PERRIER REPORT

MAKING THE PARIS FINANCIAL CENTRE A REFERENCE FOR THE CLIMATE TRANSITION: A FRAMEWORK FOR ACTION

Led by **Yves Perrier**
Chairman, Amundi
Vice-Chairman, Paris-Europlace

Stanislas Pottier
Senior Advisor, Amundi

Margaux Sauvaget
Rapporteur, French Treasury

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Summary

The purpose of this report is to define a pathway for the players of the Paris financial centre to align their actions with the targets defined by the Paris Agreement, within the framework of the mission entrusted by Minister Bruno Le Maire to Yves Perrier, Chairman of Amundi and Vice-Chairman of Paris Europlace.

A. Achieving a successful climate transition requires a global industrial revolution and a new political economy

A.1. General context of climate change and political commitments

The fight against climate change is a priority shared by the majority of countries today, and its success requires the deployment of new economic and political paradigms. Strong commitments have already been formulated at the international level, and then translated at the European and national levels. Under the **Paris Agreement**, signed in April 2016 at the United Nations headquarters, 183 countries ratified the goal of containing the rise in the Earth's average temperature significantly below 2°C compared with pre-industrial levels (and if possible 1.5°C). This target was lowered to 1.5°C in November 2021 at **COP26**, which also raised the fundamental question of the practical implementation of ambitions by providing a number of tools for monitoring the commitments of the signatory countries. At the European Union level, the **Green Pact** for Europe and the European Climate Law have set the collective ambition of reducing the European Union's greenhouse gas emissions by at least 55% in 2030 compared with 1990 levels, and then reaching a net zero emissions balance in 2050. The "Fit for 55" package sets out the targets of the Green Pact in an operational and binding manner. The **National Low Carbon Strategy** is the main steering instrument at the national level, with a decreasing trajectory of carbon budgets broken down by sector.

A.2. A global industrial revolution that will require considerable investment

To make these commitments a reality, countries are facing a **real industrial and technological revolution** that will transform a significant part of their economic fabric over the next two to three decades. The **energy transition** is an **industrial revolution** because it requires transforming **energy supply**, of course, but also **products and services**, **manufacturing methods** and **value chains**. At the heart of this change, **the evolution of the energy mix** and the efficiency of its use are key issues. The aim is to replace fossil fuels, which currently account for 80% of the world's primary energy[1] and which have been the basis of economic development for the past 150 years, with decarbonised energy sources within 30 years. This **mutation** also concerns **almost all business sectors**, which will have to adapt their products, their infrastructures and their industrial processes. Only a holistic approach will be effective in "turning brown into green", especially in the most emission-intensive sectors (transport, heavy industry, construction and agriculture).

[1] IEA

In order to support this revolution, **considerable investments** will have to be made in **research and development** as well as in the transformation of **industrial processes** and in new infrastructures. At the global level, we are talking about an additional 3 to 5 trillion dollars per year until 2050[2], an amount 6 to 8 times higher than current levels and heavily concentrated in the first decade. If Europe is to achieve its environmental objectives, it will have to mobilise €480 billion[3] of additional investments per year. At the French level, the carbon budget targets imply doubling[4] annual investments compared with the 2018 level before 2030. This industrial transformation will also lead to significant write-offs of legacy assets. This is the case in industry but also in real estate, due to energy efficiency constraints.

The central objective of this industrial revolution is to decarbonise the economy. **Concomitantly**, the **geopolitical** and **social consequences** of this revolution must also be **controlled** to ensure **security of supply**, **sovereignty**, the **competitiveness of our economy**, the participation of emerging countries in decarbonisation and to guarantee the social acceptability of the transformations. In particular, thought must be given to the **challenges of changing jobs and qualifications**, controlling inflationary effects in the short to medium term, and equity between generations.

A.3. A new political economy to be put in place

Achieving the energy transition in line with the targets defined above requires the implementation of a **new political economy aligning the key players** on medium and long term **policies and strategies**: **states**, including the European Union, **companies**, particularly industrial companies, and the **financial system**, including banks, investors and asset managers.

Governments have a major role to play, through the definition of **public policies** (energy, transport, housing, land use) and the associated **industrial policies**. The other component is **fiscal policy**, in particular setting an adequate price signal for carbon pricing within the European Union and a carbon adjustment mechanism at the borders.

While it is necessary for companies and financial institutions to manage the CO2 externality, it will be all the more effective and efficient if clear signals are sent to consumers and producers. This is why we believe it is necessary to institute a **European carbon tax** as a complement to or a replacement of the European carbon market (ETS[5]). In order to make it acceptable, the proceeds of this tax should be allocated both to the financing of public investments and to the social support of the most disadvantaged groups affected by the transition and the resulting price increase. A **carbon adjustment mechanism at the European Union's borders** is also essential. It must avoid carbon leakage and climate dumping and preserve the competitiveness of our economies vis-à-vis countries whose products remain carbon-intensive and which have defined slower transition rates than Europe[6].

Companies must design the technological and industrial solutions necessary for this transformation. To this end, they **must integrate the CO2 externality into their strategies**,

[2] Autonomous Report, Global Banks, Climate Risk Report: The Green Growth Opportunity (September 2021)

[3] European Commission, Renewed Sustainable Finance Strategy, 6 July 2021

[4] SNBC – Stratégie nationale bas carbone (National low carbon strategy)

[5] European Union Emissions Trading Scheme, set up by the European Union in 2005 under the Kyoto Protocol

[6] In particular China, the United States and India, which together accounted for 50% of global emissions in 2017 according to the IEA

in addition to traditional **financial criteria**. Managing their CO2 impact is becoming a structuring element in the management of companies, in the definition of products, services and industrial processes, as well as in the allocation of capital.

The **role of the financial system**, banks and investors, is to **support companies' transformation** by **allocating them the capital they need** and by **influencing** their strategies through the **cost of capital** and **dialogue**, as shareholders or lenders. To this end, **the financial system**, in the same way as companies, **must integrate the CO2 externality at several levels**. At the **strategic** level, banks must integrate management of the CO2 included in their loan portfolios, in the same way as traditional capital allocation. Similarly, in the **loan and portfolio management processes**, banks and investors will be led to make CO2 impact a decision criterion, in the same way as the usual risk-return criteria.

Given the scale of the investments to be made, their time horizon and their low value in use, investors will have to reconsider the criteria of return on capital (return on equity and IRR of 15%) forged in the 2000s, the level of which appears incompatible with the nature of the transformations to be carried out. They also imply working with governments to design new financial solutions so as to provide adequate resources.

B. A developing normative framework to build a new political economy

The normative framework of this new political economy is being developed but is far from being stabilised. It is still characterised by a compartmentalised approach, and several fundamental elements need to be in place.

B.1. EU taxonomy as a dictionary of sustainability

Tools for measuring and analysing corporate greenhouse gas emissions are needed to provide a clear picture of business activities that are aligned with climate goals and can guide strategic decision-making. The EU taxonomy responds to this need by providing a common repository, based on a classification of the environmental impact of a range of economic activities and the definition of sector-specific targets. This "dictionary" of sustainability will be a reference for tracking the decarbonisation of activities.

That said, this taxonomy is not yet well understood by companies and the financial sector, and is subject to differing interpretations in terms of use. In particular, two types of interpretation coexist, defined schematically as follows: a static approach, which aims to direct financing towards "green" activities that currently represent, according to estimates, less than 10% of the European economy; and a dynamic approach, which aims to allocate financing towards companies whose CO2 emissions reduction trajectories are both sufficiently ambitious and credible.

In our opinion, the latter approach is the right one; the challenge is to transform activities that generate the highest emissions levels, and which by definition are not yet green. Conversely, a static approach would only accentuate the "bubble" phenomenon observed today in a number of sectors (notably renewable energies).

B.2. Non-financial reporting

It must be possible to translate the climate externality into non-financial reporting. If we consider the **possibility of emitting carbon as a scarce resource** and include it in reporting in the same way as cash flow, the consideration given to the climate dimension of companies will automatically be enhanced. Many companies are already addressing this issue by introducing carbon accounting and setting an internal carbon price. These are still individual

initiatives, however, with no harmonisation between the different accounting methodologies, which makes the results difficult to read and use.

In the race between players for non-financial standardisation, European (in particular the CSRD) and international (in particular IFRS) standards will ultimately have to result in an accounting framework that meets players' information needs for analysing transition plans and corporate actions, while remaining simple, readable, pragmatic and operational. In addition to ensuring consistency between IFRS and European standards, and given the heterogeneity of Scope 3 interpretations, this non-financial reporting will have to be supplemented by "accounting plans" drawn up at the level of the industrial sectors. This also applies to financial institutions – banks and investors – for which the methods for incorporating CO2 into portfolios remain to be defined. For each business sector, the implementation of non-financial reporting at corporate level will allow the financial system (banks and investors) to have the elements (these elements, provided by the companies, could substitute for the data produced by specialised providers, the reliability of which is currently limited) that allow them:

- On the one hand, to **measure the CO2 intensity of their portfolios**. At the market level, these elements can be consolidated by the authorities (the French Prudential Control Authority, ACPR, and the French financial markets authority, AMF) and provide a snapshot of the situation of market institutions.
- On the other hand, to feed credit ratings and analyses of counterparties and portfolios.

The **methodologies** currently used are very heterogeneous and **work on their harmonisation** will have to be carried out. Similarly, financial institutions will have to adapt their information systems to "automate" the processing of these data, in the same way as financial data.

B.3. Analysis and assessment tools

Once extra-financial reporting is in place, the next requirement is a **uniform and transparent analytical framework**, which, **through the rating system, allows the cost of capital and financing to be influenced**. The financial accounting and analysis methods used today are based on standards and norms established in the early 1980s with the development of the market economy. Following the example of financial analysis, the challenge today is to build norms and standards for non-financial analysis, based on clear principles. This **harmonisation of the approach of financial players**, but also of the **ecosystem that contributes to market discipline**, including rating agencies (Moody's, S&P, etc.) and providers of climate indices used in passive management (MSCI, Russell, etc.), is essential for the influence they exert to be effective.

Today, while some standards exist to channel capital (green bonds, TCFD, SBTi, PACTA, ACT, etc.), they are multiple, not stabilised and compete with each other. All the players we met agree that analysis standards need to be harmonised, otherwise they will not be credible and will not be able to fully play their role in capital allocation.

This heterogeneity of approaches is also found in the scope of **labels relating to savings products** (French SRI label, European Ecolabel, classification under articles 8 and 9 of the European SFDR directive, and so on). These labels are a step forward, but lack clear markers for assessing the CO2 impact and the relevance of different savings solutions to the challenges of the climate transition. In this respect, we believe that a distinction should be made between labels representing ESG, i.e. a vision of the company serving all its stakeholders and not just its shareholders, and climate impact labels in the strict sense.

C. Assessment of the Paris financial centre's actions

C.1. Assessment of the actions of financial institutions in the Paris financial centre

The **financial players** of the Paris financial centre have been **forerunners** in taking into account the challenges of climate change. All banks, institutional investors, asset managers, insurers, unions, rating agencies and regulators have been active in developing emissions reduction and compensation strategies with clear commitments. In addition, to support this transition and embed the climate challenge at the heart of corporate strategies, new measurement and reporting tools have been designed and new modes of governance have been introduced. **French financial institutions are recognised** internationally for their commitment and many of them are involved in international coalitions, particularly those specific to their sector.

That said, this proliferation of initiatives comes up against the heterogeneity of the methodologies and analysis tools mentioned above and the uneven quality of the data, which leads to scattered ratings. The voluntarism of individual actions cannot compensate for the insufficiency of the collective.

C.2. How does Paris compare to other financial centres?

Other financial centres are getting themselves organised and catching up with the Paris financial centre's lead on climate issues. The definition of Net Zero strategies has become a standard for global financial institutions, through international sector (Net Zero Banking Alliance, Net Zero Asset Owners Alliance, Net Zero Asset Managers Initiative, Net Zero Insurance Alliance) or stock market agreements. The London, Singapore and New York stock exchanges have published sector-specific targets in the past two years, resulting in policies to restrict and/or exclude certain fossil fuels. Finally, although Paris leads the European ranking for the amount of green loans and bonds issued, all the other markets have formulated ambitious targets.

C.3. Organisation of the Paris financial centre

Local initiatives have been launched to support financial players in their sustainable transition, with research and innovation organisations such as Institut Louis Bachelier (ILB), Finance for Tomorrow, Observatoire de la finance durable (Sustainable finance observatory) and Institut de l'économie pour le climat (I4CE), as well as partnerships with universities. Certification systems are actively developing, with two leading green finance labels in France – Greenfin (€20 billion in assets under management) and SRI (€688 billion in assets under management). On the other hand, key projects have not yet been launched, whether on CO2 accounting, analysis standards or financing policies. Finally, coordination within the financial sector and between the financial sector and companies remains weak.

Against this backdrop, the various existing green finance support structures would benefit from more cooperation, or even integration, along the lines of initiatives to federate market participants in other European financial centres, such as the Green Finance Institute (GFI) in London or the Green and Sustainable Finance Cluster Germany in Frankfurt. In order to make the Paris financial centre a real hub of innovation and competitiveness in sustainable finance, a joint roadmap must be drawn up by all the players involved – the financial system, companies and the public authorities. The whole process will have to be steered at the highest level over the next two to three years, in coordination with the steering of changes in public policies and industrial strategies.

D. Action plan and recommendations for the Paris financial centre

D.1. What are the objectives and ambitions for the Paris financial centre?

We are at a particular moment where the normative framework is unfinished and not yet stabilised. However, we must move forward and begin to implement internal transition management tools. At the same time, we need to participate in the finalisation of the European (led by EFRAG, the European Financial Reporting Advisory Group) and international (led by the IFRS Foundation and its new entity, ISSB) normative frameworks as well as in the work of coalitions (brought together in the Glasgow Financial Alliance for Net Zero, GFANZ) on carbon accounting, analysis, the rating of companies and financial products, the management and governance of the carbon externality in companies and financial institutions, the standardisation of savings products dedicated to the transition, the formalisation of specific commitments in the fossil fuel sector, and financial innovation for the carbon transition. The following recommendations should apply to the entire financial sector, regardless of the players or the types of products and assets, including private equity.

The collective objective of the Paris financial centre must be to become the **European reference** for the implementation of climate actions, recognised as such by its **European, British and American partners**, and present in the standard-setting working groups, coalitions and international organisations in this field, through its players or on a collective basis. **Paris** can also be a **benchmark for Asian markets** (China, South Korea, Japan, India, etc.), which are adopting a similar logic and with whom we could share our work and methods.

D.2. The work to be done

CO2 accounting

The management of the climate transition must build on the management of constrained carbon budgets in both companies and financial institutions, based on a measurement of emissions to date and combined with the assessment of a carbon trajectory over time, with horizons of 2025, 2030 and 2050, associated with annual reporting.

Each company must account for its carbon emissions on Scopes 1, 2 and 3 and then communicate them to financial players, who will use them to steer the profiles of their loan and investment portfolios. The consolidation of these reports should be carried out by the regulatory authorities, the AMF for asset managers and the ACPR for banks and insurers.

The reporting framework will be that of the EU taxonomy and more specifically the Corporate Sustainability Reporting Directive (CSRD), supplemented by the work currently being carried out by EFRAG, taking into account the recommendations of the ISSB. All information reported by companies and financial institutions will have to be audited.

In this context, a "CO2 accounting project" must be initiated in the Paris financial centre with four components:

1) Contribute to the finalisation of the standard, by influencing the work of EFRAG and the ISSB, which will be submitted for consultation by the end of the first half of 2022 for adoption by the end of the year. We believe it is essential that the climate module resulting from EFRAG's work and the ISSB's proposals, which will be limited to climate, converge to the greatest extent possible.
2) Define the methods for companies to apply the taxonomy and carbon reporting:
   - Interpretation and use of the Taxonomy in each sector.
   - Definition of Scope 3 measurement conventions for each sector.

This working group should be composed of ANC / EFRAG, within the framework of the ANC working group already set up, in connection with business federations (in particular MEDEF, Afep, France Industrie, etc.) and the financial system (FBF, AFG, France Assureurs).

3) Define the methods for using the taxonomy and integrating CO2 data into the credit or investment portfolios of banks and investors and adapt information systems accordingly. This working group should be composed of the financial system's participants and trade associations.
4) The methods of CO2 data transmission by companies and financial institutions to the Banque de France, the AMF or the ACPR must be defined. The supervisory authorities will be responsible for ensuring the consolidation and quality of the data reported. A specific project will have to be launched on the preparation of carbon reports by supervisory authorities.

Analysis methodologies

The definition of standards for analysing and rating the past and present carbon performance of companies, as well as their projected performance, is an essential element for the financial system, whether it is in the position of investor or lender. Robust and shared standards will be the only way to allow an efficient allocation of resources at the right cost of capital.

The interviews revealed a great heterogeneity of analysis and scoring methods. All the players concerned, in particular investors (asset owners and asset managers, including the international coalitions in which they participate), rating agencies and index providers, consider it essential to achieve standardisation, as was the case for financial analysis in the 1980s, in order to ensure the credibility of climate ratings and to make them operational.

The objective is to agree on analytical methods and ratios that will enable us to assess and ultimately rate the decarbonisation strategies of companies and the effectiveness of their implementation, year after year. These strategies must include targets and scenarios that are commensurate with the challenges, a transition plan with defined stages, adequate dedicated financial resources, particularly for investments in new decarbonisation technologies, and appropriate governance methods.

Four working groups should be created to develop a common methodological framework for analysing and rating companies' carbon performance, based on shared sector-specific trajectories and the creation of climate indices. This also applies to shareholder engagement. These four working groups must of course share their analyses with the major international coalitions in which the financial institutions of the Paris financial centre participate.

1) An investor working group to define analysis standards, composed of investment professionals (fund managers, analysts), rating agencies such as Moody's and S&P, and fund and financial product raters such as Morningstar.
2) A similar working group should be created with banks and rating agencies to standardise credit analysis. This group will be able to draw on the work in progress at the French Banking Federation (FBF) concerning the convergence of methods.
3) A working group bringing together asset managers and providers of climate indices such as MSCI to define standards for climate indices used in passive management.
4) A specific investor group on engagement policies to formalise a systematic "Say on Climate" requirement, monitoring and sharing of best practices and engagement coalitions. The conditions for tabling climate-related resolutions at general meetings must be clarified and made more flexible with the public authorities.

Governance and management of carbon externality

Work needs to be done on governance and the methods used by financial institutions to manage carbon externality. In the same way as the governance of decarbonisation strategies by companies, this is a key condition for the effectiveness and quality of implementation of the climate transition as a whole. This is a project that must be carried out by each of the federations, the AFG, the FBF and France Assureurs, with the financial institutions that make them up, and which should focus on four areas:

1) Governance: boards of directors and executive committees must be involved in validating carbon strategies, making the necessary decisions and monitoring their implementation.
2) Managing the carbon externality:
    - CO2 must be built into investment and credit processes. Investment policies must focus on green investments, investments to transform brown into green, and divestments from brown assets when they cannot be transformed.
    - Implement carbon budgets globally, by activity and by counterparty.
    - Implement a differentiated cost of capital according to activities and the carbon intensity of counterparties. Several institutions have already implemented a differentiated equity allocation ("green weighting factor"), with the overall capital charge remaining unchanged as far as possible.
3) Compensation methods must integrate the financial institution's carbon performance (including Scope 3):
    - Compensation of chief executives and senior managers.
    - Compensation of professionals (fund managers and bankers in particular).

These movements could be supported by the prudential and monetary authorities: integration by the ECB and supervisory authorities, in time and on the basis of stabilised

carbon accounting, of a "green weighting factor", possibly combined with a "brown penalising factor", and without impacting the overall level of capital requirements as far as possible.

Training

The deployment of climate actions by companies and financial institutions will require a massive training effort, in all sectors and over the long term. The financial system will notably need to train accountants, analysts, fund managers and account executives. For financial institutions as well as for companies in general, providing training to boards of directors should be generalised.

In the banking sector, the FBF's banking training centre should be brought in. Similarly, for asset management, the French Society of Financial Analysts (SFAF) could also contribute to this effort. International training organisations should be involved. A climate module could be developed for boards of directors with the French Institute of Directors (IFA).

It will also be necessary to train financial product distribution networks and to raise awareness among private and institutional clients.

Financial products and labels

The interviews and the analysis of the financial centre's actions revealed a multiplicity of approaches, concepts and rhetoric, making it all the more difficult to differentiate between products and to provide advice to clients.

It appears there is a need to create, alongside the French SRI label, which is a generalist ESG label, a specific Climate Transition label. A working group on the Climate Transition label should be set up for this purpose, made up of asset management companies, the AMF and the French Treasury, in order to define the outlines of a specific climate label covering the carbon transition with a clear marker, capable of assessing investments in the carbon transition and not only in assets that are already considered green. This new label should be promoted in Europe.

The financial centre's fossil fuel adjustment pathway

Over and above the commitments already made on coal and on unconventional oil and gas, the question of financing oil and gas in general now arises.

The oil and gas trajectory is a source of questions and debate because, on the one hand, the latest IEA simulations show, using a countdown approach, that current oil and gas production capabilities must not be increased in order to meet the 2050 carbon neutrality commitments, but on the other hand, there has been no analysis to ensure the feasibility of such an option or the conditions for substituting decarbonised energies for fossil fuels.

A working group should be created, bringing together banks, investors, energy utilities, ADEME, the Sustainable Finance Observatory, France's High Council for Climate (HCC) and the ministries for energy, economy and finance, to define baseline scenarios for 2025, 2030 and 2050. On this basis, financial institutions will determine transparent and comparable fossil fuel exit strategies[7].

[7] A useful reference would be the Global Coal Exit List, which brings together players from the entire thermal coal value chain worldwide, published by Urgewald and 30 other NGOs, as well as the Global Oil and Gas List, grouping the bulk of the oil and gas players worldwide, published by the NGO Urgewald.

Financial innovation

The success of the energy transition will require considerable investments, concentrated over the next 10 to 15 years, with uncertain returns. The question of their financing remains open and will require innovative solutions to:

- Combine public and private financing, in particular so as to reallocate households' long term savings. This type of solution could be based on total or partial state guarantees, in order to meet savers' security objectives;
- Setting up specific funding, as some banks have already done with retail clients, especially in terms of improving the energy efficiency of housing and that would be acceptable in terms of property ownership;
- The creation of funds, at the European level, following the example of what has already been done with a number of international financial institutions, to finance energy transition investments in developing countries with particularly high emissions levels.

D.3. Organisation of the Paris financial centre

The success of the climate transition will depend on the alignment of companies, the financial system and the state. The transition is a long-term project, which integrates a carbon objective with industrial policy, social policy and sovereignty issues. In order to carry it out successfully, it seems essential to enter into a logic of **co-construction** and **co-steering**. To this end, **two coordinating bodies** could be created:

1) A political body, a strategic steering body that would validate ambitions and priorities, and arbitrate questions of standardisation and interpretation. It should be chaired by the minister for finance and meet every quarter, with its secretariat ensured by the French Treasury. It should include qualified representatives of companies and financial institutions (banks, insurers, asset managers), the Governor of the Banque de France, the Chairman of the AMF, as well as the Chairman of Paris-Europlace and the Chairman of the operational coordination body (see below).
2) An operational body, which would be responsible, within the framework of the guidelines defined by the political steering body, for coordinating the work of the various projects, representing the financial centre in European and international technical bodies, and coordinating a network of experts (auditors, economists, scientists, etc.). This body would have its own budget, funded by the Paris financial centre and the public authorities, of around €6 to 8 million, similar to the body created by the London financial centre. The body, reporting to Paris-Europlace, should work in synergy with existing organisations in the Paris financial centre, notably ADEME, I4CE, and with those of Paris Europlace – Institut Louis Bachelier, Finance for Tomorrow and the Sustainable Finance Observatory – which would be an essential asset for effectiveness. This organisation should have a board of directors including qualified figures from industry and the financial system as well as representatives from the ministry for Finance (French Treasury, Directorate-General of Enterprises) and the Environment (Directorate-General of Energy). The board of directors would be chaired by a recognised business leader.

Table of recommendations: seven projects to be carried out by the Paris financial centre

Project #1: Implement CO2 accounting

Recommendation no.

1 **Contribute to the finalisation of the non-financial reporting standard**, by influencing the work of EFRAG and the ISSB and by promoting reciprocal convergence and co-construction between these two standard-setting bodies.

2 **Define the interpretation and use of the EU taxonomy** in each economic sector, working with companies, industry organisations, financial institutions and ANC / EFRAG.

3 **Define the measurement of Scope 3 emissions**, business sector by business sector, to ensure consistency in accounting methods, working with companies, industry organisations, financial institutions and ANC / EFRAG.

4 **Define the methods for integrating CO2 data** into the credit or investment portfolios of banks and investors, which will require adapting information systems accordingly.

5 **Establish the methods of transmission of CO2 data** by companies and financial institutions to the Banque de France, the AMF or the ACPR. The supervisory authorities will be responsible for ensuring the consolidation and quality of the data reported.

Project #2: Review and consolidate analytical methodologies

Set up four working groups to develop a common methodological corpus for the analysis and rating of companies' carbon performance, based on shared sector-specific trajectories. These working groups must share their analyses with the major international coalitions in which the financial institutions participate.

Recommendation no.

6 **Define analysis standards** through an investor working group composed of investment professionals (fund managers, analysts), rating agencies such as Moody's or S&P, and fund and financial product raters such as Morningstar.

7 **Standardise credit analysis** through a working group with banks and rating agencies. This group will be able to draw on the work in progress at the French Banking Federation (FBF) concerning the convergence of methods.

Project #2: Review and consolidate analytical methodologies

8 **Define standards for climate indices used in passive management** through a working group bringing together asset managers and providers of climate indices such as MSCI.

9 Formalise a systematic "say on climate" requirement, monitoring and sharing of best practices and engagement coalitions. An investor working group could be created for this purpose. In addition, the conditions for tabling climate-related resolutions at general meetings must be clarified and made more flexible with the public authorities.

Project #3: Promote new carbon externality governance and management practices by financial institutions

This project must be carried out by each of the federations, the AFG, the FBF and France Assureurs, with the financial institutions that make them up.

Recommendation no.

10 At the level of each financial institution, get boards of directors and executive committees involved in the validation of carbon strategies, the resulting arbitrations and the monitoring of their implementation.

11 At the level of each financial institution, **integrate CO2 into the investment and credit processes**. Investment policies must focus on green investments, investments to transform brown into green, and divestments from brown assets when they cannot be transformed.

12 At the level of each financial institution, **set up carbon budgets** globally, by activity and by counterparty.

13 At the level of each financial institution, implement a differentiated cost of capital by activity and according to the carbon intensity of counterparties, with the overall capital charge unchanged as far as possible. Several institutions have already implemented a differentiated equity allocation ("green weighting factor").

14 Integration by the ECB and supervisory authorities, in time and on the basis of stabilised carbon accounting, of a "green weighting factor", possibly combined with a "brown penalising factor", and without impacting the overall level of capital requirements as far as possible.

15 At the level of each financial institution, integrate carbon performance (including Scope 3) into the compensation schemes for both:

- Compensation of chief executives and senior managers.
- Compensation of professionals (fund managers and bankers in particular).

Project #4: Educate the various stakeholders on climate issues

Recommendation no.

16 At the level of each financial institution and company, **provide the boards of directors with training on climate issues**. A climate module could be developed for boards of directors with the French Institute of Directors (IFA).

17 At the level of each financial institution, **train accountants, analysts, fund managers and account executives on climate issues**. In the banking sector, the FBF's banking training centre should be brought in. Similarly, for asset management, the French Society of Financial Analysts (SFAF) could also contribute to this effort. International training organisations should be involved.

18 Train financial product distribution networks and raise awareness among private and institutional clients.

Project #5: Define product standards and rating methods for labels

Recommendation no.

19 **Create a label dedicated to the climate transition**, alongside the French SRI label, which is a generalist ESG label. A working group on this **Climate Transition** label should be set up for this purpose, made up of management companies, the AMF and the French Treasury. This working group will have to define the outlines of a label capable of assessing investments in the carbon transition and not only in assets that are already considered green. This new label should be promoted in Europe.

Project #6: Determine a fossil fuel exit path

Recommendation no.

20 **Define a baseline scenario to exit fossil fuels by 2025, 2030 and 2050** with a working group bringing together banks, investors, energy utilities, ADEME, the Sustainable Finance Observatory, France's High Council for Climate (HCC) and the ministries in charge of energy, economy and finance.

21 At the level of each financial institution and on the basis of the baseline scenario of recommendation no.20, **determine transparent and comparable fossil fuel exit strategies** (the GCEL[8] and GOGEL[9] lists could be used to determine and monitor fossil fuel exposures). Implementation of these strategies will be disclosed annually in **publicly accessible reports**.

8 Global Coal Exit List, a list of players across the global thermal coal value chain, published by Urgewald and 30 other NGOs.

9 Global Oil and Gas List, a list of the main players in the oil and gas sector worldwide, published by the NGO Urgewald.

Project #7: Encouraging financial innovation

Recommendation no.

22 Create a working group made up of professionals from the financial sector and public authorities, focusing on finding financial solutions in the following areas:

- Combine public and private financing, in particular so as to **reallocate households' long term savings**. This type of solution could be based on total or partial state guarantees, in order to meet savers' security objectives.
- Setting up **specific funding**, as some banks have already done with retail clients, especially in terms of improving the energy efficiency of housing and that would be acceptable in terms of property ownership;

Creation of funds at the European level, following the example of what has already been done with a number of international financial institutions, to **finance energy transition investments in developing countries with particularly high emissions levels**.

Organisation of the Paris financial centre

The success of the climate transition will depend on the alignment of companies, the financial system and the state. The transition is a long-term project, which integrates a carbon objective with industrial policy, social policy and sovereignty issues. In order to carry it out successfully, it seems essential to enter into a logic of co-construction and co-steering. To this end, two coordinating bodies could be created:

A political organisation

Recommendation no.

23 **Create a strategic steering body** that would validate ambitions and priorities, and arbitrate questions of standardisation and interpretation. It should be **chaired by the minister in charge of finance** and **meet every quarter**, with its secretariat provided by the French Treasury. It should include qualified representatives of **companies and financial institutions** (banks, insurers, asset managers), the **Governor of the Banque de France**, the **Chairman of the AMF**, as well as the **Chairman of Paris-Europlace** and the **Chairman of the operational coordination body** (see below).

An operational body

Recommendation no.

24 Create an operational body, which would be responsible, within the framework of the guidelines defined by the political steering body, for coordinating the work of the various projects, representing the financial centre in European and international technical bodies, and coordinating a network of experts (auditors, economists, scientists, etc.). This body would have its own budget of around €6 to 8 million, funded by the Paris financial centre and the public authorities, similar to the body created by the London financial centre. The body, attached to Paris-Europlace, should work in synergy with existing organisations in the Paris financial centre, notably ADEME, I4CE, and with those of Paris Europlace – the Louis Bachelier Institute, Finance for Tomorrow and the Sustainable Finance Observatory – which will be an essential asset for efficiency. This organisation should have a board of directors including qualified figures from industry and the financial system as well as representatives from the ministry for Finance (French Treasury, Directorate-General of Enterprises) and the Environment (Directorate-General of Energy). The board of directors would be chaired by a recognised business leader.

Introduction

"The financial ambition [for the success of the climate transition] implies the commitment of the State, the commitment of the European Union through the Stability and Growth Pact, and it also implies that the Paris financial centre make a greater commitment. The Paris financial centre must be up to the challenge of the Paris Agreement. My personal conviction is that at this point, the Paris financial centre has not yet stepped up sufficiently. It must do more, it must do better, and it must do it faster. I know that the market has made commitments. The six largest French banks have pledged to stop financing shale oil, shale gas and tar sand projects as early as 2022. That's a good step forward, but it's not enough. You must commit to a trajectory of reducing the carbon intensity of your investments, in line with the Paris Agreement. This trajectory must be credible and it must be transparent, with a binding timetable. And I hope that we will be able to define an initial trajectory by next March, for the European climate event under the French Presidency of the Council of the European Union. I have therefore asked Amundi's former CEO, Yves Perrier, to lead a mission to enable the Paris financial centre to live up to the Paris Agreement."

Bruno Le Maire

Minister for Economy, Finance and Recovery
Climate Finance Day, 26 October 2021

The Paris Agreement – adopted at COP21 on 12 December 2015, and subsequently ratified by 183 countries – sets the goal of limiting global warming to well below 2°C, and preferably 1.5°C, above pre-industrial levels by 2100. Achieving this temperature target implies achieving carbon neutrality, at the global level, by 2050. The Paris Agreement is a historic turning point in that it provides a reference target in the form of an international agreement, an objective that all public and private players around the world can work towards. In particular, Article 2.1.c states that financial flows – both public and private – must be made consistent with a pathway towards low greenhouse gas emissions and climate-resilient development. It provides for nationally determined contributions to be submitted by the various countries, accompanied if they so wish by long-term low-emission development strategies.

While other jurisdictions have been slower to integrate the climate transition following the Paris Agreement, the Paris financial centre has shown the lead, through an alliance combining the adoption of ambitious regulatory measures by the French government and the pioneering commitment of French economic and financial players.

Today, France remains a driving force in the energy and environmental transition at the European and international levels, whether through its regulatory expertise and the commitment of public authorities in negotiations within the European Union and multilateral bodies, or through the mobilisation of French private players in the various international coalitions and their ongoing efforts for innovation – notably relating to methodologies – to find concrete solutions for implementing the carbon transition.

The urgency and import of the climate issue, however, requires a new impetus for the Paris financial centre, for French players to move to a new stage in the transition, to effectively implement the commitments they have made and to continue to exert a positive influence on the entire global financial community through their expertise and know-how.

In parallel to this virtuous competition between financial centres and national jurisdictions, stimulating everyone's action, progress has been made in the collective understanding of what the ecological transition, and in particular the climate and energy transition, entails – and thus a better appreciation of the road ahead to achieve carbon neutrality by mid-century.

The primary conviction of this mission led by Yves Perrier is that a successful climate transition will lead to a profound and radical transformation of the economy and society – with the costs and difficulties that this implies. It is thus counterproductive to focus on half measures, and on the contrary urgent to chart the uncertain, complex and sometimes arduous course on which all the players must embark. Numerous national, regional and international strategies have been developed by various jurisdictions – but none of them are up to the challenge of driving and leading an industrial revolution in a globalised economy, fully integrating the country's economic and sovereignty interests, in turn aligned with global decarbonisation goals.

This industrial revolution will require an alignment of all players: (i) governments that set the framework through standards and economic and fiscal policies; (ii) industrialists who implement the transition; (iii) the financial system that encourages, supports and finances companies in the transition. The government's coordinating role is essential in giving economic and financial players medium- to long-term visibility and enabling them to move forward in a coherent and efficient manner.

The issue of climate change is global and must constantly be placed in an international context: some countries can lead the way, but none should go it alone or attempt to be a free rider. Each action must be examined in the light of a simple question: is this the most effective measure we can take to reduce the global stock and flow of greenhouse gases? A costly transformation to reduce the carbon footprint of an already low-carbon national economy may be less of a priority than a lower-cost, higher impact investment in a high-carbon economy. All national economies will have to achieve carbon neutrality and meet the commitments made by their governments, in the most coordinated way possible.

This mission has sought to take stock of the challenges and imperatives of the climate and energy transition, as well as the commitments and actions already taken by states and private players to combat global warming; to draw conclusions on the way forward for an effective and orderly transition of the French, European and global economy; to follow up on the Minister's request in his speech at the Climate Finance Day 2021; and to coordinate financial players in the Paris financial centre so that they can agree on an ambitious carbon intensity pathway.

CHAPTER 1

A successful climate transition requires a global industrial revolution and a new political economy

1.1 General context of climate change and political commitments

1.1.1 Greenhouse gas reduction targets

After more than 10,000 years of relative climate stability, average annual terrestrial temperatures increased by 0.85°C between 1880 and 2012[10], accentuating major environmental risks. To curb this warming, scientific analyses concur on the need to reduce greenhouse gas (GHG) emissions rapidly and significantly. Carbon dioxide (CO2) is the major anthropogenic GHG, accounting for two-thirds of global emissions. The concentration of CO2 in the atmosphere since 2011 has averaged 410 parts per million (ppm), a level not seen for 2 million years[11], mainly due to intense exploitation of fossil fuels and land use change.

It is estimated that due to excessive GHG emissions, **average temperatures have risen by 1°C since pre-industrial times** and that they could further rise by 1.4°C to more than 4°C by the end of the 21st century[12]. The consequences of this phenomenon are already visible: degradation of biodiversity; rising sea levels; climatic episodes with higher intensities and frequencies than before (cyclones, hurricanes, tornadoes, droughts, floods, heat waves, forest and peat fires, melting ice floes and permafrost). The profound **socio-economic upheavals** these events are likely to cause make the fight against climate change a priority for political action.

Since the 1992 Rio Earth Summit, **Conferences of the Parties (COP)** have been held regularly to address the climate emergency at the international level. The **Paris COP21 in 2015** marked a major step forward by setting legally binding targets in the fight against climate change. Article 2 commits signatory countries to act by "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, recognizing that this would significantly reduce the risks and impacts of climate change". This objective was reaffirmed and tightened to a **target of +1.5°C by the 2021 Glasgow conference**, which also provided tools for transparency and monitoring of commitments by signatory countries.

a) IPCC projections

The Intergovernmental Panel on Climate Change (IPCC) publishes regular reports with the aim of presenting climate change scenarios that can be used by policy makers. In August 2021, the first volume of the sixth IPCC report (AR6) was published, in which five climate projection scenarios were established according to GHG concentration hypotheses: Shared Socio-economic Pathways (SSP) (see Annex 1, Figures no.1 and no.2).

The analysis predicts that **temperatures will continue to rise until at least 2050, with CO2 remaining in the atmosphere for one century on average**. The 1.5°C warming limit set by the Paris Agreement will inevitably be reached, regardless of the scenario, and even has a 50% chance of being reached before 2040. How the trajectory evolves will depend on human behaviour. If there is a change in behaviour, with a significant reduction in GHG emissions, warming could be contained between 1.4 and 1.8°C. In the intermediate scenarios, it

[10] IPCC, Climate Change 2014, Synthesis Report

[11] Vie-publique.fr, *Rapport du Giec sur le climat: un constat alarmant* (The alarming IPCC Climate Report) (August 2021)

[12] The Shift Project, Synthesis of IPCC AR6 report (August 2021)

reaches 2.7 to 3.6°C. Under the IPCC Business-as-Usual scenario, there would be a more than 50% probability of temperatures rising by more than 4°C in 2100[13].

One of the main conclusions of this report is that limiting global warming will only be possible by an immediate and significant decrease of GHG emissions: **carbon neutrality will have to be reached shortly after 2050**, i.e. by then emissions will have to be reduced very significantly and residual emissions will have to be offset by CO2 capture. Finally, the IPCC report highlights the climatic consequences of each of the warming scenarios. Three changes already appear to be irreversible, regardless of the human actions taken: ocean warming and acidification, the rise in sea level and the melting of glaciers and polar ice caps. If GHG emissions are reduced, it will only be possible to slow these phenomena, but not stop them.

b) IEA energy mix projections

On 31 March 2021, the International Energy Agency (IEA) hosted the Net Zero Summit to take stock of the growing list of commitments made to meet the goals of the Paris Agreement, and to identify the actions needed to achieve the ambitions set forth. Following the summit, the IEA produced its **Net Zero by 2050** report, providing a **comprehensive roadmap to achieve net zero emissions by 2050** while limiting the global temperature increase to 1.5°C. In this report, the IEA outlines three scenarios[14]:

- *The Stated Policies Scenario* (STEPS): this scenario is the most conservative of the three, considering only policies already in place or initiated by governments.
- *The Announced Pledges Case* (APC): this scenario assumes that net-zero pledges will be met in full and on time, regardless of whether they have been anchored in implementing legislation or not.
- *The Net-Zero Emissions by 2050 Scenario* (NZE): this scenario shows what would be needed for the energy sector to achieve net zero CO2 emissions by 2050.

