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# Scenario analysis of the issues of the low-carbon transition

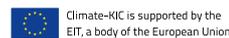
From implementation to disclosure  
by companies in the TCFD framework

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# Summary

The transition to a low-carbon economy represents risks and opportunities for companies. Indeed, far-reaching changes are expected in socio-economic systems, with uncertainties about their timing and magnitude, and their economic and financial consequences. In this context, **forward-looking methods –in particular scenario analysis – are very useful to companies to inform strategic thinking and planning processes.** In 2017, the TCFD (Task Force on Climate-related Financial Disclosures) published its recommendations on the integration of climate-related risks and opportunities: it recommends in particular that companies should use scenario analysis for strategic purposes, and disclose elements of these analyses in order to facilitate the incorporation of climate-related issues by the financial system.

Although some companies have been using forward-looking scenario analysis for decades in their strategic thinking, **the widespread application of such methods to climate-related issues presents difficulties.** Moreover, precisions are expected on the information required by financial companies, and this disclosure raises confidentiality issues.

The goal of this guide is therefore to support non-financial companies in the **forward-looking analysis of the strategic issues of the low-carbon transition, and in their disclosure to financial stakeholders**, in reference to the TCFD framework.

## Scenario analysis of the issues of the low-carbon transition: a valuable exercise for all companies

### Scenario analysis informs business strategy in a context impacted by the low-carbon transition

The low-carbon transition – which corresponds to changes in socio-economic systems to keep global warming below 2°C or even 1.5°C – requires **immediate and radical changes across all sectors of the economy.** Due to interactions between the sectors of the economy, the low-carbon transition concerns **companies in all sectors**, not just the most carbon-intensive sectors. Changes to their business environment linked to the low-carbon transition can have **major impacts on the key elements of their profitability** – such as demand for certain products or services, production costs or the value of their assets.

Although the broad lines of the changes required in our socio-economic systems are established, there are **uncertainties** about the magnitude, timing and exact nature of the low-carbon transition in the future. Forward-looking methods, and in particular scenario analysis, enable companies to manage these uncertainties by helping them to understand **how the low-carbon transition could unfold and affect their business environment**, and thus to **anticipate its associated risks and opportunities.** Scenario analysis methods consist in building **representations of plausible futures, in order to guide strategic decisions.** Their application to the issues of the low-carbon transition is particularly relevant (see Table A).

**TABLE A**

#### THE BENEFITS OF SCENARIO ANALYSIS TO EXPLORE THE ISSUES OF THE LOW-CARBON TRANSITION

Characteristics of the low-carbon transition	Scenario analysis can:
Far-reaching changes across all sectors of the economy, potentially breaking with current trends	Assess developments that break with current trends and question common beliefs about the future
Uncertainties about the timing and exact nature of the transition	Explore different plausible and contrasting futures, around key uncertainties for the company
Dynamics already at work and knowledge of the key trends of the low-carbon transition	Take into account “hard trends”
A distant decarbonisation target but changes already underway	Take into account long-term trends in strategy development
Multiple manifestations that interact with one another and cascading effects	Recognise the interdependencies between different phenomena

Source: I4CE, 2020

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Scenario analysis processes can **inform decision-making** by identifying the key issues for the company. They also facilitate **ownership of the issues of the low-carbon**

**transition** as well as **change management within companies.**

## Scenario analysis is beneficial to relations between a company and its financial partners

Financial actors are exposed to the risks and opportunities of the low-carbon transition through the companies they finance with debt and equity. They therefore need to **understand the exposure of companies in their portfolio**, as well as their **capacity to implement a resilient strategy**. Companies can provide key information on these questions through disclosure of their scenario analysis of the issues of the low-carbon transition. This information can also serve as a basis for discussions on additional financing, which would enable companies to increase their resilience in a context of low-carbon transition. **Demand from financial actors for this type of information is expected to increase** with the growing incorporation of climate issues by the financial sector, driven in particular by regulators.

