carbon neutrality will require transforming current practices to make nature an ally against climate change** by increasing natural carbon sinks.

¹¹ [Global Warming of 1.5 °C - Special Report](#)

¹² <https://ourworldindata.org/emissions-by-sector>

Distribution of global greenhouse gas emissions by sector (2020)



Estimations Mirova - Source: Mirova / IEA, 2021¹³

THE ENERGY SECTOR UNDER STRESS

Carbon neutrality is a goal that calls for the launch of an energy transition, acting on a couple of levers falling into two categories:

- **Reviewing our energy production**, so as to reduce the share of fossil fuels (coal, oil and gas) and replace them as soon as possible with low carbon energies;
- **Acting on consumption, to reduce energy use, in intensity or even in absolute terms.** This action can take the form of technological innovations that make it possible to use low-carbon energy and improve the energy efficiency of certain uses. Reducing consumption can also be made possible by altering our lifestyles be more frugal. The energy, building, transport, and Industrial sectors are at the forefront of these transformations.

It will probably be necessary to take a 'Carbon Capture & Storage' (CCS) approach to carbon emitted

by those fossil fuel power plants that we fail to close. However, there are several problems with this technology. For one thing, despite the proliferation of projects, CCS is still struggling to find an economic balance in a context of low CO₂ prices – although this context could change in years to come. And for another, the storage of carbon dioxide in deep geological strata raises fears about ecological and health consequences, making the solution difficult to accept by societies.

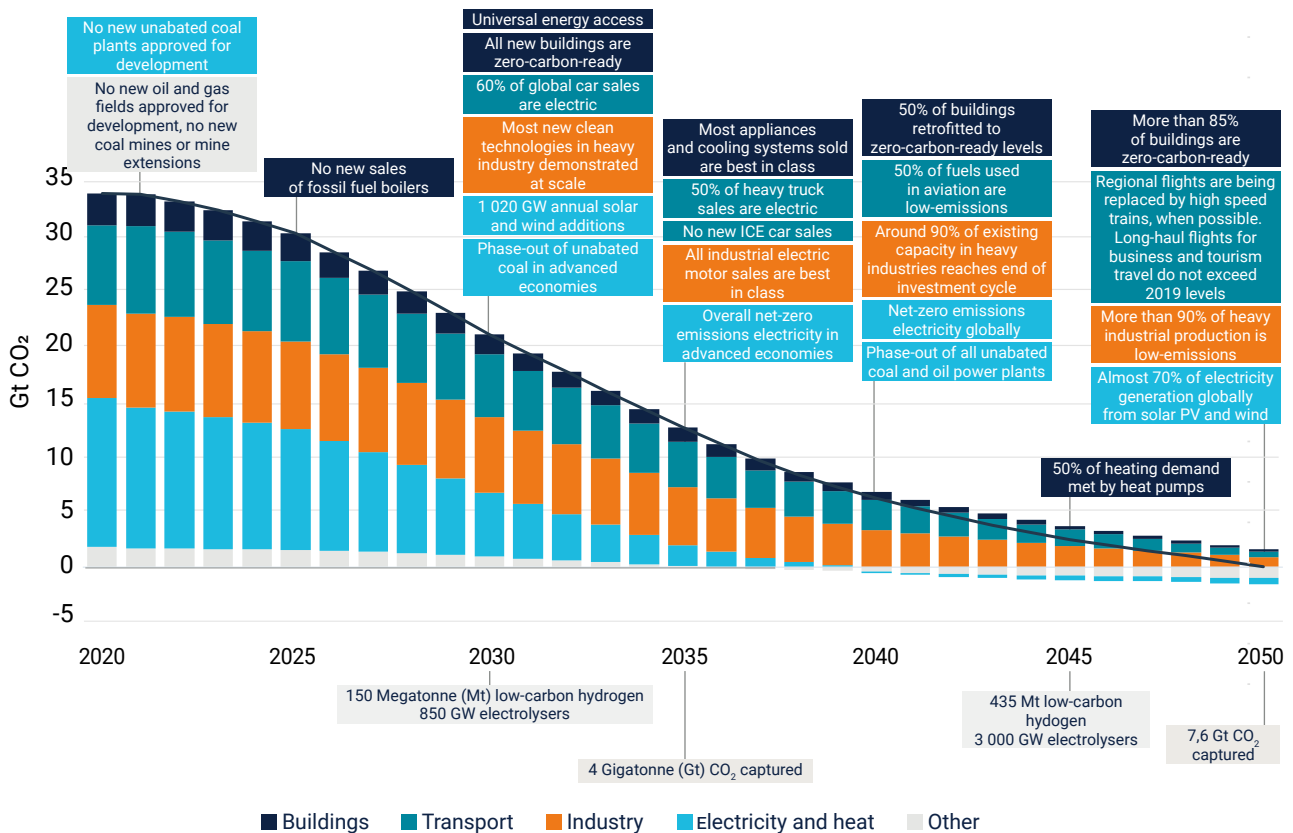
In May 2021, the International Energy Agency (IEA) published a report setting out, in detail and on a global scale, a scenario that would allow the energy sector to reach carbon neutrality in 2050 (IEA, 2021) and thus possibly limit the temperature rise to +1.5°C. This report emphasises that the path to carbon neutrality is narrow and requires immediate action in all countries to undertake an unprecedented transformation in the way energy is produced, transported and used around the world.

The IEA's scenario involves an epic acceleration of investments

in renewable energies (a fourfold increase), as well as a decisive move away from fossil fuels, demand for which will have to drop drastically over the next 30 years (-90% for coal between 2020 and 2050, -75% for oil and -55% for gas). The IEA specifies that, according to this pathway, investments related to the exploration of new fossil resources and the construction of coal-fired power plants must cease today. In addition, by 2030, all coal-fired power plants in advanced economies should be closed, 60% of global car sales should be electric, and air traffic should be stabilised at 2019 levels. By 2040, 50% of buildings will have been retrofitted to be carbon neutral, electricity generation will have to be completely decarbonised, with solar and wind power making up most of the mix, and 50% of the aircraft still flying will run on low-carbon fuels. By 2050, over 85% of buildings will be low carbon. Between 2020 and 2050, hydrogen production will have to be multiplied by seven and will be progressively decarbonised to reach 100% low-carbon hydrogen in 2050.

