

Temperature alignment of listed investment portfolios

Methodological update and results

July 2022

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Founding Principles

Alignment Measurement Objectives

Whether it's voluntary efforts or in response to regulatory obligations, most investors are now looking to analyze the links between their portfolios and climate change. To date, there is no established consensus on the methodologies for conducting such assessments.

Many methodologies are emerging gradually in the market, often referred to as *Implied Temperature Rise methodologies (ITR)*, whose objective is to allocate a temperature to a portfolio of financial assets, corresponding to the temperature scenario with which the portfolio of these assets would be aligned. These methodologies group together a significant number of decisive underlying assumptions. Yet, despite a demonstrated desire to achieve a “science-based” outcome, harmonization of approaches is still far away. For the same portfolio of assets, the results will vary from methodology to methodology based on the underlying choices made, in the same way that there is still a strong heterogeneity of ESG¹ ratings based on their suppliers.

The purpose of this document is to specify the approach taken by Mirova to understand and measure the alignment of its portfolios with climate scenarios. A more in-depth critical comparative analysis of these different methodologies and their assumptions could be the subject of a dedicated publication.

Since 2016, Mirova has developed a temperature alignment measurement methodology for its listed investment portfolios. This methodology has undergone developments, the most recent of which are described in this document, but the fundamental principles are and will remain unchanged:

- **Carbon neutrality** can only be considered as a global state of the planet that reflects the most ambitious climate goals that every individual, business or organization, and state must **contribute** to with its “fair share”
- Measuring climate impact can only be done using a “life-cycle” approach, *i.e.* taking into account the direct business impacts as well as the indirect impacts of the supply chain, products and services provided.
- An impact measure and *a fortiori* an alignment assessment must necessarily integrate understanding and valuing solutions to the energy transition.

Carbon neutrality and contributing to it

Global emissions will need to decrease by 30% or 55% by 2030 respectively to achieve global warming trajectories of 2°C or 1.5°C by the end of the century². These scenarios involve achieving carbon neutrality more or less quickly during the 21st century (see Figure 1). Certain conditions are essential to achieving this global goal: massive reduction in fossil fuel exploitation, energy efficiency gains in all sectors, particularly transport, industry and construction, increased development of low-carbon power generation capacities to meet demand, etc. It is therefore necessary not only to pass on the overall objectives to all individual players such as governments or companies. Not all companies will need to lower their emissions by 55% by 2030, but all can contribute to this overall decarbonization.

¹ Environmental, Social and Governance

² Source: IPCC, 2022



Greenhouse gas emission scenarios and temperature increase

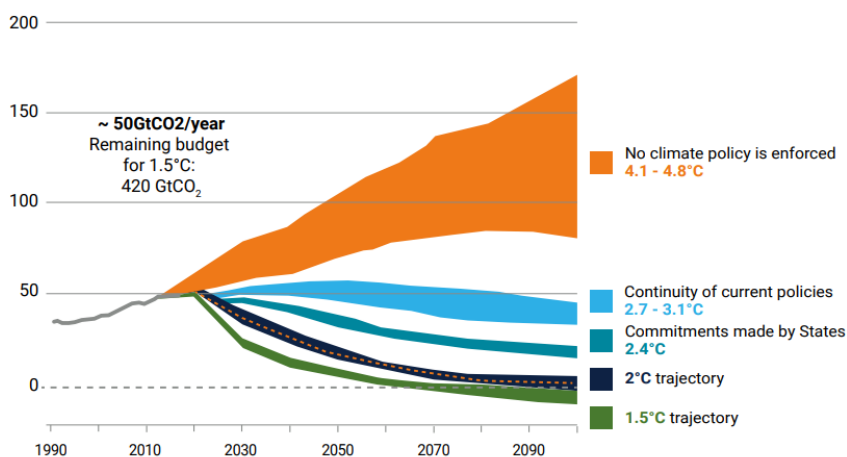


Figure 1: Greenhouse Gas (GHG) Emission Scenarios and Temperature Increase

Sources: Mirova/Our World in Data, 2020 / Climate Action Tracker, 2019 / IPCC, 2018

Thus, a manufacturer of wind turbines or bicycles could very well see its carbon footprint increase over the years due to a proportion of incompressible emissions that would be multiplied by rapidly growing volumes meeting the needs of the energy transition.