In its 2017 recommendations, which highlight the importance of disclosures on climate-related scenario analysis, the TCFD **advocates public reporting, preferably within the company's financial filings**. The CDP questionnaire, in particular, has already made companies aware of this demand, which is expected to feature in numerous

reporting frameworks, including mandatory frameworks. Public reporting on scenario analysis nevertheless presents practical difficulties, concerning the **confidentiality of the process** and the **need for clarification of the information expected by financial actors**.

## How to conduct a scenario analysis of the issues of the transition

A scenario analysis process is organised in successive steps, during which companies can use numerous resources to facilitate this exercise.

### A flexible organisation in five steps

There are many different scenario analysis methods, but they all share the same core principles and the same key steps, which are summarised below. Implementation of the whole process takes several months, but the **approach can be adapted according to the needs and resources** of companies. It is an **iterative process**, whose scope and complexity can be progressively increased.

1

### *Framing the process and defining governance*

The first step consists in clearly defining the **objective pursued**, the **method** – which will depend on the objective, but also on the company's human and financial resources – and the **scope** of the analysis. It is also important to establish the **governance of the process** in this step, as well as its incorporation into existing planning processes. It should be noted in this framing phase that the **involvement of leaders in the process is essential** to ensure the exercise has a strategic impact. Moreover, the participation of teams representative of different business areas with the company is very useful to enhance thinking on the challenges facing the company at the operational level, and to facilitate ownership of the strategy and its implementation.

2

### *Exploring the issues of the low-carbon transition from the company's perspective*

This step consists in acquiring **in-depth knowledge of the company** by accurately assessing its **skills and resources**, then comparing the analysis of the company with **changes in its environment, in relation to the transition to a low-carbon economy**. This crucial step is generally the most time-consuming part of the process. It involves identifying the variables – internal or external to the company – that determine its profitability, then developing an understanding of the **interactions** between these different variables, as well as the **dynamics** at work in connection with the low-carbon transition. This phase can be informed by interviews, bibliographic research, or workshops, for example.

3

### *Identifying the material issues for the company*

This step consists in identifying the **most important variables external to the company** in order to study the strategic risks and opportunities resulting from its changing environment (the **key variables**). These are variables whose evolution – subject to uncertainties – may have significant impacts on the profitability of the company, or even on its viability. It is then necessary to make assumptions about the **possible evolution** of these key variables.

4

### **Building scenarios**

The scenario building phase consists in defining **contrasting stories** around **plausible** – and **consistent** – changes in certain key variables external to the company. These scenarios – generally between three and five – must be used to inform strategic thinking on the issues of the low-carbon transition while questioning common beliefs about the future. If they have the means to do so, companies can at this stage **quantify certain parameters in their scenarios**, using models that represent relationships between different variables of interest.

5

### **Developing a strategic response**

The final phase begins with the **assessment of risks and opportunities** for the company in each of the scenarios, followed by the development of **strategic response options** that are consistent with both the company's identity and the potential impacts assessed in the different scenarios. The leaders must then **make strategic choices** on this basis in order to increase the company's resilience to uncertainties linked to the low-carbon transition, and thereby improve its capacity to prosper in different plausible futures. These strategic choices are translated into an **action plan**, which must be subsequently implemented. A **monitoring system** can be set up and indicators defined in order to determine whether the changes in the environment lead towards one of the scenarios.

## **Numerous resources are available to companies**

Companies have access to many different resources to support them in implementing a scenario analysis process.

First, numerous **scenario analysis methods** – which are more or less formalised and take more or less time to implement – have been developed over the last few decades, and applied in different contexts. Companies can refer to these to guide their thinking. A list of available tools and methods is presented in this report.

Second, **an extensive literature** is available to companies. It can enable them to take stock of the changes that will be required by the low-carbon transition and to understand the **issues of the transition in the different sectors of the economy**. Some examples are presented for illustrative purposes in the report.

