Meeting the consumption challenges through circular economy

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At a glance

- **1. Circular economy can contribute to nearly half of the effort to reduce greenhouse gas emissions**, notably through resource and biodiversity preservation*.
- **2. The Mirova Europe Environmental Equity strategy is consistent with the «Fit for 55» approach,** by focusing on companies offering innovative solutions in favor of circular economy, sustainable resource management accounting for 34% of the portfolio as of 11/29/2021.
- **3. Fit for 55[1] is the most ambitious European legislative package dealing with the environmental transition,** both from a time horizon perspective and for its sectoral implications.

*Source: Ellen MacArthur Foundation. (2021). Universal circular economy policy goals, The nature imperative, how the circular economy tackles biodiversity loss.

The environmental transition is a multi-faceted subject that affects both our production modes and our consumption patterns. It is fully aligned with economic reality, in the aim of significantly reducing our impact on the environment and preserving our planet. These issues are increasingly well understood and supported by stimulus measures, particularly in Europe. The environmental and energy transition is fully integrated into the heart of government policy and legislation, as demonstrated by Fit For 55[1], which sets out measures of unprecedented scope aimed at reducing greenhouse gas emissions by 55% by 2030 compared to 1990 while increasing carbon sequestration in the soil.

In this article, Suzanne Senellart and Hadrien Gaudin-Hamama present the main implications of Fit for 55, how the Mirova Europe Environmental Equity strategy[2] contributes to achieving its objectives, notably by investing in the circular economy[3].

MIROVA EUROPE ENVIRONMENTAL EQUITY STRATEGY AND «FIT FOR 55», THE SAME GOALS

While Europe was already deeply committed to the fight against climate change and had already made commitments to achieve this, a decisive step was taken on 14 July 2021. The European Commission presented a series of concrete proposals for action to accelerate the fight against climate change, achieve carbon neutrality by 2050 and meet the target of reducing greenhouse gas emissions by at least 55% by 2030 compared to 1990[4] - a prerequisite for respecting the pathway set by the Green Deal under the Paris Agreement. **This package of 12 measures (five directives and seven regulations) confirms Europe's intention to be at the forefront of the fight against climate change, in terms of both timeframe and sectoral implications.** It covers all sectors of the economy: industry, transport, construction, agriculture and forestry, and **most of the targets will have to be met by**

1. https://eur-lex.europa.eu/legal-content/FR/TXT/PDF/?uri=CELEX:52021DC0550&from=EN
2. All investments carry risks, including the risk of capital loss and sustainability
3. Circular economy provides a framework of systemic solutions that addresses global challenges such as climate change, biodiversity loss, waste and pollution. It is based on three principles: eliminating waste and pollution, maintaining products and materials in use, and regenerating natural systems. (Source: Ellen MacArthur Foundation. (2021). «Universal circular economy policy goals»).
4. https://eur-lex.europa.eu/legal-content/FR/TXT/PDF/?uri=CELEX:52021DC0550&from=EN

2030. The combination of measures chosen is a carefully balanced mix of **fiscality, targets, standards and support measures**.

These proposals combine:

- The application of emissions trading to new sectors
- An increase in carbon sequestration targets for the land sector
- New rules for biomass use that reaffirm the importance of the waste hierarchy in order to prioritize the production of goods over bioenergy
- Increased use of renewable energy
- Improved energy efficiency
- Faster deployment of low-emission transport modes and related infrastructure and fuel policies
- Measures to prevent carbon leakage

MIROVA EUROPE ENVIRONMENTAL EQUITY STRATEGY: YOUR SHARE OF THE TRANSITION

The Mirova Europe Environmental Equity strategy is consistent with the «Fit for 55» approach, by focusing on companies offering innovative solutions that contribute to biodiversity preservation and to the sequestration of CO_2 by ecosystems. These companies are already winning a dual battle: economic and ecological, without compromising social issues. Whether they are among the great leaders of today or the innovative start-ups who will lead tomorrow's revolutions, they are sources **of secular growth opportunities** and pave the way for sustainable growth.