All three scenarios assume a change in the energy mix, with a shift to decarbonised energies and an exit from fossil fuels by 2050. Renewable energy would increase from 16% of the energy mix in 2020 to 25% in the STEPS, 37% in the APC and 67% in the NZE. For nuclear energy, the change is gradual, from 5% in 2020 to a similar level in 2050 in the STEPS, 8% in the APC and 11% in the NZE. Fossil fuels would decrease from 78% in 2020 to 70% in the STEPS, 55% in the APC and 22% in the NZE[15].

1.1.2 Emissions mapping: key elements

a) Emissions by business sector and by type of energy

The geographical breakdown of GHG emissions is very uneven, with **just three countries accounting for half of CO2 emissions**: **China** (30% of global emissions), the **United States** (13.5%) and **India** (7%)[16]. The success of the climate transition will therefore depend heavily on the action of these emitting countries. If one relates GHG emissions to the number of inhabitants or to GDP, the results are quite different. **The United States has the highest level of per capita emissions**, with about 14 t/inhab/year, while **Africa has the lowest** level of emissions at around 1 t/inhab/year. Concerning CO2 emissions by sector (see Annex 1, Figure 4), **electricity production** is the largest emitter with **41% of total**

[13] The Shift Project, Synthesis of IPCC AR6 report (August 2021)

[14] International Energy Agency (IEA), A roadmap for the global energy sector

[15] Analysis of the International Energy Agency's (IEA) scenarios

[16] Globalcarbonatlas.org

emissions, followed by **transport (25%)** and **industry and construction (18%)**, with levels varying from country to country[17].

b) The situation in Europe

Significant but declining GHG emissions

The contribution of European countries to global warming can be analysed as follows. In 2020, **Europe**'s total GHG emissions amounted to 3.6 GtCO2e. Although this represents only **7%** of global GHG emissions, less than Europe's 20% contribution to global GDP, it is higher than Europe's share of the world's population (6%)[18].

Concerning the origin of European Union GHGs (see Annex 1, Figure 5), about 80% come from fossil fuel combustion. The remaining 20% are non-CO2 GHGs, such as methane or nitrous oxide from the industrial and agricultural sectors. Globally, these emissions come from five sectors: electricity, industry, buildings, transport and agriculture. Since 1990, emissions from these sectors have been decreasing by 1 to 2% per year, except for the transport sector where, despite improved energy efficiency, they have increased by 0.8% per year. Industry is the largest source of emissions, followed by electricity and transport. A sixth sector, land use, land-use change and forestry (LULUCF), absorbs CO2 and partially offsets the emissions of these other sectors. This has remained stable since 1990[10].

If we look at GHG emissions by country, we see a strong correlation with GDP. The Scandinavian countries are an exception to this rule: their net emissions are lower than those of other high-GDP countries because of their large areas of uncultivated land, which can absorb CO2. Some Central European countries, on the other hand, have higher emissions relative to their GDP because of their greater reliance on coal for power generation. Finally, although total primary energy demand in the European Union has remained constant, emissions have decreased slightly since 1990, energy efficiency improvements having offset economic growth.

An energy mix still dominated by fossil fuels and evolving slowly

The energy mix has changed since 1990, with coal demand decreasing by 2% per year, while biomass and other renewable energy sources have increased by 4% and 3% per year, respectively[20]. If we look at energy use, we see that it varies considerably by sector. Transport consumes mainly oil and almost no other fuel, given the dominant role of road, sea and air transport. Electricity production relies on several sources of energy such as nuclear, hydroelectric, solar and wind power in addition to fossil fuels. Industry and buildings use a mix of fossil fuels: natural gas is most prevalent in the buildings sector for heating and cooking, while oil is mainly used for chemicals[19].

The fossil fuel consumption profile is similar across the EU. The main driver of **differentiation** in fossil fuel dependence between regions is the **electricity generation mix**. For example, the share of fossil fuels in France and Scandinavia is lower than in other countries because they use nuclear and hydroelectric power[11].

[17] International Energy Agency (IEA), 2020

[18] McKinsey, "Net-Zero Europe, Decarbonization pathways and socioeconomic implications" (November 2020)

[19] McKinsey, "Net-Zero Europe, Decarbonization pathways and socioeconomic implications" (November 2020)

c) The situation in France

Particularly low emissions for a developed economy but above the world average

France is one of the industrialised countries with the lowest GHG emissions. While the country accounts for 3.2% of the world's GDP, GHG emissions are only about 1% of the global level[20]. If we look at GHG emissions per capita, France was the lowest emitting country in the G7 in 2015[21]. In terms of GDP, France was also the lowest emitting country in the G7 in 2018[22]. In addition to these positive levels, French emissions have decreased by about 15% over the last 30 years, while population and GDP have increased by about 15% and 52%, respectively[23].

The reasons for the low level of emissions in France are the result of political choices. Following the first oil crisis of 1973, in particular, stringent policies for reducing consumption and for energy independence were deployed, with the rapid and significant development of a **nuclear industry**. In 1974, the Messmer government decided to accelerate the previous nuclear programmes. Between 1972 and 1980, EDF built an average of 6 to 7 reactors per year, i.e. a total of 55 reactors of 900 MWe, for a total estimated cost of 81 billion French francs.

In ten years, EDF borrowed (mainly from the international markets) around 100 billion francs, guaranteed by the state. The decrease in French emissions was also achieved thanks to the industrial sector (see Annex 1, Figure 6), under the combined effect of an **improvement in industrial processes**, a **decrease in activity** in the aftermath of the 2008 crisis and improved **energy efficiency**. The industry's climate-friendly actions, such as the development of **biofuels** since 2005, contributed to limiting the level of emissions, without however curbing the upward trend.

Apart from emissions at country level, it is important to underline the emissions linked to the consumption of French people, therefore including imported energy. Emissions from imports have been growing steadily since 1995 and have even exceeded emissions from domestic production, excluding exports, from 2010. The French population's carbon footprint therefore amounted to around 11.5 tCO2e in 2018[24].

The decrease in emissions is supported by a strong shift in the energy mix towards renewable and nuclear power

France's energy mix is 40% nuclear, 29% oil, 15% natural gas, 12% renewables and biomass, and 3% coal. The main source of renewable energy consumed is solid biomass, corresponding almost entirely to wood used for heating. Since 1990, the main change in the energy mix is a significant decrease of the most carbon-intensive energies in favour of renewable and nuclear energy. Nuclear and natural gas consumption increased by 28% and 46%, respectively, renewable energy consumption almost doubled, while coal and oil consumption decreased by 63% and 17%, respectively[25] (see Annex 1, Figure 7).

[20] ONERC, exhibition panels (May 2019)

[21] EDGAR data

[22] Emissions Database for Global Atmospheric Research

[23] National Low Carbon Strategy Report (March 2020)

[24] High Council for Climate, *Maîtriser l'empreinte carbone de la France* (Controlling France's carbon footprint) (October 2020)

[25] Key Energy Figures, 2020 Edition

1.1.3 Political reduction commitments

a) Paris Agreement

In **December 2015**, the **21st meeting of the Conference of the Parties (COP21)** was held, bringing together the signatory countries of the United Nations Framework Convention on Climate Change (UNFCCC). On 12 December 2015, at the end of COP21, the Paris Agreement was unanimously approved. In less than a year, the objective of 55 countries ratifying the Agreement, representing at least 55% of GHG emissions, was reached. The Paris Agreement thus officially became a legally binding agreement on 4 November 2016, marking a turning point in international climate cooperation.

The objective of the agreement, as described in Article 2, is to "strengthen the global response to the threat of climate change, in the context of sustainable development and efforts to eradicate poverty"[26]. To this end, the following key measures have been introduced:

- 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 *(Article 2)*.
- Achieving a balance between anthropogenic emissions and removals – i.e. carbon neutrality – in the second half of this century *(Article 4)*.

The agreement recognises the principle of equity and common but differentiated responsibilities and respective capabilities, in the light of different national circumstances. The countries that have contributed significantly to global warming so far are required to contribute more actively to global climate action.

Article 3 of the Agreement requires all parties to make **nationally determined contributions** (NDCs). NDCs must be communicated every five years and the efforts defined to combat climate change must represent a progression over time, with increasingly ambitious targets. These NDCs are not binding in themselves, but their communication every five years is mandatory.

b) Glasgow

The **26th Conference of the Parties** was held in Glasgow in **November 2021**, in continuity with the IPCC's August 2021 report warning of non-alignment with the Paris Agreement. At its conclusion, on 13 November 2021, the 196 countries present adopted the "Glasgow Climate Pact".

The main elements in the agreement reached by the Conference of the Parties are[27]:

- The finalisation of the rules of application of the Paris Agreement, completed six years after its adoption with:
  - The adoption of Article 6, which provides for mechanisms for countries and private players to trade emission reductions.
  - The adoption of Article 13 on the enhanced transparency framework, requiring countries to report their GHG emissions in a detailed and comparable manner.
- Countries whose NDCs are not aligned with the Paris Agreement are urged to raise their ambition from 2022.

[26] Paris Agreement (2015)

[27] Ecologie.gouv.fr, Adoption du pacte de Glasgow pour le climat à la COP26

- Developed countries commit to doubling adaptation finance by 2025 from 2019 levels. A work programme is also launched for the period 2022-2023 to implement the global adaptation target.
- Make the need to protect ecosystems as sinks and reservoirs of greenhouse gases an inherent part of decisions.
- The reduction of fossil fuels, with the Parties committed to a "progressive reduction".

Beyond these targets, several announcements were made through coalitions to strengthen sectoral commitments: 13 new countries committed to achieving carbon neutrality, more than 100 countries (representing two-thirds of the world's economy and half of the top 30 methane emitters) agreed to reduce their methane emissions by 30% by 2030; more than 120 countries committed to halting and reversing deforestation by 2030; 39 countries signed an agreement to end foreign financing of fossil fuel projects not backed by carbon capture or storage by the end of 2022, with "clearly limited and defined exceptions consistent with the 1.5°C warming limit and the Paris Agreement". Finally, France, Germany, the United Kingdom, the United States and the European Union launched a new form of partnership for the just energy transition in South Africa, a country that has committed to decarbonise its electricity production and close its coal-fired power plants in exchange for $8.5 billion in financial support over the next three to five years.

c) European and French commitments

Each country or delegation that signs the Conferences of the Parties is required to implement the ambitions formulated at the international level at its local level. The EU and France have formulated their own targets in the fight against climate change. These targets require the deployment of substantial efforts in terms of energy efficiency, sobriety, transformation of production and consumption patterns as well as waste management so as to develop a more circular model.

Europe's commitments

On the EU side, the **"European Green Deal"** presented in **December 2019** formulated a goal of climate neutrality in 2050, making Europe the first continent to state this ambition, as well as a **reduction of at least 55% of the EU's net GHG emissions in 2030 compared with 1990 levels**. This pact is accompanied by an investment plan and mechanisms to support vulnerable households and businesses towards a just transition.

In **July 2021**, the European Commission presented the **"Fit for 55"** plan containing detailed measures to achieve the Pact's targets. These include[28]:

- Strengthening and extending the emissions trading scheme (ETS) to new sectors – aviation and shipping –, a faster reduction in the annual cap on covered emissions and the establishment of a new, separate emissions trading scheme for road transport and buildings.
- Setting or strengthening sector-specific emission reduction targets for sectors not covered by the long-established emissions trading scheme (buildings, road and maritime transport, agriculture, waste, small industries).
- The ambition to produce 40% of the EU's energy from renewable sources by 2030.
- The definition of a global target of carbon absorption by natural sinks
- An energy efficiency directive with binding annual targets

[28] EC.Europa.eu, press release on the European Green Deal (14 July 2021)

- More stringent rules on road transport: a 55% reduction in average emissions from new cars by 2030 and 100% by 2035.
- Aligning energy taxation with the targets of the European Green Deal, so as to better reflect their environmental impact and to put an end to exemptions that favour the use of fossil fuels.
- A carbon adjustment mechanism at the EU's borders that aims to apply the EU ETS carbon price to imports of certain products in order to combat "carbon leakage", in full compatibility with World Trade Organization rules.

France's commitments

In order to meet its international and community commitments, France has also committed to reducing its GHG emissions. It has formulated national ambitions in its *Stratégie Nationale Bas-Carbone* (National Low-Carbon Strategy).

Achieving carbon neutrality and reducing the French carbon footprint.

The **National Low-Carbon Strategy (SNBC)** is France's roadmap to curb climate change. Introduced by the Law of Energy Transition for Green Growth (LTECV) of August 2015 and revised a first time in 2019, its two main ambitions are to achieve carbon neutrality by 2050 and to reduce the carbon footprint of French consumption. To this end, it provides **guidelines to orient each business sector towards a sustainable transition**. In particular, it defines a **GHG emissions reduction trajectory up to 2050** and sets sector-specific targets defined over five-year horizons: **carbon budgets**. The SNBC will have to be revised to comply with the targets defined in the "Fit for 55" package.

The national low-carbon strategy is based on the "With Additional Measures" (*Avec Mesures Supplémentaires*, AMS) scenario, which takes into account public policy measures that would enable France to meet its climate and energy objectives. The project is all the more ambitious in that it **aims to achieve carbon neutrality without recourse to offsetting**. Within each business sector, intermediate targets are set for 2030: -49% for construction, -28% for transport, -19% for agriculture, -33% for energy, -25% for industry[29]. Regarding sources of emissions that cannot be reduced by 2050 (such as agriculture and industry, whose emissions will only decrease by 46% and 81%), the scenario recognises the importance of carbon sinks, which must be expanded.

The aim is also to **reduce emissions linked to consumption** of goods and services by the French, whether they are produced domestically or imported, including emissions from international transport. I**mports that replace domestic production mechanically increase the carbon footprint of the French**, especially when the product is **imported from a country** whose energy mix is **more carbon intensive** or which uses more polluting technologies (which is most often the case, given the low carbon emissions of the French electricity mix).

Measuring compliance with carbon budgets

The **carbon budgets** correspond to **thresholds of GHG emissions not to be crossed at the national level over five-year horizons**. They are aligned with the baseline scenario and with EU and international commitments. They are broken down by emissions sector, by business sector, by type of greenhouse gas and in indicative annual tranches. The first budget (2015-2018) was exceeded and it is projected the second (2019-2023) will be exceeded by 6%[30].

[29] Ecologie.gouv.fr, France's carbon strategy (October 2020)

[30] SNBC (March 2020)

Energy pathways induced by the SNBC

In order to put into practice the targets of carbon neutrality by 2050, RTE summarises energy pathway scenarios in its *Futurs énergétiques 2050* report[31].

- An essential review of the energy mix

  Fossil energies will have to be replaced by the development of decarbonised energies, mainly renewable and from biomass. This will also lead to an increase in electricity consumption (see Annex 1, Figure 8).

  There are two options to decarbonise energy: keep nuclear reactors in operation and develop renewable energies. To support the country's nuclear power installations, options include extending the life of second-generation reactors and, in the longer term, building new, third-generation reactors. According to RTE's projections, France's **nuclear power installations** will represent 16 GW in 2050. Even in a scenario of sustained development of nuclear power, however, the **development of renewable energies** is essential to ensure the supply of 645 to 750 TWh within 30 years, the amount of electricity necessary to **maintain national industrial capacity**. This will mean photovoltaic installed capacity of at least 70 GW and wind capacity of at least 65 GW.

  Electricity consumption will also **have to increase by 35% in 30 years**, i.e. by 1% per year on average. This would put electricity consumption at 645 TWh in 2050. The new uses of electricity will mainly be as a substitute for fossil fuels, particularly in transport, industry and hydrogen production. **Low-carbon hydrogen** could be used to decarbonise **sectors that are difficult to electrify** for technical or economic reasons, notably heavy mobility or some industrial sectors. Under the reference pathway, the electrical consumption associated with hydrogen would reach around 50 TWh.

- A decrease in total energy consumption thanks to greater efficiency and energy sobriety

  In 30 years, final energy consumption in France must be reduced by 40% according to the SNBC, which corresponds to a return to the consumption level of the late 1960s. This ambition implies a considerable improvement in the energy efficiency of buildings, transport and industrial processes, but also greater energy sobriety. The means to achieve better energy efficiency are mainly: technological progress allowing a decrease in the unit consumption of equipment (lighting, household appliances, computers, etc.), proactive public policies (such as for the thermal renovation of buildings) and the electrification of the economy (electric vehicles and heat pumps are more energy-efficient than thermal cars or fossil fuel boilers).

  Beyond energy efficiency, **energy sobriety** implies proactive approaches to housing (development of shared housing, limiting hot water and heating consumption), work standards (remote working and less IT equipment), transport (promotion of carpooling, lowering the average speed of traffic and reducing vehicle size) and industrial activities (less processed food, extending the life of installations).

[31] RTE, *Futurs énergétiques 2050*

1.2 A global industrial revolution that will require considerable investment

Abandoning fossil fuels, on which previous industrial revolutions were built, and achieving ambitions in the fight against climate change imply a **global industrial revolution**, in **all countries** and across all business **sectors**: **energy supply**, **products**, **services**, **agriculture**, **production processes** and **value chains**, **modes of consumption and uses**. It is about **transforming brown into green**, in all business sectors. This revolution will be based in part on technologies that are not yet mature or even that do not yet exist. It will require bold technological and financial gambles.

The pace of the overall transition will depend on the possible speeds of **transformation of the energy mix**, to be combined with the possible rates of transformation of **production processes** in each sector. It will also depend on the ability to manage the **social** and **geopolitical** aspects.

This last point is all the more crucial in that this global industrial revolution will be, at best, at **equivalent use value**. While previous revolutions brought about new modes of transport (train, car, plane, etc.), new tools (industrial productivity) and improved domestic comfort (household appliances, electronics, etc.), the carbon revolution will require switching to new energy sources, with more energy efficiency and sobriety and, on the face of it, no fringe benefits and possibly more restrictions.

The energy transition is the foundation of the carbon transition, and just a few sectors account for almost all of the carbon transition issues.

1.2.1 Key issues in the energy sector: reinventing energy

The energy transition must respond to a triple challenge: ensure increasing availability of energy at moderate costs, limit greenhouse gas emissions and ensure security of supply.

Demand for energy will continue to grow, under the combined effect of population growth – 2 billion additional inhabitants by 2050 – and the improvement of living standards: 800 million people in the world still do not have access to electricity. Overall, with a primary energy mix that is still 80% fossil fuel today, and with the prospect of doubling or even tripling electricity production, this implies a tenfold or even fifteenfold increase in the production of non-fossil fuel electricity. Energy use accounts for 70% of the world's greenhouse gas emissions and in the last 20 years, CO2 emissions have increased by more than 50%. The lull brought about by the health crisis was only temporary. Greenhouse gas emissions from electricity producers increased by 5% in the first half of 2021, exceeding the 2019 level. 57% of the growth in electricity demand was met by renewables, but the rest by coal-fired power plants.

What does **"reinventing energy"** mean? First, we must limit greenhouse gas emissions by improving the **energy efficiency** of all our activities. On the energy supply side, we need to **invest massively in renewable and decarbonised energies** (solar, wind, biomass, hydrogen, nuclear, etc.) by accelerating their deployment and investing in innovation. Reducing energy-related emissions also implies **proactive policies to change demand and consumption habits**, such as regulations to limit the use of fossil fuels or to increase their cost, for example by introducing an increasing carbon price. **Emissions from the use of fossil fuels must be reduced to a minimum** and **residual CO2 emissions must be neutralised** with solutions based on **nature (carbon sinks)** or **underground storage**. **By 2050**, none of the IEA scenarios, including the Net Zero 2050 scenario, **envisage the complete elimination of hydrocarbons**, even if they foresee oil consumption to be **reduced** by a factor of at least **three** (or even by **four** in the case of Net Zero 2050). This implies that

society as a whole – companies, research centres, the financial community, governments and civil society – **work together** to carry out this global revolution.

If we are to make this transition a success, however, we must also be pragmatic. The energy transition will take time and will require investments in the billions of billions of euros.

The transition – and its financing – will necessarily be gradual; **it will have to be organised and planned, with a target of achieving global energy efficiency**. Taking the example of Germany's energy mix, coupled with the country's decision to exit nuclear power, natural gas, despite being a fossil fuel, will still be needed for a relatively long transitional period (30-35 years).

Natural gas is an essential complement to the intermittency of renewable energies, while emitting half the CO2 of coal in the electricity generation process. This is all the more true for other countries that are still highly dependent on coal. Coal accounts for 45% of India's energy mix and for 60% of China's. It is the fossil energy to be eliminated in priority. Nuclear power is the other decarbonised means of continuous mass production of energy.

Turning to **France**, the **Multiannual Energy Programmes** (*Programmations pluriannuelles de l'énergie*, PPE) and the **National Low-Carbon Strategy** (*Stratégie Nationale Bas-Carbone,* SNBC), which date from April 2020, will have to be reviewed in the light of the revision of the European Green Deal, which has raised its CO2 emissions reduction target from -40% to -55% by 2030 (vs. 1990). On 14 July 2021, the European Commission presented the "Fit for 55" package, aimed at aligning regulatory texts with this new target. On 11 October 2021, the Minister for Energy Transition launched a consultation on France's future Energy-Climate Strategy (*Stratégie Française Energie-Climat,* SFEC). This consultation is to lead to a new law by July 2023. The SNBC and PPE will have to be updated within one year of this law. **RTE** (*Réseau de Transport d'Electricité*), the French electricity transmission system operator, published on 25 October 2021 the prospective study ***Futurs énergétiques 2050***, which analyses changes in electricity consumption. This study compares six electricity system scenarios that guarantee security of supply in order for France to benefit from low-carbon electricity in 2050. Achieving carbon neutrality by 2050 will require a massive electrification of uses. Even if energy consumption is to decrease, electricity consumption increases in all scenarios. The six scenarios range from 100% renewable energy in 2050 to a proactive development of nuclear energy, with the construction of 14 European Pressurised Reactors (EPRs), as well as small modular reactors (SMRs). Even in the latter scenario, a major expansion of renewables is required, with solar capacity increasing sevenfold and onshore wind power increasing by 2.5. RTE concludes that "a carbon-neutral power system can be achieved at a manageable cost".

France's main asset is its energy mix, one of the most decarbonised among developed countries, **thanks to its nuclear-based electricity production**. France is the country with the most nuclear reactors in the world in proportion to its population. With 56 reactors and installed capacity of 61 GW, nuclear power accounts for 70% of global electricity production. This carbon-free energy enables France to have a lower rate of emissions than other developed countries[32]. The total carbon footprint (balance of territorial, imported and exported emissions), which was 663 MtCO2eq in 2019, has been decreasing since 2010, but is still 50% higher than the territorial footprint (436 MtCO2eq) due to the continuous increase of imported emissions[33]. Thanks to nuclear power, **France's energy industry accounts for only 10% of emissions, compared with 29% for the EU-27 average**[34]. France also benefits

[32] France's emissions rate is 109 tCO2/million $ per unit of GDP, compared with 179 for Germany, 263 for the United States and 538 for China (Source: High Council for Climate)

[33] Source: High Council for Climate – 2019 figures

[34] 2018 figures - Source: Datalab (Ministry for Ecological Transition) - Other sectors: Transport 31%, Agriculture 19%, Service industry 18%, Industry 18%)

from other advantages: its geography, with a **long maritime coastline** enabling the development of **offshore wind power**, especially floating, and its proximity to Spain and the Maghreb countries for the development of solar energy. Finally, it is worth mentioning its excellence in research and engineering, with **global-sized**, **cutting-edge groups in the fields of the energies** of today and tomorrow, TotalEnergies, EDF, Engie, Air Liquide, supported by many industrial or service companies.

Most of France's **weaknesses** in energy matters are well known: **delay in the development of renewable energies**, especially offshore wind power, **slow administrative processes**, acceptability problems, the trauma of the yellow vest movement with regard to carbon pricing, **weakening of expertise** in certain key segments such as nuclear. Confidence in policy-makers has been weakened by the **unilateral calling into question** of former **feed-in tariffs** for solar power. This has fuelled mistrust of the government's long-term commitments to the sector. Another weakness is that **the issue of energy transition has so far not been addressed in a strategic way**. Rather, it has been approached from a legal perspective, through standards, regulations and constraints, without systematically examining their economic and social consequences. These include the recommendations of the Citizens' Climate Convention and the resulting Climate and Resilience Law. While the two visions, normative or strategic, are not mutually exclusive, it is essential that any normative movement be embedded in a concerted strategic framework.

France's targets must be clear. We must **reconcile economic growth** and **the climate challenge**; ensure the **security of the country's energy supply** while increasing its **energy independence**; use the ecological transition as **a lever to reindustrialise the French economy** and create jobs. For a country like France, whose CO2 production is very low compared with others, where one third of its carbon footprint comes from imports, achieving a successful energy transition means putting an end to offshoring wherever possible, and relocating and rebuilding its industrial power.

In terms of energy, the national transition scheme could be as follows:

- **Intensify the decarbonisation policy** through tax incentives, especially in buildings. But we must ensure that these energy savings translate into CO2 savings throughout the manufacturing chain. This sobriety of GHG emissions should be an objective in all sectors of the economy.
- **Diversify the energy mix** by developing new energies, which requires adapting the electrical system to manage intermittency and seasonality (controllable production - CCGT -, batteries, smart grids, flexible uses). By way of illustration, the French energy regulation commission (CRE), estimates that ENEDIS will have to invest €100 billion in its networks over the next 10 years.
- **Confirm nuclear power as a specific asset for France**. Renewing the country's nuclear power plants is a necessity, and the nuclear industry must be adapted to the capacity of new energies. We need to maintain expertise in technologies that could lead to new developments (SMR, XSMR, fusion, etc.). We are witnessing a rebound in civil nuclear power in a number of countries (54 reactors are under construction and 147 are planned, for a total of 442 reactors worldwide). China, Russia, the United States and India are structuring powerful national nuclear industries. France risks being left on the sidelines of this nuclear awakening. Finally, investment in the national industry is an absolute necessity for the safety and efficiency of the nuclear facilities in operation.
- **Confirm gas as an alternative energy source**, available, storable and flexible, to secure the national energy supply, in particular offset the risk of "all-electricity", and encourage its greening (bio-methane, bio-LNG). The volumes of gas withdrawn can represent more than 50% of consumption during cold snaps.
- **Support the increase in the price of carbon** and the extension of the scope of the European ETS while supporting the implementation of a carbon adjustment mechanism at the European

level. At the international level, support the emergence of a global carbon price, which would promote greater harmonisation[35].

- Display a high degree of **transparency on the allocation of carbon tax revenues** between (i) reinvestment in the energy transition, (ii) business incentives (subsidies or tax cuts) to promote reindustrialisation and (iii) support measures for the most vulnerable households.
- **Strengthen cooperation between public and private research** in the fields of decarbonisation. For example, create a body on the lines of the French Alternative Energies and Atomic Energy Commission (CEA) for the energy transition, a research facility focused primarily on the technological innovations of the future.
- **Support the implementation of new technologies** through tax incentives (preferably) or subsidies: CCS, hydrogen, bio-methane, charging stations, bio-fuels. This will help foster the emergence of national champions of the transition.
- Develop **cooperation between European companies**, in particular Franco-German, because France cannot carry this transformation alone.
- In terms of critical supplies, **contribute to creating European mining and metallurgical players of global dimension**, to develop deposits outside the European Union. Promote the development of a **battery recycling industry**.
- Promote the **export of low-carbon solutions and technologies** (transitional energies, including LNG) to developing countries, in particular via export credits.

1.2.2 Key issues in the four most polluting sectors

a) Transport

In Europe

Domestic transport accounted for 21% of total EU emissions in 2017 (820 MtCO2). One third of these are generated by Germany and France. By sector, 60% of emissions are from passenger cars, 25% from buses and trucks, 10% from light trucks and 5% from rail, aviation and domestic shipping. International transport emits 260 MtCO2e per year, an additional 5% of emissions. Without EU policy intervention, transport-related emissions are projected to increase by 30% by 2050 due to a 1.5% increase in activity each year until 2030, a pace that would decrease to 0.7% per year between 2030 and 2050[36].

Despite the growing interest in **electric vehicles**, they represent **less than 1% of cars**, **less than 1% of trucks** and **less than 5% of buses** in the European Union. Fossil fuels are still the norm for cars, as well as for planes and ships. Rail transport is more advanced on the path to decarbonisation, with 80 to 90% of the network being electrified.

To meet the EU's net-zero targets, **the transport sector must reduce its emissions by at least 30% by 2030 and by at least 95% by 2050**. The main levers identified by the McKinsey Net Zero Europe report include: switching to electric cars, buses and heavy goods vehicles (at least 80% of new cars must be electric by 2030 and 100% by 2035, at least 90% of buses and trucks used for short trips and 30% of HGVs used for long trips should use electric batteries or fuel cells...); improve energy efficiency (for cars, airplanes and ships, energy efficiency should increase by 10 to 30% in 2030); electrify all trains; encourage modal shift

[35] The price of carbon should be between €50 and €100 (according to William Nordhaus, Nobel Prize in Economics 2018), which represents, with regard to French emissions (including imported emissions), a cost of €45 to €90 per month per inhabitant (1.7% to 3.4% of all French income).

[36] McKinsey, "Net-Zero Europe, Decarbonization pathways and socioeconomic implications" (November 2020)

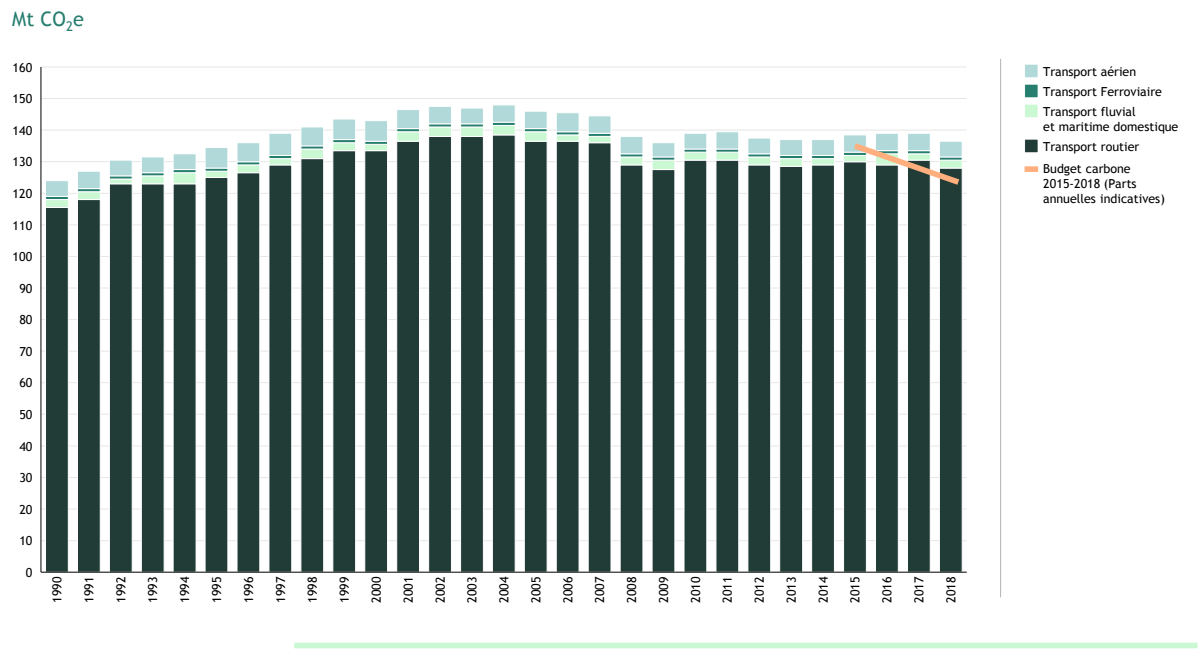
to lower-emission transport through regulation and increased consumer options (replacing planes and heavy goods vehicles with rail for passengers and goods).

In France

The **transport** industry accounted for **30% of French emissions** in 2017 (139 MtCO2e)[37]. These emissions are **increasing significantly**, up 11.8% between 1990 and 2017. The high level of GHG emissions from transport is largely due to the final energy consumed, 90.4% of which is fossil fuels[38].

Emissions from the transport sector overshot the targets of the first national low-carbon strategy, in part due to low energy prices in recent years and lower-than-expected fuel efficiency gains for new vehicles.

Figure1: GHG emissions from the transport sector since 1990 (MtCO2e)



Source: SNBC, March 2020, based on the CITEPA inventory of May 2019 in SECTEN format and at the Kyoto Climate Plan perimeter, data not corrected for climatic variations, building use phase only

The **national low carbon strategy** has set a **target** to **reduce transport sector emissions by 28% in 2030 compared with 2015**. Land, domestic maritime and river transport will therefore have to be fully decarbonised through **electrification** or the use of **decarbonised alternative fuels**. This implies the transformation of the **vehicle fleet**, the development of **infrastructure** for electric recharging and the distribution of renewable gases such as hydrogen or biogas. Energy efficiency and energy sobriety will also be necessary to achieve carbon neutrality (better energy performance of vehicles, optimisation of their use, etc.).

[37] Excluding international air and sea transport

[38] National Low Carbon Strategy (March 2020)

To achieve these targets, the **SNBC** suggests the following measures: offering incentive prices (through taxes and tariffs in Europe, by developing alternative fuels for air transport, etc.); setting clear targets consistent with those targeted for the energy transition of fleets; supporting changes in fleets for all modes of transport (targets for greening fleets, development of a network of high-powered recharging infrastructures and a network dedicated to alternative fuels); supporting local authorities and companies in the deployment of innovative measures (encourage use of bicycles, public transport, modal shift of freight traffic, etc.); controlling the increase in demand for transport (encourage remote working, open third places, develop shared mobility, short circuits and the circular economy, etc.).

From a legislative perspective, the **Climate and Resilience Law** enacted on 22 August 2021 following the Citizens' Convention for Climate includes a section dedicated to mobility. The main provisions taken are as follows[39]: encourage substitutes for individual car use and the transition to less polluting vehicles (stop sales of new passenger cars and light commercial vehicles using fossil fuels by 2040; strengthen the transition of the car fleet to less emitting vehicles – by 1 January 2030, passenger cars emitting less than 95g CO2/km should represent at least 95% of new passenger car sales; support the purchase of clean vehicles, biofuels for heavy vehicles, bicycles and electric bicycles; support local authorities in the creation of cycling infrastructure on their territory to meet the SNBC's targets of 9% modal share of cycling in 2024 and 12% in 2030; greening public vehicle fleets...); improve road freight transport and reduce its emissions (changes in fuel taxation, doubling of rail freight and a 50% increase in river transport by 2030); involve residents more closely in the actions of authorities organising mobility; limit air transport emissions and promote intermodality between train and airplane (increase the modal share of passenger rail transport by 17% by 2030 and 42% by 2050; ban scheduled domestic flights when a rail alternative of less than 2.5 hours is available, this by the end of March 2022).

b) Buildings

In Europe

Direct emissions[40] from buildings accounted for 13% of greenhouse gas emissions in Europe in 2017 (490 MtCO2e). 70% of these emissions came from residential buildings, while 30% came from commercial buildings[41]. It should be noted that these figures are underestimated because they do not cover indirect emissions, which are the highest in the sector (notably due to new construction). Emissions per square metre are higher in Germany, Poland and the Benelux countries due to their colder climates and higher use of fossil fuel-based heating. In residential and commercial buildings, most energy is used for heating and hot water (70%), with the remainder is used by appliances (15%), lighting (5%), cooking (5%) and air conditioning and other uses (5%). While the proportion of energy used for heating and hot water could decrease in the future as the efficiency of heating technologies improves, the proportion of energy used for household appliances could increase if people buy more small electrical appliances and devices.

To meet its climate targets, **the EU will need to reduce emissions from buildings by 29% by 2030 and 100% by 2050**. Most of this reduction could be achieved by retrofitting and

[39] Law No. 2021-1104 of 22 August 2021 on combating climate change and strengthening resilience to its effects

[40] Emissions from combustion from boilers and cooking appliances. Indirect emissions such as the production of electricity used for household appliances or construction-renovation are excluded from the scope.

[41] McKinsey, "Net-Zero Europe, Decarbonization pathways and socioeconomic implications" (November 2020)

replacing heating systems in existing buildings, which will still account for 75-90% of EU real estate in 2050. An effective way to reduce the amount of GHGs emitted from buildings is to reduce demand for heating.

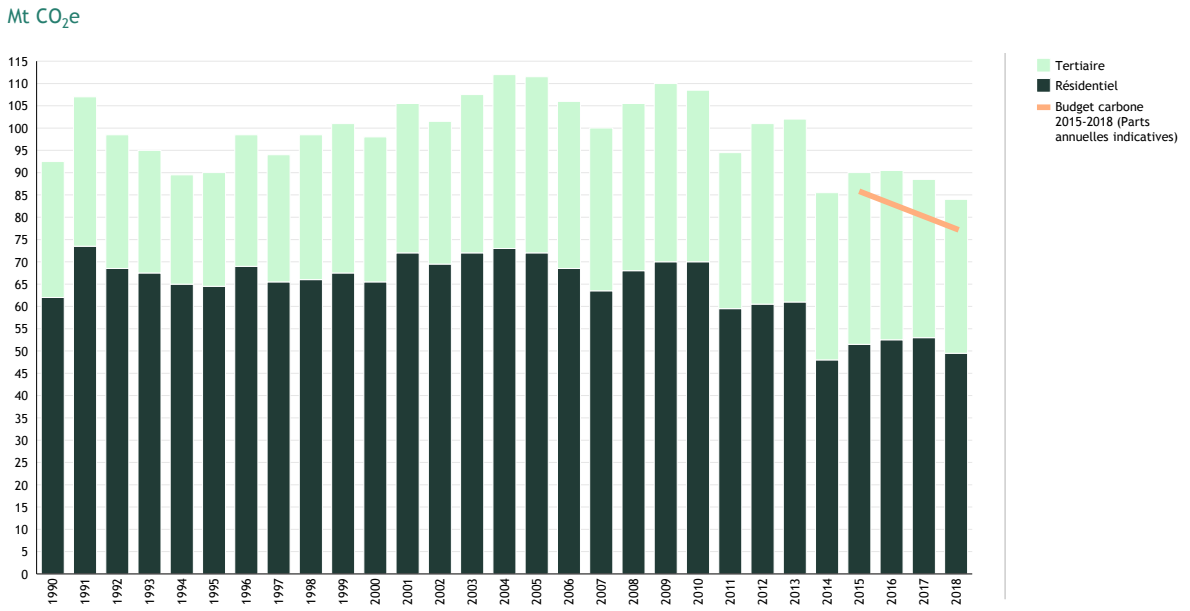
Improving building insulation and installing heat control systems can reduce heat demand of poorly insulated homes by up to 80%, depending on the type of building, insulation measures and climatic conditions. To decarbonise the remaining energy consumption, home-owners should switch to electricity, district heating, and renewable fuels for heating, hot water, and cooking.