Finally, to increase efficiency, while striking a balance with confidentiality issues, companies can **work together on certain steps**, such as identifying the issues of the transition for a specific sector or value chain. This exercise can be conducted by a federation or any other grouping of companies, and can include other actors (NGOs, public authorities, research centres, consumer associations, etc.). Exercises of this kind have already been conducted, and these experiments can inform the structuring of new collaborations.

## **How to disclose elements of scenario analysis to financial actors**

The TCFD invites companies to disclose to financial actors elements of their climate-related scenario analysis through public reporting. This raises a number of questions from companies about the feasibility of the exercise, which are clarified in this report.

### **All analysis processes can produce useful information for financial actors**

Financial actors seek to understand the efforts made by companies to progressively enable themselves to manage the risks and opportunities of the low-carbon transition. Whatever the stage they are at, companies can provide information about the process they are implementing, such as the involvement of the board and the senior management. The important thing is to be able to show how seriously they are incorporating the issues of the low-carbon transition into their strategy, as well as the robustness of their approach. Companies can also provide additional information to help financial actors to use the disclosures about their process, by clarifying how their current situation exposes them to potential challenges in a context of low-carbon transition (for example, financial information structured by sector, geography and physical unit; or the green and brown shares of their activities).

Financial actors express a general interest in the standardisation of information disclosed by companies in order to facilitate its use, but understand that strategic scenario analysis processes cannot be homogenised. However, in order to facilitate the use of disclosures, companies can, for example, provide points of comparison

with scenarios that are established or developed at the sectoral level, or disclose information with maximum transparency on each step of the process, in a standardised format.

The scenario analysis process is of strategic interest to companies and disclosure on this subject raises confidentiality issues. Companies must therefore strike a **balance between transparency and confidentiality**. In order to measure this challenge, companies can begin by identifying the disclosures they make through different channels. Solutions are then available to them to deliver the important points of the analysis, in a manner that is useful to financial actors, and without any breach of confidentiality (for example, thinking about the appropriate level of disaggregation of information disclosed, making disclosures on several scenarios, drawing on reporting practices in other companies, etc.). Companies should also prepare to communicate with financial actors about the information they do not wish to disclose voluntarily.

### Useful elements of disclosure and the role of climate reporting

For each stage of the scenario analysis process, companies can collect information that is useful to financial actors (see Figure A). **Each category of information is illustrated in this report with examples from company reporting.**



#### 1 Disclosure on step 1: The general framework of the process

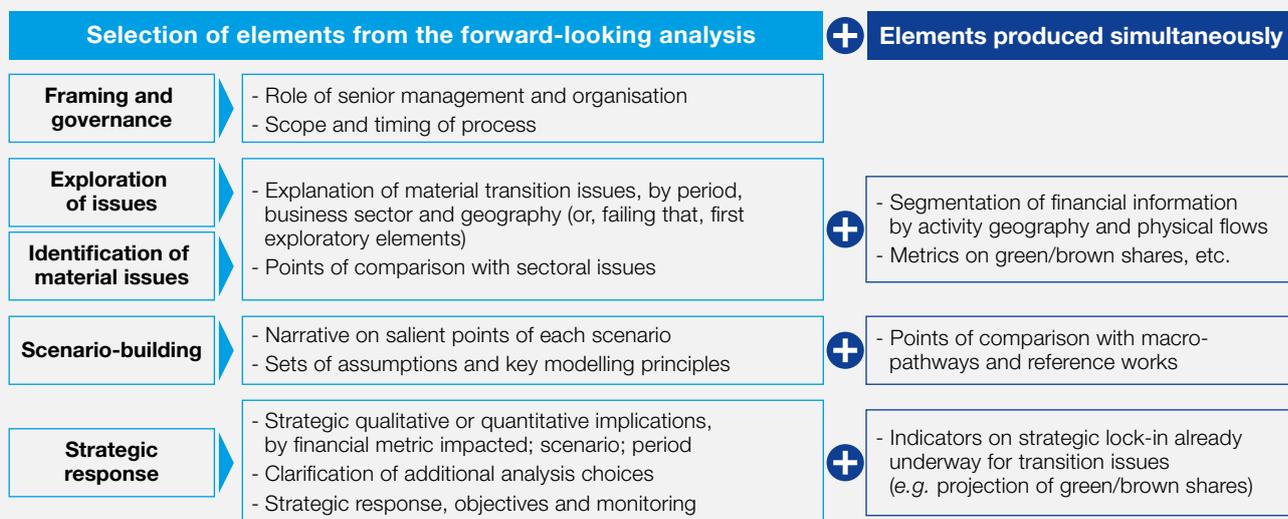
Companies can disclose information on the **involvement of the board and the senior management** in the process, the **objectives** set, the **general implementation plan** and its **incorporation into normal planning processes**. This information gives financial actors insights about the capacity of companies to integrate forward-looking analysis into the implementation of strategic decisions.