¹³ Net Zero by 2050 - A Roadmap for the Global Energy Sector

KEY STEPS IN THE IEA'S TRAJECTORY TO ACHIEVE NET CO₂



Source: Mirova / IEA, 2021¹⁴

This scenario assumes efficiency increases and behavioural changes in energy consumption, as global demand in 2050 is expected to be 7.5% lower than in 2020, despite an economy 2.5 times larger and a population 2 billion greater.

Many other scenarios (Mirova, 2019)¹⁵ based on other technological and behavioural changes would also make it possible to limit the consequences of climate change. One of the lessons of the IEA's Net Zero scenario is that whatever our choices, the balance remains fragile. **A reduction in ambition on one axis will necessarily mean raising targets in another area, while the level of ambition for each technology is already very high.**

DEVELOPING NATURE-BASED SOLUTIONS¹⁶

The Net Zero goal calls for a complete reversal of our relationship with nature and the role it plays in our economy. Whereas our use of land and forests is still a source of net greenhouse gas emissions, **we must therefore bring about an agro-ecological transition, in addition to the energy transition.**

Our most immediate and foremost step must be to combat deforestation. Although it has slowed considerably in recent decades, deforestation continues at the global level, with serious implications for both the climate and biodiversity.

Agricultural expansion is by far the main cause, due to livestock farming, the soy crops used mainly to feed animals, and the production of palm oil, which is omnipresent in the food industry. Over the last 30 years, deforestation has affected 178 million net hectares, starting with tropical forests (FAO/ UNEP, 2020)¹⁷. To achieve carbon neutrality, it will probably be necessary to reforest at a similar level, or even beyond. The most ambitious IPCC plans for reforestation target a 300-million-hectares increase in forest area by 2050 (IPCC, 2019)¹⁸.

We also need to urgently rethink our agricultural practices. Due to methane emissions from ruminants and the environmental impacts of animal feed production,

¹⁴ Net Zero by 2050 - [A Roadmap for the Global Energy Sector](#)

¹⁵ [Risking It All - An Introduction to Climate Risk and Energy Scenarios](#).

¹⁶ Nature-based solutions are defined by the International Union for Conservation of Nature (IUCN) as 'actions to protect, sustainably manage, and restore natural or modified ecosystems, that address societal challenges effectively and adaptively, simultaneously providing human well-being and biodiversity benefits.'

¹⁷ [The State of World's Forests](#).

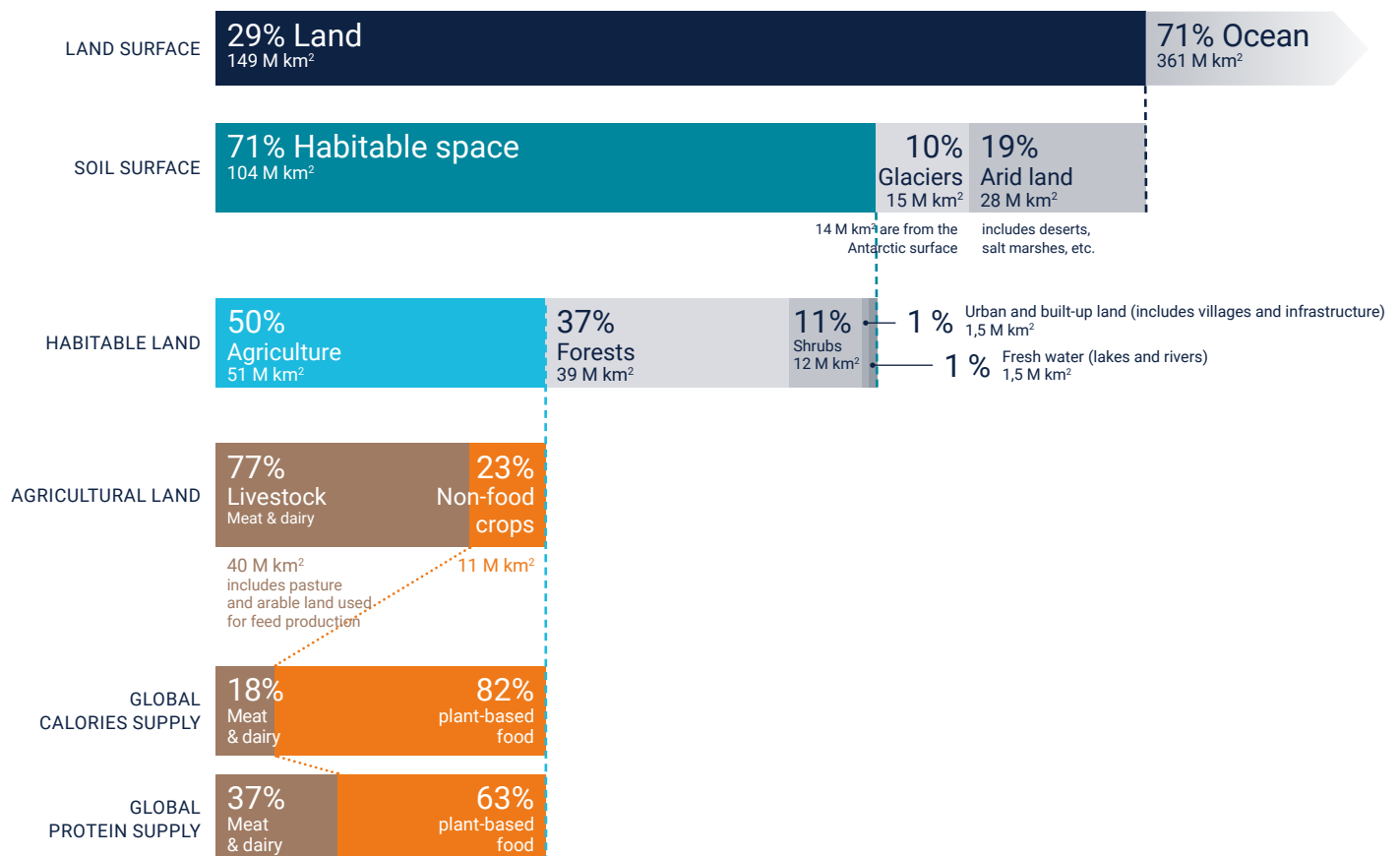
¹⁸ [Climate Change and Land - Special Report](#)

meat consumption is responsible for about 20% of global greenhouse gas emissions (Nature Food).¹⁹ As regards crops, the extensive use of nitrogen fertilisers, in addition to its heavy toll on biodiversity, is responsible for 7% of global greenhouse gas emissions. It will therefore be difficult to follow a carbon neutral pathway without reconsidering diets, and in particular current levels of meat consumption, as well as the use of nitrogen fertilisers in agricultural production.