By placing these companies at the heart of its portfolio, **the Mirova Europe Environmental Equity strategy enables investors to combine financial performance with environmental and social impact.**

*At a glance: The Mirova Europe Environmental Equity Strategy**

- **1. A global understanding and the simultaneous treatment of the 3 major environmental challenges, since they are interconnected:**
  - Climate change
  - Loss of biodiversity
  - Resource scarcity
- **2. An identification of the most relevant solutions and the most impacting sectors, which must and can lead to major and necessary technological changes:**
  - Renewable energy and energy efficiency
  - Preservation and recycling of resources
  - Green building
  - Decarbonised mobility
  - Change in production methods: development of alternative and biosourced solutions, end of intensive agriculture, reduction of consumption, etc.
- **3. Investment in the most relevant players within the same value chain:**
  The Mirova Europe Environmental Equity strategy identifies all the most relevant players within an industrial sector: manufacturers, equipment manufacturers, energy companies, etc., in order to target companies whose solutions are at the forefront of the transition.
- **4. A search for alignment with a maximum 2°C global warming scenario[5]**
- **5. Conviction-based management, led by a team of experts specialised in environmental issues since 2007[6]**

*The specific risks of investing in the strategy relate to: loss of capital, equity securities, small, mid and large cap companies, foreign exchange, ESG investments, geographic concentration, portfolio concentration, and sustainability risk

5. Corresponds to action plans implemented to comply with the Paris Agreement, i.e., the average temperature increase of the planet between 1850 and 2100 that must not be exceeded Internal limits non-binding at the date of this document, subject to change by Mirova without prior notice. The carbon impact of investments is calculated using a proprietary methodology that may involve bias.

6. 2007 corresponds to the launch of Natixis Impact Life Quality, a French strategy that had an identical investment policy and merged in 2013 with the Mirova Europe Environmental Equity strategy.

FOCUS ON CIRCULAR ECONOMY AND SUSTAINABLE RESOURCES MANAGEMENT

Fit for 55 is unprecedented in its scale, and covers all sectors of the economy, including land use, agriculture and forest management.

By 2035, the EU will have to increase the carbon sequestration capacity of land to 310 million tonnes of CO_2 emissions per year from the current 265 million tonnes[7], and work towards climate neutrality in land use, forest management and agriculture. This includes emissions from the agricultural sector, such as those from fertiliser use, which are responsible for 4.6% of global greenhouse gas emissions[8], and from livestock farming, which is responsible for 12%[9] of global emissions[10]. These activities emit nitrous oxide and methane respectively, gases with a high warming potential and whose rapid emission reduction could be key to achieving the targets by 2030.

> *The Mirova Europe Environmental Equity strategy is consistent with the «Fit for 55» approach, by focusing on companies offering innovative solutions that contribute to biodiversity preservation and to the sequestration of CO2 by ecosystems.*

The agriculture is also responsible for nearly 73% of deforestation worldwide[11], even though forests are essential carbon sinks that must be preserved. In its 1.5°C scenarios, the IPCC[12] calls for the expansion of the forest surface area by 300m ha (an extra 7.5% of its current area) by 2050.[13]

To combat global warming, which appears to be on a +2.7°C trajectory[14] if governments don't further their commitments, dietary transition could play a key role. While meat production covers 24%[15] of the Earth's land surface area, including fertile agricultural land used for livestock feed, the opportunity for a human food transition to a diet richer in less land-intensive plant proteins could free up this land to feed a growing population of 9.7 billion[16]. Legumes would thus contribute to expanding the area available for forest growth, increasing carbon sinks while reducing the use of inorganic nitrogen fertilizers, which are responsible for exceeding global planetary limits.[17]

Furthermore, lignocellulosic biomass obtained from agricultural and forestry plant waste would contribute to the production of consumer goods in the manufacturing sector, where the search for biosourced alternatives to oil is creating a race for resources that also threatens land availability, and to the production of bioenergy, which could play a key role in decarbonising the manufacturing sector.