#### 2-3 Disclosure on steps 2 and 3: The material issues of the low-carbon transition for companies

Companies can present their view of the **strategic issues of the low-carbon transition** for their activity. They can explain how changes in key variables affect their business environment, and translate into risks and opportunities for the determinants of their performance, if possible by **business segment and geographical area**. At this stage, companies can also disclose information on their position in relation to sectoral issues, as well as on the metrics used to measure their exposure to the risks of the low-carbon transition. This information enables financial actors to determine the relevance and robustness of the analyses conducted by companies.

FIGURE A

### USEFUL DISCLOSURES COMPANIES CAN MAKE TO FINANCIAL ACTORS ON THEIR SCENARIO ANALYSIS PROCESS



Source: I4CE, 2020

@I4CE\_

4

**Disclosure on step 4:  
On the range of transition scenarios  
considered**

Companies can provide a concise report explaining the **rationale of their scenarios**, as well as a **description of key assumptions**, and of quantified elements where they exist. They can also explain – as far as possible – how these can be compared to **established low-carbon transition scenarios**. This information enables financial actors to understand the plausible futures companies are envisaging.

5

**Disclosure on step 5:  
Strategic implications**

Companies can disclose information on the **strategic implications** of each scenario, if possible by financial metric concerned, and by sector, country and time horizon considered. They can also clarify the scale of the challenge facing them as their business model currently stands and, finally, explain the **strategic responses** planned or already implemented. This information enables financial actors to understand how companies' strategic actions make their activity more resilient in the different scenarios.

## Conclusion

Forward-looking analysis, and in particular scenario analysis as recommended by the TCFD, enables companies to **incorporate into their strategy the risks and opportunities of the transition to a low-carbon economy**.

Numerous resources – methods and tools, literature – presented in this report are available to companies and can support them in the implementation of this process, which requires in particular developing an **in-depth knowledge of the company** and **exploring the dynamics of its changing environment**.

The TCFD also recommends that companies should disclose elements of their scenario analyses, which raises **confidentiality issues**. This report suggests ways for companies to overcome this challenge and to **make disclosures that are useful to financial actors**, illustrated by **extracts from voluntary reporting**.

Over and above the issues of the low-carbon transition, it is also essential for companies to **prepare for the physical impacts of climate change**, which will severely disrupt the economy.

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# Introduction

## The TCFD has turned the spotlight on scenario analysis

Climate change and the transition to a low-carbon economy represent risks and opportunities for companies. Indeed, **far-reaching changes are expected in socio-economic systems**, with uncertainties about their magnitude and their economic and financial consequences.

In order to prepare for these challenges, non-financial and financial companies need to develop strategies in order to prosper under different climate change and low-carbon transition scenarios. To achieve this, financial companies are partly dependent on the information disclosed by the companies to which they provide capital and financial services.

Faced with the need for companies to prepare and to share climate-related financial information, in 2015 the Financial Stability Board launched the TCFD (Task Force on Climate-related Financial Disclosures) under the impetus of the G20. In 2017, this task force published recommendations to establish a financial reporting framework on the integration of climate-related risks and opportunities, applicable to non-financial and financial companies.