Throughout the world, the transformation of agricultural models is still a hotly debated topic. Between food security issues and matters of cultural heritage, food is a sensitive subject. Yet, even if a consensus remains far off, the adoption of more plant-based diets, the acceleration of organic farming, and the development of agroforestry, which increases carbon storage, are increasingly widely accepted solutions.

In the future, Nature will probably also have to play an increasing role as a source of energy. Biomass can be used to produce electricity, gas, and fuel. As long as it involves recycling of agricultural waste, there is little objection to be made. The subject is highly controversial and a source of many land-use conflicts, however, when seeking to use crops or wood directly to produce electricity or agrofuels. However, to decouple from fossil fuels entirely, we will most likely need to increase

Global land use for food production



Source: Mirova / FAO / Our World in Data, 2019²⁰

¹⁹ <https://www.nature.com/articles/s43016-021-00358-x>

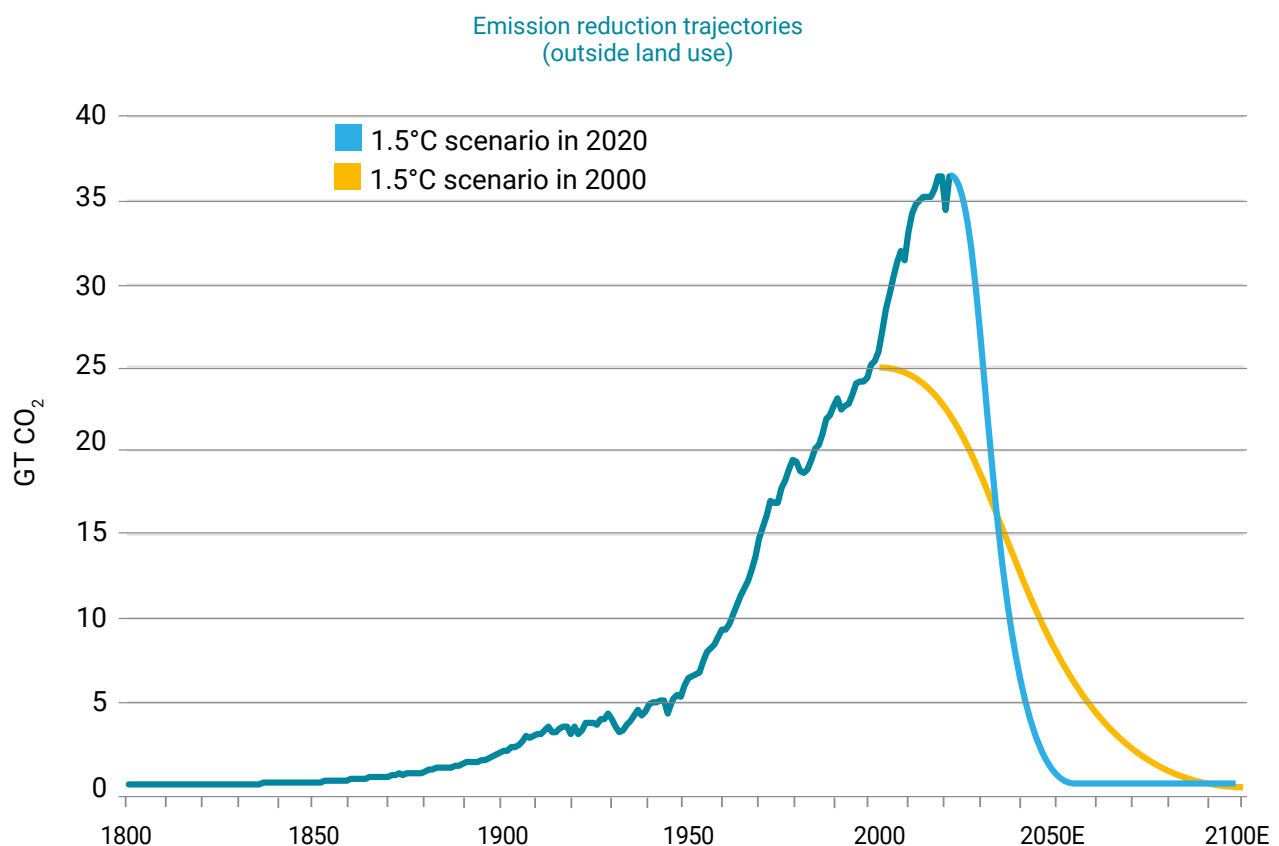
²⁰ <https://ourworldindata.org/land-use>

our use of these energy sources. In its Net Zero scenario, the IEA contemplates an increase in biomass consumption of more than 60% by 2050. Biomass combustion with carbon capture and storage is a

potential complementary solution for increasing carbon sinks. But in terms of both economic balance and social acceptance of this solution, it will take some time before we can expect this type of

technology to play any significant role in the fight against climate change.

Although the number of carbon neutrality commitments made by companies and governments has increased significantly in recent years, the IPCC estimates that current commitments are leading us towards a position where temperatures will rise by +2.5°C to +3°C. Moreover, there is no guarantee that these commitments will be met. Many promises have been made since the first COP in 1992. However, emissions from the energy and industrial sectors have increased by 60% since then. While a gradual transition pathway for our economies would have been possible at the end of the 1990s, the accumulated delay now means that we must make a forced transformation if we hope to meet decarbonization objectives.



Source: Mirova / Carbon Brief, 2020²¹

21 UNEP: Net-zero pledges provide an 'opening' to close growing emissions 'gap'. Retrieved from <https://www.carbonbrief.org/unep-net-zero-pledges-provide-an-opening-to-close-growing-emissions-gap>

2 | Investing for a better world

The Paris Agreement states that it is necessary to '[make] finance flows consistent with a pathway towards low greenhouse gas emissions [...]' (UNFCCC, 2015)²². To achieve this, management companies mainly propose three types of approach:

- investment strategies to support actors who have adopted reduction targets;
- strategies that seek to limit financing for companies generating the most emissions and promote emissions-reducing technologies;
- financing of projects, often related to reforestation, that reduce the amount of carbon in the atmosphere.