Breakdown of global carbon neutrality at the level of economic actors

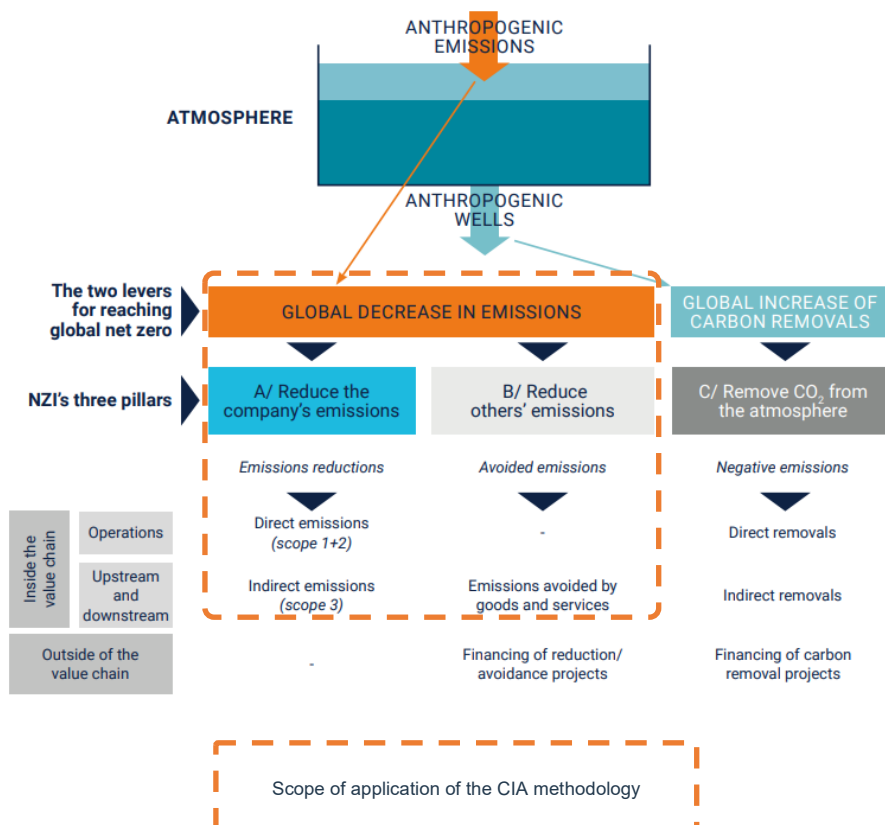


Figure 2: Declining global carbon neutrality at the scale of economic actors

Source: [Carbone4, Net Zero Initiative Repository, 2020](#)



The Net Zero Initiative framework, shown in Figure 2, provides an understanding of the key pillars of global decarbonization that each company can more or less contribute to depending on its positioning in the economy.

Adopting a life-cycle approach

The overall contraction of fossil fuels use in our economies will not only occur at the outlet of sumps or factory chimneys. This contraction will also impact fossil fuels extractors, builders of the engines using these fuels, sellers of machines using these engines, etc. From the perspective of corporate climate impact measurement, this reality translates into the quantification of all emissions scopes:

- Scope 1: direct emissions related to the company's activity;
- Scope 2: indirect emissions related to its electricity and heat consumption;
- Scope 3: indirect emissions from the supply chain (upstream), distribution, product use and end-of-life management – processing and recycling (downstream).

In many sectors such as agriculture, transportation, or fossil fuel production, indirect scope 3 emissions are much greater than scope 1 and 2 emissions. **It is therefore essential to measure scope 3 emissions to understand the real climate impact of companies, particularly in sectors at higher stakes regarding climate change.**

Valuing solution providers

While the life-cycle approach is essential to understanding actors' exposure to GHG emissions, it is not sufficient to understand the overall climate impact of a business. Thus, a company that manufactures wind turbines could very well have total induced (life-cycle) emissions higher than a cosmetics company of similar size. **Induced emissions or reduced induced emissions are therefore not alone relevant indicators to truly understand a company's climate impact.**

In addition to induced emissions, we also look at emissions savings from companies. These emissions are those that would have been emitted without the company's efforts to reduce them.

The same logic applies to solution providers who can reduce their induced emissions in their direct scope (emissions avoided on scope 1), reduce or decarbonize their energy supply (emissions avoided on scope 2) or reduce, for example, the carbon intensity of their products (emissions avoided on scope 3).