Finally, contributing to the transition of agriculture towards sustainable practices could generate significant co-benefits in terms of biodiversity and ecosystem resilience. Indeed, agriculture remains **the main factor in the erosion of terrestrial biodiversity[18]**, at a time when **a sixth extinction of species[19] could occur**.

The reduction in seed diversity increases dependence on pesticides and reduces the resilience of agricultural production to climate change, even as climate change accelerates, while the disappearance of pollinators, due in particular to pesticides, **threatens the sustainability of our agricultural models**, as illustrated by the fact that 71% of the 100 most widely used seeds - which provide 90% of the world's food - depend on pollination[20]. Genuine opportunities are therefore offered by agriculture that uses organic fertilisers and alternatives to dangerous pesticides, as well as digital solutions that reduce the use of inputs.

It is not only land that is under threat: the food industry is responsible for the production of plastic films for packaging purposes, which are behind 80% of marine pollution, and **the overproduction of plastic is leading to a rate of ocean pollution** that is likely to increase threefold within 20

7. https://ec.europa.eu/commission/presscorner/detail/fr/IP_21_3541
8. Environmental And Health Impacts Of Pesticides And Fertilizers And Ways Of Minimizing Them: Envisioning A Chemical-Safe World, Unep, 2021
9. Reducing food's environmental impacts through producers and consumers, Poore and Nemecek, Science, 2018
10. UN Emissions Gap Report 2020, UNEP, 2020
11. Source: FAO-UNEP state of world forests 2020
12. Intergovernmental Panel on Climate Control
13. Special Report on Climate Change and Land, IPCC, 2019
14. UN Emissions Gap Report 2020, UNEP, 2020
15. Environmental And Health Impacts Of Pesticides And Fertilizers And Ways Of Minimizing Them: Envisioning A Chemical-Safe World, Unep, 2021
UN Emissions Gap Report 2020, UNEP, 2020
16. Source: ONU
17. Source: Planetary boundaries: Guiding human development on a changing planet, 2015, Steffen et al, Science
18. Source: UNEP-WCMC, 2020, Beyond 'Business as Usual': Biodiversity Targets and Finance
19. Source: Proceedings of the National Academy of Sciences
20.Source: European Business and Biodiversity Campaign, IUCN, 2019
21. Breaking the Plastic Wave, Systemiq, 2020

years[21]. Yet 80% of this increase could be avoided by using existing technologies such as new delivery models, eco-design, substitution and chemical and mechanical recycling[22].

Today's agriculture and resources face three major challenges:

- Transforming our food systems while reducing demand for resources through the transition to more plant-based protein-rich and healthier diets;
- Accelerating the transition to agroecological practices that regenerate ecosystems using genetic seed diversity, and using digital and biological methods to reduce the use of hazardous pesticides and inorganic fertilizers;
- Sequestering carbon in living agricultural and forest soils while exploiting biomass for the production of manufactured goods in a nutrient and resource economy that promotes deposit return and recycling.

"Investing in players who favor the development of circular economy, the Mirova Europe Environmental Equity Strategy contributes to the development of innovative solutions that combine the search for positive environmental impact with the search for financial performance."

The Mirova Europe Environmental Equity strategy aims to address these challenges by investing in actors that develop solutions in favor of circular economy.

AT THE HEART OF THE MIROVA EUROPE ENVIRONMENTAL EQUITY STRATEGY

The Mirova Europe Environmental Equity strategy is aligned with Fit for 55, particularly in terms of sustainable resource management. This theme accounts for 34% of the portfolio as of 11/29/2021.

Be it through regenerative agriculture, biochemistry or plastic recycling, the circular economy is fully integrated into the portfolio's management strategy.