Just a transition?

A first approach is to consider that achieving carbon neutrality requires us to encourage the greatest possible number of players to reduce their emissions. Since Mirova was first created, this subject has been at the heart of our analyses and our dialogues with companies.

For ambitious, relevant approaches to emerge, it seems essential first of all to question the scope of the commitments that are made. For many companies, such as oil companies, automobile companies and companies in the food industry, the overwhelming majority of their greenhouse gas emissions are linked to the use of their products or to their supply chain. For this reason, **it is important to ensure that the commitments made by companies consider the entire value chain.** Effectively, too many

companies continue to limit their reduction commitments to the direct emissions of their business activities. Beyond the commitments themselves, our analysis places particular importance on the means used to ensure that objectives are met.

The second area of difficulty for investors is moving from the carbon analysis of portfolio companies to an analysis of the investment portfolio itself. We find it difficult to see how an investment portfolio could be perceived as aligned with a carbon neutrality scenario simply because it invests in companies that have made reduction commitments. For example, one might imagine a portfolio that invests exclusively in service companies with limited greenhouse gas emissions and has no investments in companies that offer solutions to

combat climate change. Even if the companies in the portfolio have made reduction commitments, this type of portfolio seems to us unlikely to provide a satisfactory response to the fight against climate change. These companies will not play a leading role in this effort, and therefore the impact of such a portfolio will be weak at best. From a financial point of view, the transition to a low-carbon economy will have only limited consequences on the business model of invested companies.

²² [Paris Agreement](#).

The lion's share must be green

In order to build a climate-sensitive portfolio, we believe that the approach of targeting companies with reduction commitments needs to go hand-in-hand with strategies that limit investments linked to fossil fuels and favour players that provide solutions for reducing emissions.

To this end, since Mirova's creation in 2014, none of our strategies has involved investing in companies with significant²³ involvement in coal mining or its use for power generation²⁴. We also do not invest in oil companies, as to date, no player in the sector displays a sufficiently ambitious strategy for contributing to a global carbon neutrality objective. These choices reflect the concept of stranded assets, the view according to which many companies are currently valued on the basis of projections of fossil fuel consumption that can

never actually take place if climate targets are to be met.

While the reduction of negative impacts is essential to achieving a carbon neutral scenario and can be likened to a risk-based approach from a financial standpoint, the financing of solutions such as renewable energies, energy efficiency and low-carbon mobility is just as important. Continuing our financial parallel, this is closer to an opportunity-based approach. At Mirova, **we seek to finance these solution providers across all our asset classes, well beyond market standards.**

From an [impact](#) perspective, we believe that these capital allocation choices are likely to foster the emergence of a green economy (Van der Beck, 2021)²⁵. From a financial point of view, this approach leads to different risk

and opportunity exposures than traditional products.

This approach, which seeks to combine financial performance and positive impact, is an integral part of Mirova's positioning. On the one hand, we believe that companies providing solutions to climate change issues are driven by a fundamental trend that feeds their growth and valuations, and therefore the financial performance of our investments. On the other hand, we believe that to be genuinely sustainable, a positive impact company must ultimately demonstrate that its business model is robust.

The world is not enough

Above and beyond solutions for reducing emissions, the goal of carbon neutrality by 2050 cannot be achieved without massive efforts in terms of reforestation and the fight against land artificialisation. From an investment point of view, financing such efforts is therefore also essential as part of an overall strategy of alignment with a carbon neutrality scenario.

To accelerate the deployment of these solutions, the financial sector must innovate. At present, traditional investment vehicles are rarely able to finance these types of projects. As early as 2015, Mirova

began developing a natural capital investment platform to offer investment products dedicated to the preservation and restoration of land and oceans. We finance sustainable agriculture projects that help combat land degradation, as well as forest development and protection projects, and projects designed to help protect the oceans. By relying on efficient agroecological practices, agricultural and forestry value chains that increasingly favour certified production, and by promoting payment for ecosystem services, particularly through carbon credits, financing of such 'nature-based solutions' can be attractive.

Given the novelty and strategic aspects of this asset class, we rely on the concept of 'blended finance', which brings together public and private capital. This type of structuring leverages public investments, which act as a 'buffer' by providing guarantees, and thus make it possible to attract more private capital.

23 For companies involved in fossil fuel extraction, processing/refining, and trading, exclusion applies to companies with:

- >10% of revenues from coal or oil, including unconventional oil;
- >10% of revenues from unconventional gas.

For companies that produce dedicated equipment/services for the fossil fuel sector, exclusion applies to companies with >50% of revenues from these equipment/services.

For companies involved in electricity production (>10% of sales related to electricity production), exclusion applies to companies with a generation mix dominated by coal, with a carbon intensity >390 gCO₂/kWh.

24 [Controversial activities, Mirova, January 2021.](#)

25 [Flow-Driven ESG Returns.](#)

Our actions



Mirova systematically takes into account the transition commitments of issuers in all its investment strategies. We are also committed to an ambitious reallocation of capital towards companies that provide solutions to climate change issues in all our investment decisions.

- However, the climate issue holds a special place among our impact objectives. We have therefore developed strategies that specifically target this. In listed investments, we offer [thematic equity strategies dedicated to environmental transition](#), with a climate focus. In the bond market, [we were among the pioneers in investing in green and sustainable bonds](#), which remain at the heart of our strategies and represent more than 60%²⁶ of our assets.
- In real assets, all our strategies seek to promote the best climate scenarios. For example, we invest in '[energy transition](#)' infrastructure, particularly renewable energy and low-carbon mobility projects. Our [impact private equity](#) activity aims to accelerate the growth of innovative companies designing solutions to environmental challenges, particularly climate change.
- And lastly, the development of [our natural capital investment platform](#), which allows us to contribute to financing carbon sinks, has rounded out our offering in support of the economy's transition to carbon neutrality.

Continuing to grow all these activities is at the heart of our business plan.