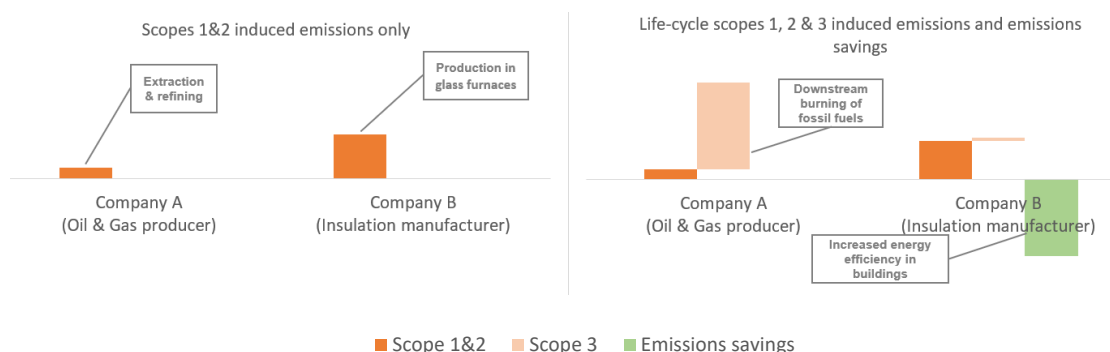


Figure 3: Illustration of the importance of the life-cycle approach and emissions savings in fully understanding the climate impact of companies

Source: [Mirova, Carbone 4, Net Zero Initiative Repository, 2020](#)

Alignment Calculation and Results

Carbon Impact Analytics methodology

Mirova has been working since 2014 with the French consulting firm [Carbon4Finance](#) which developed the Carbon Impact Analytics (CIA) methodology. The objective of this methodology is to calculate induced and avoided lifecycle emissions for all companies in the listed investment universes used by Mirova in a so-called bottom-up approach for sectors with higher climate challenges. This approach makes it possible to calculate the emissions induced and avoided based on real physical data of companies (number of cars sold by type and geography, etc.) and thus to be able to judge their own climate performance, without, for example, making sectoral averages specific to so-called top-down methodologies. In 2022, Carbon4Finance updated the CIA methodology to add qualitative judgment on the policies companies have in place to address climate issues. These policies can be judged from several angles:

- Decarbonization targets set at certain time frames that can be set as part of initiatives such as the *Science-Based Targets Initiative* (SBTi)
- Investments (CAPEX or OPEX) made with the goal of aligning with an ambitious energy transition trajectory.

This qualitative judgment comes in addition to the more static quantitative measures, dependent on the company's past trajectory, to give a more prospective view of its climate performance, in the form of a bonus/malus attributed to the company considered.

These indicators are finally combined in one single aggregated indicator called the CIA overall rating, on a scale from 1 (best) to 15 (worst). This also allows the methodology to be applied on several asset classes and portfolios that mix these asset classes together: corporate bonds and equities, sovereign bonds as well as green bonds.