Focus on NOVOZYMES: *Regenerative Agriculture*

Regenerative agriculture offers an alternative to intensive agriculture and aims in particular to **sequester carbon** in soils but also **regenerate them, increase biodiversity, contribute to the water cycle and increase ecosystem services, as part of climate change resilient agriculture.** The solutions it proposes make it possible to **reduce the use of inputs** such as inorganic fertilisers, but also **offer natural alternatives to pesticides** that are harmful to biodiversity and whose use per hectare has increased by 30% in 20 years worldwide[23]. **Regenerative agriculture is compatible with the EU's Farm to Fork strategy, which aims to reduce pesticide use by 50% by 2030[24].**

A pioneer in biotechnology and world leader in biological solutions based on enzymes, microbes and micro-organisms, Novozymes has developed more than 700 products inspired by nature's mechanisms over the past 70 years, enabling a wide range of industries to make the transition to a greener world: food, energy, paper, textiles, wastewater, health, etc. (Source: Novozymes)

Key figures

- 2020 turnover: **14.012 billion Danish krone**
- Organic growth over 5 years: **+ 2%**
- Ebitda margin[25]: **between 35.1% and 36.8%**

Source: Novozymes report, 2020

22. Breaking the Plastic Wave, Systemiq, 2020
23. Environmental And Health Impacts Of Pesticides And Fertilizers And Ways Of Minimizing Them: Envisioning A Chemical-Safe World, Unep, 2021
24. EU Farm to Fork Strategy, 2020, European Commission
25. A measure of a company's operating profit as a percentage of its turnover. The acronym EBITDA stands for earnings before interest, taxes, depreciation and amortisation.

Disruptive products:

Taegro®2, a broad-spectrum microbial foliar fungicide formulated with naturally occurring *Bacillus amyloliquefaciens* bacteria, offering protection against a wide range of pathogens in line with food chain requirements.

Actinovate®, a biological fungicide/bactericide whose active ingredient is a microbe - the naturally occurring bacterium *Streptomyces lydicus* - that colonises the root system and foliage of the plant and protects it from harmful bacteria and fungi while reducing the risk of treatment resistance.

"Novozymes' biocontrol products and enzyme technologies protect crops from insects and diseases. Consisting of microbes, including bacteria and fungi, our solutions attack pests in a highly effective and sustainable way to maintain and protect high-value crops – forming an alternative to chemical pesticides." (Source: Novozymes)

Focus on SYMRISE: *Recycling paper industry waste through biochemistry*

Today's chemical industry relies heavily on fossil fuels, accounting for 14% of global demand. More importantly, it could account for a third of the growth in demand for fossil fuels by 2030. Half of the world's annual biomass would be required to meet the needs of fossil fuel substitution, leading to growing food insecurity, and threatening the expansion of forests needed to preserve biodiversity and as carbon sinks[26]. While today bio-sourced products already cover 12% of the turnover of the EU- chemical industry[27], the use of agricultural products labelled for sustainable agriculture is necessary, as well as regenerating ecosystems or biomass from agricultural and forestry waste. These methods also offer opportunities, and will prevent the use of intensive agriculture as well as an increase in pressure on resources. Moreover, it will simultaneously reduce the toxicity of products and sequester carbon in them, therefore contributing to the transition to a true bioeconomy. A genuine lever for the circular economy, **biochemistry makes it possible to reuse agricultural and forestry waste - or other industrial residues - to manufacture materials, produce energy, develop foodstuffs or cosmetics, thus contributing to the objective of the European strategy for the chemicals sector to increase the use of bio-based chemical substances.**

Key figures

- 2020 turnover: **€3.520 billion**
- 5-year sales growth: **+ 6%**
- Ebitda margin[28]: **between 19% and 22%**

Source: Symrise report, 2020

A pioneer in the Flavour & Nutrition and Scent & Care segments, Symrise supplies 6,000 customers in more than 150 countries with over 30,000 ingredients and solutions in everyday products, from the minty freshness of toothpaste to the delicacy of perfume, cosmetics and detergents. Symrise's innovations are also present in food and beverages, contributing to healthier and more sustainable food.