In France

On a national scale, the **building** sector accounts for **19% of direct emissions and 27%**[42] **of indirect GHG emissions**[43]. Looking at the trend in emissions, they only decreased slightly between 1990 and 2017 (-3.1%), the around 14% decrease in residential emissions having offset the 19% increase in tertiary emissions. The **building** industry remains, **alongside transport, one of the most polluting sectors**, in particular **new building construction**, which **represents on average 70% of the carbon footprint of the building industry in France over a 50-year life span**.

This means that footprint management policies, which until now have focused on the energy efficiency of building operations, must be extended to the construction phase (including major renovations and end-of-life phases) if we are to substantially reduce buildings' carbon footprint.

Figure 2: GHG emissions from the building sector since 1990 (MtCO2e)



Source: SNBC, March 2020, based on the CITEPA inventory of May 2019 in SECTEN format and at the Kyoto Climate Plan perimeter, data not corrected for climatic variations, building use phase only

[42] National Low Carbon Strategy (March 2020)

[43] Indirect emissions take into account the energy production consumed by the building but not construction-renovation.

The building sector is lagging behind the targets set by carbon budgets, leading to a risk of exceeding both national and European 2030 targets. Emissions will therefore have to be significantly reduced in the short term, with the SNBC aiming for a **49% reduction in emissions in 2030 compared with 2015** and a complete decarbonisation of the sector by 2050. The main guidelines suggested by the SNBC to achieve these targets are: decarbonisation of the energy mix of existing and new buildings (with incentives and price signals, introduction of GHG criteria in public policy instruments in addition to the energy efficiency criterion, financial aid for heat pumps, biomass, etc.); renovation of the entire existing building stock to achieve an equivalent average BBC (low-consumption building) level for the entire stock (which will require public and private investments and therefore adequate incentives); increasing the energy performance levels of new buildings in future environmental regulations and changing construction methods by integrating more energy-efficient, bio-sourced and recycled materials.

In terms of legislative developments, the French **Climate and Resilience Law** proposes a wide range of measures to renovate buildings and reduce energy consumption, notably the introduction of a new energy performance diagnosis; the obligation to conduct an energy audit when selling a property; the prohibition of rent increases for energy-inefficient housing (classified as F and G); the obligation to implement a multi-year work plan in residential buildings, and the definition of "efficient energy renovation" and "comprehensive efficient energy renovation" to serve as a standard for financial aid schemes for energy renovation of housing.

More recently, the **French regulation RE2020** came into force on 1 January 2022, replacing the previous thermal regulation (the last one in force was RT2012). This regulation is now environmental and not just thermal. Its main innovation is to set **requirements for the building's carbon emissions over its entire life cycle, including construction**. In addition, the regulation includes specific requirements in terms of heating methods (ban on oil-fired boilers in new housing from this year). The entire construction, building materials and property development industry is changing its processes to integrate carbon into all its products and activities.

c) Heavy industry

In Europe

Almost half of the industrial emissions (46%) in the European Union come from heavy industries such as cement, steel, ethylene and lime production (524 MtCO2e)[44] as well as hydrogen or ammonia production. Almost **half of CO2 emissions are related to the production processes**, which require a high level of heating (for instance, steel production requires temperatures of 1,800°C). Eliminating emissions from heavy industry therefore requires not only changing the raw material, but also rethinking the production process.

To reach the EU's net-zero target, total emissions from industry would have to be reduced by nearly 40% by 2030 and by about 96% by 2050. Because industrial equipment often has a life span of more than 50 years, **efforts** to reduce emissions should focus on **modernisation** or **rebuilding of existing sites**.

Conversions include **changes in production process** at 25% of sites, such as converting coal-based steel production sites into pre-reduced iron ore-based production sites, installing carbon capture equipment at 20% of sites, switching to bio-energy fuels at 50% of sites to generate negative emissions, switching to alternative fuels (bio-energy, electricity, hydrogen) at 36% of sites, substituting products such as construction cement with cross-

[44] McKinsey, "Net-Zero Europe, Decarbonization pathways and socioeconomic implications" (November 2020)

laminated timber (CLT – cf. challenge of converting the building sector) or new plastics replaced by recycled products.

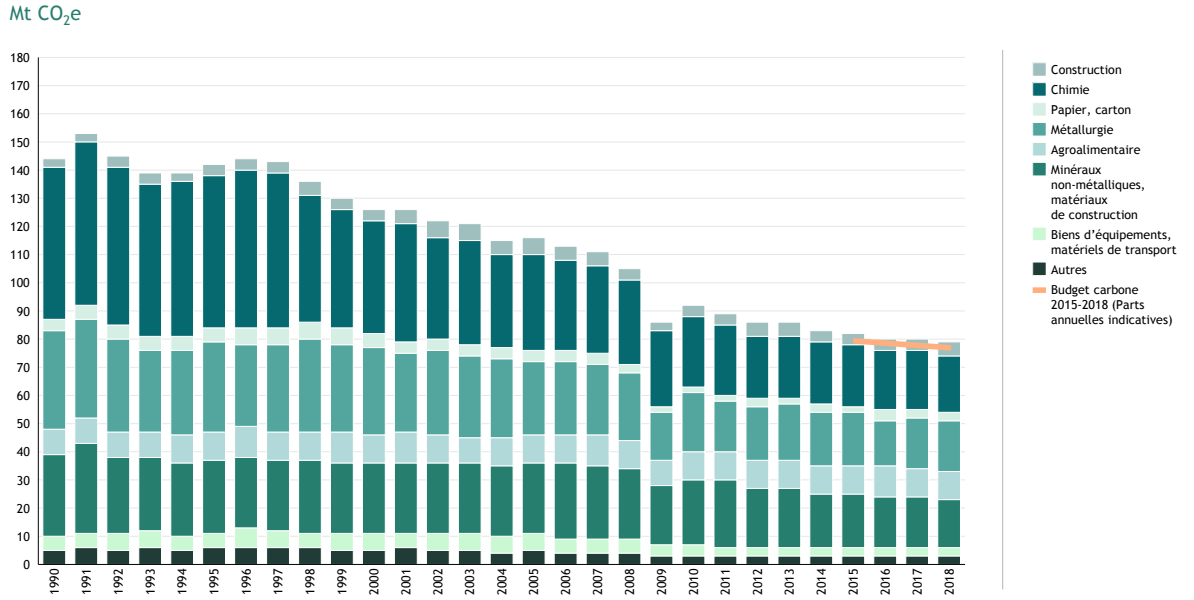
The main levers identified by the McKinsey Net Zero Europe report are: the use of bioenergy and/or carbon storage for cement, ammonia and part of steel production (reduction of 200 MtCO2e per year); the electrification of processes and heat production (145 MtCO2e); the use of bioenergy as a fuel and raw material in all sectors (103 MtCO2e); the use of hydrogen for steel production and part of ammonia production (195 MtCO2e); reducing consumer demand for emission-intensive industrial products such as cement and plastics (15 MtCO2e).

In France

The **industry** sector as a whole emitted 81 MtCO2e in 2017, which represents approximately **17.4% of total French emissions**. Despite this high level, **emissions decreased by 44% between 1990 and 2017**. These emissions include on the one hand, those resulting from the **combustion of energy required for industrial production** (**64%** in 2017) and on the other hand, those linked to **industrial processes** (**36%** in 2017).

CO2 is the main GHG emitted by industry and comes mainly from the minerals, metallurgy and chemical industry (89.7% of GHGs in 2017). Next come hydrofluorocarbons, mainly from refrigeration processes (6.4% of GHGs), nitrous oxide (2.6% of emissions) and other gases such as hydrofluorocarbons, methane and sulphur hexafluoride (1.3%)[45].

Figure 3: GHG emission trends in MtCO2e for the industry sector



Source: SNBC, March 2020, based on the CITEPA inventory of May 2019 in SECTEN format and at the Kyoto Climate Plan perimeter, data not corrected for climatic variations, building use phase only

The SNBC aims to reduce emissions from industry by 25% in 2030 compared with 2015, and by 81% in 2050. Achieving total decarbonisation would be a challenge because the processes that would allow zero emissions to be achieved in certain sectors do not exist or are not

[45] National Low Carbon Strategy (March 2020)

very mature (cement production, primary metallurgy, fluorinated gases, chemical processes, production of mineral products), but the remaining 19% will have to be offset by carbon sinks. The three main strategic focuses of the SNBC are[46]: supporting companies in their transition to low-carbon production systems and the development of new industries; initiating the development and adoption of breakthrough technologies to limit or even eliminate residual emissions (low-carbon hydraulic binders for cement, hydrogen reduction processes applied to the steel and chemical industries, batteries, industrial heat pumps, carbon capture and storage units, etc.); encouraging the control of energy and material demand, with a focus on low-carbon energy sources and the circular economy (eco-design, optimising product life cycles, reducing packaging, improving and modernising equipment, incorporating recycled materials into products, increasing reparability, recovering waste heat on industrial sites, intensifying the carbon price signal, etc.).

On the legislative level, the main measures in force are: **implementation of energy saving certificates**, obligation to carry out an **energy audit every four years** (French law on the energy transition for green growth, or TECV, of August 2015); target of 32% of renewable and recovered energies in France's energy mix by 2030 (TECV Law); increase in the number of renewable and recovered heat production facilities and the development of related heating networks, supported by the heat fund managed by ADEME; **strengthening of the European Union Emission Trading Scheme (EU ETS) from 2021 onwards: in order to increase the pace of emissions cuts, the overall number of emission allowances will decline** at an annual rate of 2.2%, compared with 1.74% previously (French players are subject to this system); reform of the mining code by the Climate and Resilience Law of August 2021 (sets the conditions for granting and extending exploration and exploitation permits for mines, quarries - sand, stone, gypsum - and hydrocarbons, with the players held responsible for the environmental consequences of their activity); a proposed **carbon adjustment mechanism at the EU's borders on the most polluting imports** to bring them into line with the rules applied to European production under the "Fit for 55" plan published in July 2021 (would initially concern five major sectors: **steel**, **aluminium**, **cement**, **fertilisers** and **electricity**).

d) Agriculture

In Europe

In 2017, **the agricultural sector** produced 470 MtCO2e, or **12% of the EU's emissions**[47]. This makes it an essential sector in the carbon transition, especially as it has the particularity of being able to generate CO2 capture and sequestration. Half of agriculture's emissions come from cattle and other **livestock (55%)**, followed by **crop production (30%)** and energy used for agricultural activities **(15%)**. In animal protein production, 65% of GHG emissions come from enteric fermentation, a natural part of animal digestive processes that produces methane, and manure management. In crop production, 50% of GHGs come from synthetic fertilisers, the rest from organic soils and crop residues. Emissions are distributed among the EU member states according to their relative share of livestock and crop production.

Reducing agricultural emissions is particularly difficult for three reasons: first, most come from **natural processes** that existing technology cannot fully reduce (such as enteric methane emissions from cows). Second, **changes** must be brought about **at a very decentralised level**, since more than **10 million farms** would have to change their practices. Finally, **agriculture must find a balance between the multiple objectives** of **production**, **animal welfare**, and the preservation of **biodiversity** and the **socio-cultural and landscape**

[46] National Low Carbon Strategy (March 2020)

[47] McKinsey, "Net-Zero Europe, Decarbonization pathways and socioeconomic implications" (November 2020)

heritage. The EU is therefore unlikely to achieve net zero agricultural emissions by 2050, but CO2 emissions can be eliminated, while nitrous oxide and biogenic methane can be significantly reduced. In order to meet the targets, the report suggests that the EU could reduce emissions from agriculture by one-third by eliminating emissions from farm energy use and reducing emissions from animal protein production by 26% and from crop production by 27%.

To this end, the priority actions identified are the switch to zero-emissions farm machinery; the implementation of anaerobic digestion systems to convert manure into biogas; the improvement of animal feeding; the adoption of GHG-focused breeding and genetic selection programmes; and the use of more efficient fertilisers and variable-rate fertilisation[48].

Concerning **carbon sequestration**, the European Commission has initiated **the development of a regulatory framework** to measure and value farms' carbon sequestration and storage capacity. This framework will be proposed by the end of 2022 with the objective of developing carbon storage in agricultural soils and the deployment of industrial solutions to absorb carbon from the atmosphere[49]. This is a priority of the French Presidency of the European Union.

In France

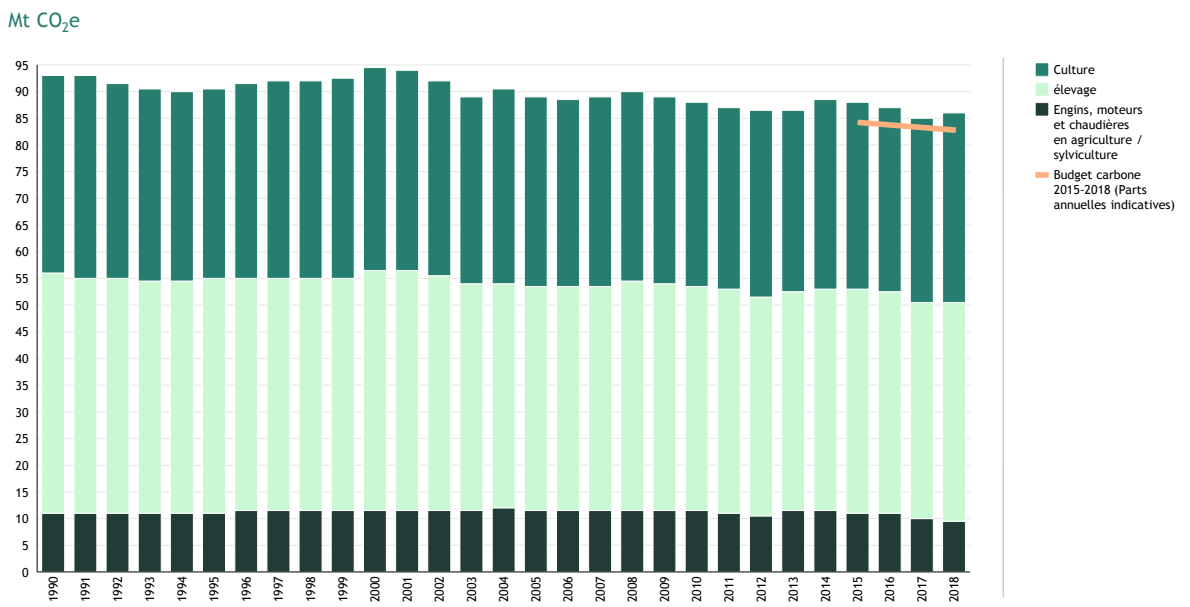
Emissions related to the **agricultural sector** represented **18.5% of total GHG emissions** in France in 2017, or 86.0 MtCO2e. They decreased slightly between 1990 and 2017 (-7.6%)[50]. Emissions break down between **energy consumption** (**11.2%**), methane emissions from **livestock** (**44.8%**) and nitrous oxide emissions from **nitrogen fertilisation** (**42.6%**)

[48] Consists of adjusting the amounts of nitrogen fertiliser applied from one area of a field to another based on GPS guidance

[49] European Commission, press release (15 December 2021)

[50] National Low Carbon Strategy (March 2020)

Figure 4: GHG emission trends in the agriculture sector since 1990 (MtCO2e)



Source: SNBC, March 2020, based on the CITEPA inventory of May 2019 in SECTEN format and at the Kyoto Climate Plan perimeter, data not corrected for climatic variations, building use phase only

It is estimated the 2015-2018 carbon budget will be slightly overrun (by 2.4%), calling for stronger commitment by public and private players towards the sector's decarbonisation.

The **SNBC** sets a **target for an 18% decrease of the sector's emissions in 2030 compared with 2015** and of **46% in 2050**, excluding agricultural soils whose emissions and absorptions are accounted for in the land sector (LULUCF). The guidelines defined to achieve this are the use of **agro-ecology** and **precision agriculture** (optimisation of the nitrogen cycle to reduce nitrogen surpluses, improved management of livestock effluents in buildings, limitation of enteric fermentation by adjusting animal feed), the **development of renewable energies** to replace fossil fuels, the **production of carbon-free energy** (methanisation of livestock effluents or unused plant production in particular) and the development of the **bioeconomy** (with, for example, the diversification of liquid biofuel production), the **cessation of carbon depletion from agricultural soils** and the reversal of this trend, the influence of demand in the agri-food sector in connection with the National Food and Nutrition Programme (PNAM).

Among recent initiatives, **France is beginning to structure a market for agricultural carbon credits**. The France Carbon Agri association, created in 2019, has already produced 600,000 tonnes of carbon credits and FNSEA, the main French farmers' union, is launching a similar platform with Young Farmers (Jeunes Agriculteurs, JA) and the Chambers of Agriculture (APCA). In addition, the government is standardising the profile of agricultural carbon credits with a specific "**low carbon label**", on the agenda of the French Presidency of the Council of the European Union. Furthermore, the Climate and Resilience Law limits the possibility of building new shopping centres on agricultural land to **avoid soil artificialisation** and introduces a mandatory vegetarian menu once a week in school canteens.

1.2.3 Considerable investments to be made

In order to achieve the objectives of the green transition, the industrial transformations to be carried out will require **considerable investments** in research and modification of products and industrial processes, as well as **write-offs of existing assets**. These investments must be made quickly and be **concentrated over the next ten years**. They are likely to produce their carbon effects only gradually and will be associated with **high uncertainty in terms of returns**, due to significant technological and operational risks. Finally, investments in new means of energy and industrial production as well as in R&D must be coupled with **investments in current energy and industrial production systems** in order **to ensure a smooth transition**. The public authorities' commitment alone will not be enough and financial institutions have a major role to play in mobilising private financial flows and channelling them towards the climate transition. Conversely, financial institutions and market mechanisms alone will not be sufficient to finance the carbon revolution without coordination and support from governments.

a) At the global level

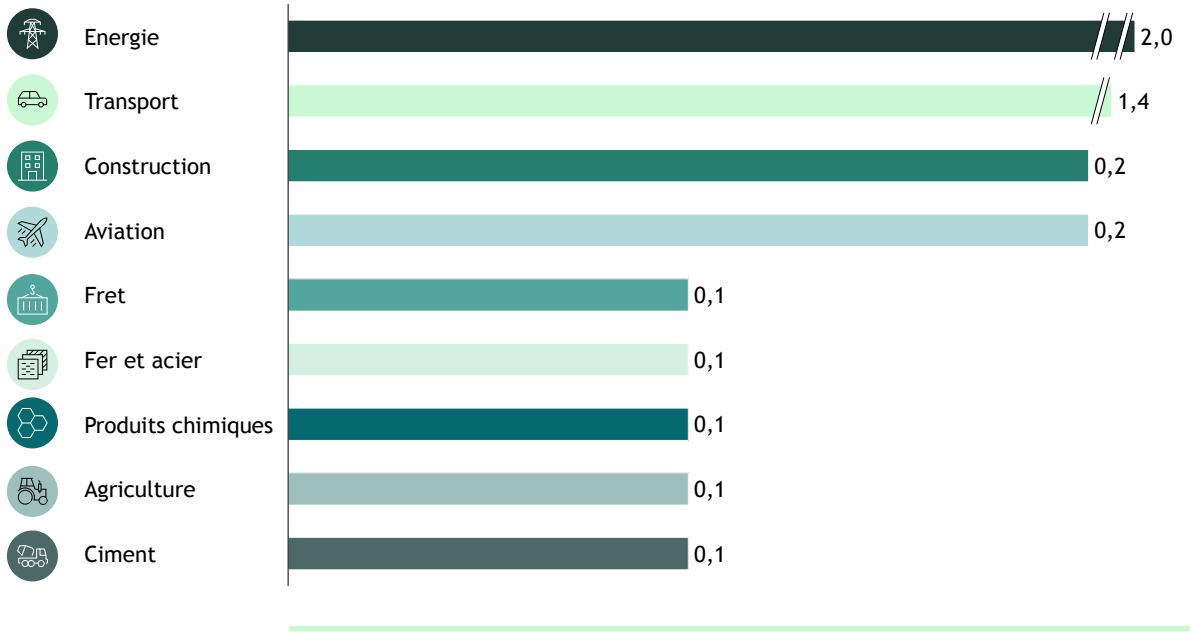
The September 2021 **Autonomous Report** estimated **funding needs of $3-5 trillion per year between 2020 and 2050**. This is equivalent to a level 6 to 8 times higher than the current amounts of green financing, estimated at $600 billion per year. The report details these investment needs by subtracting the portion that consists of replacing legacy carbon-intensive activities. It then infers an estimated net additional financing requirement of $2.3 trillion per year for the period. In light of these financing needs, the report estimates that loans for the transition need to increase by 60% over 30 years.

This corresponds to a **15% increase in the volume of total annual global financing** ($15 trillion) and a **280% increase over the current volume of green financing** ($0.6 trillion per year)[51].

The financing needs assessed will be directed mainly towards **energy** and **transport**. Estimates put them at $2 trillion for energy, $1.4 trillion for transport, $0.2 trillion for construction, $0.2 trillion for aviation, $0.1 trillion for shipbuilding, $0.1 trillion for iron and steel, and $0.1 trillion for chemicals, agriculture, and cement (see Annex 1, Figure 22).

[51] Autonomous Report, Global Banks, Climate Risk: The Green Growth Opportunity (September 2021)

Figure 5: Breakdown of green transition funding to 2050 (based on $3-5 trillion per year, without deducting replacements for existing green and brown projects)



Source: GFMA/BCG

b) At European level

The European Commission has made estimates for the period 2021-2030 in its sustainable finance strategy. According to the EC, Europe will need €350 billion in additional investment per year over the 2020s to meet its 2030 emissions reduction target in energy systems alone. On top of these €350 billion, €130 billion of additional investments per year will be needed to achieve the other environmental targets that Europe has set.

McKinsey's Net-Zero Europe report also outlines estimates for 2050, giving a figure of $28 trillion in investments needed by 2050 to reach the goal of carbon neutrality. By sector, this investment breaks down as follows:

- **Transport: $11.8 trillion** for investments in electric vehicles, recharging stations, hydrogen distribution networks, battery chemistry.
- **Construction: $8.4 trillion** for heat pumps, solar thermal technologies, hydrogen boilers, energy efficiency certification, insulation work.
- **Infrastructure: $3.8 trillion** for hydrogen pipelines, carbon capture and storage infrastructure, renewable cell facilities, airport refuelling stations.
- **Energy: $2.5 trillion** for battery storage, hydrogen power plants, renewable energy plants, renewable energy transmission lines.
- **Agriculture: $0.94 trillion** for carbon sequestration facilities, microbiome technology, methane capture, perennial row crops.
- **Industry: $0.35 trillion** for electric cracking furnaces, oxy-combustion systems, hydrogen reducers, carbon storage infrastructure, bio-based fuels.

Funds already committed at European level, with European banks among the most active

Within the framework of the **Next Generation EU programme**, **€750 billion** of funds have been made available to EU member states. **The largest component of this financial package** is the **Recovery and Resilience Facility** (RFF). The RFF aims to support the green and digital transition of countries in the aftermath of the Covid crisis through **€310 billion** in **grants** and **€250 billion** in **loans**. It is projected that about **37% of these funds**, or about **€191 billion**, will be **invested in the green transition**. Among the investment projects planned: the decarbonisation of industrial processes, the deployment of new renewable energy projects (urban solar panels, shared storage), the development of hydrogen, the electrification of urban transport, including the installation of one million recharging stations for electric vehicles[52].

It is worth noting Europe's **lead** in terms of sustainable investments. The EU accounted for **80% of green bond issuance in 2020**. Furthermore, the Autonomous Report positions **European banks** as **leaders** in climate risk management. However, the majority of them do not yet meet the ECB's supervisory expectations. The report highlights the efforts still to be made. Among them, the need for banks to tighten their requirements regarding investments in fossil fuels, with 25% of investments still carbon intensive, better define the scope of green investments, align with a common communication model for their investments in fossil fuels, provide more information on the integration of green investments into risk management and link CEO bonuses more closely to climate factors[53].

c) In France

The carbon budget targets call for doubling investments in the green transition from their 2018 level.

The **investment needs under the SNBC** amount to **€46 billion per year** for the second carbon budget (**2019-2023**) and **€64 billion per year** for the third carbon budget (**2024-2028**). The Institute for Climate Economics (I4CE) estimates the level of public and private investment for the ecological transition at €45.7 billion in France in 2018. While this represents a 17% increase over three years, it is still insufficient to meet carbon budget targets. An additional €15-18 billion per year would be needed to meet the ambitions of the second carbon budget (2019-2023), and an additional €32-41 billion per year is required to meet the third carbon budget (2024-2028). The additional investments required concern buildings (€2-8 billion per year), transport (€9-23 billion per year), and energy and electricity networks (€5-10 billion per year).

In order to achieve carbon neutrality, significant public and private funding is therefore required. **Some of the investments required correspond to expenditures that would have taken place independently of the targets**, such as housing construction or renewal of the vehicle fleet.

[52] European Commission; The Pillars of Next Generation EU

[53] Autonomous Report, Global Banks, Climate Risk Report: The Green Growth Opportunity (September 2021)

The challenge therefore lies mainly in the **net increase** of financing as well as the **redirection** of funding harmful to the climate towards the sustainable transition. The 2019 Panorama shows in particular that of the €22 billion in annual investments needed for electric vehicles under the third carbon budget, the additional cost compared with a fleet composed entirely of thermal vehicles is only €4 billion per year[54].

Figure 6: Investment needs under the SNBC (in €bn/year)

	2019-2023	2024-2028	2029-2033	2034-2050
Bâtiment	14	18	22	28
Transports	21	36	52	85
Énergie et réseaux	11	10	11	13
Total	**46**	**64**	**85**	**126**

The France Relance recovery plan includes €30 billion of investments for the green transition over two years.

In September 2020, the government launched the France Relance plan with the objective of reviving the national economy after the Covid crisis and building the France of 2030. This plan includes a budget of €100 billion (€40 billion of funds from the EU Next Generation EU recovery plan and €60 billion from national funding[55]) to be invested over two years.

The ecological part of the plan provides for a budget of €30 billion for the green transition. The Ministry for Ecological Transition listed **several priority projects** when announcing the plan[56]:

- Energy-efficient renovation of existing buildings (€6.7 billion)
  - Extend the *MaPrimeRénov* scheme to renovate poorly insulated private housing
  - Rehabilitate public buildings to improve thermal efficiency
  - Rehabilitate social housing
  - Incentives for the energy renovation of very small enterprises and SMEs

[54] National Low Carbon Strategy (March 2020)

[55] Government website, Construire la France de demain – Les piliers de France Relance

[56] France Relance press kit (Thursday 3 September 2020)

- Decarbonise the industry sector (€1.2 billion)
    - Enable companies to invest in low-emission industrial processes (electrification of processes currently using fossil fuels, etc.)
    - Support companies in their energy investments by offsetting the additional cost of carbon-free energy compared with fossil fuels
- Develop everyday mobility (€1.2 billion)
    - Create bicycle lanes and secure parking spaces
    - Develop rail services in urban areas, improve existing transport services and create new routes
- Implement a support plan for the railway sector (€4.7 billion)
    - Modernise the busiest railway lines, improve service in more sparsely-populated localities and connections with urban areas
    - Improve the quality of infrastructure in railway stations, especially for disabled passengers
    - Develop freight transport to improve logistics services for companies and logistics platforms
- Develop **green hydrogen** (€7 billion)
    - Support projects related to green hydrogen (subsidise R&D projects for decarbonised solutions using hydrogen, etc.), especially water electrolysis
    - Launch a European project (Important Projects of Common European Interest, IPCEI) to develop and industrialise hydrogen-based solutions
- Support biodiversity, agricultural transition, avoid land artificialisation (€2.5 billion)
    - Launch a fund to finance brownfield recycling operations
    - Encourage the conversion of farmers to agro-ecology with support for "High Environmental Value" certification, develop short circuits and regional food projects, provide financial support for the renewal of agricultural equipment to reduce the use of plant protection products
    - Finance ecological restoration projects in the French regions

1.2.4 Geopolitical and social consequences need to be controlled

Insofar as this **industrial revolution** will affect the entire economy, in the context of an **open world economy**, the success of its implementation will depend on the proper coordination of the **climate target** with the targets related to the **security of supply**, **industrial competitiveness** and **technological sovereignty**, while controlling the **social consequences**.

a) The geopolitical dimension must be taken into consideration

Security of supply. During the transition, we must continue to meet all the needs of our fellow citizens – energy, food, mobility, housing – while avoiding the cuts that are beginning to characterise some highly developed geographies (Germany, California, etc.).

The energy transition implies an increase in electrical demand linked to the change of energy in uses (new buildings, electric vehicles, etc.). The "Fit for 55" targets will require **doubling electricity production in Europe**, while the development of renewables implies a **higher variability of production**. This situation will therefore lead to heavy **investments**, both in

solutions allowing **flexibility** (controllable production of electricity, control of consumption) and in **transmission and distribution systems**. A strengthening of interconnections between European countries will be essential. In some countries, notably France, land availability will strongly constrain the development of renewable energies (wind, solar, industrial biomass).

Security of supply is also essential when it comes to **commodities**: nickel, lithium, cobalt, copper, gallium, platinum and the seventeen rare earth elements have become strategic because they are the essential commodities for manufacturing batteries, electric vehicle motors, electronics in general, but also wind turbines and solar panels. The scarcity of these resources can be explained by China's industrial strategy, with very low prices that have forced several countries (United States, Australia, Chile, etc.) to stop production due to lower profitability. The European Union, heavily dependent on Chinese, African and South American suppliers, has published an inventory of "critical" **commodities** every three years since 2011. Phasing out fossil fuels is leading us into a **metals economy** and Europe must control the supply channels.

The security of supply targets is part of a geostrategic context of **exacerbated competition**. The temptation remains to offshore our new productions to meet urgency and competitiveness requirements (as was the case for solar panels), which would lead to the weakening of our industry and accelerate the rise of more carbon-intensive countries with lower social standards. The energy transition is a global battle in which each player will seek to gain an advantage. **Each country will want to use the energy transition** as a lever to **improve its economic and geostrategic position**. Achieving the energy transition as a principle of industrial transformation means giving ourselves the means to remain among the leaders. To fail would mean being relegated and no longer in a position to influence global choices. Given France's relatively good energy and industrial carbon footprint, failure to do so would also mean failure in the global decarbonisation race. It seems essential to work on this so as to be in a position to influence the structuring of new energy-intensive value chains.

Tomorrow's energy world could be more diverse in terms of energy sources and new modes of energy transport could emerge.

Against this backdrop, and while countries will not have the same transition rates, it is essential to provide mechanisms to preserve **European and French competitiveness**. The European Union wants to set an example with the Green Pact. This knock-on effect is beneficial but must not lead to a further loss of competitiveness of the European economy due to a sharp rise in energy costs. The **Carbon Border Adjustment Mechanism** (CBAM), intended to fight against carbon dumping, if implemented, will only solve the problem for the sectors covered and for imports. To avoid weakening the industry on the continent, it is essential to avoid excessive regulatory, negative and exclusionary approaches leading to maximalist transformation requirements and higher financing costs. I**ndustrial groups must also be supported in keeping up with trends in the global market**, failing which it will learn to do without European suppliers. For example, if Europe places too great an imposition on its carmakers to move out of thermal engine cars, which will nevertheless remain the overwhelming majority in the rest of the world in the short to medium term, then their place will be taken by other carmakers, leading to a weakening of European groups and job losses, without any gains for the global carbon footprint.

Preserving competitiveness is also important in preserving the necessary **sovereignty in terms of technology**: many technological breakthroughs are needed, especially in energy storage and intelligent network management. Technologies represent an essential gateway to position our exports on the international scene, and to position France in the major markets of the energy transition.

Decarbonisation is a global challenge and lies above all in the decarbonisation of **developing countries**. Developed countries will make an essential contribution and this aspect must be integrated into their strategies. It is in developing countries, in the countries that are currently the most carbon-intensive, that marginal gains in carbon emissions will be the easiest to achieve and the most significant, and therefore where each euro invested will be the most effective. Given its history and geography, **Europe has a special role to play in accompanying Africa in a decarbonised development**.

b) Important social consequences that will have to be controlled

Social acceptability has **three aspects**: (i) **rising energy costs** (especially for the most vulnerable households), (ii) the creation of inequalities between **winners and losers of the transition** (e.g. in the automotive industry), (iii) the **NIMBY** (Not In My Backyard) **syndrome** that is emerging, particularly in France but also in Germany or Italy, with protests against wind or solar projects.

Changes in jobs and qualifications

The industrial revolution of the 19th century brought about considerable and well-known social upheavals, with agricultural workers becoming manual workers. The **ecological transition** implies a **transformation of the entire economy in record time**, with potentially significant social costs. These costs will have to be well controlled and integrated into the organisation of the transition. Successful transformation relies on **human capital** and the ability to engage employees and citizens in the **collective effort**. In particular, employment must be a "driver of decarbonisation" rather than an "adjustment variable" (Shift Project).

The transition must therefore be accompanied by **public policies** but also by **corporate and industrial policies** that accompany and support the transformation of skills, within a given company, region, sector and also between sectors.

The Shift Project proposes a sectoral assessment – excluding possible macroeconomic closure effects – of the necessary reallocation of human resources to meet the new needs arising from the climate transition: if we consider the **eleven sectors (4 million jobs) most directly affected by decarbonisation** (transport, housing, agriculture, industry, etc.), estimates are for moderate net growth in labour demand by 2050 (+300,000 jobs), but with significant job creation (+1.1 million) and destruction (-800,000) depending on the sectors and functions within a given industry.

- Job creations would be most significant in agriculture, with nearly 500,000 additional jobs, due in particular to the relocation of fruit and vegetable production (+366,000) and the widespread adoption of agro-ecological practices (+133,000). Assuming a change in consumer behaviour, with a shift towards more local produce, employment in animal product processing and trading would decrease (-79,000).
- The **automotive industry** would be **the sector most affected** by the loss of labour, with **300,000 jobs destroyed** due to industrialisation, while a more widespread adoption of electric vehicles would result in around 20% fewer jobs in the automotive repair sector. Behind this figure lie several assumptions whose effects could partially offset each other: (i) a decline in car use, meaning fewer sales and less production; (ii) a relocation of car production to France; (iii) development of battery manufacturing in the country, and installation and maintenance of an adequate network of recharging infrastructures.

Figure 7: Estimated labour requirements after sector decarbonisation

Secteur	Emploi actuel	Emplois créés	Emplois détruits	Emploi après transformation	Évolution nette	Dont aval
Agriculture et alimentation	1 453 000	+ 541 000	- 90 000	1 904 000	+ 451 000 (+ 31 %)	- 90 000
Forêt et bois	171 000	+ 34 000	- 4 000	201 000	+ 30 000 (+ 18 %)	Non évalué
Ciment et béton	45 000	-	- 17 000	28 000	+ 17 000 (+ 37 %)	Non évalué
Industrie automobile	875 000	+ 61 000	- 373 000	563 000	+ 312 000 (+ 35 %)	- 178 000
Industrie du vélo	19 000	+ 232 000	-	251 000	+ 232 000 (+ 1 221 %)	+ 187 000
Fret	465 000	+ 127 000	- 130 000	462 000	- 3 000 (- 1 %)	Non évalué
Mobilité longue distance (dont industrie ferroviaire)	123 000	+ 44 000	- 38 000	129 000	+ 6 000 (+ 5 %)	Non évalué
Logement	889 000	+ 103 000	- 189 000	803 000	- 86 000 (- 10 %)	Non évalué
Administration publique	4 460 000	-	-	Stable	-	N/A
Santé	2 653 000	-	-	Stable	-	N/A
Culture	291 000	-	-	Stable	-	N/A
= **TOTAL**	**11 444 000**	**+ 1 442 000**	**- 841 000**	**11 745 000**	**+ 301 000 (+ 2 %)**	**-**

Source: The Shift Project, "L'emploi : moteur de la transformation bas-carbone" (Jobs: driving the low-carbon transformation), December 2021

Achieving the transition will require **adapted skills**, therefore implying a **systemic need for initial and continuous training**. If we take the example of the energy renovation of buildings, the existence of a competent workforce to carry out this work is a prerequisite for the successful implementation of public policies to support renovation. Another example is the integration of environmental factors into each financial decision, which necessarily involves training each employee in the challenges of the energy and climate transition throughout the various links of the financial institution (from the fund manager to the chief executive, and from the front office to the finance department and the risk department).

In addition, several aspects of the climate transition will lead to **strengthening local management of employment needs**: installations, management and maintenance of renewable energy production sites (solar, wind, biomass, bio-fuels and, more generally, decentralising the energy and electricity production structure); improving thermal performance and reconfiguring housing and buildings; strengthening short distribution circuits and logistics, lower productivity of agricultural production, as mentioned in the Shift Project report.

As underscored by the above-mentioned figures – which are purely illustrative and must be considered with caution given the difficulty of the exercise – social transformation will require companies and public authorities to adopt strengthened training mechanisms. Existing mechanisms can already be used to help workers retrain. One example is the **European Globalisation Adjustment Fund** (EGF), created in 2007 to support workers who have been made redundant as a result of trade liberalisation.

The **state** will play a **central role in steering the long-term transformation of employment** by sector and between sectors, and this climate transition must be planned in a way that favours employment. The climate transition can either create or destroy jobs, depending on the options chosen for planning and implementing it. **In order to create jobs, the transition must integrate the issues of the country's competitiveness and sovereignty**: if we decide in the name of ecological transition to stop producing carbon-intensive industrial materials on French territory, for instance aluminium, which has a significantly reduced carbon footprint compared with that of rival producers in the East or the Middle East, then global CO2 emissions will not have decreased, they will even have increased as a result of substitution, while a significant social employment problem will have been created in France, as well as a problem of sovereignty and security of supply for an essential product. **The guiding purpose of our economy's transformation** must be a **sustainable decrease in global greenhouse gas emissions**, not a unilateral decrease in France with no positive impact on the global climate target.

Social acceptability of the measures taken for the country's energy transformation will be **key** to **staying the course of the transformation**. The transition must be accompanied by supportive measures.

Purchasing power

The constraints imposed on the productive sector by the integration of the carbon externality and the massive transformation investments to be made can ultimately only be borne by the **consumer**, the **taxpayer** or the **shareholder**. For example, an industry that has to bear the costs of accessing more expensive decarbonised energy will have to pass on these costs to its shareholders, through a reduction in its margins and lower profitability, to its customers, through an increase in its prices, and to the taxpayer if it benefits from state support. As indicated by various stakeholders interviewed during the mission, the current challenge for companies is not to find private funds to finance their green projects, but to be able to ensure that these projects are sufficiently profitable and financially justify the resources committed by the company. At the heart of the equation is the **company's ability to pass on its increased costs to the consumer**. This reality varies, of course, depending on the sector, the value chain and the product, and also on the region. From a political and efficiency point of view, it seems necessary that a clear **price signal** be **sent to consumers** to engage them in the necessary changes in behaviour.

The price increase will not be **borne equally** depending on the **social category** and the **consumption habits**. Let's take two examples, **cars** and **housing**. People living in rural or peri-urban areas, who own an older, more polluting car, essential for both their professional and personal use, and who have no alternative means of mobility, will be harder hit by the increase in fuel prices, the car's loss in value and the need to invest in a new one. The same holds true for housing and its thermal performance. A logic of asset devaluation and

obligation to invest will make these populations relatively more vulnerable than urban, affluent populations, with better quality assets, housing and mobility alternatives, and more means to bear the costs of the transition. **Mechanisms to support** the most vulnerable consumers and those hardest hit by price increases will be essential, as shown by the recent social tensions over electricity and gas prices.