²⁶ Source: Mirova at 06.30.2021

3 | Carbon footprint: a single set of standards

Despite the progress made by financial players in taking climate issues into account in their decision-making processes, it is clear that we do not yet possess consensus-based tools that would make it possible to monitor and report on the actions of each economic player in the fight against climate change.

It is likely to be many years before a universally accepted and applied climate accounting framework emerges. Given the urgency, these

technical difficulties should not delay the mobilisation of climate investments. The main avenues forward in the fight against climate change are known. They are sufficient to design and launch relevant sustainable investment approaches: encouraging emissions reductions, drastically reducing the weighting of fossil fuels, developing low-carbon solutions, and encouraging the emergence of nature-based

solutions. These are all guidelines that can already be followed.

Nevertheless, we believe it is important to continue our efforts to improve climate analysis frameworks, which facilitate communication between investors and their stakeholders: companies, customers, public authorities, and individuals. This improvement in measurement tools is also necessary to strengthen the consideration of climate issues in investment choices.

Too much information?

Even if the degree of transparency and the methodological strength vary greatly from one economic actor to another, we nevertheless have a growing amount of information available with which to understand the links between the activity of companies and the climate. These elements are increasingly communicated by companies themselves. In other cases, it is often possible to estimate this information using databases maintained by specialised agencies.

Investors can use this information in many ways. First, it can be used to enrich financial analysis. It is essential for an investor to anticipate how their assets are likely to be affected by the transition to a low-carbon economy. Secondly, as we begin to see the first consequences of climate change, it becomes important to assess portfolios' exposure to the future consequences of climate change.

Beyond this financial dimension, public authorities and asset

managers' clients are increasingly seeking to understand the influence of investment choices on the emergence of a low-carbon economy. Market participants are giving a great deal of thought to how to account for this impact²⁷.

Two types of indicators are now massively used by companies and investors to describe climate initiatives: a quantification of green/brown investments, and the carbon footprint.

The green and the brown

The concepts of 'green share'/'brown share' are now becoming market standard. The 'green' share makes it possible to qualify the share of a company's products and services or of an investment portfolio that addresses climate issues. This concept has emerged under the impetus of the green taxonomy²⁸ established

by the European Commission. European law will make it mandatory for all European companies to communicate regarding these exposures. Conversely, the concept of the 'brown' share aims to quantify the most polluting investments in a portfolio. At the European level, discussions are also underway to

map the types of activities that could fall into this category.

By aggregating these indicators across a portfolio, investors will improve their analytical framework. However, such metrics are only part of the solution, as there is more to a company's business than its product and service offerings.

²⁷ See in particular in France the work of the Forum for Responsible Investment (FIR): impact investment: a demanding definition for listed and unlisted companies (<https://www.frenchsif.org/isr-esg/wp-content/uploads/Cahier-Impact-FIR-France-Invest-mars-2021.pdf>) and the working groups of Finance for Tomorrow (<https://financefortomorrow.com/en/nos-groupes-de-travail/>)

²⁸ European standard for companies, investors and Member States to list the green share of their activities and investments.

Three principles for a successful carbon footprint

To provide a complementary vision and make room for broad analysis, initiatives are multiplying around the measurement of investment portfolios' carbon footprints. Nevertheless, the methods appropriate for assessing a portfolio's greenhouse gas emissions are still very much debated.

Whether the aim is to understand the financial consequences of climate issues on investments or to try to describe the impact of investments on the climate, three principles seem to us essential when tackling carbon assessment.

ADOPTING A LIFE CYCLE APPROACH

The carbon footprint of an asset can be direct (scope 1 emissions) or indirect (scope 2 and 3 emissions). In some sectors, direct emissions account for the majority of impact. This is the case, for example, for power generation and heavy industry. However, for numerous sectors, indirect emissions linked to production inputs

and products and services sold account for the majority of impacts. It is therefore impossible to understand the impact of sectors such as transport, construction, or the oil sector, other than by considering their products and services. For the food industry, most of the carbon footprint is linked to the production of raw materials, which is carried out at the suppliers of these companies.

Taking into account all three 'scopes' is therefore indispensable at the level of a company or a portfolio. As this information is often not communicated by companies, the use of estimation models is essential for investors wishing to capture this information.

MEASURING POSITIVE IMPACT

By measuring the emissions 'induced' by a company's activity, it will be possible to assess its efforts to reduce direct emissions. However, this does not allow us to account for the efforts that the

company is (or is not) making to develop solutions that fight climate change.

Let us look at a concrete example. A wind turbine blade manufacturer, because it consumes raw materials and energy, contributes to the emission of greenhouse gases. However, its activity also contributes to the decarbonisation of the economy, thanks to the products it puts on the market. This is referred to as 'avoided' emissions, which are calculated by comparing the induced emissions with a reference scenario that depends on the sector in question. These avoided emissions are, by nature, virtual. In the electricity generation sector, avoided emissions associated with renewable energies can be calculated by taking into account the type of electricity that would otherwise have been used. In the automotive sector, the baseline scenario focusses on emissions from the existing fleet. Calculations of the baseline scenarios should be updated regularly to reflect changes in the sector²⁹.

The different 'scopes' of a company's greenhouse gas emissions

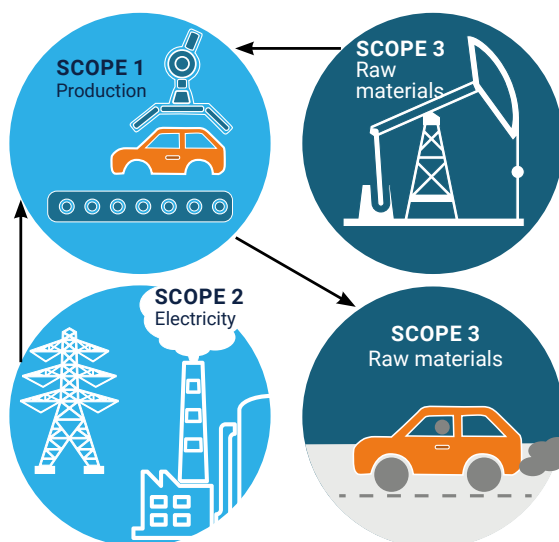
Scope 1

Direct emissions related to the company's activity.