One example of a disruptive product:

Cyclomudol Acetate®

Cyclodumol Acetate is made from crude sulphate turpentine (CST) from sustainable pine forests in south-eastern USA, a side stream material from pulp and paper industry. Symrise creates value from this by-product which might otherwise be wasted. Formulated for use in floral, fruity and herbaceous creations to enrich volume and depth, **cyclodumol acetate is a renewable ingredient** which is used, for example, in the make-up of certain soaps.

"Since 1874, Symrise has been creating inspiring and innovative value-added solutions that mainly come from natural raw materials such as vanilla, citrus, onions, fish, meat, flowers and plant materials, but also come from recycled industrial residues, and improve the sensory properties, taste and nutritional quality of many everyday products."

26. The future of petrochemicals, 2018, IEAA

27. Source: *Xerfi, La chimie du végétal au défi du passage à l'échelle industrielle*, 2020

28. A measure of a company's operating profit as a percentage of its turnover. The acronym EBITDA stands for earnings before interest, taxes, depreciation and amortisation.

Focus on VEOLIA: *Plastic recycling*

Today in Europe, **25.8 million tonnes of plastics are produced each year and 70% of plastics are incinerated or landfilled**[29]; the main source of plastic waste is packaging, accounting for 59% of the total; these flexible plastics are responsible for 80% of marine pollution[30] while textile fibres are behind the production of microplastics that are toxic to health and the environment.

Recycling plastic generates 3 benefits in 1:

- It provides a secondary raw material comparable to virgin resin once sorted and purified;
- It reduces macro and microplastic pollution and their harmful effects on human health and biodiversity;
- It reduces CO_2 emissions amounting to 3000 kg / tonne (for PET plastic) and pollutants thanks to the absence of fossil inputs[31].

An alternative to fossil fuels and waste:

Veolia processes several types of plastic waste associated with the food industry, such as polyethylene terephthalate and polypropylene, used as food packaging for beverages and dairy products respectively.

A technique that consists of several steps:

- **Collection** and **transport** of plastics to the processing centre;
- **Pre-sorting** to separate plastics, paper, cardboard, metals, etc., and then **sorting the plastics** from each other;
- Hot water **washing** to remove impurities;
- **Shredding** to reduce the plastics to particles;
- **Formulation** to achieve the product quality and specific technical characteristics expected by the customer;
- **Extrusion** to regenerate the material.

In doing so, Veolia contributes to the implementation of the European strategy on the circular economy, which aims in particular to ensure that 90% of liquid containersis recycled in a bottle-to-bottle process by 2029 and to recycle 55% of municipal waste by 2025.