Intergenerational equity

According to INSEE figures published on 17 December 2021, **France's public debt** as defined in the Maastricht Treaty stood at about **€2,850 billion**, or about **116% of GDP**, at the end of the third quarter of 2021. This massive debt accumulated by the last generations **does not include the colossal investments required by the climate transition**, and yet this is the primary challenge of the 21st century. This poses the question of equity between generations, not only in terms of emissions (the next generation will inherit the state of the planet, the depletion of natural resources and the reduced leeway caused by global warming), but also in terms of the level of debt to be shouldered.

This implies **specific products** and **financial** mechanisms and adequate carry. The investment required is over the **long or even very long term**, when the financial markets think in terms of ten-year investments at most. Getting central banks involved and setting up public-private mechanisms seems inevitable.

1.3 A new political economy to be put in place

Achieving the carbon transition will require all the players involved to concur on medium- to long-term policies and strategies involving considerable financial costs and major industrial changes. **Governments**, as well as the European Union, play a decisive role with public policies; **companies**, in particular industrial companies, will be the ones to find and implement new technological solutions; the **financial system** must find the keys to the best possible allocation of resources to facilitate the transition. Concerted action by governments and the financial system will be essential to meet the huge financing needs. Governments will also play a key role in arbitrating the distribution of the financial burden between stakeholders – consumers, taxpayers, shareholders – as well as between generations.

1.3.1 Governments, companies and the financial system must be aligned

The scale of the changes that will be brought about by the energy and industrial transition implies an **increase in the role of the state:** many aspects of the transition are a matter of public policy, with the need to coordinate players, and constant trade-offs between the CO2 target, sovereignty issues and social issues. The aim is to **transform the economy and lifestyles**.

a) Governments act through public policies

This includes **standardisation policies**: standards applying to goods and services, such as those aimed at encouraging the development of electric cars or those modifying the insulation, heating and carbon balance requirements for buildings, for example; accounting standardisation as well, with French legislative developments on transparency and reporting in non-financial matters over the past 20 years and the work under way in Brussels.

The government also plays a decisive role through **industrial policies**. Given the scale of the energy and industrial changes to be carried out in just over a decade, **concerted planning** seems essential: planning the evolution of the **energy mix** as well as of some **major industries**, with notably elements relating to budget, taxes, support and research organisation. The Hydrogen Plan dovetails with this logic, as does the announcement of the revival of the nuclear industry or the intent, together with the other Member States, to strengthen Europe's security of supply in electronic components.

The government also acts through the **land use planning policy**, which is central to the development of renewable energies, but also to the socially acceptable management of industrial change, for transport – in particular trade-offs between air, road and rail – and for housing. Here too, concerted planning with companies, financiers and between the national, European and local levels seems essential.

Finally, the government sets **taxes**, whether at the national or community level: carbon tax for example, multiple taxes or excise duties contributing to send a price signal on carbon to the various economic players.

The **carbon tax** is a powerful fiscal instrument. An ideal scenario, as called for by Nobel Prize winner Jean Tirole, would be the implementation of a global carbon tax (the IMF also proposes a global carbon price floor, differentiated according to countries' level of development); this would be the most relevant and effective scheme. Given the low probability of such a scenario materialising, another solution would be a European carbon pricing, both domestically and at Europe's borders. The European emissions trading system

(EU ETS) already provides an interesting price signal, but it is less clear than the carbon tax, and moreover restricted to a few business sectors. However, the carbon tax can only be considered **combined with a border adjustment mechanism**, in order to avoid carbon leakage to countries without equivalent carbon pricing and/or climate dumping by our trading partners. The revenues from carbon pricing should also be used to fund **support mechanisms for the fragile European populations hardest hit** by the price increases it implies. These revenues could also be used for public investments or subsidies related to the climate transition. In any case, clearly defining the conditions for the budgetary use of such a tax helps make it more socially acceptable.

b) Companies will make the transition

Companies will be responsible for designing and implementing the **technological solutions capable of reducing the economy's carbon emissions** and adapting it to the consequences of climate change. Most major groups have now put climate change at the heart of their industrial strategy. In some cases, particularly in the four most carbon-intensive sectors, this can be a matter of survival for a company. It must **adapt its business model** and reinvent its **products**, **its manufacturing processes**, which implies a reallocation and often (but not systematically) an increase in its investments, a **reconfiguration of its upstream and downstream value chain**, as well as **investments in human resources**.

Examples include the aeronautics industry, which must find solutions and develop new products to decarbonise air transport, and the steel and cement industries, whose products should remain similar, but whose production must be decarbonised.

Up until now, a company's economy was essentially based on managing two scarce resources, capital and cash, to make the best investments for the shareholder. Today, these constraints also have to **integrate** the **carbon externality**, **a new scarce resource**. The company has to manage an externality that usen't to be an externality. Several large groups have already set up arbitration and management mechanisms based on one or more internal carbon prices or on "carbon budgets" built into the company's management.

c) The financial system plays a role as an allocator and an influencer

Financial institutions have a **dual role to play**, both supportive and **incentive**, through engagement with companies and the **allocation** of funding and capital resources at the best cost. Like companies, financial institutions, banks, asset managers and insurers, must integrate the carbon externality into their balance sheet management. This implies implementing carbon budgets at the level of lending and investment portfolios, i.e. systematically **integrating** the **carbon** dimension in **lending and investment decisions**. The financial system must also **adjust the cost of capital** according to the current and anticipated CO2 performance of issuers/borrowers. In the same way that cost of capital is allocated according to the risk/return ratio, the cost of capital must now be adjusted with premiums or discounts for investments; **credit spreads** for loans must be adjusted according to the relevance and credibility of companies' carbon strategies. Some groups have already adopted this type of mechanism. For all players, a **new vision of the company** is required, with a **new accounting system**, an **alternative appreciation of value** and **new analysis standards**.

The analysis of companies' carbon performance is central to these mechanisms for managing the carbon externality through the financial system. As with financial analysis, which includes an assessment of current and future performance, carbon analysis must be both static, in terms of carbon emissions to date, but also and above all dynamic and forward-looking, in terms of carbon trajectory (stated ambitions, management methods and execution capacity, etc.). It is this analysis that should allow the comparative carbon

assessment of companies and the corresponding adjustment by the financial institution of a clear price signal: the cost of the loan or capital according to the carbon performance. For both companies and the financial system, it is in fact a carbon accounting plan that is being developed.

The financial sector also has a **key role to play in supporting and driving change** through **engagement** with companies: constant dialogue, sharing of best sector practices, advocating the presentation of climate plans to shareholders (Say on Climate), technical and financial support for the implementation of internal carbon management systems.

Generally speaking, the challenge of the energy and industrial revolution will require an innovative political organisation, along the lines of **reconstruction or war economies**, in which **planning** and the **coherence of players** and policies is the priority. It will take coordination between companies, the financial system and the state to design and implement the measurement and analysis tools that will underpin this new political economy, but also to authorise and organise the **permanent trade-offs required by the transition**.

1.3.2 A necessary financial innovation to provide the required resources

The considerable amounts of investment will not be met by public budgets alone. The current debt levels and the progressive tightening of monetary policies make it difficult for governments to commit to a budgetary implication equal to the financial stakes of the transition.

At the same time, the long maturities of the investments to be made, the concentration of these investments over the next 10 to 15 years and the strong technological uncertainties mean that despite abundant liquidity and long-term savings, the private sector will not be able to finance the transition alone. If we consider the development of the "green debt" market (green bonds and green loans), for example, it has been spectacular in recent years, rising from €113 billion in 2017 to €478 billion in 2021[57], i.e. a fourfold increase, but this is still very marginal compared with the total corporate debt market, and we should also note that "responsible debt", based on ESG criteria and not just green criteria, is developing far more quickly. The McKinsey report on finance and the climate transition also points out that the commitments of the 47 largest banks included in the Autonomous Report amount to $970 billion, admittedly a large amount but way off the $3 to $5 trillion in financing needs between now and 2050.

Solutions will undoubtedly be found in **innovative mechanisms** combining **long-term visibility** provided by the state (for example on energy purchase tariffs), **public guarantees**, total or partial depending on the case (essential for converting long-term savings, currently invested in risk-free products not allocated to the carbon transition), or other **risk-sharing mechanisms** likely to involve investors with high prudential requirements (pension funds being a case in point).

1.3.3 How can the cost of the transition be spread?

The energy and industrial transition associated with the fight against climate change cannot be achieved without **citizen engagement**, which implies ushering in new products and services. But the **additional value in use** will most likely be **minimal**, perhaps **nil** or even **negative**. Unlike the previous industrial revolutions, which brought new means of communication, greatly improved domestic comfort and productivity gains thanks to cheap,

[57] Source: Dealogic, Crédit Agricole CIB Sustainable Banking (February 2022)

abundant energy, the carbon revolution aims at transforming the existing economy in order to make it more sober and ultimately reach net zero emissions. Cars will be electric, airplanes will be hydrogen-powered, buildings will be made of bio-based, recycled or decarbonised materials, in one way or another. But they will still be cars, planes, houses and buildings. Most transition scenarios propose sobriety in energy consumption and a shift from ownership to use. The transition will also generate, at least initially, an increase in energy prices and in the price of other products (under the combined effect of additional energy costs and changes in industrial processes). Recent fluctuations in electricity and petrol prices have shown the extent to which the state will have to **compensate** the transition's impact on prices, at least for the **most affected and vulnerable populations**, and introduce social support policies.

Given the level of **mandatory contributions** in France (and this also applies to Europe as a whole in comparison with other major economic zones), it seems difficult to make the taxpayer bear a large part of the transition's cost. It is also difficult to increase the **corporate tax burden**, which is already very high compared with our partners, not to mention the investment burden that companies will have to shoulder in a context of uncertain returns on investments (linked in particular to technological uncertainties) and fierce competition. However, players must be sent clear price signals. As mentioned above, the most feasible pathway would appear to be a carbon price at least partially based on products and consumption, with a carbon adjustment mechanism at the European Union's borders and accompanying social measures.

The investor-shareholder is the other player who could bear part of the transition's cost through a decrease in the return on capital. It seems logical, once the carbon externality is included, that this should result in a lower return on capital.

All in all, if the **cost of the transition** is to be **distributed in such a way as to win the support and commitment of all the players**, it will have to be allocated between the **consumer** (by a price signal that modifies behaviours and uses), the **taxpayer** (i.e. the country as a whole), and the **capital owner**, because if you integrate the new carbon externality, you cannot legitimately expect a 15% ROE or IRR.

This **distribution** of the burden linked to the climate revolution must also be considered **from a long-term perspective**, **over several generations**. We have to usher in an overall transformation of economies and societies, intended to preserve the planet and acceptable living conditions for the greatest number of people, for the long run. From this perspective, the investments made in the next two decades could justifiably be amortised over a much longer period, for example 50 to 100 years. Given the public debt that has already accumulated, the brunt can hardly be borne by just one generation. This would be unacceptable to the generation currently in power. It would be unfair to pass on this cost to the next generation, who will not accept it either. It would seem both more realistic and more equitable to spread the costs over at least three generations.

Finally, the climate revolution must be addressed on a global level. Efficiency would dictate that we collectively focus investment on those sectors and regions where cost-effectiveness would be highest in terms of decarbonisation. Together, China, the United States and India account for half of the world's emissions, Europe for 9%. This does not exempt Europe and France from a duty to act and even to set an example, but it does imply finding ways to allocate a significant proportion of resources to **converting the economies and infrastructures of developing countries**. In this respect, in light of its history, geography and demographic prospects, Europe has a special role to play vis-à-vis Africa.

Clearly, the **trade-offs** to be made are eminently **political** and **can only be decided in consultation**. Some fundamental guidelines have already been decided or are in the process of being decided: at the European level, the notion of "just transition" included in the Green Deal, the strengthening and extension of the European carbon market and the development of a border adjustment mechanism; at the international level, the commitment to release $100 billion per year for the carbon transition in developing countries. These are simply early considerations on the overall distribution of the transition's costs and this will have to be studied further.

CHAPTER 2

A normative framework under development to build a new political economy

2.1 Summary

Building the new political economy presented in the previous chapter requires tools to measure, analyse and manage the externality of climate change: in short, a new accounting system must be put in place at the level of companies and the financial system, and common analysis standards must be developed. At present, these normative frameworks are not stabilised.

The EU taxonomy provides a benchmark based on a classification of the environmental impact of specific economic activities. This "dictionary" of sustainability sets out common standards to monitor progress to decarbonisation, **but is still little known to companies and the financial sector, and as a result interpretations for its use diverge**. In particular, two construals of the taxonomy coexist: a static approach, which aims to channel financing towards activities considered green under this classification; a dynamic approach, which aims to allocate financing towards companies whose CO2 emission reduction trajectories are both sufficiently ambitious and credible. The taxonomy defines the criteria and thresholds to be achieved by each sector, without specifying the trajectory for achieving these targets.

In terms of non-financial reporting, regulatory obligations have existed in France since 2001 for companies and since 2015 for financial institutions. This French framework has been influenced and complemented by a **standardisation of non-financial information initiated at the European level by the CSRD, the central element of which is the development by EFRAG of European reporting standards for companies; and by SFDR, which introduces specific transparency obligations for financial institutions**, specified by ESMA technical standards. At the international level, **the IFRS Foundation is committed to the development of minimum climate standards**, while the CSRD takes a broader scope that also covers other environmental aspects as well as social, societal and good governance considerations. **It will be essential to ensure interoperability between the European and international reporting frameworks, through reciprocal convergence between these standards on the climate segment**: EFRAG will have to actively integrate international work in the development of the European standard, and the IFRS will also have to rely on European work to build the international standard, bearing in mind that Europe is the most advanced jurisdiction in terms of sustainability analysis and ESG engagement of public and private players. Both the European framework and the IFRS initiative are based on the TCFD recommendations, which has already allowed a certain comparability and even convergence between the prototype standards published by EFRAG in September 2021 and by the IFRS Foundation in November 2021. **That said, these non-financial reporting standards, both European and international, will remain broad-based and will require further discussion in the financial centre in order to define the terms of application sector by sector, particularly for the measurement of Scope 3 emissions.** Following the example of the TCFD, private initiatives have emerged to specify the methodologies underlying the calculation of indicators, cases in point being the GHG Protocol and the Partnership for Carbon Accounting Financials (PCAF).

There is an even greater diversity of frameworks in the field of analysis standards. These are determined by (i) a number of private-dominated initiatives that have developed methodologies – for example PACTA, SBTi, ACT or TCFD; (ii) international coalitions such as the Glasgow Financial Alliance for Net Zero, which provides for the setting of targets and the development of trajectories for its members; and (iii) the financial ecosystem composed of rating agencies or index providers, which guide financial decisions around the world. These analytical frameworks are very heterogeneous and they are not regulated. Analytical standards are fundamental to rating, and thus to the cost of capital and the reallocation of financial flows.

Regulatory work on this subject is in its infancy, with no real developments expected to date – apart from a European regulation set to be introduced in 2023 to provide a framework for non-financial rating, but which should not, on the face of it, legislate on the methodologies themselves to avoid curbing innovation in this relatively immature field. Most of the stakeholders interviewed for this mission expressed the need to define common standards, bearing out the need for the financial market to reflect on how to make progress in developing these frameworks. The standardisation of analysis methods will be essential in bringing the ecosystem (rating agencies, index providers, etc.), financial institutions and companies in alignment and in providing a common language that allows for effective and constructive dialogue between these players on the key criteria for assessing a company's performance in terms of CO2 management.

As for financial products (excluding credit portfolios), a growing body of regulation is developing, including: reporting obligations introduced by the SFDR regulation, which also defines so-called Article 8 and Article 9 products; the AMF frames the right to communicate on ESG matters (for example, a product can only be called "green" or "sustainable" if it meets a number of criteria); public standards and labels are being developed (European green bond standard; European Ecolabel; French SRI and Greenfin labels). In particular, a profusion of labels has appeared throughout Europe, making it essential to have more coherence and precision in the French and European ecosystem.

2.2 EU taxonomy as a dictionary of sustainability

2.2.1 What is the EU taxonomy and how is it constructed?

The EU taxonomy extends beyond the sole issue of climate transition management and provides a **definition of what is an "environmentally sustainable" economic activity** (i.e. "green"), through a classification system of economic activities.

The taxonomy lays out six objectives (two climate-related, four environmental):

- 1: Climate change mitigation
- 2: Climate change adaptation
- 3: The sustainable use and protection of water and marine resources
- 4: The transition to a circular economy
- 5: Pollution prevention and control
- 6: The protection and restoration of biodiversity and ecosystems

Two delegated acts will define the criteria for determining if economic activities are aligned with each of these six objectives: the first delegated act on the two climate objectives (mitigation, adaptation), was adopted in December 2021, and the other act (in preparation) on the four other environmental objectives. Some activities, which are relevant for several of these objectives, will therefore feature in several delegated acts, one example being transport with electric vehicles (less CO2 emitted during the life cycle + less air pollution from the exhaust).

An economic activity is considered "green"/"taxonomy-aligned" if that activity:

i. **provides a substantial contribution to one or more of these six objectives.** If we take the example of the "mitigation" delegated act (objective 1), it specifies the thresholds and criteria specific to each economic activity to define whether that economic activity can be considered aligned with the "mitigation" objective.

ii. does not materially harm any of the other climate or environmental objectives listed above. This "material harm" is defined by the delegated acts for each of the objectives, according to criteria and thresholds (quantified or not, depending on the objective and the activity). This point corresponds to the "Do No Significant Harm (DNSH)" principle.

iii. is carried out in compliance with minimum social safeguards.

In short, to be aligned with the taxonomy, an economic activity must be sustainable in the sense of one of the six objectives, not harm any of the other five objectives and meet minimum social safeguards.

Based on these objectives, the taxonomy defines three kinds of economic activities:

- **"Green" activities** that are already sustainable and compatible with a net zero CO2 economy by 2050.
- **Activities that contribute to the transition to a net zero economy**: an economic activity for which there is no technologically and economically feasible low-carbon alternative in the short or medium term, but which will no longer be considered sustainable by 2050 (e.g. gas).
- **Activities that enable emissions reductions:** an activity that "directly enables" other activities to make a substantial contribution to one or more of the taxonomy's objectives, provided that this economic activity (i) does not result in a lock-in of assets that undermine long-term environmental objectives, taking into account the economic life of those assets; (ii) has a significant positive environmental impact based on life-cycle considerations.

In order to ensure that **economic activities that contribute to the transition** remain on a credible transition pathway, consistent with a climate neutral economy, the Commission must **review** the criteria set out in the delegated acts **at least every three years** and, where necessary, amend the delegated acts in the light of scientific and technological progress.

2.2.2 Sectors considered in the EU taxonomy (climate delegated act)

In relation to the specific framework of the climate transition, the taxonomy considers those economic activities that can make the most significant contribution to the two objectives under consideration, i.e. those activities that are most relevant to reducing greenhouse gas emissions and improving climate resilience. These include the sectors that contribute the most to CO2 emissions (energy, manufacturing industry, transport, buildings), as well as the activities that enable their transformation. This is the case, for example, of the manufacturing, energy, transport and building sectors (see complete list in Annex 1, Section 2.1.2).

The taxonomy therefore covers the economic activities of about 40% of listed companies with more than 500 employees, in sectors that are responsible for nearly 80% of direct greenhouse gas emissions in Europe. In future revisions of the delegated acts, other economic activities may be included in the taxonomy. Stakeholders will be able to notify the Sustainable Finance Platform of activities they consider should be included in the taxonomy. Initial estimates suggest that only 5% to 10% of European economic activity is now aligned with the taxonomy.

2.2.3 Reporting obligations associated with the EU taxonomy

Taxonomy reporting applies at two levels:

- At the level of financial products, according to a specific field defined by the SFDR regulation;
- At the corporate level (including financial institutions), which are subject to the 2014 Non-Financial Reporting Directive (future Corporate Sustainability Reporting Directive, currently being discussed).

a) At the level of financial products:

The Sustainable Finance Disclosure Regulation (SFDR) defines several categories of financial products, in particular:

- Article 8: financial products that promote environmental and/or social characteristics
- Article 9: financial products that have sustainable investment as their objective.

Under the taxonomy, **an Article 9 financial product will be required to disclose**: (i) information about the objective of the taxonomy to which the investment underlying the financial product contributes; (ii) a description of how and to what extent the investments underlying the financial product will be made in economic activities aligned with the taxonomy. **An Article 8 product must include the following statement in its pre-contractual information (KIID) and periodic reports:** *The "do no significant harm" principle applies only to those investments underlying the financial product that take into account the EU criteria for environmentally sustainable economic activities.* The investments underlying the remaining portion of this financial product do not take into account the EU criteria for environmentally sustainable economic activities.

For financial products that are not subject to either Article 8 or Article 9, the statement should read: "*The investments underlying this financial product do not take into account the EU criteria for environmentally sustainable economic activities.*"

b) At the corporate level:

Companies subject to the NFRD (large listed companies with more than 500 employees) must disclose:

- The proportion of their revenue derived from products or services associated with economic activities aligned with the taxonomy.
- The share of their capital expenditures and the share of their operating expenditures related to assets or processes associated with economic activities aligned with the taxonomy.

A delegated act known as "Article 8" (of the taxonomy regulation) adopted definitively in December 2021 specifies the content and presentation of the information to be published by companies, including the methodology to be followed in order to comply with it, taking into account the specificities of both financial and non-financial companies, as well as the criteria of the six delegated acts that define the taxonomy.

Note that the scope of companies covered by these taxonomy reporting obligations will change when the CSRD replaces the NFRD. The CSRD provides for a broader scope: any company listed on a European regulated market (including non-EU companies; including SMEs, except microenterprises); any large non-listed company. A large company is defined by the accounting directive as meeting at least two of the three criteria: total assets of more than €20m; net revenue of more than €40m; more than 250 employees. In practice, **the NFRD covers around 11,000 European companies compared with 49,000 for the CSRD**.

2.2.4 EU taxonomy development process

The taxonomy regulation led to the creation of a **Sustainable Finance Platform**. According to European law, this platform is composed of:

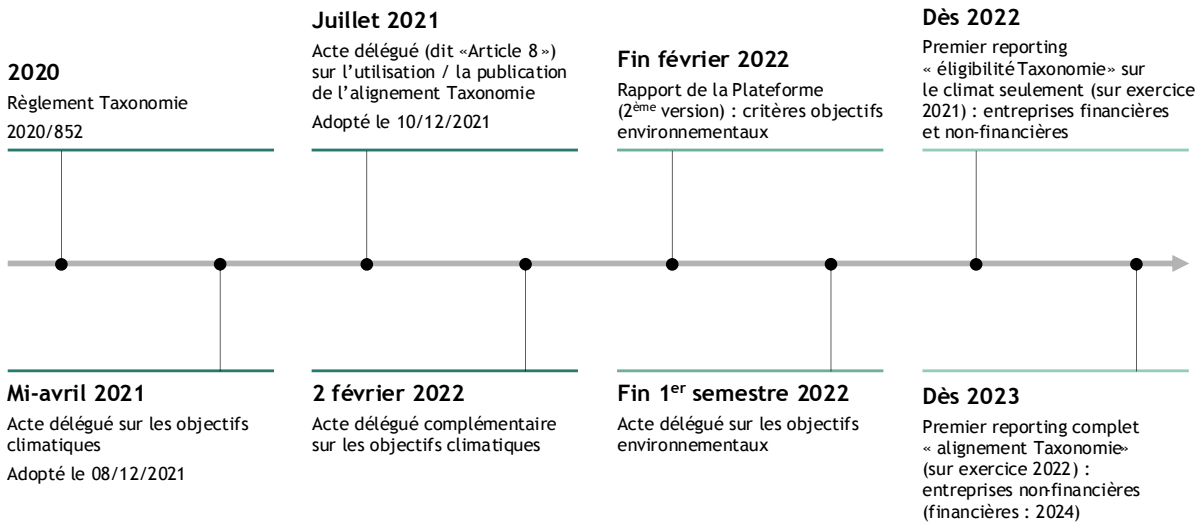
- The European Environment Agency; the European Supervisory Authorities (EBA, EIOPA, ESMA); the EIB and EIF; the EU Fundamental Rights Agency.
- Experts representing relevant private sector stakeholders, including financial and non-financial market players and sectors, representing relevant industry sectors, and individuals with accounting and reporting expertise.
- Experts representing civil society, including individuals with expertise in the areas of environment, social affairs, labour and governance.
- Individually appointed experts with proven knowledge and experience in the areas covered by the taxonomy.
- Experts representing the academic world, including universities, research institutes and other scientific bodies, including individuals with global expertise.

The platform's **51 members** (excluding European agencies) include **16 corporate representatives** (mainly from European federations), **two financial institutions** (**BNP Paribas** and **Allianz**), and **Bloomberg**. The other members come from the academic sphere, civil society or are present in a personal capacity.

The platform proposes the different technical criteria of the taxonomy to the European Commission, following a public consultation. The European Commission may then adopt its delegated act, in accordance with the procedures laid down by European law.

The platform's composition is a problem insofar as the people with hands-on experience should be closely involved in the development of the standard, especially for this classification of economic activities, in order to ensure its operability, realism and openness to technological innovation.

2.2.5 Timing



2.2.6 How should the EU taxonomy be interpreted and used?

The EU taxonomy classifies economic activities at a given moment according to whether they are sustainable or not (bearing in mind that not being "green" in the sense of the taxonomy does not equate to being "brown": for instance, a health-related activity is not green, but is not necessarily brown either), **and the regulation provides for the taxonomy to be reviewed every three years**.

The interviews conducted as part of the mission highlighted an essential need to educate the stakeholders about this tool so that private players can adopt it. The fact the taxonomy is not well understood generates a lot of circumspection, especially since companies are still very uncertain about how it will be used by financial institutions. Using the taxonomy to make exclusions, for example, would be counterproductive to the objective of transforming the economy as a whole, and the European Commission itself, in its FAQ on the subject, states that alignment with the taxonomy should be one factor among others in financial decisions:

"the mere fact that a company does not have Taxonomy-aligned activities does not mean that conclusions can be drawn regarding the company's environmental performance. […] There are several reasons why a company might not have economic activities that are aligned […]: its economic activities might simply not be covered by the EU Taxonomy, or it may be covered but not make a substantial contribution to an environmental objective; or it might make a substantial contribution but not meet the Do No Significant Harm criteria or the minimum social safeguards. So, without knowing the exact reasons why a company has no Taxonomy-aligned activities, market participants cannot make investment decisions purely on the basis of Taxonomy-related disclosures of companies […]. Instead, other

disclosures, such as the company's disclosures under the CSRD will help inform markets about the company's environmental performance and the company's direction of travel on environmental matters."

The taxonomy can be interpreted in two different ways: (i) a static approach, with financing oriented towards activities considered green under the classification; **(ii) a dynamic approach**, with companies referring to the taxonomy in their decision-making to help them guide and steer their transformation. It defines **the objectives to be reached by activity**, without specifying the pathway to reach these objectives. As stated in the new EU Sustainable Finance Strategy (July 2021): "The transition pathways of economic actors will vary considerably, with different starting points and different business strategies, but all pathways should ultimately be consistent with the EU's sustainability goals" as reflected in the taxonomy. **Whether or not capex is aligned with the taxonomy also provides a more forward-looking and dynamic view of where the company is headed.** The delegated act governing the reporting obligations arising from the taxonomy, known as "Article 8", provides for a capex plan which, in order to be aligned with the taxonomy, must be aimed at either (i) the expansion of economic activities already aligned with the taxonomy; or (ii) the upgrading of economic activities eligible for the taxonomy so that they are aligned within five years. This five-year period may be extended to ten years if objectively justified by the specific characteristics of the economic activity and upgrading concerned.

This dynamic interpretation of the taxonomy must be favoured, and it is essential that the Paris financial centre (financial institutions as well as companies) work as a collective on the taxonomy's application modalities: the taxonomy is a dictionary, and the market must determine its syntax and the use that will be made of it by the financial system. The challenge is not to allocate capital to businesses that are already green, but to invest in businesses that are currently carbon-intensive and have credible plans to transform themselves. The market will have to ask itself questions and come up with collective answers to real-life situations, for instance if a company significantly improves its environmental performance but does not meet the thresholds set in the taxonomy, some of which are not achievable in the short term due to investment cycles; or companies on a robust pathway to meet the thresholds set by the taxonomy, but whose starting point is too far away from the objectives to be qualified as "green" in the short term. However, all this would imply serious, certified transition plans, for example by ADEME's ACT method.

This work of interpreting the taxonomy will have to be done sector by sector.

2.2.7 An international framework premise provided by the Common Ground Taxonomy

Launched in October 2019 at a time when multilateral dialogue on the subject had stalled in the G7 and G20, the European Commission's **International Platform on Sustainable Finance (IPSF)** now brings together **18 jurisdictions** representing 55% of the world's greenhouse gas emissions, 55% of the world's GDP, and 50% of the world's population, namely: the EU, Argentina, Canada, Chile, China, Hong Kong, India, Indonesia, Japan, Kenya, Malaysia, Morocco, New Zealand, Norway, Senegal, Singapore, Switzerland and the United Kingdom. The United States is therefore the big absentee from the IPSF.

In July 2020, the EU and China launched a taxonomy working group within the IPSF, co-chaired by the two jurisdictions and open to all platform members and observers. The objectives of this working group were to compare existing taxonomies developed by public authorities in member jurisdictions, and to identify commonalities and differences in their respective approaches, criteria and results. This work is known as the IPSF's Common Ground Taxonomy, the ultimate goal being to improve the comparability and interoperability of taxonomies around the world.

In practice, the Common Ground Taxonomy is based on a comparison of European and Chinese taxonomies, and this forum is a promising medium for normative exchange with Asia.

Furthermore, in the context of the G20 Sustainable Finance Working Group (SFWG), this Common Ground Taxonomy has influenced the identification of 7 high-level principles, which G20 jurisdictions are encouraged to draw upon in developing their own taxonomies, in order to foster consistent approaches to identifying and aligning investments with sustainability goals. The foundations of the EU taxonomy presented above are clearly recognisable in these 7 principles:

- **Principle 1:** Make a positive contribution to support SDGs;
- **Principle 2:** Do no significant harm to any of the 17 SDGs;
- **Principle 3:** Be science based;
- **Principle 4:** Be dynamic and regularly updated to reflect the development of sustainable technologies and changes in policy agendas and priorities;
- **Principle 5:** Be transparent and verified. Approaches to aligning investments with the SDGs should rely on: (i) transparent and robust methodologies; (ii) proper disclosure by investment managers/financial advisors; and (iii) independent verification mechanisms;
- **Principle 6:** Contain a fuller coverage of SDGs, beyond a possible initial focus on climate; expand over time to include topics such as the environment, biodiversity and social aspects of sustainability;
- **Principle 7: Rely on a comprehensive assessment**. Approaches aimed at aligning investments with sustainability goals must consider the full impact of an investee entity's activities, including from its operational activities, value chain and usage of its products and services.

2.3 Non-financial reporting

The first step in managing the externality of climate change is to measure it. This requires a specific **accounting** of **CO2** emissions, sufficiently harmonised to allow comparability and reliability of information. The various publications resulting from this accounting will have to be audited, in the same way as financial information, to ensure their robustness and user confidence.

In his May 2019[58] report to Bruno Le Maire, Minister for Economic Affairs, Finance and Recovery, Patrick de Cambourg underscores the **need for a standardisation of non-financial data**. The lack of a common framework for non-financial accounting leads to a lack of reliability, relevance and comparability. **In its February 2021 report, EFRAG lists no fewer than 95 international initiatives in the field of non-financial standardisation**, with exponential growth (+300% between 2010 and 2020).

Three explanations are put forward:

- A lack of consensus on the indicators to be used or the objectives to be considered;
- The emergence of new topics that require the development of new initiatives;
- Uneven coverage of some geographic regions.

In order to reallocate capital according to the needs of the ecological transition, financial institutions must have access to reliable, comparable and relevant information.

2.3.1 At the corporate level

Several initiatives are under way to strengthen the quality of information published by companies. A race is on between (i) the European regulatory initiative, the Corporate Sustainability Reporting Directive (CSRD), which focuses on the development of European sustainability standards based on the principle of double materiality[59] and covering an environmental, social and governance scope (see section 2.2.1.2); and (ii) the IFRS Foundation project, which launched at COP26 an International Sustainability Standards Board (ISSB) aimed at developing a common set of global standards, initially limited to climate issues, and reflecting only the financial risks related to climate change (see section 2.2.1.3) One of the demands widely expressed in interviews with companies and financial institutions for the mission concerns interoperability: this will be essential between the European and international reporting frameworks, through reciprocal convergence between these standards on the climate segment: EFRAG will have to actively integrate international work in the development of the European standard, and the IFRS will also have to rely on European work to build the international standard, bearing in mind that Europe is the most advanced jurisdiction in terms of sustainability analysis and ESG engagement of public and private players. The political will for an effective collaboration between the IFRS Foundation and EFRAG exists, facilitated by the appointment of Emmanuel Faber in December 2021 as head of the ISSB and the latter's location in Frankfurt. Both the European

[58] Patrick de Cambourg, "Garantir la pertinence et la qualité de l'information extra-financière des entreprises : une ambition et un atout pour une Europe durable" (Guaranteeing the relevance and quality of companies' non-financial information: an ambition and an asset for a sustainable Europe), May 2019

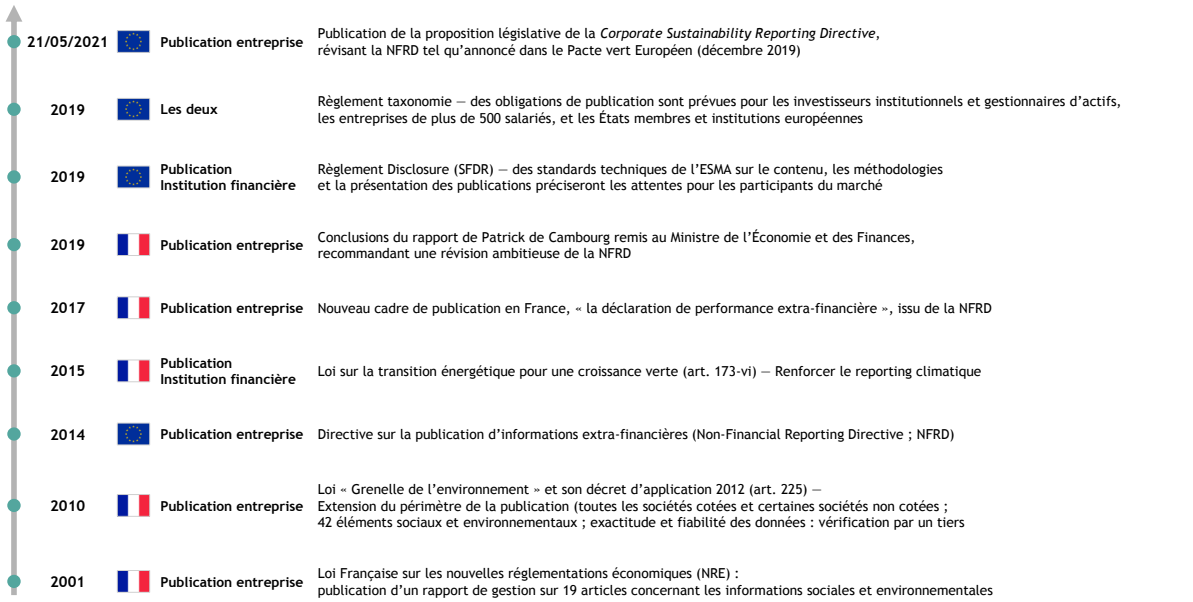
[59] According to the principle of double materiality, the information published by the company must reflect both the impact of sustainability risks, primarily climate change, on the company's performance and strategy, as well as the company's impact on its environment and society.

framework and the IFRS initiative are based on the recommendations of the Task Force on Climate-related Financial Disclosure (see section 2.2.1.4), which has already allowed for good comparability and even convergence between the prototype standards published by EFRAG in September 2021 and by the IFRS Foundation in November 2021.

a) Existing French framework

The first regulatory obligations for non-financial reporting by companies in France date back to 2001, and were progressively strengthened until Ordinance no.2017-1180 and Decree no.2017-1265 transposed the requirements of the Non-Financial Reporting Directive, or NFRD (see section 2.2.1.2 below) into French law. **France has gone beyond the NFRD minimum** by: (i) expanding the scope of the provisions to cover not only listed companies (thresholds: total assets of €20m, net revenue of €40m, average number of permanent employees: 500), but also **non-listed companies** (thresholds: total assets of €100m, net revenue of €100m, average number of permanent employees: 500); (ii) introducing **a mandatory audit** of the statement of non-financial performance by an independent third party.

Figure 8: Main European and French non-financial reporting requirements



In addition to the requirements stemming from the NFRD related to the statement of non-financial performance (SNFP), **the greenhouse gas emissions report** (*Bilan des Émissions de Gaz à Effet de Serre*, BEGES) had already been introduced by the Grenelle II law of 2010. The provisions relating to the BEGES were amended and detailed in the **Energy Transition for Green Growth Law** (**2015**), then the **Energy-Climate Law** (**2019**), and could also be amended following the proposals made by the Citizens' Convention for Climate. **The BEGES covers around 3,000 companies in France, and is used to assess the quantity of greenhouse gases emitted (or captured) in the atmosphere during one year by a firm's activities.** These emissions are classified according to Scopes 1, 2 and 3 – **Scope 3** is currently **optional but recommended** by law. The BEGES is intended to be a management tool, used to make a precise diagnosis of greenhouse gas emissions in order to identify and mobilise segments in which they can be reduced. **ADEME provides a regulatory calculation method to be followed to draw up the BEGES**, as well as sector-specific guides and other resources.

Regulatory developments related to the BEGES

Grenelle II Law (2010)

Scope of application:

- Legal entities under private law with more than 500 employees (250 employees in the overseas departments)
- Local authorities with more than 50,000 inhabitants
- Public establishments (with more than 250 employees) and state departments

TECV Law (2015)

Terms of Application:

- A company must publish a BEGES every 4 years, a local authority or a public institution every 3 years
- The BEGES is published on an information platform administered by ADEME
- The BEGES is monitored at the regional level by the DREAL

Climate and Energy Act (2019)

Terms of Application:

- The BEGES must be accompanied by a transition plan to reduce emissions
- The BEGES will be integrated into existing reporting (e.g. statement of non-financial performance for companies subject to the transposition of the NFRD)
- If the BEGES is not completed, a fine of up to €10,000 is provided for

The Citizens' Convention for Climate proposed: (i) requiring the BEGES to be published on an annual basis; (ii) extending the assessment of direct (Scope 1) and indirect (Scope 2) emissions to all firms that have at least one employee; (iii) modifying the penalty system; (iv) extending the scope of the BEGES to indirect emissions (Scope 3) for companies with more than 500 employees subject to the publication of a statement of non-financial performance.

The state also applies environmental accounting to public finances through the green budget. The green budget measures the impact of the state's budget on the environment, through six criteria aligned with those of the EU taxonomy: action against climate change; adaptation to climate change and prevention of natural hazards; management of water resources; circular economy, waste and prevention of technological risks; action against pollution; biodiversity and protection of natural, agricultural and forestry areas. **In October 2021, the government presented its second edition of the green budget with regard to the 2022 finance bill.**

This exercise highlighted that (i) spending that is favourable to the environment – on at least one environmental criterion without being unfavourable to another – will increase to €32.5 billion in 2022, compared with €31.4 billion in 2021 and €29.8 billion in 2020; (ii) expenditures that have a favourable impact on one or more environmental criteria while having an unfavourable impact on other criteria represent €4.5 billion; (iii) expenditures that have an unfavourable impact on the environment will amount to €10.8 billion in 2022 (compared with €10.6 billion in 2021) These are mainly made up of tax expenditures (€7.6 billion), in particular exemptions or reduced rates on domestic consumption taxes on fuel-related energy products (€6.4 billion).

b) The European Corporate Sustainability Reporting Directive initiative

Announced in the European Green Pact of December 2019, the European Commission published on 21 April 2021 its draft directive on sustainability reporting by companies, which revises the existing non-financial reporting framework from the Non-Financial Reporting Directive (NFRD).