For a car manufacturer, the emissions associated with scope 1 come from the consumption of fossil fuels in the production plants

Scope 2

Emissions from the company's electricity consumption.



Scope 3

Indirect emissions from supply chain, distribution, product use and end-of-life management.

For a car manufacturer, the emissions associated with scope 3 come from the extraction and production of raw materials, the production of steel, the combustion of fossil fuels by thermal engines, etc.

Source: Mirova

29 In the extreme, when the entire economy is decarbonized, there will be no more avoided emissions.

These avoided emissions sometimes also called 'scope 4', capture the company's positive contribution to the energy transition. They also reflect the share of revenue from 'green' activities promoted by the European taxonomy.

In addition to these avoided emissions, the concept of sequestered or stored emissions is now emerging. This brand new indicator measures the quantity of greenhouse gases removed from the atmosphere. In natural form, through the development of forest cover, for example, or in technolog-

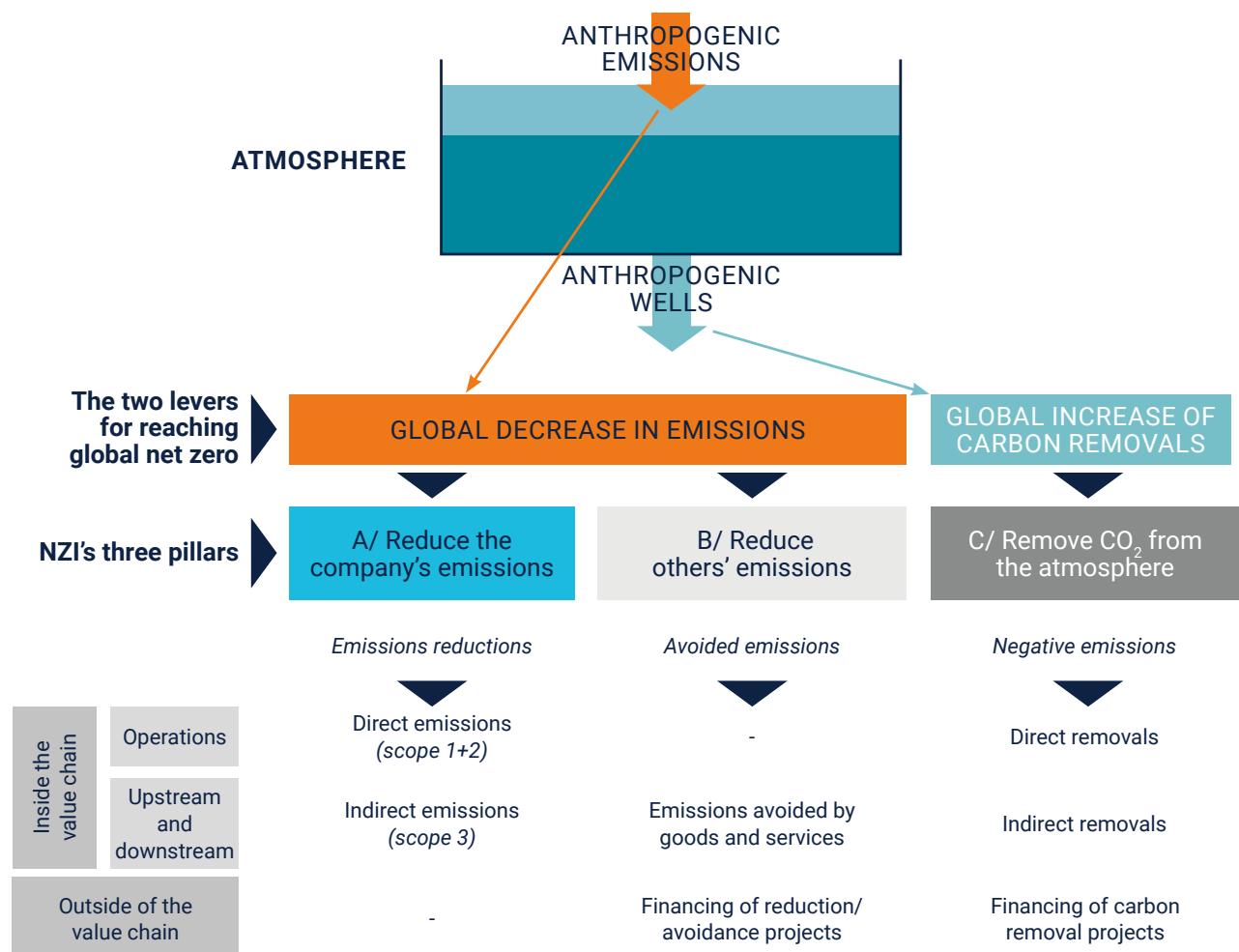
ical form, by capturing and storing CO₂ from biomass combustion. These emissions are different from avoided emissions, which are virtual in nature. Accounting for these emissions makes it possible to quantify efforts made to increase carbon sinks.

NEVER FORGET FORWARD -LOOKING ANALYSIS

While calculating the emissions induced, avoided and sequestered by a company or a project

makes it possible to assess the transition effort made by an issuer at a given moment, these indicators do not take into account the reduction commitments and the means deployed to achieve these objectives. At a time when companies' climate commitments are becoming more robust, the analysis of these prospective elements is also an essential part of a successful carbon assessment.

Breakdown of global carbon neutrality at the level of economic actors



Source: Carbon4, 2020³⁰

Our actions



In order to convert these major principles into quantified objectives, we have been working with [Carbon4 Finance](#) since 2014. This collaboration has made it possible to develop a portfolio climate alignment indicator, including life-cycle principles, taking into account avoided emissions and integrating forward-looking elements. On this basis, we systematically communicate the ‘temperature’ of our investments, which reflects the degree of alignment of investments with climate scenarios. Following the Paris Agreement in 2015, we had already stated our ambition that each of our portfolios should be aligned with a 2°C scenario at least³¹, corresponding to carbon neutrality before 2070.

Aware of the urgent need to accelerate action in the fight against climate change and taking note of the international community’s new commitments to carbon neutrality, we now wish to strengthen our climate objectives. As a company dedicated to responsible investment, Mirova is developing several strategies that address the climate issue as a priority. We believe that this positioning allows us at the level of our management company, to seek alignment with the most ambitious climate scenarios, i.e. global carbon neutrality by 2050, which would limit the rise in temperature to 1.5°C.