Company Type	Induced emissions (tCO ₂ /€M)		Emissions avoided (tCO ₂ /M€)		CIA overall rating
	Scopes 1&2	Scope 3	Scopes 1&2	Scope 3	
Traditional car manufacturer	40	300	-1	-80	10
<p>Because automobiles burn directly oil over a relatively long life, most of the induced emissions attributed to an automobile manufacturer come from the use of its products (i.e. cars) and their supply chain (particularly steel as input). The production of vehicles itself generates far less carbon emissions than cars when used. Energy efficiency measures in production plants can allow for avoided emissions in scopes 1 and 2. But the potential to improve avoided emissions is much greater in scope 3, when combustion engines vehicles are replaced by electric vehicles, when electricity has a relatively low carbon intensity.</p> <p>Nor has the auto manufacturer implemented an ambitious policy of transitioning to less carbon intensive vehicles.</p>					
Wind turbine manufacturer	70	0	0	-500	2
<p>Wind turbines do not directly emit carbon when used, and the emissions associated with their maintenance are marginal. Emissions induced by wind turbine production and end-of-life management are also very low. Almost all emissions avoided by a wind turbine manufacturer fall under scope 3, as downstream use of their products (e.g., power generation from wind turbines rather than a coal-fired power plant) results in a climate benefit.</p> <p>The wind turbine manufacturer has implemented a policy of decarbonizing its direct business and end-of-life of its products that are already highly contributors to the transition.</p>					
Electricity provider	300	80	-200	0	6
<p>Most of the emissions induced by this utility are generated by scope 1 since it directly burns fossil fuels to produce electricity. For electricity providers, scope 3 emissions fall under the fuel supply chains they depend on to produce electricity, such as coal or natural gas extraction. Unlike the wind turbine manufacturer, emissions avoided by a utility are in scope 1. Electricity generation, which is part of its direct operations, from low-carbon sources results in lower carbon emissions compared to the baseline emission rate (based on fossil fuels).</p> <p>This supplier has also made a commitment to respect a decarbonisation trajectory compatible with a 2°C scenario by 2030, without, however, having made all the necessary investments.</p>					
Integrated Oil & Gas Player	70	800	-1	-10	13
<p>The extraction and production of fossil fuels consumes energy and emits CO₂, but the combustion of extracted fuels emits much more. Thus, like an automotive manufacturer, most of the induced emissions of an integrated oil and gas company are generated by the end use of its products (scope 3 induced).</p> <p>At Scope 1 level, an integrated oil and gas company can avoid emissions by reducing flaring. At Scope 2 level, it can improve efficiency, and at Scope 3, it can also avoid emissions either by encouraging energy efficiency on the demand side or by reducing the carbon intensity of its energy portfolio compared to other companies in the sector.</p> <p>This producer has made no commitment to align with a scenario and continues its exploration activities.</p>					
Cosmetics manufacturer	1	30	0	0	8
<p>Cosmetics companies have very low emissions overall. In this sector, the production processes of scopes 1 and 2 reject less emissions than in scope 3. Induced Scope 3 emissions come primarily from upstream chemical production in the supply chain, downstream product distribution, packaging, and recycling. A cosmetics company doesn't have many options to reduce emissions in its supply chain, with the exception, possibly, of reducing packaging. However, it can avoid scope 1 and 2 emissions through greater energy efficiency in its production process.</p> <p>No specific commitments have been made to meet a decarbonisation trajectory in line with a climate scenario.</p>					

Figure 4: Illustrative Examples of Carbon Impact Measurement and CIA Scores

Source: Mirova



Temperature translation

The CIA overall rating, an indicator of a company’s overall climate performance, is used in aggregate across portfolios to derive their temperature alignment. The fundamental principles of this translation of the CIA rating into temperature are as follows:

- We operate under the constraints of climate scenarios, which require a minimum warming of 1.5°C (IECC, SSP 1-1.9) and a maximum warming of 5°C (IECC, SSP 5-8.5).
- The IPCC SSP3-7.0 scenario, known as business-as-usual, will result in an average temperature rise of 3.5°C. In the world of listed investments, such a scenario is represented by a traditional market index weighted by market capitalizations. We chose the MSCI World as a proxy. This is the first calibration point of the formula: the temperature of 3.5°C is associated to the weighted average CIA rating of the MSCI World.
- The second calibration point of the formula is set at 2°C, in line with the objectives of the Paris Agreement. The Euronext Low Carbon 300 index was chosen to represent an economy aligned with a 2°C scenario. The LC300 is a *Paris Aligned Benchmark* within the meaning of the European Commission and it has the particularity of being optimized on the basis of the CIA rating.
- “S curve”: an S curve as shown below makes it possible to respect the two calibration points described above and to tend towards extreme scenarios (1.5°C and 5°C)