The Commission has chosen to call this new text Corporate Sustainability Reporting (CSRD), in order to avoid implying that the environmental, social and governance (ESG) information to be published is "non-financial", when in fact it must be integrated into the financial strategy of each company and investor.

This text brings a large number of improvements to build a solid non-financial accounting framework at the European level.

While the 2014 NFRD only provided for extremely broad-based provisions, not allowing for comparability of information between companies, the central element of the CSRD is the establishment of European standards for non-financial reporting. The directive sets out:

- Environmental, social and good governance themes (Figure 9)

Figure 9: NFRD Themes

- Reporting areas, inspired by the Task Force on Climate-related Financial Disclosure (TCFD, see section 2.2.1.4), and adopting a **double materiality** approach, i.e. disclosure reflecting the **financial risks to the company related to ESG factors** as well as the **company's impact on the environment and society**. For example, the directive requires disclosure of information on the company's business model and strategy, its targets relating to sustainability issues, its policies on the subject; its due diligence procedures implemented in relation to sustainability; the company's main sustainability risks and the management of these risks.
- Various criteria: (i) take into account the existing European regulatory corpus, in particular regulations already providing for ESG transparency obligations; (ii) take into account international standardisation initiatives in the non-financial field.

These European standards will be adopted by delegated act by the European Commission, on the technical advice of the European Financial Reporting Advisory Group (EFRAG), which is currently responsible for the endorsement of IFRS accounting standards in the EU. This technical advice will have to be developed within the framework of a strengthened governance of EFRAG (established procedure, public oversight, appropriate transparency), by calling upon the expertise of relevant stakeholders and by establishing cost-benefit analyses on these standards. These European standards for non-financial information will have to be reviewed every three years.

In a **letter dated 12 May 2021, Commissioner McGuinness** invited: (i) Jean-Paul Gauzès, **EFRAG** Board President, to **initiate the reforms** he advocated in his **March 2021 report** on changes to the governance and financing of EFRAG with a view to making it the European standard setter. This reform of EFRAG's governance will be effective from April 2022; (ii) the Taskforce within EFRAG chaired by Patrick de Cambourg, which submitted its recommendations to the Commission in March 2021 on the form that the European standard for non-financial reporting could take, to resume his work in parallel with the CSRD negotiations, in order to be able to propose a technical opinion by 15 June 2022, provided that EFRAG's governance reforms have been implemented and that a political agreement has been reached on the CSRD.

The CSRD provides for a much broader scope of application, covering 49,000 EU companies as opposed to 11,600 under the NFRD (which applied to listed European "large companies" with more than 500 employees). The following companies will thus have to implement the CSRD provisions: (i) "large companies" as defined by the Accounting Directive, i.e. those exceeding two of the three thresholds (total assets of €20m; net revenue of €40m; 250 employees), whether listed or not; (ii) companies listed on a regulated market in the EU (including non-European companies and SMEs, excluding microenterprises). In order to ensure proportionality of the provisions, these listed SMEs would be subject to a simplified standard and would have to carry out their first reporting under CSRD with a deadline of 3 years.

In addition, **the CSRD provides for an obligation to audit non-financial information** with limited assurance, to be carried out in accordance with audit standards adopted by the Commission by delegated act. The level of assurance would only be increased to "reasonable"[60] if the Commission adopted additional auditing standards in this sense. The audit would be carried out by a statutory auditor, but the legislative proposal allows member states to authorise independent third-party organisations. These independent third-party organisations would have to be accredited by the member states and would be subject to similar quality requirements as the statutory auditors.

In terms of timing:

- H2-2021 – H1-2022: EFRAG develops European standards
- 24 February 2022: The Council of the European Union adopts its position on the CSRD
- 23-24 March 2022: European Parliament plenary vote on CSRD
- April–June 2022: Trilogues between the Council of the European Union, the European Parliament and the Commission with a view to reaching a political agreement on the CSRD and launching the procedure for adopting the text
- 31 October 2022 (according to the draft bill): adoption of a broader European standard to meet the needs of market players

[60] The depth of the audit differs between limited and reasonable assurance: in a limited assurance engagement, 20% of the data are reviewed; in a reasonable assurance engagement, 50-80% of the data.

- 31 October 2023 (according to the draft bill): adoption of a second set of standards: (i) an improvement, if necessary, of the general standard; (ii) sector-specific standards; (iii) standards adapted to SMEs
- 2024 (according to the draft bill): first CSRD reporting (for the financial year 2023) for companies included in the scope - except for SMEs
- 2027 (according to the draft bill): first CSRD reporting (for the financial year 2026) for listed SMEs

There are several reasons why France has made the negotiation of the Corporate Sustainability Reporting Directive a priority on its sustainable finance agenda, particularly in the context of its presidency of the Council of the European Union:

- Reporting is the **keystone of sustainable finance**: to achieve the ecological and social transition, investors must build ESG factors into their financial decision-making processes, their risk management policies and their shareholder engagement with companies. To guide their choices, they need reliable, comparable and verifiable data from companies, in a logic of better knowledge for better action.
- This reporting must also be an **incentive to change for the companies themselves and a tool for steering their transformation**. Non-financial information complements the financial information provided by traditional accounting frameworks and gives a **better picture of the company's value**. This new accounting framework should allow companies to **compare themselves** with the best in their sector, encourage them to design action plans and set objectives; it should allow investors to follow the progress of companies and support them in their transformation processes.
- ESG information is also a **political issue**, with citizens and consumers increasingly demanding more from companies on these issues, but also an impact of companies on their environment (and in particular the climate) that is key to achieving the environmental objectives that governments have set.
- This question of reporting is also an issue of **competitiveness and European sovereignty**: both in the **structure of the information** requested from companies, which structures the economy in general, and in the actual **control** and **management of these data**.

The CSRD and EFRAG standards will make it possible to establish a framework, but they will have to be accompanied by in-depth work by market participants with a view to defining the methods of application, sector by sector, of this standard.

At the request of Bruno Le Maire, Minister for Economic Affairs, Finance and Recovery, and in the context of EFRAG's development of European non-financial reporting standards, a Sustainability Reporting Committee was created in January 2022 within the French Accounting Standards Authority (*Autorité des Normes Comptables*, ANC) for France to make an active contribution to the ongoing reflection at the European level. This committee, whose first meeting took place on 4 February 2022, brings together Patrick de Cambourg, Chairman of the ANC; representatives of the Ministry for Economic Affairs, Finance and Recovery and the Ministry for Ecological Transition, as well as the *Autorité de Contrôle Prudentiel et de Résolution* (ACPR) and the *Autorité des Marchés Financiers* (AMF); companies and federations (MEDEF, France Assureurs, CPME, Michelin, Airbus); financial institutions (SFAF, Amundi, BNP Paribas, Trusteam Finance); auditors (PwC, KPMG, Deloitte, Cabinet Fontaine, Fideliance); a trade union (CFDT); academics and civil society (Plateforme RSE, Finance Watch, Institut Louis Bachelier, Business for Inclusive Growth - B4IG, AgroParis Tech, Institut Montpellier Management); and a qualified personality, former vice-president of the environment section of the French Economic, Social and Environmental Council (CESE).

c) International initiatives coalescing around the IFRS Foundation

In addition to the CSRD initiative in Europe, the IFRS Foundation officially launched an International Sustainability Standards Board (ISSB) in November 2021, during COP26, in order to develop minimum international standards on non-financial issues, first on climate and then on other environmental, social and governance issues.

Three notable announcements during or since COP26 can be noted on the subject:

(i) **Emmanuel Faber, former Chairman and CEO of Danone, was appointed to lead the ISSB,** located in Frankfurt (board headquarters and Chairman's office), Montreal (main support functions), San Francisco (following consolidation with VRF, see below), London (technical support, platform for engagement with regional stakeholders), and possibly later in Beijing or Tokyo to strengthen the ISSB's footprint in Asia.

(ii) A prototype climate standard (including sectoral) and a document on general reporting requirements were published at COP26.

These preliminary documents were produced by a working group composed of the **TCFD** and **4 private standard setters from the "Group of 5"** – each of which work on distinct scopes, and collectively cover an ESG and double materiality scope: the SASB and IIRC, which merged in 2021 to become the Value Reporting Foundation, the GRI, the CDP and the CDSB.

The Global Reporting Initiative (**GRI**), which is very close to the European concept of double materiality, is the standard setter among this Group of 5 that has **not** been **associated** with the preparatory work of the IFRS Foundation. However, the GRI has signed a **statement of cooperation with EFRAG**, and EFRAG supports "cooperative arrangements with other leading international initiatives, including the IFRS Foundation", according to a statement issued on 8 July 2021.

Work within the ISSB should begin in early 2022 on the basis of these prototype climate standards published at COP26, with a public consultation scheduled for Q1 2022 (according to the press release announcing the appointment of Emmanuel Faber as head of the ISSB), with a view to **adoption of IFRS standards** for non-financial reporting at the **end of 2022.**

(iii) The merger of the CDSB and the Value Reporting Foundation into the ISSB was announced at COP26 and should be completed by June 2022.

The challenge for European and international standards will be to develop a non-financial accounting framework that meets the information needs of stakeholders in order to analyse transition plans and corporate actions in light of the targets set by the Paris Agreement, while remaining simple, readable, pragmatic and effective.

Another factor worth keeping in mind is the standardisation power of the financial ecosystem, which determines, through rating agencies, data and index providers, and voting advisory agencies, what data and ratios will ultimately be requested and used by the market.

d) TCFD as a foundation for European and international frameworks

The Task Force on Climate-Related Financial Disclosures, or TCFD, was **created** by the Financial Stability Board (FSB) **in 2015 in the context of COP21** to help companies provide better information to support informed capital allocation. The TCFD **published eleven recommendations** in the summer of 2017, structured around **four pillars** that represent fundamental elements of how organisations operate: governance, strategy, risk management, and metrics and targets.

Figure 10: TCFD recommendations

Governance	Strategy	Risk Management	Metrics and Targets
Disclose the company's governance around climate-related risks and opportunities	Disclose the actual and potential impacts of climate-related risks and opportunities on the company's businesses, strategy, and financial planning where such information is material	Disclose how the company identifies assesses, and manages climate-related risks	Disclose the metrics and targets used to assess and manage relevant climate-related risks and opportunities where such information is material.
a. Describe the board's oversight of climate related risks and opportunities	a. Describe the climate related risks and opportunities the company has identified over the short, medium, and long term	a. Describe the company's processes for identifying and assessing climate related risks	a. Disclose the metrics used by the company to assess climate-related risks and opportunities in line with its strategy and risk management process
b. Describe management's role in assessing and managing climate related risks and opportunities.	b. Describe the impact of climate-related risks and opportunities on the company's businesses, strategy, and financial planning	b. Describe the company's processes for managing climate related risks	b. Disclose Scope 1, Scope 2, and, if appropriate, Scope 3 greenhouse gas (GHG) emissions, and the related risks
	c. Describe the resilience of the company's strategy, taking into consideration different climate-related scenarios, including a 2°C or lower scenario	c. Describe how processes for identifying, assessing, and managing climate related risks are integrated into the company's overall risk management	c. Describe the targets used by the company to manage climate-related risks and opportunities and performance against targets

Source: Final Report, June 2017

The TCFD is currently supported by more than 3,000 economic and financial players in 89 jurisdictions. France has been an official supporter of the TCFD since the One Planet Summit in December 2017, and on the occasion of the five-year anniversary of the Paris Agreement, the President of the Republic announced that all CAC 40 companies would align their reporting with the TCFD's recommendations starting in 2021 (where this was not already the case). In addition to France, the TCFD recommendations are still benefiting from strong support. **More than 110 regulators and government authorities** now promote the TCFD.

Hong Kong, New Zealand, Switzerland and the United Kingdom have taken steps to make TCFD mandatory in their jurisdictions. BlackRock has been emphasising the importance of TCFD reporting in its annual CEO letters since 2020. The Financial Stability Board launched a dedicated Climate Financial Risk Transparency Working Group in 2021, which undertook a mapping exercise of TCFD implementation in FSB member jurisdictions. The Taskforce was also systematically mentioned in the 2021 G7 and G20 discussions related to sustainable finance.

Both the Corporate Sustainability Reporting Directive and the work of the IFRS Foundation are explicitly based on the framework of the Task Force on Climate-related Financial Disclosure (TCFD), which provides a common basis for non-financial reporting:

- **The TCFD is part of the European Commission's 2019 guidelines for non-financial reporting.** These guidelines even include cross-reference tables between the NFRD requirements and the TCFD recommendations. Subsequently, the TCFD was incorporated into the regulatory requirements of the CSRD, currently under negotiation.
- As for the international level, and as indicated in the June 2021 G7 Finance Ministers' Communiqué: "We support moving towards mandatory climate-related financial disclosures that provide consistent and decision-useful information for market participants and that are based on the Task Force on Climate-related Financial Disclosures (TCFD) framework, in line with domestic regulatory frameworks. Investors need high quality, comparable and reliable information on climate risks. We therefore agree on the need for a **baseline global reporting standard for sustainability, which jurisdictions can further supplement. We welcome the International Financial Reporting Standards Foundation's programme of work to develop this baseline standard under robust governance and public oversight, built from the TCFD framework and the work of sustainability standard-setters**, involving them and a wider range of stakeholders closely to foster global best practice and accelerate convergence."

2.3.2 At the financial institution level

Any financial institution is also a company, and the provisions of the CSRD presented in section 2.2.1.2 also apply to **banks, asset managers and insurers** that meet the regulatory thresholds (as a reminder, companies come under the scope the directive if they exceed two of the three thresholds: total assets of €20m; net revenue of €40m; 250 employees).

Financial institutions are also subject to sector-specific regulations, which are far more developed for management companies and institutional investors (section 2.3.2.a) than for banks (section 2.3.2.b).

a) Portfolio management companies and institutional investors

The European Union and France have also developed specific regulations applicable to portfolio management companies and institutional investors:

A. France introduced the world's first legal provision in 2015, with Article 173 of the Law on the Energy Transition for Green Growth, requiring **asset management companies and institutional investors** to disclose their climate and ESG risk management policies and investment strategy in a sustainability report. This regulatory initiative marked the beginning of a systematic integration of ESG factors into institutional investors' investment decision and risk management procedures, and has largely inspired the European system in this area. Section 173 consists of: (i) a principles-based approach, given the lack of consensus on parameters and methodologies.

   In this context, companies must develop their own criteria and explain their choices. Moreover, France has long encouraged market-led initiatives to promote comparability and the sharing of best practices; (ii) a "comply or explain" approach:

it is the company's duty to assess the materiality of climate and ESG risks with respect to its own business model; (iii) decision-oriented information: Article 173 should lead decision-makers to question their strategy and develop an analysis of how climate and ESG risks should be integrated into their decision-making processes.

French regulators and supervisors published a joint assessment of the implementation of Article 173 in July 2019. They found that, of the companies examined, 50% have published all the mandatory information required by the implementing decree, 44% do so but insufficiently with regard to the regulatory provisions, while 6% do not comply or explain their lack of compliance. The joint assessment report also lists best practices for improving reporting by asset managers and institutional investors.

B. In 2019, the Sustainable Finance Disclosure Regulation (SFDR) introduced reporting obligations applicable to asset management companies, credit institutions and investment firms in their asset management business, financial advisors (only portfolio management companies, investment firms and credit institutions providing advisory services), occupational pension institutions and providers of pan-European individual retirement savings products (PEPP). These financial institutions will be required to publish on their websites their policies for (i) due diligence on key adverse impacts of investment decisions on sustainability factors; (ii) integration of sustainability risks into investment processes; and (iii) integration of sustainability risks into compensation policies. This information is partly standardised by the European supervisory authorities (ESMA, EBA and EIOPA), who have been working on the development of technical standards (RTS), including the sustainability indicators to be published concerning negative environmental and social impacts. These numerous financial entity and product level requirements are being phased in since 10 March 2021.

C. **A new step was taken with Article 29 of the Energy-Climate Law (2019),** translated into an implementing decree published in May 2021, which incorporates into French law the provisions of the European Sustainable Finance Disclosure Regulation, or SFDR, and which goes further than the European regulation in several respects.

Article 29 applies to portfolio management companies, insurers and mutual insurers, and provident institutions (as does Article 173), but also covers credit institutions and investment companies providing third party management services (including discretionary management) and investment advice, reinsurers, supplementary occupational pension funds, and the Caisse des Dépôts et Consignations. The threshold for application is kept at €500 million of assets under management and/or balance sheet (compared with a European threshold of 500 employees at the entity level). This affects approximately 230 portfolio management companies in France, representing 99% of assets under management in 2019, compared with five portfolio management companies if the European threshold had been retained.

In particular, these financial institutions will have to:

- Measure the alignment of their portfolios with the Paris Agreement,
- Publish their exposure to fossil fuels,
- Publish their risks related to climate change and biodiversity loss, as well as portfolio alignment with the major biodiversity targets expected to be defined at that year's COP25,
- Structure their reporting according to the TCFD recommendations.

Financial institutions will therefore have to progressively publish from 2022 (for the 2021 fiscal year) their strategy for alignment with the temperature targets of the Paris Agreement – stating quantitative greenhouse gas emissions targets to be met every five years between 2030 and 2050 on Scopes 1, 2 and 3, and expressed by a measure of temperature increase or a volume of greenhouse gas emissions – as well as alignment of outstanding assets (or of

the balance sheet) with the EU taxonomy's sustainable activities and with fossil-fuel related activities. The French Treasury has developed an educational guide to assist financial players in meeting these new regulatory requirements[61].

Figure 11: Content of the information to be disclosed according to Article 29

Démarche générale de l'entité	Politique et stratégie d investissement liste des produits « durables » et pourcentage des encours totaux, adhésion de l'investisseur à une charte, un label
Moyens internes pour contribuer à la transition	Ressources financières, techniques et humaines dédiées à l'ESG, actions de renforcement des capacités internes
Gouvernance de l'ESG au sein de l'entité financière	Connaissances compétences et expérience des instances de gouvernance, inclusion des facteurs ESG dans les politiques de rémunération : intégration dans le règlement interne du conseil d' administration
Stratégie d'engagement auprès des émetteurs ou des gérants	Stratégie d'engagement et politique de vote et leur bilan de mise en œuvre (ex. part des entreprises en portefeuille couvertes, actions de suivi dépôts et votes en AG de résolutions, décisions prises en matière d'investissement
Investissements « durables » et investissement dans les fossiles	Part des encours « durables» (alignés sur la Taxonomie européenne) et des encours dans des entreprises actives dans les énergies fossiles
Stratégie d'alignement sur l'Accord de Paris	Fixation d'objectifs quantitatifs et détails méthodologique associés. En particulier, l'investisseur doit se fixer un objectif quantitatif à horizon 2030 (puis tous les 5 ans jusqu'en 2050), comprenant l'ensemble des émissions de gaz à effet de serre, et l'exprimer par une mesure de l'augmentation de température implicite (« mon portefeuille contribue à une augmentation de T° de l'ordre de 0,5°C ») ou un volume d'émissions de gaz à effet de serre
Stratégie d'alignement « biodiversité »	Fixation d'objectifs d'alignement et détails méthodologiques associés
Intégration des risques ESG dans la gestion des risques	Processus général d'identification, évaluation, priorisation et gestion et détails méthodologiques associés avec un focus sur les risques physiques et de transition (climatiques) et les risques liés à érosion de la biodiversité.
Intégration des risques ESG dans la gestion des risques	Plan d'amélioration continue, notamment l'identification ·on des opportunités d'amélioration des actions collectives correspondantes (par rapport aux résultats de la mesure d'alignement des portefeuilles, par exemple) et des changements stratégiques et opérationnels effectués.

Source: DG Trésor, Guide méthodologique, juin 2021

[61] Direction Générale du Trésor, Guide pédagogique Décret d'application de l'article 29 de la Loi énergie-climat (*French Treasury, Guide on the decree implementing Article 29 of the Energy-Climate Law)*

b) Credit institutions

Banks, on the other hand, are subject to limited regulatory reporting obligations. They are only subject to Article 449a of the Capital Requirement Regulation (CRR2), which introduces from 28 June 2022 specific disclosure requirements for large banks listed on a European regulated market, covering only their ESG risks (and not the environmental and social impact aspect) – over and above the requirements applicable to credit institutions under the NFRD or CSRD if they meet the thresholds. Standards (ITS)[62] have been published by the European Banking Supervisor (EBA) to specify the information to be published under this article 449a through a series of 10 templates specifying a number of metrics. The CRR and CRD banking regulations are currently being discussed by the Council of the European Union and the European Parliament. The Commission's draft bill intends to extend the requirement to report on their ESG risks to all banks, with a degree of proportionality planned for the smallest banks, for a planned entry into force in 2025.

2.3.3 At the level of financial products:

a) Sustainable Finance Disclosure Regulation and Article 29 of the Energy-Climate Law

The financial products concerned by the SFDR are UCITS, AIF, pension products, IBIP, PEPP and management mandates with regard to the consideration of ESG factors, **and under Article 29**, funds of more than €500 million for financial investment and insurance products (pre-contractual document and periodic report).

Under the SFDR, transparency within the pre-contractual documentation will need to cover the product's consideration of key negative sustainability impacts. If the products promote environmental or social characteristics (so-called Article 8 products, see section 2.1.3) or have a sustainable investment objective (so-called Article 9 products), (i) pre-contractual information on how the characteristics or objective will be met; (ii) periodic information on how the characteristics or objective have been met; and (iii) additional information, such as methodology, will also have to be published. The SFDR Regulatory Technical Standards (RTS) set by the European supervisors also detail the transparency requirements for so-called Article 8 or Article 9 products. The RTS do not therefore concern sustainability risks. The European supervisors' final report was submitted in February 2021[63], but the Commission informed the European Parliament and the Council of the European Union in December 2021 that due to the report's length and technical detail, it would need more time to formally adopt these RTS by delegated acts, and that the date of application of the RTS would therefore be postponed to 1 January 2023.

Article 29 also introduces a requirement for the report resulting from its reporting obligations (both annual report at entity level, and periodic report for funds) to be transmitted to the authorities, including the AMF and the ACPR, as well as to ADEME's Climate Transparency Hub.

The information will have to be published by asset class, taking into account a principle of proportionality applied to the nature of the financial instruments, and according to the respective volumes of the fund managers in the relevant investment bodies.

[62] EBA draft ITS on Pillar 3 disclosures on ESG risks.pdf (europa.eu)

[63] EBA

b) AMF ESG doctrine (2020)

In March 2020, the AMF published its ESG doctrine aimed at ensuring proportionality between the reality of the non-financial criteria taken into account in the fund's strategy and the communication to investors. This policy applies to asset management and distributors of collective investment products authorised for marketing in France to retail investors, and is intended to respond to the strong growth of funds incorporating ESG criteria and the risks of greenwashing that this development raises.

- According to the principle underlying this ESG doctrine, the objectives of taking non-financial criteria into account must be measurable.
- Only approaches that are engaging to a significant extent can present non-financial criteria as a key aspect of product communication, for example by including them in the fund's name.
- For approaches based on rating upgrades or selectivity, in order to be able to present non-financial criteria as a key aspect of their communication, funds must comply with criteria based on the thresholds defined by the SRI label.
- Funds that build non-financial criteria into their management without implementing a significantly engaging approach can communicate on ESG considerations without making it a key aspect of their communication ("limited communication", e.g. a concise statement) provided they meet other specific minimum standards.
- Where the approach implemented does not meet the standards of "central disclosure" or "limited disclosure", the information must only be included in the fund prospectuses and remain proportionate.

c) A European green bond standard

Based on the work undertaken by a Technical Expert Group (TEG) since 2019, the Commission published on 6 July, in parallel to its renewed sustainable finance strategy, its draft regulation establishing a green bond standard. The objective is to structure the green bond market by strengthening its integrity, in particular for private issuers, through common transparency, consistency and comparability criteria. The challenge is to provide a better framework for the structuring of these products, in particular to precisely define the scope of eligible expenses. The Commission's proposal aims to establish a **voluntary standard** for green bonds. **Public and private issuers will thus be able, provided they comply with the various requirements of the regulation, in particular the alignment of proceeds with the taxonomy, to label their issues "European Green Bond". The fact that the standard is 'voluntary' is a way of preserving a competitive market environment for these instruments.**

d) French and European labels

A raft of labels have emerged in recent years to orient financial flows, and in particular savings products, towards the ecological transition or towards assets reflecting responsible capitalism.

In France, two government labels have been developed in the context of COP21: the SRI label and the Greenfin label.

From a niche label at its inception, the SRI label has become essential in SRI management, the first label in Europe in terms of volume of assets under management. It is awarded through a certification process.

After five years of existence, the **SRI Label** had been awarded to nearly **900 funds** by the end of 2021/beginning of 2022, managed by more than **150 management companies** and

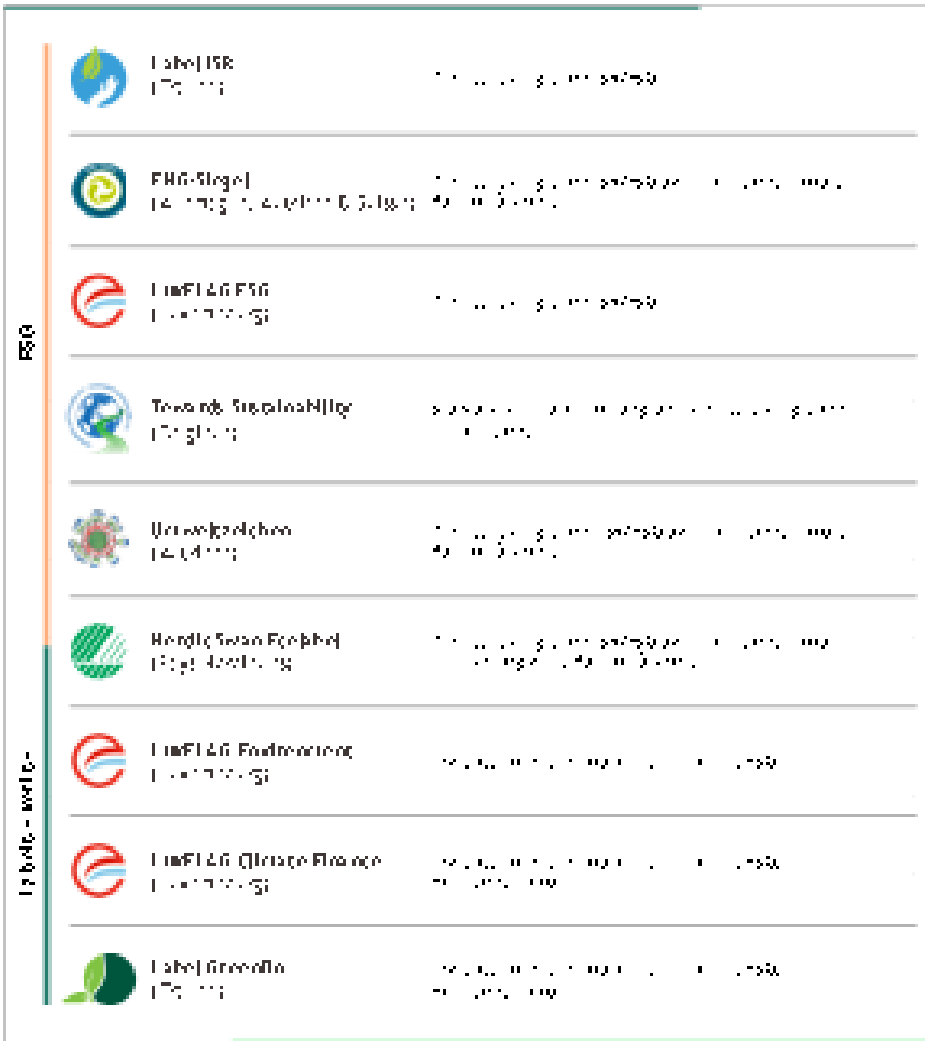
now representing more than **€700 billion** in assets under management, of which approximately €40 billion for the label's real estate version.

- The SRI label is awarded, for a three-year period, to funds whose financial management incorporates ESG criteria in accordance with a precise set of standards drawn up with the stakeholders and approved by the Ministry for the Economy, Finance and Recovery.
- The certifiers check, against the standards, that the fund manager: specifies the objectives targeted by the fund through the consideration of ESG criteria (pillar I); details the ESG rating and selection methodology (pillar II); demonstrates the measurable nature of the ESG selection strategy (pillar III); implements a policy of ESG engagement with key stakeholders (pillar IV); commits to greater transparency with investors (pillar V); demonstrates the fund's ESG performance based on concrete indicators (pillar VI).
- The label thus highlights investments that are part of an approach aimed at assuring savers of their responsible and sustainable nature. It has become a major tool to support the transition to a more sustainable economy.
- The SRI label has been evolving constantly since its creation in 2016 and has recently initiated new developments with the objective of adopting a renewed version of its standards ("version 3").
- The SRI label's standards had already been revised in 2018, with this first update adding rules applicable to sovereign assets. In 2020, a second revision of the standards introduced: a real estate version of the SRI label; stronger transparency requirements (funds must disclose the complete inventory of the portfolio in a way that is readable and accessible to the general public); monitoring by the fund of the selected issuers' ESG performance, with in particular a requirement that the portfolio should outperform its benchmark index or initial universe on at least two indicators (i.e. two "outperformance indicators").
- Following the diagnosis made by the Inspectorate-General for Finance in its report commissioned by Ministers Bruno Le Maire and Olivia Grégoire, and in light of significant changes in the environment and market since the label's creation, an update of the SRI label was initiated in March 2021.
- The composition of the SRI label committee was renewed in October 2021. It is now chaired by Michèle Pappalardo and its work is supported by three sub-committees. This new governance structure aims to give the SRI label the means to develop its standards. The committee will submit proposals to the Minister of Finance by the end of 2022.

  The focal areas of the "forward planning" sub-committees, which will seek to improve the readability and reliability of the label for savers and investors, include: the progress made at the European level to develop a common reference framework to improve and standardise the information made available to investors; the development of impact finance, with work carried out by Paris market participants on its definition and measurement; the opportunity to develop an SRI label with sub-segments and/or stars (a label with sub-segments would cover several themes, while a label with stars would focus on progressive levels of requirement, i.e. a "scale"); the way in which the growing demands of investors and savers could be met through the related objectives, criteria and indicators.

The Greenfin label (€20 billion in assets; 78 funds), created by the Ministry for Ecological Transition at the end of 2015, guarantees the green quality of investment funds. The label's standards identify eight categories of activities that fall within the scope of the energy and ecological transition and are eligible for financing from the candidate fund: energy, construction, waste management and pollution control, industry, clean transport, information and communication technologies, agriculture and forestry, and climate change adaptation. The standards define the fund's allocation rules between its investment pockets, each of which is characterised by the intensity of the green component of the issuers in which it is invested. The Greenfin label excludes from the investment scope of the labelled funds the activities of the entire fossil fuel value chain and the entire nuclear industry. Additional partial exclusions are also defined.

Figure 12: Overview of European sustainable finance labels, January 2020



Source: Novethic, Overview of European sustainable finance labels, January 2020

In order to address the fragmentation of the label market and their proliferation, the European Commission made the development of a European Ecolabel a priority in its March 2018 Sustainable Finance Action Plan. The Ecolabel, whose standards have been under discussion since early 2019, will be aimed at financial products for retail clients, with a view to contributing to reorienting capital flows towards sustainable investments. The future Ecolabel is one of the applications of the taxonomy regulation and should contribute to the fight against greenwashing within the European Union. The Ecolabel will operate on the same model as the French thematic label, Greenfin, applying an approach focusing on a portfolio's asset mix. Eligible funds will be structured around minimum "green" investment thresholds (as defined by the EU taxonomy – low-carbon, transitional and enabling activities). Although it has not yet been finalised, Ecolabel can be expected to be very demanding from an environmental perspective.

e) Fund rating issues

Ratings form an integral part of the investment process, helping to guide portfolio construction. Investors analyse the characteristics of a company and assign it a rating, or make direct use of the scores assigned by a rating agency. These ratings are very poorly correlated across rating organisations (investors and/or agencies). This is well illustrated in an August 2019 MIT study, "Aggregate Confusion: The Divergence of ESG Ratings", which estimates the **correlation between the ESG ratings** of Asset 4 (Thomson Reuters), KLD (MSCI), RobecoSam, Sustainalytics and Vigeo-Eiris at **0.61 on average**, with the lowest and highest being 0.42 between KLD and Asset 4 and 0.73 between Sustainalytics and Vigeo. The study also estimates the **correlation of Moody's and S&P's credit ratings** at **98.6%**.

Several factors explain this lack of correlation between ESG ratings, both for funds and for the underlying companies: (i) differences in the data used to calculate these ratings; (ii) methodological differences in the calculation of the indicators and/or in the weighting applied to indicators to arrive at the overall rating; (iii) differences in scope (e.g. emphasis on E, S, or G); (iv) an inherently subjective assessment of ESG; and (v) a desire on the part of players to stand out from the crowd in an analysis framework that is not stabilised.

Ratings are a key tool in the capital allocation process, and it is therefore essential to engage in collective work in the Paris financial centre to improve convergence of analytical frameworks.

2.3.4 Regulatory provisions to be supplemented by implementation methods to be developed: concrete examples for some key metrics

The regulatory provisions set out in sections 2.3.1, 2.3.2 and 2.3.3 provide a general framework, but the implementation methods sector by sector will have to be the subject of further work by the Paris financial centre. Private initiatives, such as PCAF or PACTA, are already involved in defining these implementation methods.

a) Scope 3 emissions

While a regulatory method (introduced in June 2011 by the Grenelle II law) has been identified for calculating Scope 1 and 2 emissions as part of the BEGES, **no French or European regulation currently imposes a method for calculating Scope 3 emissions**, a metric that has become essential in sustainable finance. In France, **ADEME** is developing **voluntary methodologies, including sector-specific methodologies**. At the European level, the publication of the Scope 3 of financial institutions is required for asset managers, institutional investors and credit institutions under the SFDR and CRR regulations and their technical implementation standards, without specifying the method to be used. **EFRAG** is

also developing European standards for non-financial reporting by companies, including for Scope 3, but these standards as presented by EFRAG on 18 January 2022 remain general and are based on existing private initiatives, in particular the **GHG Protocol** and **PCAF**, which have become international references for calculating the Scope 3 of companies and financial institutions This underlines the importance of the Paris financial centre having a working group on non-financial standardisation and methodologies, enabling it to contribute to European and international work in this area and to promote French expertise.

- According to EFRAG's climate standard prototype published on 18 January 2022

  In addition to the task force's important methodological work, EFRAG's standard prototypes are inspired by internationally accepted private frameworks, such as the GHG Protocol, the TCFD or the principles of the Science-based Targets initiative (SBTi), with the objective of making the standards interoperable and easier to use by stakeholders. For example, EFRAG advises companies to consider the provisions of the GHG Protocol (2011 version) when reporting their Scope 3 emissions, and in the case of a financial institution, to consider the Partnership for Carbon Accounting Financial (PCAF) accounting and reporting standard.

  EFRAG provides a framework for reporting on Scope 3 emissions rather than a methodology as such. Standard prototypes require, for example, the disclosure of Scope 3 emissions in tonnes of CO2 equivalent, based on five categories that are a summary of the 15 categories from the GHG Protocol (upstream purchasing, downstream sold products, goods transportation, business travel, financial investments); they set the boundaries for disclosure and set out a number of principles to be respected, such as disclosing the percentage of emissions calculated using primary data obtained from providers or other value chain partners, avoiding double counting with emissions reported under Scopes 1 or 2, or excluding any offsets or allowances for emissions purchased, sold or transferred from the calculation of Scope 3 emissions. However, additional clarifications may also be made in the sectoral standard prototypes to be developed by EFRAG by 31 October 2023 (according to the European Commission's CSRD legislative proposal).

- According to the technical standards of European supervisors (ESMA, EBA, EIOPA)

  The technical standards of the European supervisors under the SFDR regulation[64] set a reporting template, identifying a precise set of **indicators to be published**, **without specifying the underlying methodology**. This is particularly the case for Scope 3, which is one of the metrics to be published – without further clarification.

  Scope 3 is also one of the metrics required of credit institutions as part of their Pillar 3 reporting – with no methodology being imposed by the regulations. The EBA standards only require that the disclosure of Scope 3 emissions be accompanied by information on the methodology used for its calculation and the sources used. Institutions that are not yet in a position to estimate their Scope 3 emissions must disclose the plans they intend to put in place to acquire the methodologies for estimating Scope 3, bearing in mind that all institutions **must be in a position to publish this metric by June 2024 at the latest**[65].

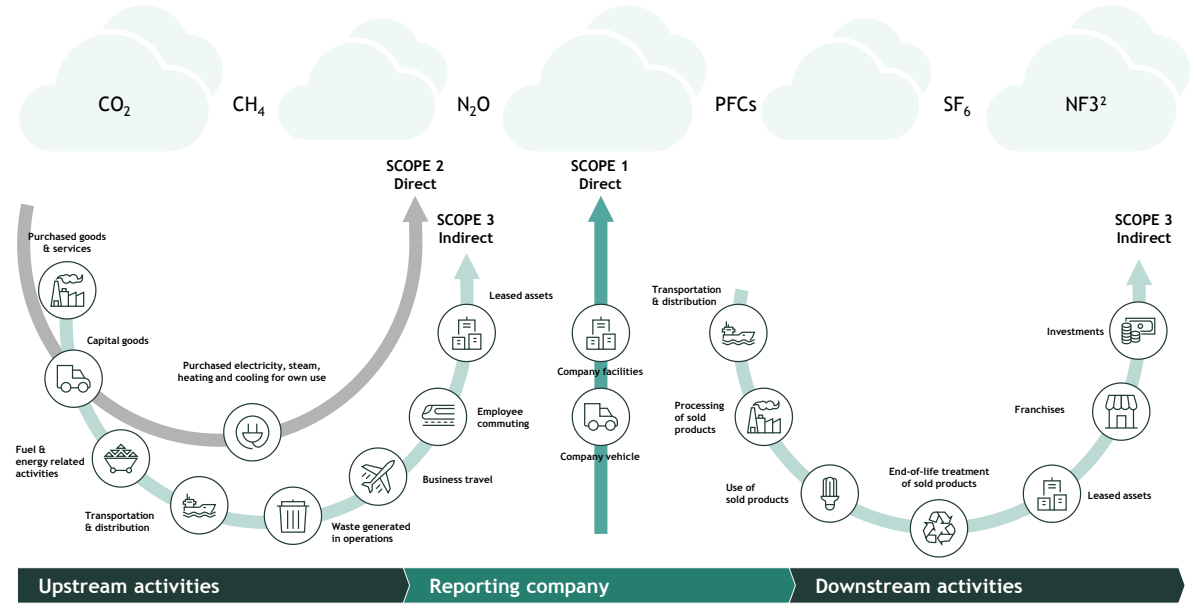
- Presentation of the GHG Protocol

  The GHG Protocol, created at the end of the 1990s, is the **global framework for calculating companies' greenhouse gas emissions (Scopes 1, 2 and 3)**. It has published several methodological guides freely available online to guide the calculation of these metrics.