We intend to achieve this objective and publish our consolidated level of alignment for all our asset classes before the end of 2022.

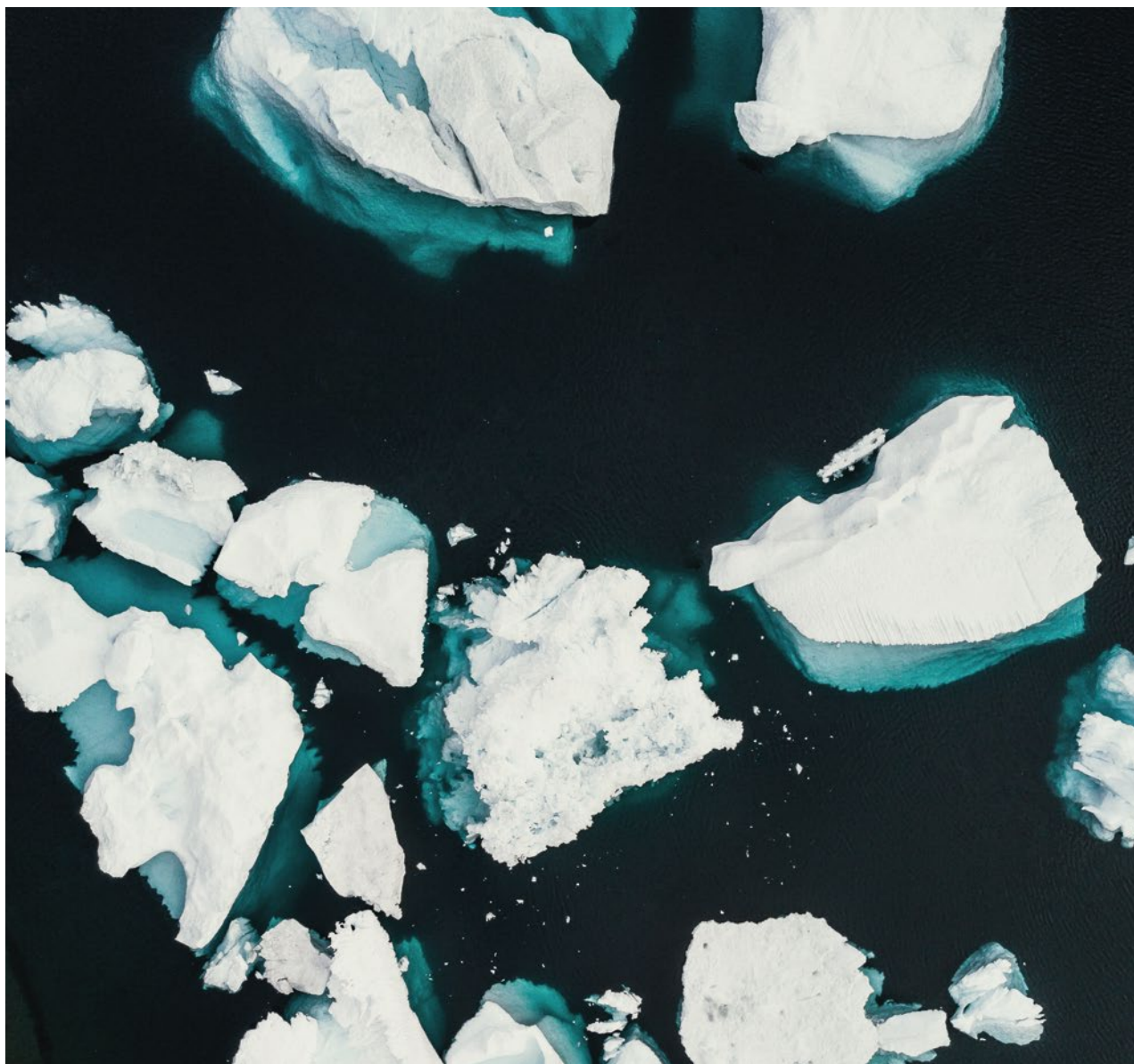
31 Mirova aims, for all its investments, to offer portfolios that are consistent with a climate trajectory of less than 2°C defined in the 2015 Paris agreements, and systematically displays the carbon impact of its investments (excluding Solidarity and Natural Capital management), calculated using a proprietary methodology that may include biases.

4 | The climate, a collective undertaking

Implementation of carbon neutrality can only be considered strictly speaking at the global level. Therefore, collaboration and coordination amongst actors is not only desirable, but essential. Today, the public sector, civil society, business and investors are taking

into account climate issues. Each group, in its own way, with its own methodologies and according to its own analysis, is making commitments. In order to move to the next stage and to a larger scale. All of these different players must communicate and agree on shared

standards and objectives. Bringing these initiatives together is naturally the role of large-scale international events such as COP26 in Glasgow. It is also the responsibility of each player and of coalitions of players, on a more daily and progressive basis.



Our actions



At Mirova, **we are convinced that the harmonisation of market standards is necessary to promote a positive dynamic.** Therefore, we interact with all of our stakeholders in connection with the climate to shape and develop these standards.

Dialogue with our ecosystem means first and foremost being an active and committed investor. We therefore maintain an ongoing dialogue with the entities in which we invest. Climate change is a systematic part of our discussions with issuers, companies, public entities and project sponsors, for all our strategies. It is also a subject that is increasingly discussed in the context of voting at general meetings.

We participate in various collaborative engagement initiatives with issuers, including the [Investor Decarbonisation Initiative](#) led by the NGO [ShareAction](#) and [Climate100+](#)³² spearheaded by several industry associations, such as the [Principles for Responsible Investment \(PRI\)](#) and the [Institutional Investors Group on Climate Change \(IIGCC\)](#)³³.

In addition to dialogue with issuers, Mirova has set itself the goal of actively participating in discussions with its peers and with regulators on responsible investment issues. On climate change, Mirova has joined the [Net Zero Asset Managers Initiative](#)³⁴.

'Mirova is committed to supporting the goal of zero net greenhouse gas emissions by 2050, in line with global efforts to limit warming to 1.5°C ('zero net emissions by 2050 or earlier'). Mirova is also committed to supporting investments aligned with the goal of net zero emissions by 2050 or earlier.'