One of the key recommendations of the TCFD concerns the use of scenario analysis for strategic purposes. The TCFD recommends using scenario analyses to inform **strategic and financial thinking and planning processes** by **incorporating climate-related issues into them**. It also recommends disclosing a selection of information on this strategic process, especially the **resilience of the strategy** to a range of plausible climate-related scenarios (including a 2°C or more scenario).

## Difficulties conducting a scenario analysis and disclosing information on this subject

Although scenario analysis methods have been used for decades in strategic thinking by some companies, **their widespread application to climate-related issues poses difficulties**. These were identified in the Status Report on the implementation of the TCFD recommendations<sup>1</sup> published in June 2019, or in the work by I4CE<sup>2</sup> published in 2019 and based on the analysis of company responses to the CDP questionnaire.

These reports indicate that there is a general need for teaching on the concept of scenarios as a tool for exploring uncertainties about the future; about the issues of the low-carbon transition and climate change; and about the informative content of the different categories of “climate-related scenarios”. In order to help actors to secure this prerequisite for scenario analysis of climate-related risks and opportunities, in 2019 I4CE produced a guide entitled “*Understanding transition scenarios – Eight steps for reading and interpreting these scenarios*”<sup>3</sup>.

The implementation of climate-related scenario analysis also raises practical questions. For example, existing scenarios are not sufficient for companies to inform their strategic thinking about the possible implications of the low-carbon transition on their specific business environment. More broadly, difficulties have been identified in the determination of key climate-related variables that affect company performance. In addition, non-financial companies seem to expect precisions regarding the information financial companies require in order to align their reporting process as advocated by the TCFD.

It is thus necessary to explain how companies can avoid these difficulties to immediately launch their analysis process and disclose information to financial companies on this subject.

## Objectives of this publication and methodology

This report seeks to guide non-financial companies in their **forward-looking analysis of the strategic issues of the low-carbon transition, and in their disclosures to financial stakeholders**, in reference to the **TCFD** framework. It is essential that companies also incorporate the issues of the physical impacts of climate change into their forward-looking approach. Other resources, which are not covered in this publication, will then be necessary.

The first part of this report explains why all companies will benefit from incorporating the issues of the low-carbon transition into their strategy through a forward-looking approach. The second part guides companies through the different steps involved in scenario analysis, and presents the analysis tools and methods available. The final part highlights the information financial stakeholders require about the company’s process, and provides examples of effective presentations derived from public reporting by different companies.

<sup>1</sup> “Task Force on Climate-related Financial Disclosures: 2019 Status Report” available for download on the TCFD website: <https://www.fsb-tcf.org/wp-content/uploads/2019/06/2019-TCFD-Status-Report-FINAL-053119.pdf>

<sup>2</sup> See the publication “*Very few companies make good use of scenarios to anticipate their climate-constrained future*” available for download on the I4CE website: <https://www.i4ce.org/download/very-few-companies-make-good-use-of-scenarios-to-anticipate-their-climate-constrained-future/>

<sup>3</sup> The publication “*Understanding transition scenarios – Eight steps for reading and interpreting these scenarios*” is available on the I4CE website: <https://www.i4ce.org/download/understanding-transition-scenarios-eight-steps-for-reading-and-november-2019-interpreting-these-scenarios/>

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In addition to a literature review, the drafting of this report was informed by three processes:

- a workshop was organised with around 15 company representatives and experts. It identified current barriers to the **implementation of forward-looking analysis of the issues of the transition in companies** and was the opportunity to share good practice;
- interviews were conducted with a dozen financial actors from different Parisian institutions – commercial banks, pension funds, insurance companies (as investors), and

asset managers. The financial actors talked about the **information** they wish to obtain from companies, through public reporting or other channels;

- the annual reports and sustainable development reports from around 30 companies were reviewed. This review identified reporting practices that **illustrate the information required by financial actors.**

# 1. Scenario analysis of the issues of the low-carbon transition: a valuable exercise for all companies

Scenario analysis is extremely useful for companies in order to guide their strategy in a context disrupted in particular by the low-carbon transition. It can also enable them to report to their financial partners on efforts made to ensure their resilience.