[64] EBA

[65] EBA

Figure 13: Definition of GHG emissions scopes



The guide on Scope 3, published in 2013, defines 15 categories and provides details on guiding principles and calculation methods for each of these 15 categories[66]:

- Presentation of the PCAF (Partnership for Carbon Accounting Financials) methodology

PCAF is an open source collaboration that has led to the development of a Global GHG Accounting and Reporting Standard for the financial industry – in line with category 15, "investments", of the above-mentioned GHG Protocol Scope 3 guide. Developed in 2015 in the Netherlands, the PCAF methodology is now used by nearly 200 financial institutions across 50 countries, collectively representing over $57 trillion in assets.

PCAF is used for six categories of securities: (i) listed stocks and corporate bonds; (ii) corporate loans and unlisted equity; (iii) project finance; (iv) commercial real estate; (v) mortgages and; (vi) motor vehicle loans. In the future, PCAF should also cover sovereign bonds and Green Bonds: a consultation was launched in November 2021. A collaboration is under way with the Net Zero Insurance Alliance to develop a standard for measuring insured emissions. Different rules apply to each class of securities.

The standard developed by PCAF is used to ensure the quality of the data and to know which data give the most robust results according to the asset classes. Data quality is rated from 1 to 5 (1 for very robust data) so as to allow financial institutions to adapt their strategy to improve their data. The databases are freely available along with training sessions for PCAF members.

b) Carbon footprint, temperature and alignment with the Paris Agreement

These remarks on Scope 3 also apply to carbon footprint metrics or the **concept of alignment with the Paris Agreement**: as regulations progressively impose the publication of the carbon footprint, or even alignment with the Paris Agreement, for companies and financial institutions, private methodologies are emerging to identify concretely how these

[66] GHGProtocol.org, Scope 3 Calculation Guidance

metrics can be calculated. Given the amount of trial and error and the lack of maturity of these different methodologies, the ILB, for example, proposed an initial report reviewing them, while the FBF has set up a working group on the methodologies used. The Paris financial centre must continue to work on the need for greater standardisation of analysis methods.

- The regulations provide targets and even transparency requirements for carbon footprint and alignment, but without imposing standardised methodologies

  Article 29 of the Energy-Climate Law requires asset managers and institutional investors to publish their strategy for aligning with the temperature targets of the Paris Agreement – with quantitative greenhouse gas emissions targets to be met every five years between 2030 and 2050 on Scopes 1, 2 and 3, and expressed as a measure of temperature increase or a volume of greenhouse gas emissions. The decree does not prescribe a methodology, but requires that the methodology used be indicated.

  As far as alignment is concerned, **the SFDR technical standards** merely state that this (non-mandatory) disclosure should be made on the basis of forward-looking climate scenarios. As for the carbon footprint, an indicator that investors must disclose under the SFDRs, the technical standards specify it should be calculated using the following formula:

  [current value of investment / investee company's enterprise value] x the investee companies' Scope 1, 2 and 3 GHG emissions, divided by the total value of portfolio investments.

  The **EBA technical standards**, applicable to credit institutions, require the disclosure of the carbon footprint, without specifying a methodology, while requiring that the calculation method used be published alongside the indicator.

  As for **EFRAG's work in progress**, it develops reporting principles for the decarbonisation trajectory towards carbon neutrality and alignment with the Paris Agreement, in order to meet the CSRD's regulatory requirement that companies publish their transition plans to ensure the compatibility of the company's business model and strategy with the temperature targets of the Paris Agreement.

- PACTA (Paris Agreement Capital Transition Assessment) methodology

  The objective of the PACTA methodology, a publicly-available, open-source tool, is to measure the alignment of portfolios with various climate scenarios consistent with the Paris Agreement. PACTA is a tool developed by the think tank 2° Investing Initiative. It assesses the exposure of a portfolio's assets to eight sectors (power, coal mining, oil & gas upstream sectors, auto manufacturing, cement, steel, and aviation), collectively accounting for around 75% of greenhouse gas emissions. There are two versions of the PACTA tool: (i) PACTA for banks, to be applied to corporate loans; (ii) PACTA for investors, to be applied to funds, equities and corporate bonds. PACTA is now used by more than 3,000 institutions worldwide.

  PACTA provides three types of measures relating to (i) technology/fuel mix: this measures a portfolio's relative exposure to the economic activities most affected by the transition; (ii) production volume trajectory: this compares the portfolio's trajectory with that forecast by the climate scenarios selected; (iii) company level results: this uses the SBTi Sectoral Decarbonization Approach and shows greenhouse gas emissions intensity targets for the market and for the portfolios considered, as well as the portfolios' current average emissions intensity.

- TCFD Alignment Workstream

  In June 2021, TCFD released a technical report to help financial institutions measure their portfolio alignment with the Paris Agreement. In this report, TCFD provides guidance for selecting a methodology or tool to meet this objective. This tool should be: (i) simple to use; (ii) transparent; (iii) scientifically based; (iv) applicable to all types of assets; and (v) provide individual scores; (vi) not have a possible negative impact (e.g. should not discourage investments in sectors or regions that will naturally take longer to decarbonise).

- ILB Alignment Cookbook

  In response to both the keen interest in measuring alignment with the Paris Agreement and the nascent thinking on the subject, the ILB published "The Alignment Cookbook: A Technical Review of Methodologies Assessing a Portfolio's Alignment with Low-Carbon Trajectories or Temperature Goal", which **analyses and compares different methods** and existing frameworks for measuring the alignment of investment portfolios with a benchmark temperature. It begins by defining temperature alignment assessments as mathematical measures that look at how close a portfolio's climate performance (measured for example by its carbon footprint or climate scores) is to one or more temperature benchmarks chosen or constructed based on one or more temperature trajectories. This proximity is sometimes expressed by an implied temperature rise indicator (ITR).

  This report highlighted several findings: (i) the question of whether compatibility with a temperature trajectory can be used to assess if a portfolio contributes directly to the green and energy transition (i.e. has a positive impact) or is exposed to transition risks is not clearly demonstrated; (ii) several steps are identified to conduct a temperature alignment assessment: measuring performance at the company or portfolio level; selecting one or more scenarios; converting the decarbonisation trajectories provided by these scenarios into temperature alignment benchmark(s); and assessing temperature alignment by comparing the first and third step; (iii) a lack of comparability of results of alignment assessments when different methodologies are employed, and uncertainties that accumulate at each step of an alignment methodology.

2.4 Embryonic analysis tools

The financial system is a reflection of the economy, but the metrics that are relevant to a company in the real economy are not necessarily the most applicable to an investor, a financier or a financial portfolio. The question arises as to whether and how to use metrics such as carbon footprint, alignment with the Paris Agreement, or temperature. For example, temperature or alignment with the goals of the Paris Agreement are adequate on a global scale, but real intellectual work needs to be done to translate them to the scale of a country, a company or a portfolio.

This translation has been done at the French level through our climate objectives or the national low-carbon strategy; methodologies are beginning to be developed to adapt these concepts to the scale of the company and the portfolio.

These analysis methodologies, currently in their infancy, are not regulated beyond reporting obligations. This is true both in terms of measuring alignment with the Paris Agreement (see section 2.2.4.2) and in terms of the framework for assessing the performance of the underlying companies, although the SBTi and ACT methods represent significant advances in this area. The analytical framework is determined both (i) by the individual choices of economic and financial players to use this or that methodology, and (ii) by the various international coalitions – in particular the net zero alliances gathered within GFANZ – that have engaged in reflections on how to build a decarbonisation trajectory for financial players; and (iii) the financial analysis ecosystem (rating agencies, index providers), which has considerable influence on the analytical frameworks that will prevail over time and which is fundamentally based on market practices.

In any case, further developments will be necessary both in Paris and internationally to bring some order to the methodologies and to agree on a procedure for analysing a portfolio and an underlying company in light of our climate objectives. It is essential that the Paris financial centre be a driving force for proposals and analysis in this segment, to feed and influence international coalitions and the financial analysis ecosystem.

Companies and the financial system currently operate according to a standard financial accounting and analysis method that developed with the establishment of the market economy in the early 1980s. Many generations of professionals have been trained on the basis of the manual known as “Le Verminem”: an equivalent of this volume has yet to be drafted for the climate analysis of companies and financial portfolios.

2.4.1 Initial methodologies to assess companies’ transition efforts

a) Science-Based Targets initiative (SBTi)

The SBTi initiative, developed in 2015 by the CDP, the WWF, the World Resources Institute and the United Nations Global Compact, aims to develop tools to facilitate the definition and adoption of climate goals by companies. It defines and promotes best practices for emissions reductions and carbon neutrality targets; provides companies with technical assistance and expert resources to help them set targets in line with the latest climate science; and assembles a team of experts to provide companies with independent assessment and validation of their climate targets.

More than 1,000 companies in 50 different sectors are currently working with the initiative to set these climate targets. The SBTi’s 2020 Progress Report indicates that companies engaged with the initiative collectively reduced their emissions by 25% between 2015 and 2019. According to October 2020 figures, SBTi signatory companies represent 1.2 trillion tCO2e and a market capitalisation of $20.5 trillion.

In addition to **general methodologies** to support companies, **sectoral guides** have been or are being developed for the following sectors: aluminium; apparel and footwear; aviation; buildings; chemicals; cement; financial institutions; forestry and agriculture; information and communication technologies; oil and gas; energy; steel; and transport.

For financial institutions, the SBTi focuses on three methods:

(i) The Sectoral Decarbonization Approach (SDA): a sectoral approach based on sector-specific carbon budgets. The SDA thus makes it possible to know, for each company, the hypothetical carbon intensity trajectory to be followed in order to align with the 2°C target. It allocates carbon budgets between companies in a sector.

(ii) Portfolio coverage: a minimum of companies in which financial institutions invest have their own science-based targets;

(iii) Temperature rating: the SBTi determines the alignment of greenhouse gas emissions trajectories with three trajectories: 2°C, well below 2°C and 1.5°C.

b) ADEME's ACT method

The ACT (Assessing Low-Carbon Transition) initiative, launched by ADEME and the CDP (formerly Carbon Disclosure Project) in 2015, was developed to support and assess companies' low-carbon strategy. **It proposes methods that integrate forward-looking elements to assess the overall dynamics of companies' decarbonisation, based on the principle that economic players, particularly depending on their business sector, do not start with the same advantages or disadvantages in the face of the decarbonisation efforts required by the climate objectives set by governments**.

ACT covers **15 sectoral methodologies** (food, aluminium, automotive, construction, cement, chemicals, electricity, glass, iron and steel, gas and oil, paper, retail, real estate, transport and generic method). It is based on the International Energy Agency's (IEA) 2°C scenario.

The ACT method aims to assess, for each sector, a company's maturity with regard to the transition to a low-carbon economy – based on the methodology developed by the Science-Based Targets initiative (SBTi), the Sectoral Decarbonization Approach, for the description of the carbon budget available in a "2° trajectory".

Five key methodological principles guide the ACT evaluation:

- The issue of coherence between the company's emissions reduction targets (commitments) and the trajectory estimated from the Sectoral Decarbonization Approach;
- Whether or not there is a transition plan, including for the company's business model, to achieve these targets;
- The results of the analysis of the company's current strategy, its performance, the level of maturity of its governance, its influence on stakeholders;
- The analysis results of the company's recent actions to reduce greenhouse gas emissions;
- The results of the overall review of the coherence between the company's strategy, its action plans and the evolution of its business model with the greenhouse gas emissions reduction targets set.

The assessment resulting from the ACT methodology is based on a "gap analysis" (i.e. identification of the reasons justifying deviation from the 2DS trajectory and the levers to reduce it), using 13 indicators, weighted according to their sectoral relevance in order to establish an overall assessment of the company's strategy.

On this basis, after establishing a score, including an average (weighted) score of the performance indicators (from 1 to 20); a rating (from A to E) on the "narrative" criteria; and an assessment of the trend (positive or negative) of the rating; the methodology

identifies **three distinct types of deviations from the trajectory** (i) a **commitment gap**, by determining the gap at a given date between the target set by the company and the expected level of performance; (ii) a **horizon gap**, by determining the gap between the life of the company's assets and the maximum time horizon of the company's main target (this amounts to an analysis of the time constraints of the company's assets); and (iii) a **gap in terms of future actions**, by comparing the speed of reduction of past and expected emissions with the current decarbonisation trajectory.

2.4.2 International coalitions as a source of standardisation of objectives and analytical methodologies

Since the Paris Agreement, many international initiatives have been created to mobilise private financing for the ecological transition. This is the whole purpose of the One Planet summits launched in December 2017 by French President Emmanuel Macron, which resulted in 40 initiatives or coalitions involving 140 countries.

In preparation for COP26 and at the instigation of Mark Carney, the Glasgow Financial Alliance for Net Zero launched in April 2021 brings together various sectoral financial coalitions whose members are committed to carbon neutrality: the Net-Zero Banking Alliance, the Net-Zero Asset Managers Initiative, the Net-Zero Asset Owner Alliance, the Paris Aligned Investment Initiative, the Net-Zero Insurance Alliance, the Net-Zero Financial Service Providers Alliance, and the Net-Zero Investment Consultants Initiative. Collectively, GFANZ's 450 member financial institutions are responsible for more than $130 trillion in assets. The members of the various coalitions incorporated in GFANZ commit to setting short-term targets for carbon neutrality by 2050 within 12 to 18 months of joining.

GFANZ's workstreams focus more specifically on seven key areas:

- **Sectoral pathways**: catalysing alignment between financial institutions and major global industries on sector-specific pathways to reach net-zero emissions;
- **Real economy transition plans**: accelerating decarbonisation in the real economy by describing financial sector expectations of transition plans from the companies the sector engages with and finances;
- **Financial institution transition plans**: driving convergence around sector-wide best practices for financial institutions in designing and implementing credible net-zero transition plans;
- **Portfolio alignment measurement**: supporting the development and effective implementation of portfolio alignment metrics for financial institutions and driving convergence in the way portfolio alignment is measured and disclosed;
- **Mobilising private capital**: supporting the mobilisation of private capital to emerging markets and developing economies through private sector investments and public-private collaboration;
- **Policy**: advocating for the public policy needed to accelerate investment in net-zero aligned activities and organisations;
- **Building commitment**: broadening the nature and number of financial firms that are credibly working towards net-zero.

2.4.3 The private analysis and rating ecosystem

As outlined in **French MP Alexandre Holroyd's 6 June 2020 report** to the Prime Minister, providers of non-financial data, research, indices or ratings are now mainly American, following a consolidation movement and the takeover of the pioneering European players by the long-established players in financial analysis. The ESG analysis market was born on the European continent, and ESG data and related solutions (indices, ratings) are still used today, in a proportion of 60% in Europe, 30% in the United States and 10% in Asia[67].

Figure 14: Major M&A deals in the market for the provision of ESG data and analysis since 2009

Année	Mois	Cible	Acheteur
2009	Février	Innovest (US)	Riskmetrics (US)
	Septembre	Fusion Sustainalytics (Pays-Bas)/Jantzi Research Inc. (CND)	
	Novembre	Asset 4 (Suisse) KLD (US)	Thomson Reuters (US) Riskmetrics (US)
	Décembre	New Energy Finance (RU)	Bloomberg (US)
2010	Mars	Riskmetrics (US)	MSCI (US)
2012	Juin	Responsible Research (Sing)	Sustainalytics (Pays-Bas)
2014	Juin	GMI Rating (US)	MSCI (US)
	Juillet	zRating (Suisse)	Inrate (Suisse)
2015	Septembre	Ethix SRI Advisors (Danemark) ESG Analytics (Suisse)	ISS (US) Sustainalytics (Pays-Bas)
	Octobre	Fusion Vigeo (FR) /Eiris (RU)	
2016	Octobre	Trucost (UK)	S&P Global (US)
2017	Juin	South Pole/ Investment Climate Data Division (Suisse)	ISS (US)
	Juillet	Sustainalytics (Pays-bas) – acquisition de 40 % du capital	Morningstar (US)
2018	Mars	Oekom (Allemagne) Solaron (Inde)	ISS (US) Sustainalytics (Pays-Bas)
2019	Janvier	GES International (Suède)	Sustainalytics (Pays-Bas)
	Mars	Vigeo-Eiris (FR)	Moody's Corp (US)
	Juin	Beyond Ratings (FR)	London Stock Exchange (UK)
	Juillet	Four Twenty-Seven (US)	Moody's Corp (US)
	Août (en cours)	Refinitiv (ex Thomson Reuters, US)	London Stock Exchange (UK)
	Septembre	Carbon Delta (Suisse)	MSCI (US)
	Octobre	Ethical Corp (US)	Thomson Reuters (US)
	Novembre	Robecosam AG-ESG Ratings Business (Suisse)	S&P Global (US)
2020	Janvier	Ecovadis (FR)- Prise de participation minoritaire	CVC Growth Partners (US)°
	Avril	Sustainalytics (Pays-bas) – 100 % du capital	Morningstar (US)
	Octobre	TrueValueLab (US)	Factset (US)
	Novembre	ISS (US)	Deutsche Börse (All)
		Fusion IHS Markit (US)/ S&P Global (US)	

Source: AMF, "Provision of non-financial data: mapping of stakeholders, products and services", December 2020

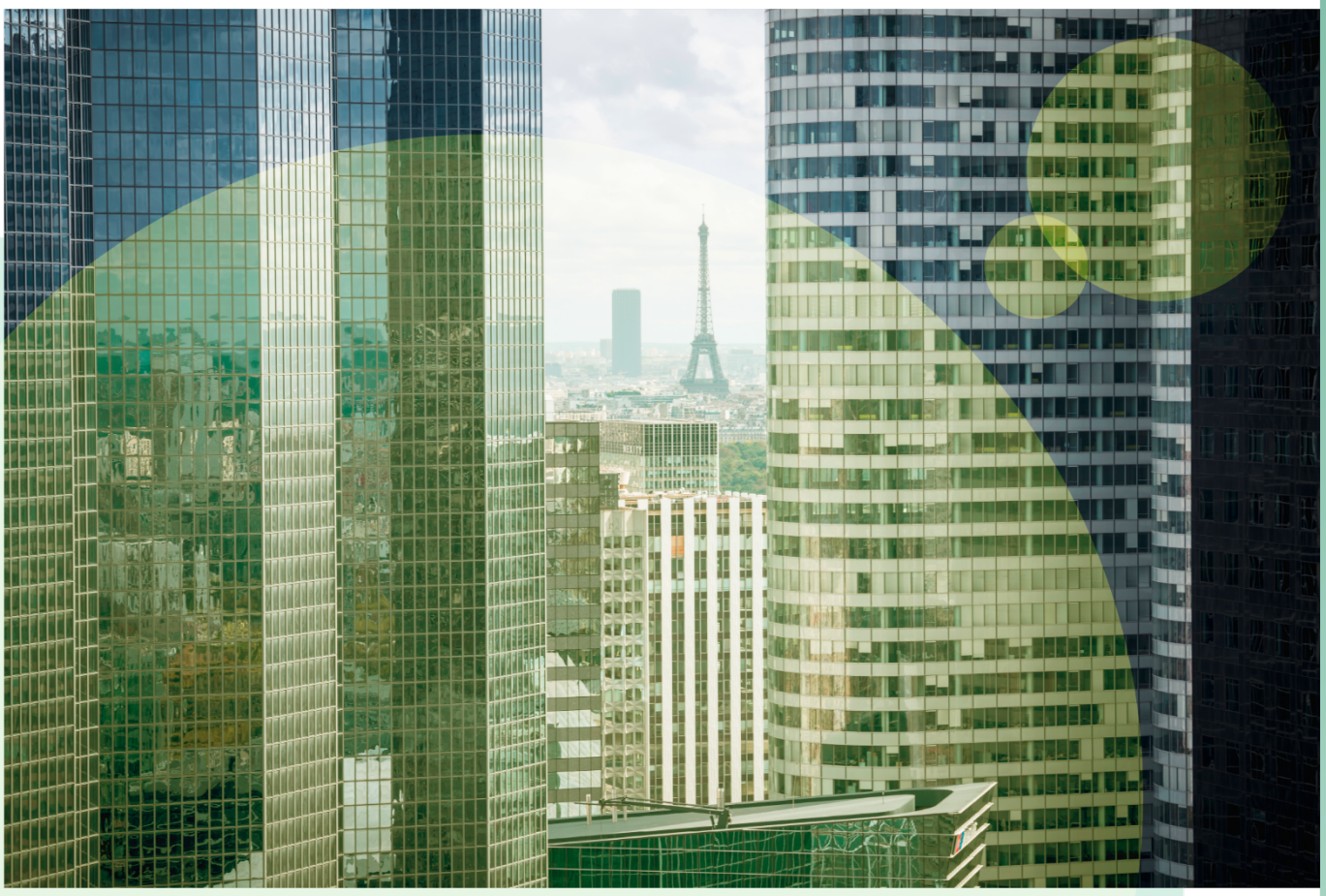
This market consolidation has enabled traditional American players in financial analysis to significantly step up their ESG analysis skills, a movement that these players intensified with the acquisition of European pioneers. In this way, one of the three largest rating agencies almost tripled its staff dedicated to non-financial rating in the years following the integration of the European expert.

A fundamental move for the Paris financial centre will be to collaborate and share its experience with these players, who are actively working on both key metrics and methods for analysing business performance, and who have considerable normative power and market influence. As one example of ongoing work among index providers and rating agencies, and in the context presented in section 2.2.4.2 of widespread trial and error on the subject, MSCI has developed an Implied Temperature Rise metric that allows its clients to measure the level of alignment of their investments with the Paris Agreement. These methodological advances will become widespread with or without the French and Europeans, and it is therefore vital to be part of the collective work that is already under way.

[67] Report by French MP Alexandre Holroyd, "Choisir une finance verte au service de l'Accord de Paris" (Choosing green finance for the Paris Agreement), 2020

CHAPTER 3

Review of the Paris financial centre's actions



The financial system is in a key position to help achieve the Paris Agreement targets. Through its role in financing the economy, mobilising and managing savings, and implementing monetary policies, but also through its influence, it has the power to direct the capital of households and companies towards the green industrial revolution.

3.1 Review of actions taken by the Paris financial centre

3.1.1 Overview of corporate initiatives

The players who make up **the Parisian financial centre** were **among the first to work to combat climate change**. Banks, institutional investors, asset managers, insurers, unions, rating agencies – **an entire ecosystem is marshalling its forces**. This mobilisation involves first and foremost the definition of **emissions reduction and offsetting strategies** (Net Zero), which are carried out on an individual scale or by participating in international collective agreements (Net Zero Banking Alliance, Net Zero Asset Owner Alliance, Net Zero Insurance Alliance). The next step is aligning investment portfolios with these targets, in particular by setting target trajectories for the various business sectors or by excluding a number of sectors with high levels of emissions from investment policies (notably coal and hydrocarbons).

In order to measure and monitor the initiatives deployed, the Paris financial centre is working on the creation of **new accounting frameworks** and **reporting** of information specifically dedicated to climate issues. Finally, in order to place sustainability objectives at the heart of corporate strategies, Paris acts to implement **new modes of governance and internal management** (sustainable finance committees, executive variable compensation, and so on).

However, while all these players are committed to fighting climate change, their working methods and tools still need to be standardised. Today, there is still no **analytical standard**, the methodologies used are heterogeneous and data quality is uneven. As a result, the results published by companies in their reports are difficult to read and compare. Regarding governance methods, integration into entities' internal management remains incomplete. In addition, the various market participants work in silos, in a very independent manner. There is no governance body that provides them with specific mandates as part of an overall strategy.

This is all the more concerning in that other financial markets are catching up with the lead initially taken by Paris, with the implementation of initiatives to federate players such as the Green Finance Institute (GFI) in London and the Green and Sustainable Finance Cluster Germany (GFCG) in Frankfurt. The financial centre's next actions should therefore focus on harmonising standards (with common accounting and reporting bases) and setting up strengthened cooperation frameworks between companies, public authorities and financial players so as to define common roadmaps and make Paris a hub of innovation and competitiveness in terms of green finance, with a real capacity to influence.

3.1.2 Banks

French banks have already made efforts to **exclude certain activities from their scope of activity**, to set up **new, well-structured governance** on environmental issues, and to define **methodologies** for measuring carbon footprints and setting financing targets. Finally, they have all joined **international initiatives** or working groups dedicated to managing the climate challenge[68].

► Defining emissions reduction and offsetting strategies (Net Zero)

The major French banks have all joined the Net-Zero Banking Alliance (NZBA), launched in April 2021 and comprising 98 banks from 39 countries, with the ambition of aligning the GHG emissions induced by their own credit and investment activities with the pathway of **carbon neutrality by 2050**, based on credible transition scenarios published by recognised bodies. Under the NZBA, they are also required to set **intermediate targets** for no later than 2030 within 18 months of their commitment (i.e. by October 2022 for most banks) for the most polluting sectors, and within 36 months for all other sectors. Within the same timeframe, they are required to **annually disclose their carbon exposures and footprints by sector** (baseline), their **progress** (distance to targets) and **associated action plans**. All the banks have therefore started to formulate sectoral decarbonisation targets for a number of sectors and launched a system to monitor their financing choices according to their climate impact.

While **all banks aim to exit thermal coal by 2040**, they have adopted different roadmaps: four French banks have joined the Science Based Targets initiative (SBTi), five banks (BNPP, CASA, LBP, SG and Natixis) have signed the Collective Commitment to Climate Action (CCCA) as part of the Principles for Responsible Banking (PRB), committing to publish precise targets for reducing the carbon footprint of their financing by September 2022. Finally, several different assessment methodologies are used:

- **BNPP** uses the ESG Assessment, which analyses five dimensions of ESG risks, including climate, through questionnaires specific to each business sector.
- CASA uses the Climate Transition Scores, an assessment of how its clients are exposed to and preparing for the energy transition. These scores are used by the entire Crédit Agricole Group (CIB, asset management, insurance).
- BPCE uses the Green Weighting Factor (GWF) on the Natixis CIB scope, a score including climate and environmental elements (biodiversity, water, pollution).
- SG determines a "climate change vulnerability indicator" for each client, with the most vulnerable borrower levels resulting in an opinion on the client's adaptation strategy for transition risk, with a focus on long-term exposures.

► Aligning investment portfolios with these targets

Setting decarbonisation targets is a complex exercise for banks due to the lack of robust data to monitor portfolios. They rely on the climate change scenarios proposed by international organisations (IEA, IPCC, etc.) to develop transition strategies for their portfolios, but there are many such strategies and they often lack geographic and sectoral granularity.

[68] FBF, banking scope of the 6 main French banks: BNP Paribas (BNPP), Crédit Agricole (CASA), Groupe BPCE (BPCE), Groupe Crédit Mutuel (CM), La Banque Postale (LBP), Société Générale (SG)

The sector in which banks have already made the strongest commitments are **fossil fuels**: thermal coal, oil (Crédit Agricole aims to reduce its exposure by 20% by 2025) and gas (BNP Paribas and Société Générale aim to reduce their exposure to oil and gas by 10% by 2025)[69].

- Exclusion of some of the most polluting sectors from investment policies

  In July 2019, French banks made a joint commitment to exit thermal coal (currently representing 0.16% of their consolidated corporate loan portfolio) by 2040 and to disclose their exposure annually in their non-financial reporting for the Climate Finance Day[70]. As a result, they no longer finance new coal-fired power plant or thermal coal mine projects and no longer enter into a relationship with clients whose share of coal-fired power exceeds a set threshold. This threshold varies from bank to bank, but is typically 25-30%, and they require their clients below the exclusion threshold to deploy a plan to exit thermal coal, with deadlines aligned with their collective commitment (2030 for OECD countries, 2040 for the rest of the world). Additional steps were taken in October 2021 to extend this exclusion to non-conventional hydrocarbons, notably shale oil, shale gas and oil sands. Banks therefore no longer finance dedicated projects and companies whose share of non-conventional hydrocarbons in exploration and production exceeds 30% of their activity.

  Some banks have **individually** pledged to stop supporting companies developing new coal-fired power plant or thermal coal mining capacity (cases in point are CASA and BPCE/Natixis). While all of them exclude oil sands from their investment scope, five of them (BNPP, CM, SG, LBP, BPCE) totally exclude shale oil and gas. Finally, for oil and gas in general, all the banks use public sector policies to frame their financing and investment activities, but La Banque Postale is the only one to have committed to a definitive and complete exit by 2030.

- Creation of new accounting and reporting frameworks dedicated to climate issues

  The major French banks are all developing methodologies for measuring the carbon footprint of Scope 3 investments. They also contribute to the CDP (formerly Carbon Disclosure Project), which promotes and manages the reporting of key environmental risks, and to the Task Force on Climate-Related Financial Disclosures (TCFD). Again, the methodologies used vary from bank to bank and the results reported are therefore not comparable. Moreover, none of these methodologies can cover all of the institutions' financing portfolios.

  Harmonisation initiatives are under way to overcome this issue: for instance, market-based methodologies for measuring carbon footprints, such as that of the Partnership for Carbon Accounting Financials (PCAF), which proposes common carbon attribution rules for most banking products. The FBF also published a document proposing a methodology for measuring carbon footprint and alignment with the Paris Agreement pathway[71] for real estate loan portfolios in July 2021, but to date none of the banks have published complete data on their real estate loan portfolio with this methodology.

- Implementation of new modes of governance and internal management

  Among the common policies of banks in terms of governance and internal management, **teams dedicated** to **CSR**, **sustainable finance**, and **climate risks** have been set up within banking institutions. These teams generally report to general management, which is responsible for validating the CSR strategy, monitoring its implementation and reporting on its actions. Banks have also created committees dedicated to CSR, sustainable finance and/or climate risks, reporting to the **Board of Directors** or **Supervisory Board** and to the

[69] Public communications made by the banks

[70] FBF, banking scope of the 6 main French banks: BNP Paribas (BNPP), Crédit Agricole (CASA), Groupe BPCE (BPCE), Groupe Crédit Mutuel (CM), La Banque Postale (LBP), Société Générale (SG)

[71] Sustainable Finance Observatory, publications

Executive or **Management Committees**. Finally, they are implementing non-financial communication that integrates climate issues via **online climate reporting**.

Some individual bank policies go further: **5 banks** (BNPP, BPCE, CASA, LBP, SG) include **sustainability criteria in the annual variable compensation of executives and key employees**, including several indicators linked to the achievement of objectives concerning the fight against climate change, the development of sustainable finance, and support for the ecological transition. In addition, five banks (BNPP, CASA, BPCE, CM, SG) publish a **TCFD report for their climate reporting**.

3.1.3 Asset managers

Almost all asset management companies are fully operational, although most initiatives are individual and **not harmonised**. We will rely here on a **survey conducted by the AFG in January 2022** among 56 portfolio management companies, representing 69% of assets under management in France.

► Defining emissions reduction and offsetting strategies (Net Zero)

While **80% of the portfolio management companies surveyed** claim to have defined a **decarbonisation strategy**, these strategies remain very heterogeneous and very broad. They mainly refer to the need to reduce CO2 emissions within the framework of the Paris Agreement, without providing quantified and dated objectives. Only **43% of portfolio management companies** have set a **goal of carbon neutrality by 2050** and of these, 71% have set intermediate targets, mainly linked to the Net Zero initiative with a 2030 horizon. Initiatives to achieve these targets include:

- **CA100+** (Climate Action 100+), which stands out as the benchmark initiative with 73% of respondents having signed up to it.
- The Carbon Disclosure Project (**CDP**), with 20% having signed up to the disclosure campaign and 15% to the Science-Based Targets Initiative (**SBTi**) campaign.
- Ad-hoc **coalitions** on specific **resolutions** (e.g. Say on Climate).
- The PRI and the Shareholders for Change network (SFC).

Asset managers face a major obstacle in achieving their targets: the lack of issuer data needed to measure decarbonisation trajectories. However, from a regulatory standpoint, these will not be available to investors until 2023/2024.

► Aligning investment portfolios with these targets

A large proportion of asset managers use the **carbon intensity** or **carbon footprint** of portfolios as a benchmark to guide investment choices, but few of them have opted to commit to a portfolio temperature alignment target. More than half of asset managers have set quantitative environmental targets, and of these, 60% have chosen to monitor the carbon footprint or intensity of their portfolios. Almost all of them have a responsible investment policy that includes environmental indicators, but only 48% of them use Scope 3.

Finally, 33% have a **green investment objective** (such as green bonds) and 50% have a **range of low-carbon funds**.

► Exclusion of some of the most polluting sectors from investment policies

Almost all asset managers (96%) have implemented coal sector exclusion policies. The numbers are lower for other fossil fuels: 54% of asset managers have exclusionary policies in place for unconventional fossil fuels. Among these, the selected scopes are mainly oil sands, shale oil and gas, deep-water oil and gas, the Arctic zone, and liquefied natural gas. Finally, 30% of asset managers have implemented oil and gas exclusion policies.

- Creation of new accounting and reporting frameworks dedicated to climate issues

  Accounting methods vary greatly between asset managers: 67% use an implied temperature indicator, 22% use avoided emissions based on various scenarios (2DS, B2DS, 1.5°C Net Zero IEA, etc.), some use other environmental measurement tools such as the Green Share (57%) or the Transition Risk Score (28%). Finally, of the two-thirds which have set a **time horizon**, **40%** opted for **2050**, **20%** for **2025**, **8.5%** for **2100** and the rest refer to multiple horizons.

3.1.4 Insurers

The insurance business, with an activity focused on risk management, is closely linked to environmental issues. In addition, insurers have a significant role in financing the economy, with €16 billion of net investments in the third quarter of 2021[72]. The integration of climate issues in their activity is therefore essential and already largely under way in France.

- Defining emissions reduction and offsetting strategies (Net Zero)

  Insurers mobilised very early on to define **strategies to reduce their GHG emissions**: in 2015, they signed the **Paris Pledge for Action**, marking their support for the targets set by the Paris Agreement, and then in 2019, they signed the **Paris Financial Centre declaration on green and sustainable finance** by which they undertook to contribute to the target of **carbon neutrality by 2050**. Many insurers, representing **68% of market assets**, have already adopted a **strategy of alignment with the Paris Agreement**[73].

- Aligning investment portfolios with these targets

  Initiatives are multiplying within insurers' portfolios: **green investments** have more than **doubled in three years**, rising from €49 billion in 2017 to **€113 billion by the end of 2020** (i.e. 5% of assets under management). Furthermore, the number of **green and responsible unit-linked accounts** offered by insurers in retirement savings products has **doubled in three years** and now reaches **€91 billion** (at **end-September 2021**)[47].

- Exclusion of some of the most polluting sectors from investment policies

  Insurers have been committed **for the past five years** to **common exclusion policies** which have recently been reinforced. In 2017, they committed to stop funding **coal** expansion projects.

  This commitment has been followed by actions[47]: more than €3 billion has been divested from coal since 2018, of which €1.8 billion in 2020 alone, so that insurers' coal exposure now represents 0.7% of assets under management. All French insurers have a policy of excluding coal, and 15 groups representing nearly 75% of the market's assets are planning to **exit coal by 2030 in the European Union**. In October 2021, French insurers went a step further by committing to define **policies for dialogue with fossil fuel companies**, including timetables for ending the financing of companies that do not relinquish new unconventional fossil fuel production projects. By way of illustration, 13 insurers representing 80% of market assets have already implemented exclusions related to unconventional fossil fuels[47].

[72] Banque de France, statistics

[73] Fédération Française de l'Assurance (French Insurance Federation)

► Creation of new accounting and reporting frameworks dedicated to climate issues

Insurers are required by law to comply with reporting standards, set out in Article 173 of the Energy Transition Law for Green Growth. These standards specify the information that insurance organisations are required to disclose[74]:

- The process of building ESG criteria into the investment policy and, where applicable, risk management.
- The methods of informing subscribers about the inclusion of ESG criteria.
- Signing up to a charter/code/initiative or obtaining a label on the consideration of ESG criteria.
- The procedures in place to identify the risks associated with ESG criteria and the exposure of the business to these risks.
- For insurers with a balance sheet of more than €500 million, disclosure requirements are reinforced.

In order to communicate on the progress made by insurers in the area of climate change, **France Assureurs** has also produced **an ESG-climate barometer** to show stakeholders how insurance contributes to sustainable finance.

In-house, the majority of insurers use climate accounting methods[47]. On the assets side, 80% of insurers state that they are able to identify and measure their exposure to climate change risks. The main tools for measuring risk materiality are ESG ratings, analytical identification (the issuer's business sector and, secondarily, the geographical region) and the carbon intensity of assets. On the liabilities side, nearly 83% of insurers say they can identify and measure their exposure to climate change risks, mainly by the geographic location of insured companies and individuals and sometimes by other criteria such as the sums insured per contract or the year of construction in the case of real estate.

3.1.5 Companies

The transformation of the economy to meet climate targets depends first and foremost on the companies, particularly industrial companies, that implement the transition. **For many of the companies interviewed as part of the mission, the carbon transition has become the core of their strategy: it is forcing them to fundamentally rethink their business model and is a condition for the company's survival in the medium term.**

The transition requires significant investment in research and technology and deployment of solutions, and this is well factored in by the industrial companies surveyed – also guided by current and anticipated regulations. These investments are sometimes made in addition to the other, non-transition investment plans, sometimes consisting more of a reorientation of existing investment plans, with no significant increase in overall amounts.

Large French companies are increasingly adopting **climate targets** and **transition plans** to reduce their greenhouse gas emissions.

- For example, in terms of transparency, about 130 French companies (including 62 non-financial services companies) have signed up to the **TCFD**, and the President of the Republic Emmanuel Macron announced in December 2020, on the occasion of the five-year anniversary of the Paris Agreement, that all CAC 40 companies would align their reporting with the TCFD's recommendations from 2021 onwards (where this is not already the case).

[74] ACPR, *Les assureurs français face au risque de changement climatique* (French insurers and climate change risk) (2019)

- The **SBTi initiative** is currently calling for nearly 300 French companies to set certified temperature targets. 86 of them have already committed with SBTi to a 1.5°C target, 38 to a "well-below 2°C" target, and 20 to a 2°C target.
- 100 French companies are committed to the **ACT process.**

In April 2021, the **Afep** launched a digital platform called **Ambition 4 Climate**, which aims to illustrate the achievements of companies that will eventually lead to the collective target of carbon neutrality. The purpose of this platform is to allow stakeholders, whether investors or civil society, to better understand the projects being implemented by companies in the field of decarbonisation. At its launch, the platform brought together 34 companies implementing 68 significant and replicable low-carbon projects, aimed at reducing greenhouse gas emissions within the company or across its value chain.

The **French Business Climate Pledge**, formed in 2015 and supported by the **MEDEF**, is a voluntary commitment in favour of the ecological transition that currently brings together 309 French companies. According to October 2020 figures, companies already committed in 2017 made €68 billion of industrial and R&D investments in renewable energy, energy efficiency or other low-carbon technologies in 2017-2018, more than the investments initially planned for the 2016-2020 period (€60 billion). For the period 2020-2023, 55 companies that submitted their investment forecasts in October 2020, planned to invest €73 billion in the aforementioned industrial and R&D investments.

Furthermore, **21% of large companies listed in Paris** use an **internal carbon price**, compared with 15% of large companies listed in Toronto, 14% of those listed in London, 12% in Milan, 9% in Tokyo, 8% in Frankfurt and 4% in New York[75].