This initiative also allows us to participate in various working groups on climate impact measurement. Mirova furthermore belongs to a group of experts whose aim is to work with the NGO [Science Based Targets \(SBTi\)](#)³⁵ on its carbon footprint methodology. As the majority of the industry is basically focused solely on a sectoral engagement approach, we seek to evolve these groups from within, promoting awareness that capital allocation and avoided emissions are also key pillars for investors to consider.

And finally, in terms of carbon sinks and agro-ecological transition, Mirova is involved in several initiatives, such as the [Taskforce on Nature-related Financial Disclosure \(TNFD\)](#) and the [Finance for Biodiversity Pledge](#). The latest of these is the [Natural Capital Investment Alliance](#), created under the aegis of His Royal Highness the Prince of Wales, whose objective is to bring together ambitious fund managers to promote natural capital as a leading investment theme in portfolio allocations.

³² Climate Action 100+ is an investor-led initiative aimed at ensuring that the world's largest greenhouse gas emitting companies take the necessary steps to combat climate change.

³³ For more information on our engagement initiatives: <https://www.mirova.com/en/research/voting-and-engagement>

³⁴ The Net Zero Asset Managers initiative is an international group of asset managers committed to supporting the goal of net zero greenhouse gas emissions by 2050 or sooner, consistent with global efforts to limit warming to 1.5 degrees Celsius, and to supporting investments aligned with the goal of net zero emissions by 2050 or sooner.

³⁵ SBTi defines and promotes best practice in science-based target setting

Conclusion

Let us look at the glass as half full. In the fight against climate change, we can now say that the battle of ideas has been won. There is no longer a single economic player or financial company that can afford to ignore the subject. But there remains a great deal to be done to convert awareness into commitment and commitment into action.

At Mirova, all of our investment solutions aim to contribute to this collective effort by meeting three objectives:

- * **OFFERING SOLUTIONS CONSISTENT WITH THE PARIS AGREEMENT;**
- * **OFFERING INVESTMENT BLOCKS THAT ALLOW OUR INVESTORS TO ACCOMPANY THEIR ALIGNMENT PATHWAY;**
- * **WORKING HAND-IN-HAND WITH THE COMPANIES AND PROJECTS WE INVEST IN TO MOVE, VIA ENGAGEMENT, TOWARDS A GLOBAL NET ZERO TRAJECTORY BY 2050**

We are also aware that the fight against climate change cannot be approached independently.

The climate issue interacts with many other sustainable development issues, including adaptation, biodiversity conservation and the fight against inequality.

Adaptation – It is now clear that we will not be able to avoid climate change entirely. We must therefore start thinking now about how to cope with the consequences to come.

Biodiversity – There are many interdependencies between climate and biodiversity. Choices made regarding land use, forest management and ocean protection will have significant and sometimes contradictory consequences for various environmental issues.

Inequality – Climate change raises many social issues. The transition to a low-carbon economy will have serious consequences for the most vulnerable populations, which must be anticipated and offset. Moreover, future climate change will mainly affect the poorest countries. In a world where inequalities continue to increase, the climate is likely to be an additional factor of tension.

Carbon neutrality, adaptation to climate change, preservation of biodiversity, and combating inequality: these are all complex and interconnected issues that need to be addressed in a holistic manner, rather than piecemeal. **Investors wishing to participate in the transition to a fairer and more sustainable economy, will not lack for challenges the coming decades, nor should they lack opportunities to play a positive role.**

Weighing our words

CAN WE TALK ABOUT CARBON 'OFFSET'?

We believe that mechanisms for financing carbon sinks, particularly in the form of carbon credits, are both necessary and virtuous. They have an important role to play in achieving carbon neutrality on a global scale. However, the development of these sinks will be far from sufficient to achieve neutrality. All Net Zero scenarios predict a rapid decline in emissions.

Therefore, we prefer to avoid the use of the term 'offset' which may suggest that the purchase of carbon credits is sufficient to achieve climate objectives.

CAN A COMPANY 'BE' NET ZERO?

To limit the most serious consequences of global warming, carbon neutrality must be achieved on a global scale. Implementing this concept at the level of a company poses several difficulties.

First of all, such an objective is too often limited to financing carbon sinks, in particular through the purchase of carbon credits. However, the purchase of carbon credits up to the level of emissions seems to us insufficient without an ambitious strategy to reduce emissions.

More relevant, in our view is evaluating how a company applies the consequences of a global carbon neutrality scenario in its strategy. For example, a company in the automotive sector can be considered ambitious from a climate point of view if its roadmap is consistent with the major milestones of the IEA scenario: having 60% of global car sales be electric vehicles before 2030, 100% before 2050. Carbon credit purchase schemes can then be used as a complement.

However, even using this type of approach, it can be tricky to talk about alignment with a Net Zero scenario at the company level. It is certain that not all companies within a sector will contribute in the same way to the overall objective of carbon neutrality. In the automotive sector, while some players will undoubtedly sell 100% electric cars by 2030, others may potentially sell less. It is therefore complex to assess how the burden of the effort should be shared between players and to determine their level of alignment with a global neutrality trajectory.

For these reasons, we prefer to avoid talking about carbon neutrality at the company level.

WHAT ABOUT AN INVESTMENT PORTFOLIO?

Much as for companies, we consider it inappropriate to speak of carbon neutrality in cases where this would be limited to 'offsetting' a portfolio's greenhouse gas emissions by purchasing carbon credits. The purchase of carbon credits must always be a complement to an ambitious climate strategy, aligned with the necessary transformation of the economy.

On the other hand, a portfolio represents the aggregation of multiple economic actors. It therefore seems relevant to evaluate the exposure of a portfolio to the transition to a low-carbon economy. From a financial point of view, this type of assessment should make it possible to estimate whether the portfolio as a whole will be affected positively or negatively by the transformations underway. From an impact perspective, these indicators should allow investors to understand how the portfolio contributes to the transition to a low-carbon economy.

To avoid confusion, we prefer to avoid saying that a portfolio 'is' carbon neutral and reserve this type of consideration for the scale of a territory. Nevertheless, we believe it is relevant to assess a portfolio's degree of alignment with a Net Zero scenario.

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