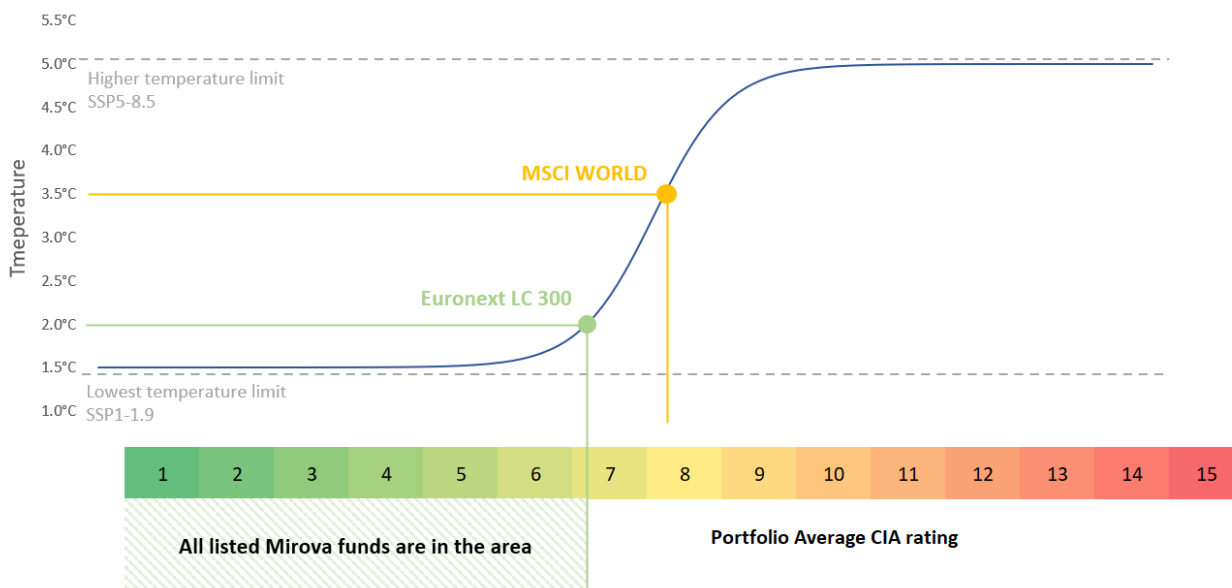


Figure 5: Translation curve of the average CIA rating in temperature at the portfolio level

Source: Mirova

Mirova aims, for all its investments, to propose portfolios consistent with a climate trajectory below 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 some bias.

All figures in this report refer to previous years.
Past performance is not indicative of future performance.



Results

According to the methodology described above, **all Mirova's listed equity and bond investment portfolios are aligned with a warming scenario of less than 2°C and therefore in line with the Paris Agreement.** However, diversified investments that do not focus solely on the climate issue should be differentiated from investment portfolios whose primary objective is to contribute to the energy transition. For this reason, we have decided to display a temperature of 1.5°C for the funds particularly involved on this subject, such as the Environmental or Green Bonds funds, while the other funds and indices are assigned a temperature within an interval of 0.5°C up to 5°C. The purpose of this display is not to give the illusion of precision.

Portfolio or Index	Induced emissions	Emissions savings	Temperature alignment
S&P 500	108	-5]3.5°C;4°C]
MSCI World	137	-8	
MSCI Europe	203	-12]2.5°C;3°C]
CAC 40	221	-19	
Barclays Euro Aggregate Corporate	161	-53	
Barclays Euro Aggregate 500	126	-35]2°C;2.5°C]
Euronext Low Carbon 300	67	-14	
Mirova Global Sustainable Equity Fund ³	55	-14	<2°C
Mirova Europe Sustainable Equity Fund ⁴	113	-45	
Mirova Europe Environmental Equity Fund ⁶	170	-54	1.5°C
Mirova Global Green Bond Fund ⁶	204	-602	

Figure 6: Result of the CIA methodology on a few Mirova portfolios and market indices

Source: Mirova

³ Mirova Global Sustainable Equity Fund is a sub-fund of the Mirova Funds SICAV, approved by the Commission de Surveillance du Secteur Financier ("the CSSF"). Natixis Investment Managers International is the management company and Mirova US is the financial manager by delegation.

⁴ Mirova Europe Sustainable Equity Fund, Mirova Europe Environmental Equity Fund and Mirova Global Green Bond Fund are sub-funds of the SICAV under Luxembourg law Mirova Funds, approved by the Commission de Surveillance du Secteur Financier ("the CSSF"). Natixis Investment Managers International is the management company and Mirova is the financial manager by delegation.

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Conclusion

Mirova continues to measure and understand as accurately and appropriately as possible the alignment of its investments with climate goals. The temperature alignment measurement methodology, the founding principles and update of which are described in this document, is one of the tools that help meet this need. Alternative approaches are emerging with other players in the market: this is very good news that demonstrates both an increasing interest in the issue and increasingly ambitious regulatory obligations on the subject.

Some of these approaches are based almost exclusively on the objectives and commitments that the underlying companies have set for themselves. We believe these commitments from companies are paramount and that's a central part of the engagement we have with companies at high stakes regarding climate issues. Nevertheless, despite increasing commitments from a growing number of players, the global economy is still obviously not on a sufficiently ambitious climate trajectory, despite multiple alerts from the scientific community for many years.

In other words, we already know the results of such a methodology when applied in specific situations: investing blindly in the global economy as represented by a traditional index is likely in line with a warming scenario of +3°C to +4°C, while investing in a portfolio of companies that manufacture wind turbine components and energy efficiency solutions most likely contributes to a 1.5°C scenario.

Mirova's temperature alignment measurement methodology will certainly continue to evolve in the future based on the data that will be accessible and their quality, always keeping a pragmatic view of assets' climate performance at the heart of its approach.

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