3.1.6 Financial authorities

The supervisory authorities, **ACPR and AMF**, have a major role to play in ensuring the proper functioning of the financial markets and the protection of the financial industries in Paris in the face of the challenges of climate transition. In recent years, they have notably made a contribution by publishing reports providing keys to success for financial players and by conducting a national climate stress test.

AMF and ACPR monitoring and assessment reports on the market's climate commitments

The Declaration of the Paris financial centre of 2 July 2019 on exiting coal financing was accompanied by mechanisms to ensure the credibility of these statements. In particular, the sustainable finance commissions of the AMF and the ACPR have been working on monitoring and assessing climate commitments, the results of which are presented in a joint annual report. The 2020 edition of this report highlighted varying levels of ambition and actual efforts by Paris financial institutions to move away from coal financing. **While recognising the growing commitment of the Paris financial centre to climate transition and portfolio decarbonisation, the 2021 edition** (pre-report published in October 2021 for the Climate Finance Day, final report in December):

► Assesses the coal policies developed by market participants

Supervisors note that financial institutions updated and supplemented their coal policies in 2020, in some cases tightening the exclusion criteria and/or thresholds applied. All banks and insurers, as well as most of the major asset managers in the market, now have an exit date for the sector, generally 2030 for OECD countries and 2040 for the rest of the world. In addition, a growing number of players now also exclude the financing of coal-sector companies developing new projects, even though market participants still apply varying

[75] Climate-KIC, I4CE and PwC, "Benchmarking the greenness of financial centres", December 2017.

definitions of the notion of "developers". The supervisors conclude that two years after the July 2019 declaration, approaches and levels of ambition still remain heterogeneous from one player to another.

- Proposes an initial analysis of sectoral policies dedicated to other fossil fuels

  According to the report, the policies, which are still underdeveloped among non-bank players, generally focus on certain non-conventional energy sources. They often still lack precision and apply to various scopes.

- Estimates the exposure of these different sectors to fossil fuels

  The exposure of market participants to companies linked to the coal sector remains very low, significantly less than 1% of assets, with disparities between players. Turning to the oil and gas sector, and based on the statements collected, the exposure to these two fossil fuels in 2020 comes out: (i) for banks: at €174.2 billion for conventional oil and gas (compared with €146.7 billion in 2015) and at €19 billion for non-conventional oil and gas (compared with €18 billion in 2015); (ii) for insurers: at €29.4 billion, or 1.2% of total investments; (iii) for asset managers: at €21.5 billion for the French funds of the 20 largest management companies, or 2.2% of the total assets under management of these management companies.

- Reiterates their recommendations from 2020 and makes new recommendations, in particular regarding an exit from the financing of non-conventional hydrocarbons

  Unlike the Scientific Committee of the Sustainable Finance Observatory, which has issued recommendations on how financial institutions should develop their policies for exiting fossil fuel financing, the supervisors issue recommendations on the transparency, comparability and robustness of such commitments and on monitoring their implementation.

  They therefore recommend that market players develop policies for sectors related to fossil fuels and clearly explain the approach adopted; and that they present the applicable policies in a single document and across the entire "fossil fuel" value chain. **Market players should conduct additional collective methodological work in order to calculate their exposure to fossil fuels** (new regulatory obligation introduced by Article 29 of the Energy-Climate Law), specify the data used, justify the criteria and thresholds used by their policies and explain the estimated impact of their commitment.

  Market players should also **adopt a common definition of "non-conventional hydrocarbons"** so that everyone speaks the same language.

  Supervisors believe that their 2020 coal recommendations are still poorly implemented, and exit strategies, as well as potential steps to meet the stated targets, are rarely described. They therefore consider that the 2020 recommendations remain valid. In particular, the description of the "coal" strategy is often fragmented between several documents, which makes it difficult to fully understand and access the information. Furthermore, the metrics for judging whether the institution's trajectory is in line with its targets are not yet disclosed.

- ACPR's pilot climate stress test

  The ACPR organised a **pilot climate stress test in 2020** to ensure the resilience of French financial institutions to climate risk. The objectives were to measure both physical and transition risks, particularly those related to the carbon tax and the reduction in the consumption of carbon products.

  This pilot exercise **highlighted the moderate exposure** of French banks and insurers, due to their low involvement in the sectors most impacted by the climate transition. The evolution of the carbon price has little influence on the trajectory of the GDP trend and does not lead to a major sectoral reshuffle. Rather, the main financial risk is climate change-

related damage, which can have a very negative impact on insurance liabilities[76]. Finally, the exercise warns of the considerable efforts that still need to be made to achieve the targets set for 2050.

3.1.7 The Paris financial centre's collective mobilisation

Other players in the Paris financial centre are strongly committed to the fight against climate change. Among them are public authorities, including **Agence de l'Environnement et de la Maîtrise de l'Energie (ADEME)**, research organisations such as **Institut Louis Bachelier (ILB)** or **Institut de l'économie pour le climat (I4CE)**, or **non-profit organisations** such as **Finance for Tomorrow**, which hosts the **Sustainable Finance Observatory**, the **French SIF (Sustainable Investment Forum)**, the **ORSE** or **Entreprises pour l'environnement (EpE)**.

Paris Europlace

Paris Europlace is a privileged interface with the French and European public authorities. Its mission is to bring together and represent all the players in the Paris financial centre, both financial institutions and issuers. Through its various actions (financial research, think-tank, contributions to European work, support for Fintechs, and so on), it aims to make the Paris financial centre an attractive competitive cluster.

Institut Louis Bachelier (ILB)

Within the Paris Europlace ecosystem, the ILB has established a scientific research network to promote sustainable development in economics and finance. It hosts more than 60 programmes on the themes of the environment, digital, demography and finance, and has created more than 70 research chairs in ten years with more than 1,000 researchers.

Concerning climate change, the ILB has set up the **Green and Sustainable Finance (GSF)** programme, which aims to strengthen the multidisciplinary research dynamics on green and sustainable finance in France. It organises seminars, conferences, working groups and requests for proposals. The ILB has also been running the **Laboratory of Excellence in Finance and Sustainable Growth** since 2012 and more recently a **Centre of Excellence on ESG data**.

Finance for Tomorrow

A branch of Paris Europlace, the **Finance for Tomorrow** initiative created in June 2017 seeks to put green finance at the heart of the Paris financial centre's development strategy. It federates **107 members**, signatories of a charter aiming at **redirecting financial flows towards an inclusive and decarbonised economy**, aligned with the targets of the Paris Agreement and the UN Sustainable Development Goals (SDGs). Its three key ambitions are to make the Paris financial centre stand out by the quality of its products and its expertise in green and sustainable finance, to strengthen synergies and public-private co-construction, and to organise the European and international influence of Paris as a green financial centre.

The Sustainable Finance Observatory

The creation of *Observatoire de la Finance Durable*, France's Sustainable Finance Observatory, **steered jointly by the professional federations and Finance For Tomorrow**, was announced by Bruno Le Maire, Minister for Economic Affairs, Finance and Recovery, as part of the 2 July 2019 declaration. Its objective is to **monitor the transformation of the French financial sector** towards a more sustainable finance and the achievement of the

[76] Analysis by ADEME of the French climate stress-testing exercise

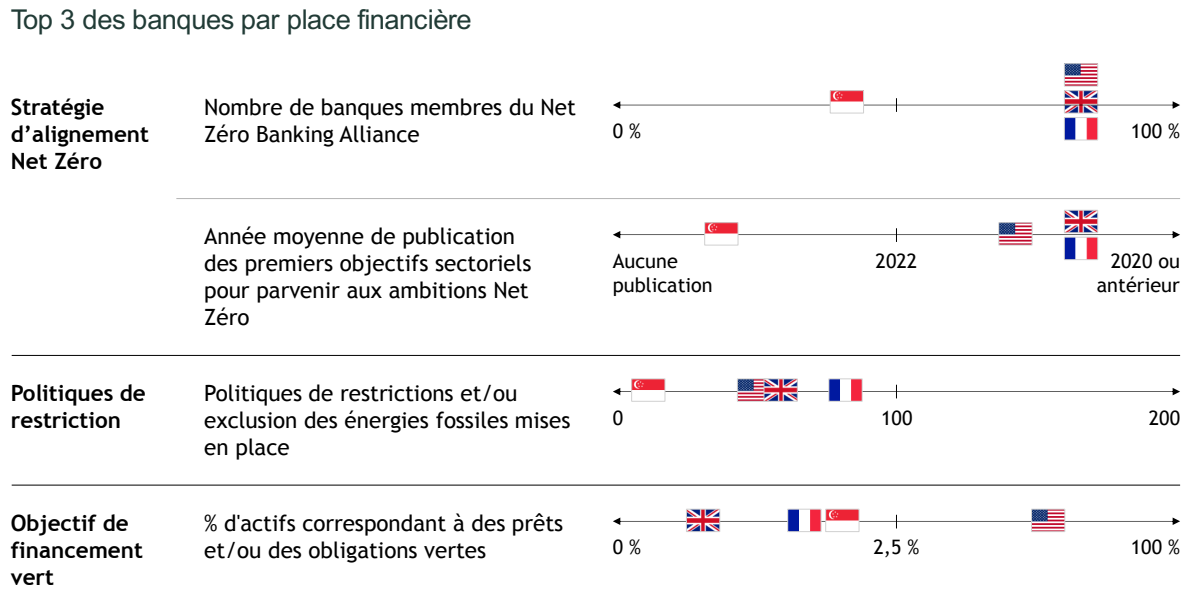
Paris Agreement targets, in particular by **monitoring the commitments of financial players**. An **independent and advisory scientific and expertise committee** can issue **public recommendations**, aimed at improving the quality and relevance of the Observatory's data (qualitative information and KPIs). The project benefits from a grant from ADEME and a grant from the European Union.

Institute for Climate Economics (I4CE)

The Institute for Climate Economics is a **think tank, expert in economics and finance**, founded by the Caisse des Dépôts and the French Development Agency, whose objective is to support **actions against climate change**. It contributes to the debate on climate-related policies through applied research and publishes analyses to support the work of financial institutions, companies and territories and to help them integrate climate issues into their activities. Concerning the financial issues related to climate change, I4CE documents and analyses the investments made annually for the climate, the way they are financed, and the future investment needs. The Institute also seeks to **meet the methodological challenges** of measuring transition risks and to support the development of the French low carbon label.

3.2 How does the Paris financial centre compare to other financial centres?

Figure 15: Benchmark of major global financial centres' climate commitments: Paris, London, New York, Singapore*



Sources: UN Environment programme website; S&P Global Market Intelligence; Bank public communications; Autonomous report; Bank track

► Net Zero Ambitions for 2050 with the Net Zero Banking Alliance[77]

By 2021, the **30 largest lenders** by assets in the United States, Canada and Europe, representing **40% of global banking assets**, had joined the Net-Zero Banking Alliance. They commit to reducing greenhouse gas emissions from their lending and investment portfolios to zero by 2050 and to publishing interim targets for 2030 at the latest. Only one institution, La Banque Postale SA in France, has set a more demanding target of zero emissions by 2040. The three largest French, British and American banks have joined the NZBA. Asian banks lag behind somewhat: among the few signatory banks, there are DBS in Singapore, four Japanese banks and five South Korean banks[78].

The **main issues** for the signatory banks are the **definition of Scope 3 targets and intermediate targets**. Emissions from Scopes 1 and 2 of the financial sector are low and many banks have already reached their net-zero targets on these two scopes. On Scope 3, not all countries have set the same intermediate targets in terms of timing and sectoral granularity (Annex 5.3).

* BNP, SG, CA (France), Barclays, HSBC, Lloyds (UK), JPMorgan, Citigroup Goldman Sachs (US), DBS, OCBC, UOB (Singapore)

[77] UN Environment Programme (UNEP) website

[78] S&P Global Market Intelligence

- Fossil fuel restriction and/or exclusion policies

  Most banks aim to limit or even exclude their exposure to certain sectors, mainly those related to fossil fuels. Among them, French banks have been pioneers, with targets for a total exit from thermal coal by 2040. European banks have also formulated targets, while US and Asian banks are less ambitious, setting targets to reduce financed emissions but without defining a total exit (Annex 5.3). **Bank Track** has developed an index ranging from 0 (lowest score) to 200 (highest score) based on a review of financing projects, exclusion policies, and final exit plans from the coal, oil and gas sectors. It places **French banks above British and US banks**, with **Asian banks at the bottom of the rating scale**.

- Publication of sectoral objectives[79]

  All of the major French, British and US banks surveyed have published sectoral targets detailing their net-zero ambition by 2050. British and French banks were the first to share this type of report, followed closely by US banks. Asian banks have not published any broad sectoral targets, with the exception of a few commitments to restrict or exclude financing to certain sectors.

- Green financing targets on the rise, although still limited

  Over the past three years, all of the banks surveyed have formulated funding targets for sustainable activities. While the amounts are high in absolute terms, they appear slighter when considering their relative value to all banks' outstandings, with a level still below 4.5% all countries combined (for France, the average is 1.4%). The definition of the activities in question varies from bank to bank and is not always clearly defined, sometimes blurring with more general ESG investments and making it difficult to distinguish the amount specifically dedicated to the fight against climate change. French bank Société Générale, for example, reports a €120 billion commitment by 2023 for the "energy transition",[80] while Singapore's DBS announces "sustainable" financing targets of SGD50 billion by 2024,[81] and US bank Citi reports $1 trillion in financing by 2030 for a wide range of climate solutions including renewable energy, clean technologies, water conservation and sustainable transport[82]. The scope of financial instruments included in the targets can also vary. Some banks include loans, green bonds and advisory activities, while others limit themselves to some of these activities.

[79] Autonomous Report, Global banks, climate risk: the green growth opportunity - Goldman Sachs Accelerating Transition report

[80] Societegenerale.com, Société Générale strengthens its climate commitments

[81] DBS.com, DBS Hong Kong extends first ESG loan of RMB 1 billion to China Resources Land Limited

[82] Citigroup.com, Citi Commits $1 Trillion to Sustainable Finance by 2030

3.3 Organisation of the Paris financial centre

3.3.1 How is the Paris financial centre organised?

The Paris financial centre has a **solid ecosystem** to support financial players in their sustainable transition:

In terms of research and innovation, it benefits from the support of the players mentioned above (see 3.1.6.), namely Institut Louis Bachelier (ILB), the Institute for Climate Economics (I4CE), but also the French Agency for the Environment and Energy Management (ADEME) via its request for research projects on climate finance, "Climfi". Partnerships with universities support research efforts, in particular *Finance Durable et Investissement Responsable* (Sustainable Finance and Responsible Investment, FDIR), a partnership between Ecole Polytechnique and the Toulouse School of Economics, which works to develop research methodologies to identify and integrate the non-financial criteria that create value. In parallel with research efforts, certification mechanisms are particularly effective in the Paris financial centre. With two recognised financial product labels to date, Greenfin and SRI, Paris is the most advanced market in terms of guaranteeing the sustainable quality of investment funds. The positive impact of these schemes seems to be reflected in the amount of green loan and bond issuance, €143 billion in France in 2020, a level surpassed by only one country, the United States, with €218 billion. That said, these green finance support structures still operate in silos and could benefit from more cooperation or even integration.

3.3.2 How are other financial centres organised?

Figure 16: European benchmark of financial centres' organisation to integrate climate issues

		Paris	Londres	Francfort	Amsterdam	Stockholm	Luxembourg
Recherche & Innovation	Groupes de travail	✓	✓	✓	✓	✓	✓
	Instituts de recherche	✓	✓	✓	✓	✓	✗
	Partenariats universités	✓	✓	✓	✓	✓	✓
	Accélérateurs	✓	✓	✓	✗	✓	✗
Obligations vertes	Plateformes de cotation pour les obligations vertes	✗	✗	✗	✗	✗	✓
	Montant d'émissions d'obligations et prêts verts (Mds €)	143	75	95	104	29	N.a
Labellisation	Agences de labellisation	✓	✗	✓	✗	✗	✓

Sources: Direction Générale du Trésor (French Treasury); Bloomberg and Dealogic, August 2020; Bernstein Report 2020; Ecologie.gouv; websites of ILN, I4CE, Toulouse School of Economics, Label ISR, Sustainable Finance Lab, Stockholm Environment Institute, University of Luxembourg, Luxflag

If we look at the organisation of the other main European financial centres, Paris stands out as very well positioned, both in terms of the efforts made, with a wide variety of initiatives, and in terms of the results of these efforts: the highest level of green bond and loan issues on the continent. That said, our neighbours also have good practices that Paris could learn from.

In terms of research and innovation, all countries have working groups or research institutes dedicated to the subject of green finance, with varying degrees of maturity. **London and Frankfurt have particularly successful initiatives**[83]:

- The **Green Finance Institute (GFI)**: this institute created in the summer **2019** is **funded by the UK government and the City of London Corporation**. Its role is to propose solutions to overcome market insufficiencies and channel global capital flows towards local solutions for the ecological transition. The institute targets local projects for the ecological transition and assesses the risk/return balance to convince financial institutions and private capital to invest. It does not operate on a "membership" principle but on an open architecture, bringing together various players (financial institutions, experts, academics, NGOs, etc.) on a voluntary basis. **Coalitions** are set up to work on **identified issues**, such as energy efficiency, the creation of financial instruments to finance sustainable infrastructure, and the price of carbon.
- The **Cambridge Institute for Sustainability Leadership (CISL)**: this institute has an **Accelerator and Sustainability Hub** dedicated to helping **small and medium-sized businesses** and entrepreneurs grow in the area of sustainability through a number of programmes, events, webinars, hackathons and innovation sprints. It also offers professional training as well as cooperation programmes between private players and researchers.
- The **Green and Sustainable Finance Cluster Germany**: founded in 2018, it is based on a network structure and brings together players who have signed a declaration expressing their interest in developing concrete sustainable finance initiatives, for example relating to innovative business areas or non-financial risk management. The cluster has a real public role, as its directors have assumed the chairmanship of the German federal government's Sustainable Finance Committee, **which is responsible for the recommendations for Germany's sustainable finance strategy**. It is also represented on the European Commission's Technical Expert Group (TEG) and has been **a major contributor to the development of the EU taxonomy scheme**.

Among the other financial centres that have a label to guarantee the sustainability of investments and their alignment with climate change targets, Frankfurt and Luxembourg have developed interesting tools[49]:

- FNG Siegel is the green label awarded by Germany to funds in German-speaking countries (including Austria and Switzerland) demonstrating sustainable investment practices. This label is based on transparency criteria for sustainability objectives, the adequacy of the portfolio with ESG criteria and the exclusion of several sectors (e.g. government bonds for countries that have not signed the Paris Agreement). It then awards the certified fund a certain number of stars (up to three) according to its score.
- **LuxFlag ESG label** is the **Luxembourg label** launched in 2014, which certifies funds that follow a defined ESG strategy, meet transparency criteria and have 100% of their portfolio invested according to at least three of the following ESG strategies: exclusions, standards-based screening, engagement, active ownership, ESG integration, impact investing.

[83] Direction générale du trésor, Benchmark des structures de places européennes (Benchmark of European market structures)

Finally, turning to **green bonds and loans**, the **financial centres** with the highest outstandings after **France** are **Amsterdam** (€104 billion in 2020) followed by **Frankfurt** (€95 billion in 2020). Although its outstandings are smaller, it is worth highlighting the initiative of a **dedicated listing platform** for green, social and sustainable bonds led by the **Luxembourg** financial centre since September 2016, which represents **50% of the green bonds listed in the world**. This novel initiative was followed by **Euronext** last year with the creation of its online platform for green bonds listed on six national markets (France, Belgium, Netherlands, Ireland, Norway, Portugal).

CHAPTER 4

Action plan and recommendations for the Paris financial centre

4.1 What are the objectives and ambitions for the Paris financial centre?

We are at a particular moment where the normative framework is unfinished and not yet stabilised. However, we must move forward and begin to implement internal transition management tools. At the same time, we need to participate in the finalisation of the European (led by EFRAG, the European Financial Reporting Advisory Group) and international (led by the IFRS Foundation and its new entity ISSB) normative frameworks as well as in the work of coalitions (brought together in the Glasgow Financial Alliance for Net Zero, GFANZ) on carbon accounting, analysis, the rating of companies and financial products, the management and governance of carbon externality in companies and financial institutions, the standardisation of savings products dedicated to the transition, the formalisation of specific commitments in the fossil fuel sector, and financial innovation for the carbon transition. The following recommendations should apply to the entire financial sector, regardless of the players or the types of products and assets, including private equity.

The collective objective of the Paris financial centre must be to become the **European reference** for the implementation of climate actions, recognised as such by its **European, British and American partners**, and present in the standard-setting working groups, coalitions and international organisations in this field, through its players or on a collective basis. **Paris** can also be a **benchmark for Asian markets** (China, South Korea, Japan, India, etc.), which are adopting a similar logic and with whom we could share our work and methods.

4.2 The work to be done

4.2.1 CO2 accounting

The management of the climate transition must build on the **management of constrained carbon budgets** in both companies and financial institutions, based on a **measurement of emissions to date** and combined with the **assessment of a carbon trajectory over time**, with horizons of **2025**, **2030** and **2050**, associated with annual reporting.

Each company must **account for its carbon emissions** on **Scopes 1, 2 and 3** and then communicate them to financial players, who will use them to steer the profiles of their loan and investment portfolios. The consolidation of these reports should be carried out by the regulatory authorities, the AMF for asset managers and the ACPR for banks and insurers. These data may also eventually be available via the European Single Access Point (ESAP), which is part of the European Capital Markets Union Action Plan.

The reporting framework will be that of the **EU taxonomy** and especially the **Corporate Sustainability Reporting Directive** (CSRD), supplemented by the work currently being carried out by **EFRAG**, taking into account the recommendations of the **ISSB**. All **information** reported by companies and financial institutions will have to be **audited**.

In this context, a **"CO2 accounting project"** must be initiated in the Paris financial centre with four components:

1. **Contribute to the finalisation of the standard**, by influencing the work of **EFRAG** and the **ISSB**, which will be submitted for consultation by the end of the first half of 2022 for adoption by the end of the year. We believe it is essential that the climate module resulting from EFRAG's work and the ISSB's proposals, which will be limited to climate, converge as much as possible.
2. Define the methods for companies to apply the taxonomy and carbon reporting:
   - Interpretation and use of the Taxonomy in each sector.
   - Definition of Scope 3 measurement conventions for each sector.

   This working group should be composed of ANC / EFRAG, within the framework of the ANC working group already set up, in connection with business federations (in particular MEDEF, Afep, France Industrie, etc.) and the financial system (FBF, AFG, France Assureurs).
3. **Define the methods for using the taxonomy and integrating CO2 data into the credit or investment portfolios** of banks and investors and adapt information systems accordingly. This working group should be composed of the financial system's participants and trade associations.
4. The **methods of CO2 data transmission** by companies and financial institutions to the Banque de France, the AMF or the ACPR must be defined. The **supervisory authorities** will be responsible for ensuring the **consolidation** and quality of the data reported. A specific project will have to be launched on the preparation of carbon reports by supervisory authorities.

In addition, **large companies** on the one hand, within the framework of their sector organisations, and **banks** on the other hand, could **provide SMEs with technical and financial support** in implementing the new carbon accounting.

Ideally, in the long term, companies' carbon footprints would feed into the **calculation of the national carbon footprint**. On the basis of this new public carbon accounting system, the government should, prior to each budgetary decision or legislative project, assess the carbon efficiency of each euro spent.

4.2.2 Analysis methodologies

The definition of **standards for analysing and rating the past and present carbon performance** of companies, as well as their **projected** performance, is an essential element for the financial system, whether it is in the position of investor or lender. Robust and shared standards will be the only way to allow an efficient allocation of resources at the right cost of capital.

The interviews revealed a great heterogeneity of analysis and scoring methods. All the players concerned, in particular investors (asset owners and asset managers, including the international coalitions in which they participate), rating agencies and index providers, consider it essential to **achieve standardisation**, as was the case for financial analysis in the 1980s, in order to ensure the credibility of climate ratings and to make them operational.

The objective is to **agree on analytical methods and ratios** that will enable us to **assess** and ultimately **rate** the decarbonisation strategies of companies and the effectiveness of their implementation, year after year. These strategies must include targets and scenarios that are commensurate with the challenges, a transition plan with defined stages, adequate dedicated financial resources, particularly for investments in new decarbonisation technologies, and appropriate governance methods.

Four working groups should be created to develop a **common methodological framework** for analysing and rating companies' carbon performance, based on **shared sector-specific trajectories** and the **creation of climate indices**. This also applies to **shareholder engagement**.

These four working groups must of course share their analyses with the major international coalitions in which the financial institutions of the Paris financial centre participate.

1. An **investor working group to define analysis standards**, composed of investment professionals (fund managers, analysts), rating agencies such as Moody's and S&P, and fund and financial product raters such as Morningstar.
2. A similar **working group** should be created with **banks** and **rating agencies** to **standardise credit analysis**. This group will be able to draw on the work in progress at the French Banking Federation (FBF) concerning the convergence of methods.
3. A working group bringing together asset managers and providers of climate indices such as MSCI to define standards for climate indices used in passive management.
4. A **specific investor group on engagement policies** to formalise a systematic **"Say on Climate"** requirement, monitoring and sharing of best practices and engagement coalitions. The **conditions for tabling climate-related resolutions** at general meetings must be clarified and made more flexible with the public authorities.

4.2.3 Governance and management of carbon externality

Work needs to be done on **governance** and the **methods used by financial institutions to manage carbon externality**. In the same way as the governance of decarbonisation strategies by companies, this is a key condition for the effectiveness and quality of implementation of the climate transition as a whole. This is a project that must be **carried out by each of the federations, the AFG, the FBF and France Assureurs**, with the **financial institutions that make them up**, and which should focus on **four areas**:

1. **Governance**: **boards of directors** and **executive committees** must be involved in validating carbon strategies, making the necessary decisions and monitoring their implementation.

2. Managing the carbon externality:
   - CO2 must be built into **investment and credit processes**. Investment policies must focus on green investments, investments to transform brown into green, and divestments from brown assets when they cannot be transformed.
   - Implement **carbon budgets** globally, by activity and by counterparty.
   - Implement a **differentiated cost of capital** according to activities and to the carbon intensity of counterparties. Several institutions have already implemented a differentiated equity allocation ("green weighting factor"), with the overall capital charge remaining unchanged as far as possible.
3. **Compensation methods** must integrate the financial institution's carbon performance (including Scope 3):
   - Compensation of chief executives and senior managers.
   - Compensation of professionals (fund managers, bankers, insurers in particular).

These movements could be supported by the **prudential and monetary authorities**: integration by the ECB and supervisory authorities, in time and on the basis of stabilised carbon accounting, of a **"green weighting factor"**, possibly combined with a **"brown penalising factor"**, and **without impacting the overall level of capital requirements as far as possible**.

4.2.4 Training

The deployment of climate actions by companies and financial institutions will require a massive training effort, in all sectors and over the long term. The financial system will notably need to **train accountants, analysts, fund managers and account executives**. For financial institutions as well as for companies in general, providing training to **boards of directors** should be generalised.

In the banking sector, the **FBF's banking training centre** should be brought in. Similarly, for asset management, the French Society of Financial Analysts (**SFAF**) could also contribute to this effort. International training organisations should be involved. A climate module could be developed for boards of directors with the French Institute of Directors (IFA).

It will also be necessary to train financial product distribution networks and to raise awareness among private and institutional clients.

4.2.5 Financial products and labels

The interviews and the analysis of the financial centre's actions revealed a multiplicity of approaches, concepts and rhetoric, making it all the more difficult to differentiate between products and to provide advice to clients.

It appears there is a **need to create**, alongside the French SRI label, which is a generalist ESG label, **a specific climate label**. The rationale of the SRI label and of ESG analysis dovetails well with the ongoing transition from financial capitalism to stakeholder capitalism. The climate transition follows a different rationale, that of managing the carbon externality, the importance and urgency of which justify specific monitoring.

A climate label **working group** should be set up for this purpose, made up of asset management companies, the AMF and the French Treasury, in order to **define the outlines of a specific climate label** covering the carbon transition with a clear marker, capable of assessing **investments in the carbon transition** and not only in assets that are already considered green. This new label should be promoted in Europe.

4.2.6 The financial centre's fossil fuel adjustment pathway

Over and above the commitments already made on coal and on unconventional oil and gas, the question of **financing oil and gas in general** now arises.

The oil and gas trajectory is a source of questions and debate because, on the one hand, the latest IEA simulations show, using a countdown approach, that current oil and gas production capabilities must not be increased in order to meet the 2050 carbon neutrality commitments, but on the other hand, there has been no analysis to ensure the feasibility of such an option and the conditions for substituting decarbonised energies for fossil fuels.

A **working group** should be created, bringing together banks, investors, energy utilities, ADEME, the Sustainable Finance Observatory, France's High Council for Climate (HCC) and the ministries in charge of energy, economy and finance, to **define a baseline scenario for 2025, 2030 and 2050**. On this basis, financial institutions will determine transparent and comparable fossil fuel exit strategies[84].

[84] A useful reference would be the Global Coal Exit List, which brings together players from the entire thermal coal value chain worldwide, published by Urgewald and 30 other NGOs, as well as the Global Oil and Gas List, grouping the bulk of the oil and gas players worldwide, published by the NGO Urgewald.

4.2.7 Financial innovation

The success of the energy transition will require considerable investments, concentrated over the next 10 to 15 years: investments in adapting the energy mix, but also in decarbonising the entire economy, particularly transport, construction, heavy industry and agriculture.

Given the state's fiscal position, but also the fact that the investments needed will extend over long periods of time, as well as technological uncertainties, financing the transition will require the involvement of all the players and an intelligent coordination of public and private resources.

Financial flows from developed countries to developing countries, with their needs for decarbonised infrastructure, should also be increased. It is in these regions that the carbon efficiency of the euros invested will be maximum. The Paris financial centre should capitalise on its expertise and credibility in development finance. Some players have already set up innovative risk-sharing mechanisms with international financial institutions (IFC-World Bank, AIIB, etc.), allowing developing countries to access green finance more easily.

A **working group** made up of professionals from the financial sector and public authorities should focus on finding solutions in **two areas**:

- The reallocation of long-term household savings to finance the transition, through appropriate mechanisms, notably full or partial public guarantees.
- Better access to green finance for developing countries.

4.3 Organisation of the Paris financial centre

The success of the climate transition will depend on the alignment of companies, the financial system and the state. The transition is a long-term project, which integrates a carbon objective with industrial policy, social policy and sovereignty issues. In order to carry it out successfully, it seems essential to enter into a logic of co-construction and co-steering. To this end, two coordinating bodies could be created:

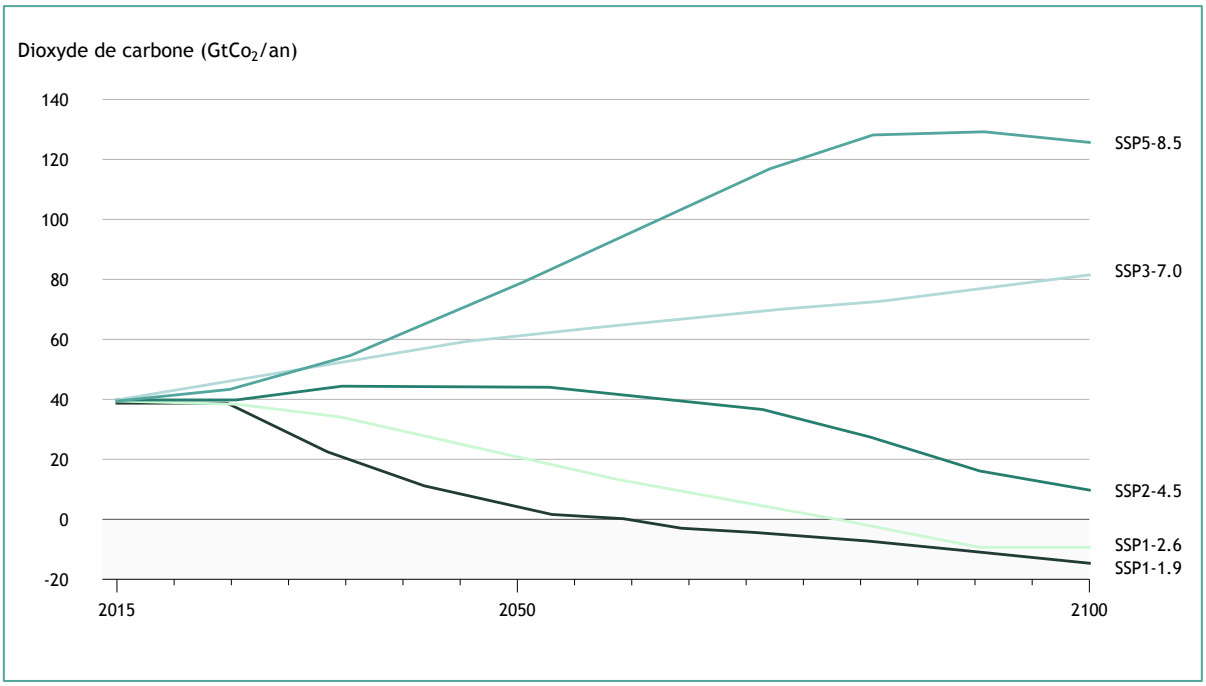
1. A political body, a strategic steering body that would validate ambitions and priorities, and arbitrate questions of standardisation and interpretation. It should be chaired by the minister in charge of finance and meet every quarter, with its secretariat provided by the French Treasury. It should include qualified representatives of companies and financial institutions (banks, insurers, asset managers), the Governor of the Banque de France, the Chairman of the AMF, as well as the Chairman of Paris-Europlace and the Chairman of the operational coordination body (see below).
2. An operational body, which would be responsible, within the framework of the guidelines defined by the political steering body, for coordinating the work of the various projects, representing the financial centre in European and international technical bodies, and coordinating a network of experts (auditors, economists, scientists, etc.). This body would have its own budget, funded by the Paris financial centre and the public authorities, of around €6 to 8 million, similar to the body created by the London financial centre. The body, reporting to Paris-Europlace, should work in synergy with existing organisations in the Paris financial centre, notably ADEME, I4CE, and with those of Paris Europlace – Institut Louis Bachelier, Finance for Tomorrow and the Sustainable Finance Observatory – which would be an essential asset for effectiveness. This organisation should have a board of directors including qualified figures from industry and the financial system as well as representatives from the ministry for Finance (French Treasury, Directorate-General of Enterprises) and the Environment (Directorate-General of Energy). The board of directors would be chaired by a recognised business leader.