Key figures

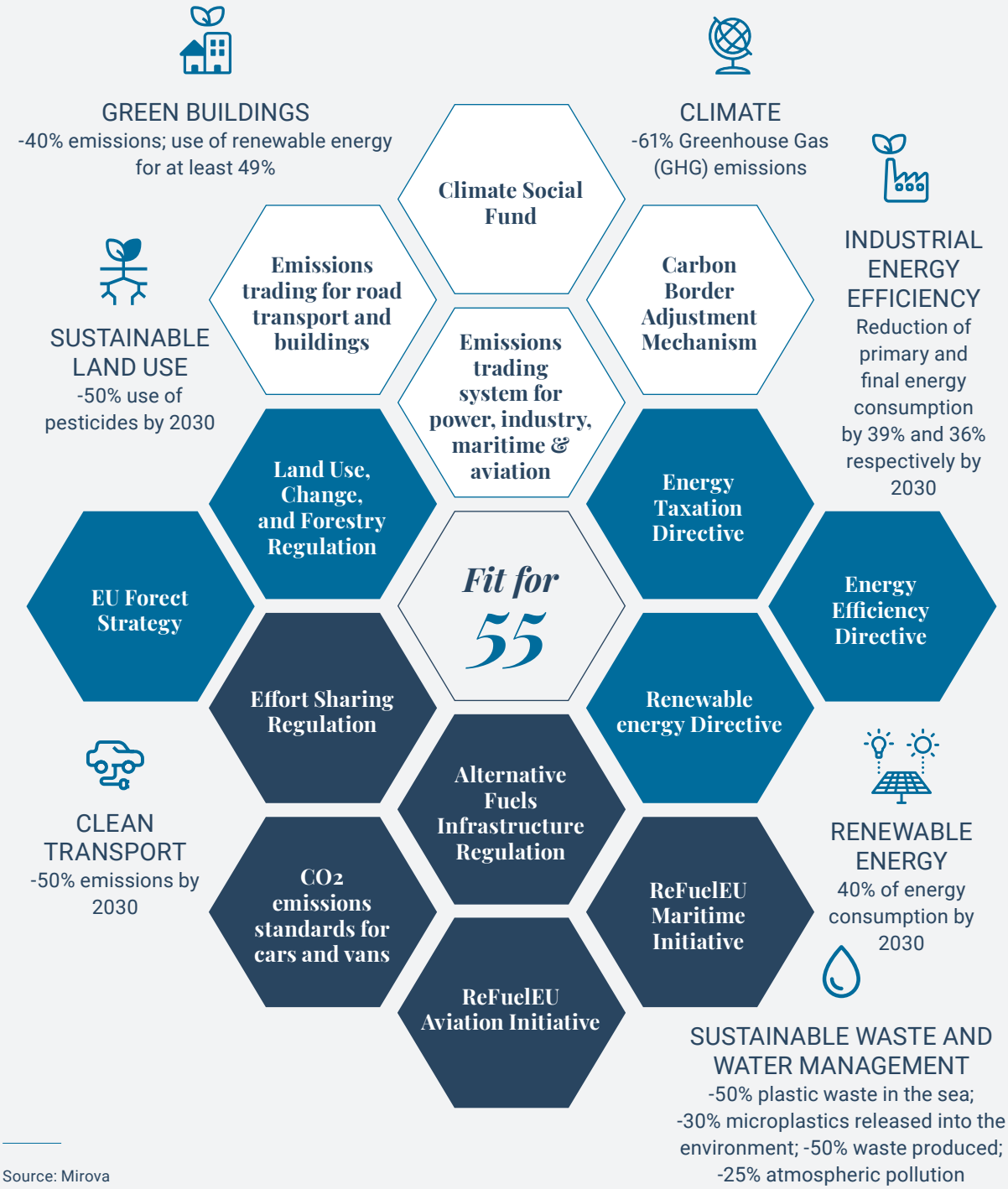
- 2020 turnover: **€26.01 billion**
- Annual revenue growth rate over the last five years: **+1.6%** *(including 2020 which was impacted by COVID)*
- 2020 EBITDA margin[32]: **+14%**

Source: Veolia

"With the ambition of becoming the benchmark company for ecological transformation, in 2020 the Veolia group supplied 95 million people with drinking water and 62 million with wastewater service, produced nearly 43 million megawatt hours of energy and treated 47 million metric tons of waste." (Source: Veolia)

29. A European Strategy for Plastics in a Circular Economy, 2018, European Commission
30. Breaking the plastic wave, 2020, Systemiq
31. Base Carbone, 2021, ADEME
32. A measure of a company's operating profit as a percentage of its turnover. The acronym EBITDA stands for earnings before interest, taxes, depreciation and amortisation.

Summary: Fit for 55



Source: Mirova

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Mirova is an asset-management company dedicated to sustainable investment and an affiliate of Natixis Investment Managers. Thanks to its conviction-led management style, Mirova's objective is to combine a quest for long-term value creation with sustainable development. Pioneers in many areas of sustainable finance, Mirova's talents are committed to innovation in order to provide their clients with high environmental and social impact solutions. Mirova and its affiliates manage €25,9 billion as of 30 September 2021. Mirova has been awarded the B Corp* label and the status of "Entreprise à Mission" (mission led company).

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