Annexes

Annex 1: Key charts referenced in the report and other supplements

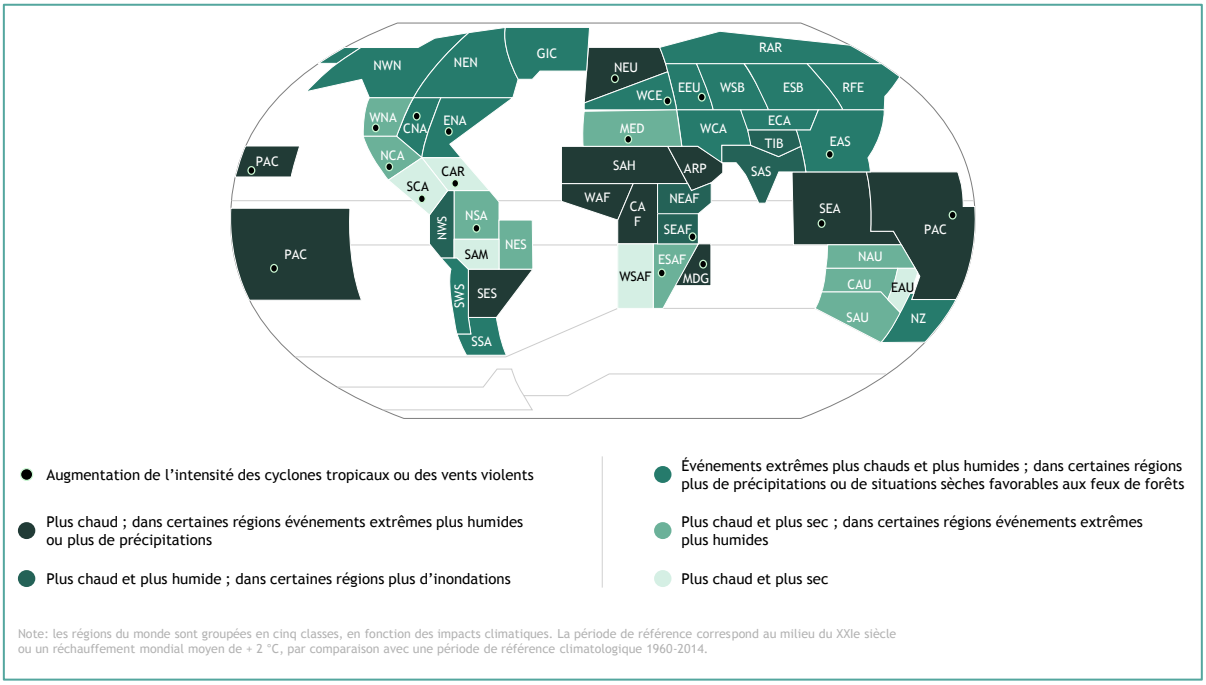
Section 1.1.1: Greenhouse gas reduction targets

Figure 17: Future greenhouse gas emission scenarios in billions of tonnes of CO2 per year



Source: IPCC, first working group, 2021

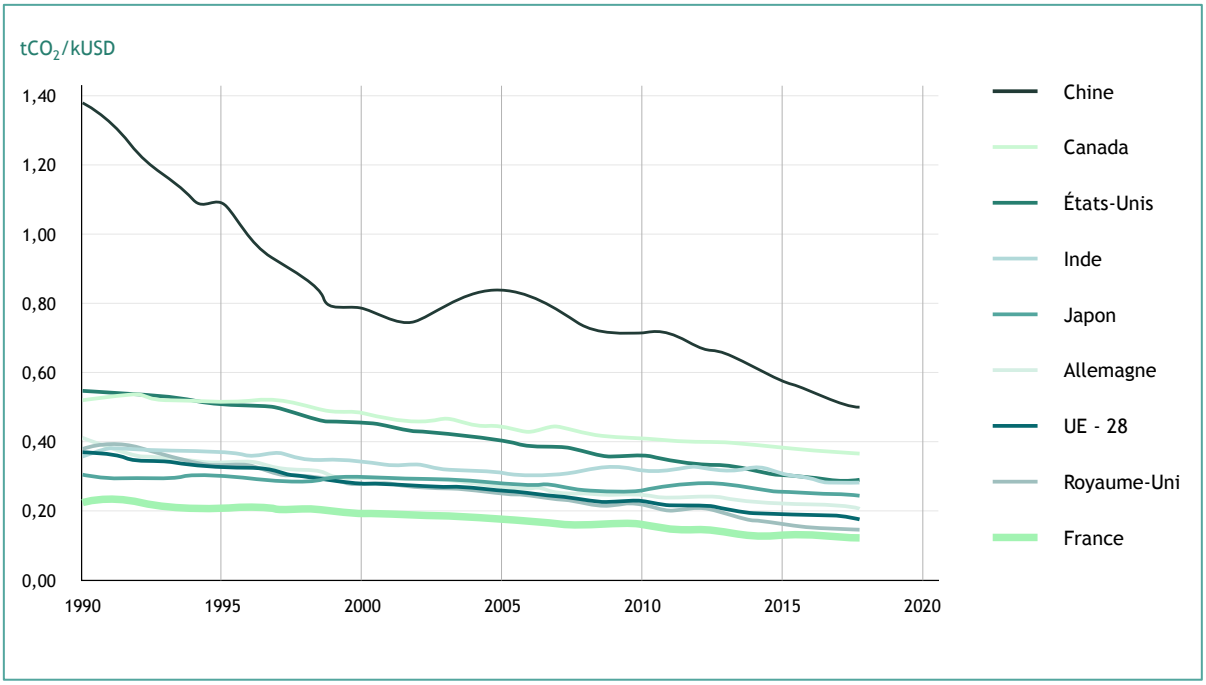
Figure 18: Consequences of global warming on the world's regions



Source: IPCC, first working group, 2021

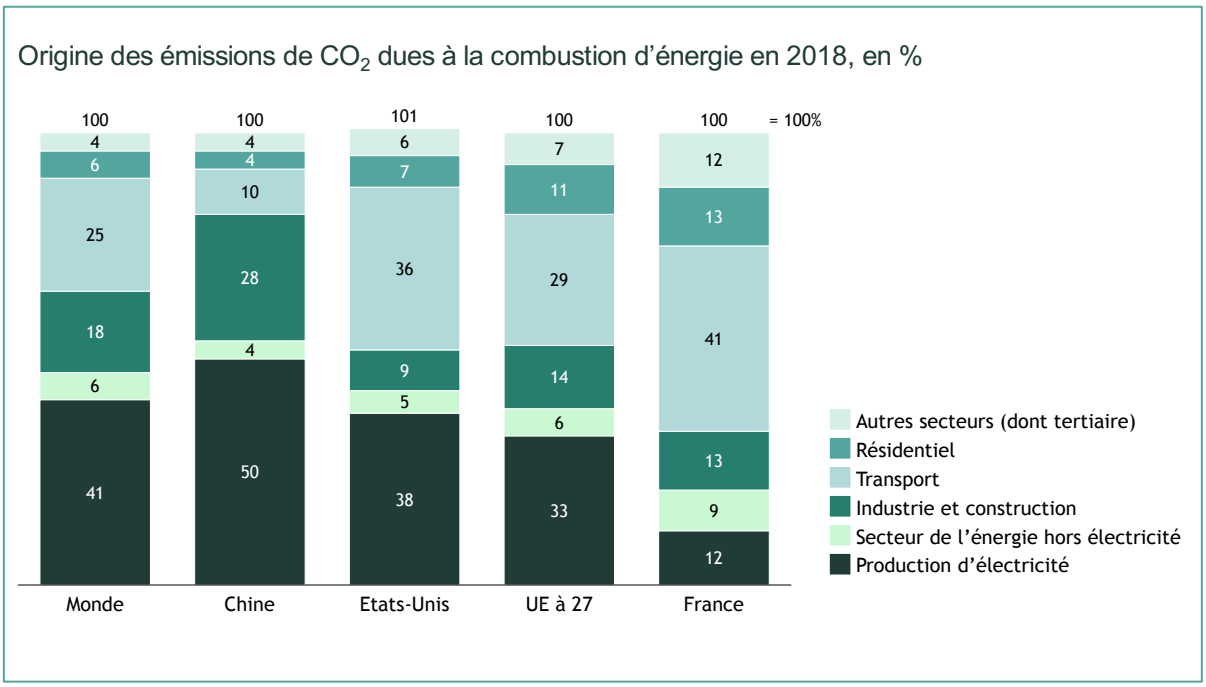
Section 1.1.2: Emissions mapping: key elements

Figure 19: CO2 emissions per unit of GDP



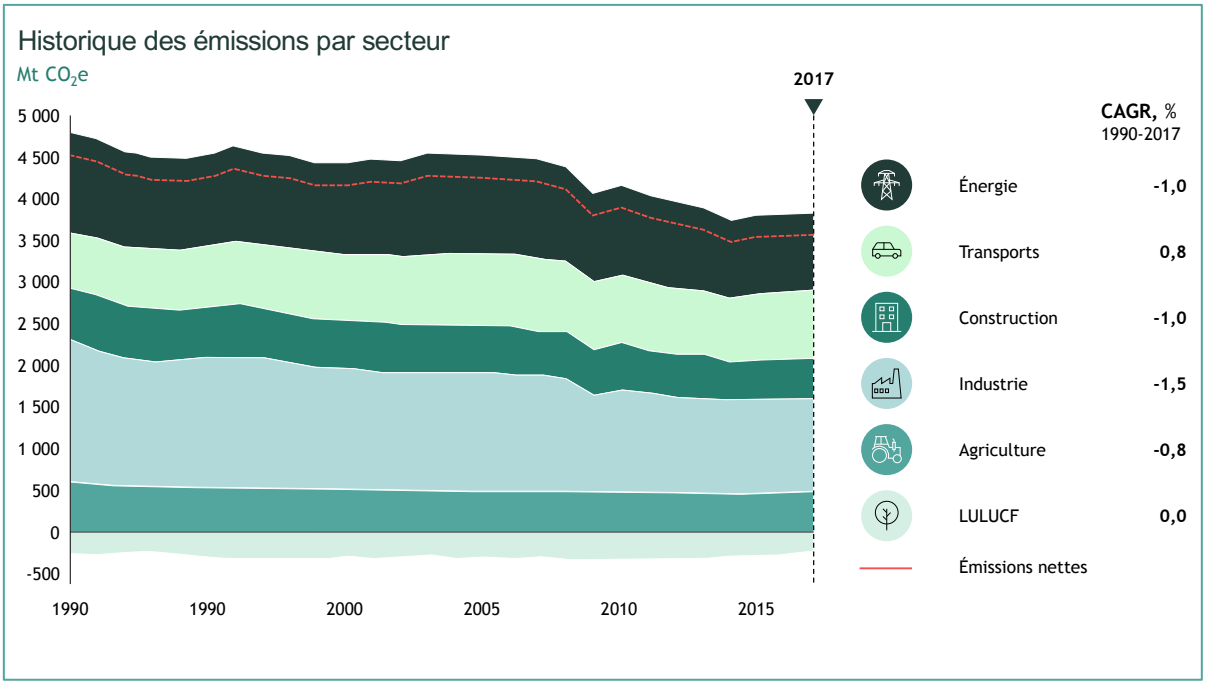
Source: EDGAR v5.0 2019

Figure 20: Sector breakdown of CO2 emissions in the world



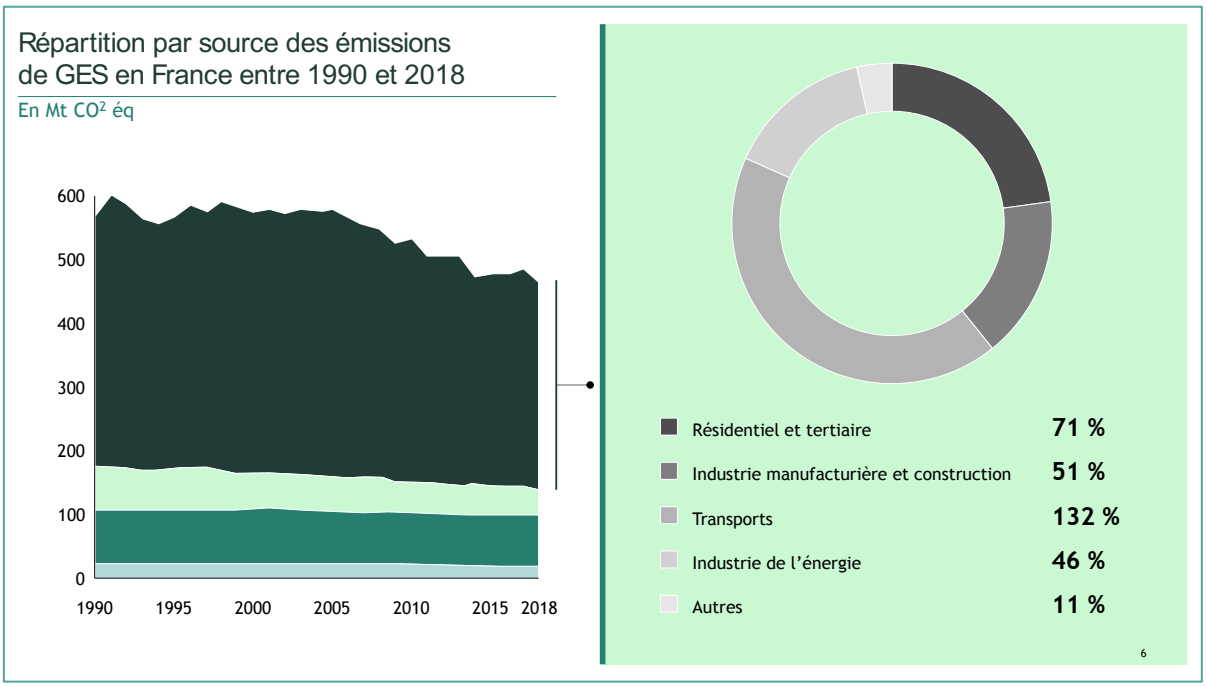
Source: IEA 2020

Figure 21: Most of historic European emissions come from 5 sectors



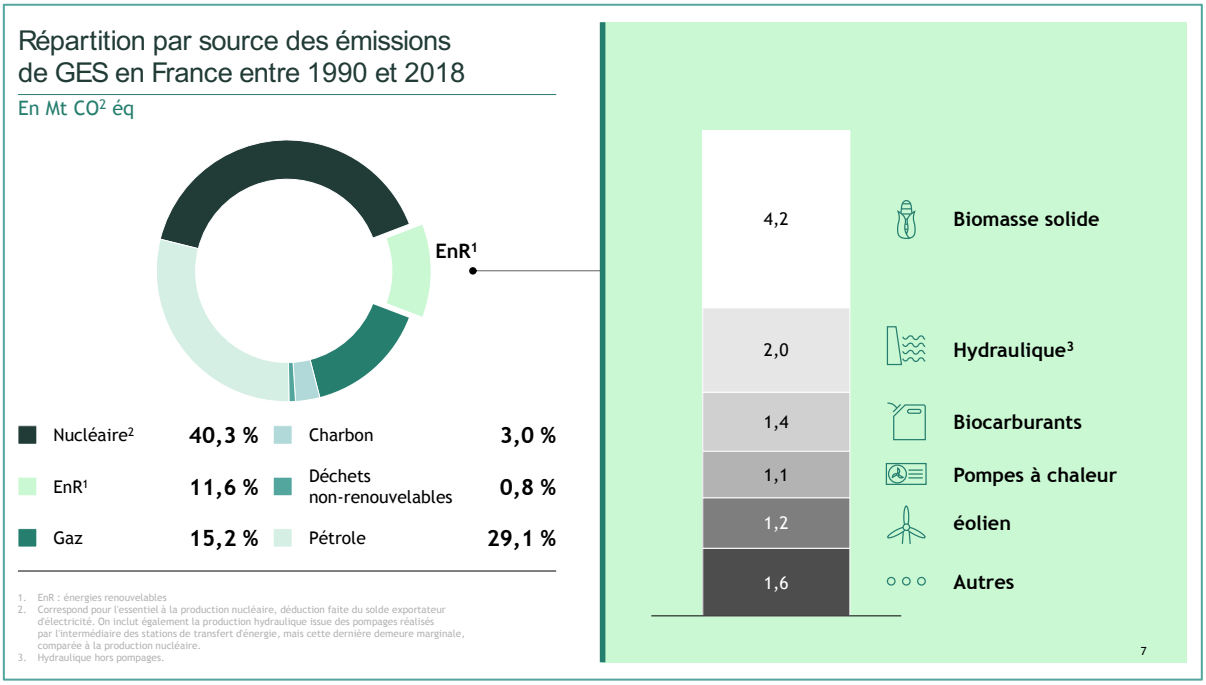
Source: McKinsey, Net-Zero Europe

Figure 22: GHG breakdown in France by sector



Source: EEA, 2020

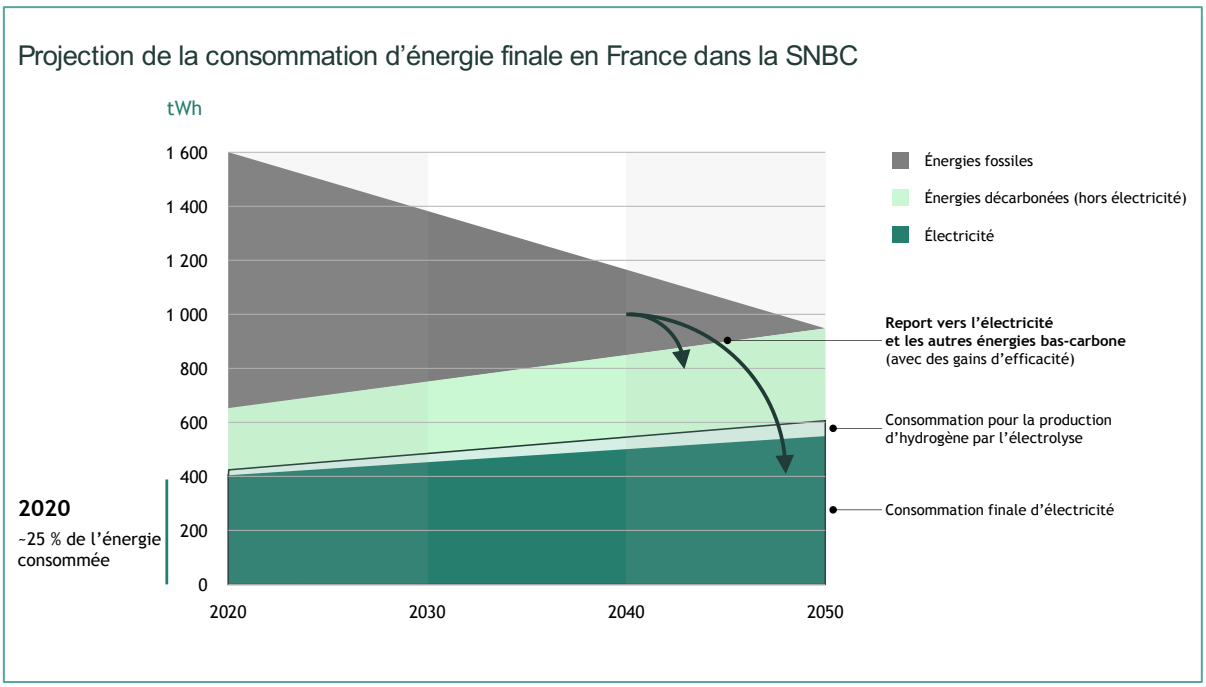
Figure 23: Breakdown of primary energy consumption in France



Note: Field: France (including overseas territories)
Source: SDES, France's energy balance

Section 1.1.3: Political reduction commitments

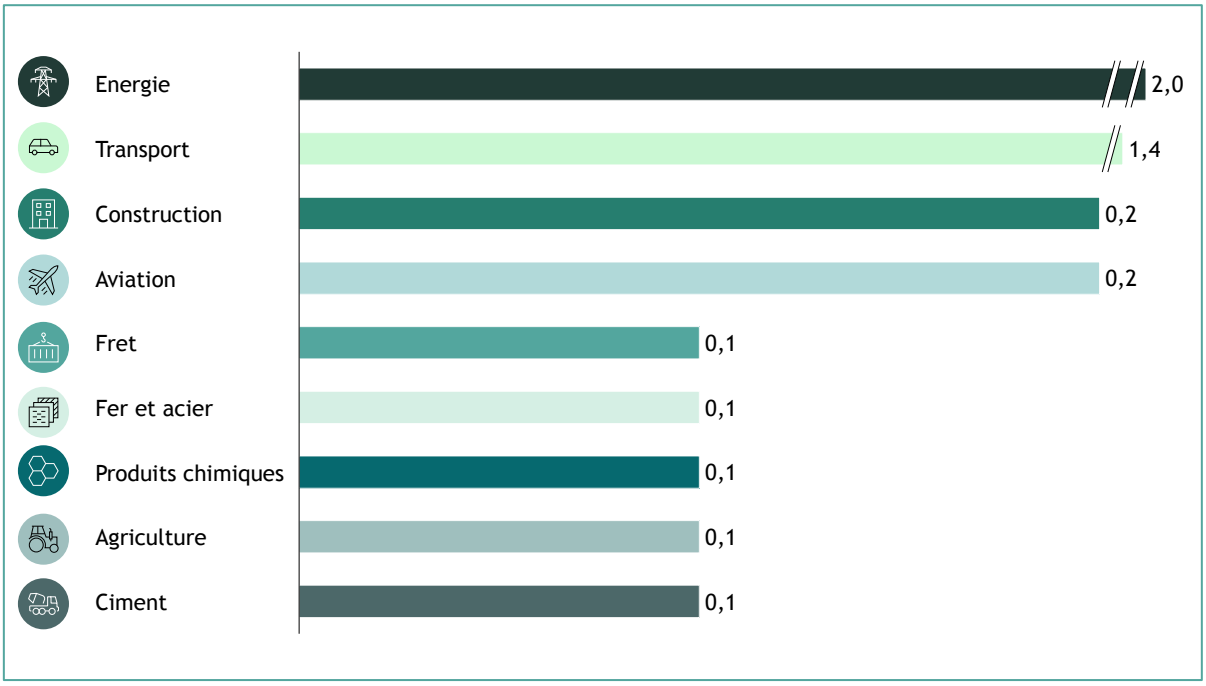
Figure 24: Changes in France's energy mix according to national low-carbon strategy (SNBC)



Source: RTE, Futurs énergétiques 2050

Section 1.2.3: Considerable investments to be made

Figure 25: Annual global investments to be made for the green transition by 2050 in trillions of dollars



Source: GFMA and BCG Report, Climate Finance Markets & The Real Economy

Section 2.2.2: Business sectors covered by the EU taxonomy (Climate Delegated Act)

Forestry

Environmental protection and restoration activities;

- Manufacturing (renewable energy manufacturing technology; manufacturing of equipment for hydrogen production and use; low-carbon manufacturing technology for transportation; battery manufacturing; energy-efficient equipment for building construction; cement; aluminium; cast iron and steel; hydrogen; carbon black; soda; chlorine; basic organic chemicals; anhydrous ammonia; nitric acid; basic plastics)
- Energy (electricity generation using solar photovoltaic technology, concentrated solar technology, wind power, marine energy technologies, hydroelectric power plants, geothermal energy, renewable non-fossil gas and liquid fuels, bioenergy; transmission and distribution of electricity; storage of electricity, thermal energy, hydrogen; manufacture of biogas and biofuels for transport and bioliquids; transmission and distribution networks for renewable and low-carbon gases; heating/cooling networks; installation and operation of electric heat pumps; cogeneration of heat/cooling and electricity from solar energy, from geothermal energy, from gaseous and liquid renewable non-fossil fuels, from bioenergy; heating/cooling production from solar heating, from geothermal energy, from gaseous and liquid renewable non-fossil fuels, from bioenergy, from use of waste heat)

- Water production and distribution, sanitation, waste management and remediation (e.g. CO2 transport; permanent underground geological storage of CO2; capture and use of landfill gas; etc.)
- Transport (interurban passenger rail; freight rail; urban and suburban transport, passenger road transport; operation of passenger mobility schemes; transport by motorcycles, passenger cars and light commercial vehicles; freight road transport; inland passenger and freight waterway transport; redevelopment of inland passenger and freight waterway transport; maritime and coastal freight transport, vessels for port operations; maritime and coastal passenger transport; redevelopment of maritime and coastal freight and passenger transport; infrastructure for human mobility, rail transport, low-carbon road and public transport, low-carbon water transport; low-carbon airport infrastructure)
- Construction and real estate activities (construction of new buildings; renovation of existing buildings; installation, maintenance and repair of energy efficiency equipment, electric vehicle recharging stations, instruments and devices for measuring, regulating and controlling the energy performance of buildings, renewable energy technologies; acquisition and ownership of buildings)
- Information and communication (e.g. data processing, data-driven solutions to reduce greenhouse gas emissions)
- Specialised, scientific and technical activities (research, development and innovation close to the market; for the direct capture of CO2 from the air; etc.)
- Financial and insurance activities – for the adaptation objective only (climate-related hazard insurance; reinsurance)
- Teaching – for the adaptation objective only
- Human health and social action – for the adaptation objective only
- Arts, entertainment and recreation – for the adaptation objective only

Annex 2: Letter of appointment from Minister Bruno Le Maire to Yves Perrier

MINISTÈRE
DE L'ÉCONOMIE
DES FINANCES
ET DE LA RELANCE
Liberté
Égalité
Fraternité

LE MINISTRE

Paris, le 19 NOV. 2021

Nos références : MEFI-D21-16872

Monsieur le Président,

Comme j'ai eu l'occasion de le rappeler notamment à l'ouverture du Climate Finance Day, le 26 octobre 2021, la lutte contre le réchauffement climatique est l'enjeu de notre siècle. Il requiert de la cohérence, de la clarté et de l'ambition. Si l'Etat y prendra toute sa part, relever ce défi suppose que la Place de Paris s'engage davantage.

L'Accord de Paris prévoit de rendre les flux financiers, publics comme privés, compatibles avec un modèle de développement à faible émission de gaz à effet de serre et résilient aux changements climatiques.

Depuis trois ans, un important travail a déjà été réalisé par la Place de Paris. En 2019, un premier engagement de Place a abouti à l'élaboration et à la publication de stratégies de désinvestissement dans le domaine du charbon thermique. Ces dernières semaines, la FFA, l'AFG et les six plus grandes banques françaises ont dévoilé leurs premiers éléments de doctrine s'agissant du gaz et du pétrole, notamment non-conventionnels.

En parallèle, des outils de place ont été mis en œuvre afin d'assurer le suivi des décisions prises par les acteurs financiers et de proposer des pistes de renforcement de l'ambition de celles-ci. Un Observatoire de la finance durable a été mis en place et a installé, en son sein, un comité scientifique et d'expertise. Ce comité a émis, en février 2021, des recommandations pour un désengagement du charbon plus efficace et, en septembre 2021, des recommandations

1/2

Monsieur Yves PERRIER
Président
Amundi
91 boulevard Pasteur
75015 Paris

139 rue de Bercy – 75572 Paris
Cedex 12

Le Bureau des cabinets des ministères économiques et financiers met en œuvre un traitement automatisé d'informations nominatives dans le cadre de la prise en charge de la correspondance à laquelle fait suite le présent courrier. Conformément aux articles 34 à 38 de la loi n° 78-17 du 6 janvier 1978 relative à l'informatique, aux fichiers et aux libertés, toute personne concernée bénéficie d'un droit d'accès et de rectification à ses informations nominatives. Ce droit s'exerce par courrier au ministère de l'Economie, des Finances et de la Relance - Bureau des cabinets - PIle PCS - 14Médoc 181 - 139 rue de Bercy 75572 PARIS Cedex 12.

analogues pour les hydrocarbures non-conventionnels. De plus, l'AMF et l'ACPR publient dorénavant un rapport commun annuel évaluant les choix climatiques des acteurs financiers. Les derniers éléments publiés, en octobre dernier, soulignent le chemin qu'il reste à parcourir et les efforts que la Place doit encore consentir pour être à la hauteur des enjeux.

C'est pourquoi, j'ai demandé, lors du dernier Climate Finance Day, à tous les acteurs financiers de la Place de s'engager dans une trajectoire de sortie du financement du charbon et des hydrocarbures non conventionnels, en lien avec l'Accord de Paris, et au-delà, dans une trajectoire de réduction de l'intensité carbone des projets et des entreprises financés. Cette trajectoire doit être objectivable et mesurable, efficace et transparente et accompagnée d'un échéancier graduel contraignant.

Dans cette perspective, je souhaite vous confier une mission de coordination des acteurs de la Place de Paris dans leur alignement avec l'Accord de Paris. A ce titre, vous dresserez d'abord un bilan des actions déjà prises par les acteurs financiers ces dernières années. Vous définirez ensuite une première trajectoire de décarbonation des financements de la Place conforme à l'Accord de Paris. Enfin, le cas échéant, vous pourrez proposer une évolution de la structuration de la Place de Paris afin de faciliter la mise en œuvre des objectifs climatiques et environnementaux partagés.

Afin d'élaborer ces travaux, je vous propose de vous appuyer, entre autres sources d'expertise, sur les travaux du GIEC, de l'AIE, des superviseurs et des différents groupes techniques internationaux travaillant sur la mesure et l'alignement climatique des portefeuilles financiers, sur les avancées réglementaires françaises et européennes en matière de finance durable, ainsi que sur le comité scientifique et d'expertise de l'Observatoire de la place de Paris sur la finance durable. Je vous invite également à prendre en compte les priorités stratégiques identifiées dans les plans France Relance et France 2030.

Aussi, je souhaite que vous puissiez travailler étroitement avec les fédérations de la Place de Paris, dont le rôle est clef afin que la mission aboutisse à des approches coordonnées et harmonisées, ainsi qu'avec les écosystèmes d'entreprises les plus concernés par le besoin de transition. Une étude des meilleures pratiques menées par les acteurs financiers à l'étranger sera, de la même manière, particulièrement utile.

Vous pourrez, enfin, compter sur la collaboration de mes services, et en particulier sur l'appui d'un agent de la Direction générale du Trésor.

Je souhaite que vous puissiez me remettre un premier rapport, définissant en particulier la trajectoire de décarbonation, d'ici fin février 2022, en amont de la conférence verte organisée à Bercy, début mars 2022, dans le cadre de la présidence française du Conseil de l'Union européenne.

Je vous prie de croire, Monsieur le Président, à l'assurance de ma considération distinguée.

Avec mon amitié,

Bruno LE MAIRE

Annex 3: List of interviewees

In the course of the mission, more than 90 interviews were held with nearly 200 professionals.

Public authorities

French Environment and Energy Management Agency (Agence de l'environnement et de la maîtrise de l'énergie - ADEME)

Arnaud Leroy, Chairman of the Board of Directors

Noam Leandri, Secretary General

Baptiste Perrissin Fabert, Executive Director in charge of Expertise and Programmes

Mathieu Garnero, Director, Life Finance ClimAct Project

Romain Poivet, Coordinator, ACT Initiative

International Energy Agency (IEA)

Fatih Birol, Executive Director

Laura Cozzi, Chief Energy Modeller

Blandine Barreau, Energy Analyst

French National Assembly

Marie-Noëlle Battistel, Member of Parliament for Isère, Vice-President of the Economic Affairs Commission

Eric Woerth, Member of Parliament for Oise, Chairman of the Finance Committee

French financial markets authority (Autorité des Marchés Financiers - AMF)

Robert Ophèle, Chairman

Benoît de Juvigny, Secretary General

Astrid Milsan, Deputy Secretary General

Jérôme Reboul, Deputy Secretary General

Philippe Sourlas, Deputy Director, Asset Management Department

AMF - Sustainable Finance Advisory Board

European Central Bank (ECB)

Christine Lagarde, President

Irene Heemskerk, Head of the Climate Change Centre

Banque de France / French Prudential Control Authority (Autorité de contrôle prudentiel et de résolution, ACPR)

François Villeroy de Galhau, Governor of the Banque de France and Chairman of the ACPR

Nathalie Aufauvre, Director General for Financial Stability and Operations, Chairman of the Climate Change Centre

European Investment Bank (EIB)

Ambroise Fayolle, Vice President

Adrien de Bassompierre, Advisor to the Vice-President

Bpifrance

Pascal Lagarde, Executive Director in charge of strategy, development, international affairs and ESG

Emmanuel Schneider, Coordinator of Bpifrance Climate Plan

European Commission

Mairead McGuinness, Commissioner for Financial Stability, Financial Services and Capital Markets Union

Kadri Simson, Commissioner for Energy

John Berrigan, Deputy Director-General for Financial Stability, Financial Services and Capital Markets Union

Florian Denis, Advisor to Commissioner McGuinness

Emmanuel Buttin, Policy Officer, Sustainable Finance

European Financial Reporting Advisory Group (EFRAG)

Patrick de Cambourg, Chairman of the French Accounting Standards Authority, Chairman of the Project Task Force in charge of the preparatory work for the development of European non-financial reporting standards within EFRAG

High Council for Climate (HCC)

Corinne Le Quere, Chairwoman

Saïd Rahmani, Executive Director

United Nations (UN)

Mark Carney, UN Special Envoy for Climate Action and Finance, Financial Advisor to the UK Prime Minister, Chairman of the Glasgow Financial Alliance for Net Zero (GFANZ)

Curtis Ravenel, Advisor to Mark Carney

Jennifer Nemeth, Chief of Staff to Mark Carney

Ministry for Economy, Finance and Recovery / Directorate-General for Enterprise

Thomas Courbe, Director General

Thomas Jeannin, Project Director

Ministry for Economy, Finance and Recovery / French Treasury

Emmanuel Moulin, Director General

Stéphane Cieniewski, Climate and Environment Advisor to the Director General

Pierre Chabrol, Deputy Director for Corporate Finance and Financial Markets

Gabriel Cumenge, Deputy Director for banks and public interest financing

Pierre-Emmanuel Beluche, Head of the Sustainable Finance, Corporate Law, Accounting and Corporate Governance Office

Ministry for Ecological Transition, General Commission for Sustainable Development

Thomas Lesueur, General Commissioner for Sustainable Development

Salvatore Serravalle, Head of the Green and Social Economy Department

Manon Cognard, Policy Officer, Sustainable Finance and CSR

European Parliament

Pascal Canfin, Member of the European Parliament, Chairman of the Committee on the Environment, Public Health and Food Safety (ENVI)

Federations and unions

French Asset Management Association (Association Française de la Gestion financière, AFG)

Eric Pinon, Chairman

Laure Delahousse, Deputy CEO

Adina Gurau-Audibert, Director – Head of Asset Management division

Alix Faure, Head of Responsible Investment

Marie-Pierre Peilslon, Chair of the AFG Sustainable Finance Commission

Laurent Jacquier-Laforge, Head of Sustainable Investment, La Française Group

Isabelle Cabie, Head of Corporate Responsible Development, Candriam

French Association of Large Companies (Association française des entreprises privées, Afep)

Laurent Burelle, Chairman of Afep and Chairman of Plastic Omnium

François Soulmagnon, Director-General

Lé Quang Tran Van, Director of Financial Affairs

French Association of Institutional Investors (Association française des investisseurs institutionnels, Af2i)

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French association for real estate investment companies (Association française des Sociétés de Placement Immobilier, ASPIM)

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Philippe Vigneron, Confederal Secretary in charge of SRI and employee savings

Luc Mathieu, National Secretary

Philippe Portier, National Secretary

French Banking Federation (FBF)

Maya Atig, Chief Executive Officer

Etienne Barel, Deputy Chief Executive Officer

Karen Degouve, Director in charge of climate

Fédération Française des Firmes Pluridisciplinaires (F3P)

Vincent Talvas, General Delegate, F3P

Jean-Paul Thill, Chief Executive Officer EMEA region, KPMG

Anne Garans, Partner, Climate Change & Sustainable Development Department, KPMG

Eric Duvaud, Partner, Climate Change and Sustainability, EY

Maud Gaudry, Partner and Co-Director of Sustainability Services, Mazars

Cédric Haaser, Partner, PwC

National Federation of Farmers' Unions (Fédération nationale des syndicats d'exploitants agricoles)

Christiane Lambert, Chairwoman

France Aluminium

Guillaume de Goys, Chairman of France Aluminium and Chief Executive Officer of Aluminium Dunkerque Industries

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Florence Lustman, Chairwoman

Philippe Poiget, Advisor to the Chair

Philippe Taffin, Director of Finance & Investments

Elena Canale, Sustainable Development Manager

France Industrie

Alexandre Saubot, Chairman of France Industrie and Chief Executive Officer of Haulotte

France Invest

Alexis Dupont, Chief Executive Officer

France Vassaux, Deputy CEO

Carine Delfrayssi, Director of Regulatory and European Affairs

Damien Brisemontier, Head of Institutional Affairs and Sustainable Finance

Mouvement des Entreprises de France (MEDEF)

Christophe Beaux, Chief Executive Officer

Christine Lepage, Director of the Economics Division

Céline Micouin, Head of the New Business Challenges Division

French Association of Financial Analysts (SFAF)

Martine Léonard, Chairwoman

Bruno Beauvois, General Delegate

Financial firms and financial ecosystem

Allianz SE

Oliver Bäte, Chief Executive Officer

Amundi

Jean-Jacques Barberis, Member of the Executive Committee - Head of the Institutional and Corporate Clients Division, ESG Supervisor

Ardian

Dominique Senequier, President

Mathias Burghardt, Member of the Executive Committee and Head of Ardian Infrastructure

AXA

Thomas Buberl, Chief Executive Officer

BlackRock

Jean-François Cirelli, President of the France, Belgium and Luxembourg subsidiaries

Stéphane Lapiquonne, Chief Executive Officer, France, Belgium and Luxembourg and Co-Director Continental Europe

Carole Crozat, Director of Basic Research

Bloomberg

Mary Schapiro, Vice President Public Affairs, Advisor to the Founder and President

BNP Paribas

Jean-Laurent Bonnafé, Chief Executive Officer

Philippe Bordenave, Delegate-General to the Chief Executive Officer and Chairman

Antoine Sire, Director of Corporate Engagement and member of the Executive Committee

Jean-Jacques Santini, Director of Institutional Affairs

Laurence Pessez, Director of Social and Environmental Responsibility

BPCE

Laurent Mignon, Chairman of the Management Board

Caisse Fédérale de Crédit Mutuel

Nicolas Théry, Chairman

Crédit Agricole SA

Dominique Lefebvre, Chairman

Philippe Brassac, Chief Executive Officer

Eric Campos, Head of CSR

Euroclear

Stéphane Pouyat, Director of Capital Markets

Anthony Harper, Director of Sustainability

Guillaume Eliet, Chief Executive Officer of ESES

Greenomy

Alexandre Stevens, Chief Executive Officer

IFRS, International Sustainability Standards Board

Emmanuel Faber, Chairman

La Banque Postale

Philippe Heim, Chief Executive Officer

Adrienne Horel-Pages, Head of Sustainable Development, member of the Executive Committee

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Pascal Demurger, Chief Executive Officer

Carole Zaccheo, Chief Investment Officer

Mirova

Philippe Zaouati, Chairman and CEO

Laurène Chenevat, Policy and Advocacy Officer

Moody's

Sabine Lochmann, Chair of Vigeo Eiris and Head of ESG measures

Julia Haake, Head of Market Strategy, Moody's ESG Solutions

Montpensier Finance

Guillaume Dard, Chairman

MSCI

Remy Briand, Head of products and indices, member of the Executive Committee

Alvise Munari, Chief Client Officer, Member of the Executive Committee

Yves Bonamy, Managing Director at MSCI France

Sylvain Vanston, Executive Director of Climate Change Investment Research

Ostrum Asset Management

Philippe Setbon, Chief Executive Officer

Partnership for Carbon Accounting Financials (PCAF)

Giel Linthorst, Executive Director

Portland Trust

Ronald Cohen, Chairman

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Denis Kessler, Chairman

Laurent Rousseau, Chief Executive Officer

Société Générale

Frédéric Oudéa, Chief Executive Officer

Hacina Py, Chief Sustainability Officer

Olivier Picard, Deputy ESG Manager

Sycomore AMF

Emeric Préaubert, Founding Partner

Jean-Guillaume Peladan, Head of Environmental Strategy

Anne-Claire Impériale, Co-head of ESG research

TCFD Alignment Team

David Blood, Co-Director of the TCFD Alignment Team, Co-Founder of Generation IM and Co-Chair of the World Resources Institute

Tikehau Capital

Antoine Flammarion, Co-founder

Cécile Cabanis, Deputy CEO

Non-financial companies

Airbus

Guillaume Faury, Chief Executive Officer

Philippe Coq, Director of Public Affairs

Air Liquide

Fabienne Lecorvaisier, Deputy CEO

Laurent Dublanchet, Vice President European and International Affairs

EDF

Jean-Bernard Lévy, Chairman and Chief Executive Officer

Xavier Girre, Executive Director in charge of the Group Finance Department

Enel

Francesco Starace, Chief Executive Officer

Engie

Jean-Pierre Clamadieu, Chairman

Catherine MacGregor, Chief Executive Officer

McKinsey & Company

Jean-Christophe Mieszala, Senior Partner and Director

Renault

Jean-Dominique Senard, Chairman

Cléa Martinet, Vice President Sustainable Development

Saint-Gobain

Pierre-André de Chalendar, Chairman

SNCF

Jean-Bernard Farandou, Chairman and Chief Executive Officer

Mikaël Lemarchand, Director of Social, Territorial and Environmental Commitment

Suez

Philippe Varin, Chairman

Thalès

Patrice Caine, Chairman and Chief Executive Officer

Isabelle Simon, Secretary General

TotalEnergies

Patrick Pouyanné, Chairman and Chief Executive Officer

Unilever

Alan Jope, Chief Executive Officer

Nicolas Liabeuf, Chairman, Unilever France

Thomas Lingard, Global Sustainability Director

Valeo

Jacques Aschenbroich, Chairman and Chief Executive Officer

Robert Charvier, Chief Financial Officer

Geoffrey Bouquot, Senior Vice President R&D, Product Marketing, Strategy and External Affairs

Vicat

Guy Sidos, Chairman and Chief Executive Officer

Eric Bourdon, Executive Vice President in charge of Industrial Management and Innovation

Lukas Epple, Chief Operating Officer

Associations, Civil Society and Research

2 Degrees Investing Initiative (2DII)

Thibaut Ghirardi, Managing Director

Amis de la Terre

Lorette Philippot, Private Finance Campaigner

Economics of Mutuality

Bruno Roche, Founder and Executive Director

Entreprises pour l'environnement (EpE)

Claire Tutenuit, General Delegate, and member of the Economic, Social and Environmental Council

David Laurent, Head of the Climate and Resources Unit

Finance for Tomorrow (F4T)

Thierry Deau, Chairman

Pauline Becquey, Chief Executive Officer

Xavier Ploquin, Chief of Staff to the Chairman

Raphaël Lebel, Director of the Sustainable Finance Observatory - Clim'Act Finance / LIFE Coordinator

Finance Watch

Thierry Philipponnat, Chief Economist

Institute for Climate Economics (I4CE)

Benoît Leguet, Chief Executive Officer

Anuschka Hilke, Programme Director - Financial Institutions

Institut Louis Bachelier (ILB)

André Levy-Lang, President

Didier Valet, Vice-President, Industry

Jean-Michel Beacco, General Delegate

Bertrand Badre, Founder of Blue like an Orange Sustainable Capital

Stéphane Voisin, Coordinator of the Green & Sustainable Finance Transversal Program

Sustainable Finance Observatory, Scientific Committee

Pierre-Louis Lions, President

Oxfam France

Alexandre Poidatz, Climate and Finance Advocacy Officer

Reclaim Finance

Lucie Pinson, Founder and Chief Executive Officer

Paul Schreiber, Campaigner for the regulation of financial players

ShareAction

Catherine Howarth, Chief Executive Officer

Jeanne Martin, Senior campaign manager

Caroline Metz, EU Policy Officer

Science-based targets initiative (SBTi)

Cynthia Cummis, Co-founder of SBTi and Director at the World Resources Institute

Nate Aden, Financial Sector Manager

Howard Shih, Associate, SBTi Finance

Toulouse School of Economics

Christian Gollier, Managing Director

The Shift Project / Carbone 4

Jean-Marc Jancovici, President of The Shift Project / Carbone 4

Urgewald

Heffa Schuecking, Founder

World Wide Fund for Nature (WWF)

Monique Barbut, President, WWF France

Véronique Andrieux, Chief Executive Officer, WWF France

Cécile Rechatin, Head of Sustainable Finance, WWF France

*

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Table of figures