## 1.1. Scenario analysis informs company strategy in a context disrupted by the low-carbon transition

### 1.1.1. The low-carbon transition is already causing far-reaching changes across all economic sectors

The low-carbon transition corresponds to changes in socio-economic systems to keep global warming below 2°C or even 1.5°C. To meet this target, greenhouse gas emissions must be drastically reduced, in order to achieve carbon neutrality<sup>4</sup> at the global level by the second half of the century. **This zero-carbon target indicates the magnitude of changes required across all sectors of the economy.**

The decarbonisation target may seem distant to economic actors, but in order to achieve it, far-reaching changes are needed immediately in economic systems. **Changes are already underway and are disrupting some economic sectors.** Examples include the drastic reduction in renewable power generation costs<sup>5</sup>, or the rapid deployment of electric vehicles in some places (with, for example, electric vehicles making up more than 60% of car sales in Oslo in 2018<sup>6</sup>).

In addition to the carbon price, which typically comes to mind, (implemented through a carbon tax or market), many climate policies can support the transition in the different sectors (subsidies for the deployment of infrastructures or technologies, norms and standards, energy taxes, etc.). Behavioural changes as well as the emergence of new technologies also contribute to the low-carbon transition, which thus **takes shape through different factors that interact with one another.** For example, for the automobile sector, changes could be linked to the combined effect of: planning policies to limit urban sprawl; the establishment of congestion charges and wider deployment of public transport; a shift in consumer preferences towards

sustainable mobility; the deployment of electric vehicles; and an increase in the price of materials through carbon taxation, etc.

Moreover, **changes linked to the low-carbon transition could produce cascading effects between the different sectors of the economy.** The issues facing the steel industry, for instance, could impact downstream industries, for example through the price and availability of steel. Conversely, the issues facing upstream industries will determine demand for the different types of steel.

Finally, the low-carbon transition will not concern just the most carbon-intensive sectors. **All sectors will be affected.** These include tourism, which could see changes due to a reduction in air traffic, for example. New business opportunities could also emerge in this sector, linked to a potential shift in consumer preferences towards more sustainable tourism.

### 1.1.2. These changes may significantly affect company profitability

By affecting the business environment of companies, the low-carbon transition could have multiple impacts on the key elements of their profitability.

First, the low-carbon transition may affect **demand for certain products or services** through shifts in consumer preferences, the implementation of policies that encourage low-carbon products, and the emergence of new technologies. If we take the example of the steel sector, demand for different types of steel could be impacted by numerous factors, including an increase in the share of wood for certain uses, the establishment of a circular economy, or the deployment of low-carbon technologies that use steel.

The low-carbon transition may also affect **the costs incurred by companies**, especially the cost of energy, raw materials and suppliers. Companies' production costs may also be altered by the emergence of new low-carbon technologies, or by the implementation of climate policies, such as a carbon tax, or energy efficiency standards.

Finally, as a result of all of these changes, the value of assets held by companies may also be affected.

<sup>4</sup> Defined in Article 4 of the Paris Agreement, this concept corresponds to a balance between anthropogenic greenhouse gas emissions and their removal by carbon sinks. The issues of the low-carbon transition are defined in more detail in the publication "*Understanding transition scenarios – Eight steps for reading and interpreting these scenarios*", available on the I4CE website: <https://www.i4ce.org/download/understanding-transition-scenarios-eight-steps-for-reading-and-november-2019-interpreting-these-scenarios/>

<sup>5</sup> See, for example, the report by the International Renewable Energy Agency (IRENA): <https://www.irena.org/publications/2019/May/Renewable-power-generation-costs-in-2018>

<sup>6</sup> See, for example the report "*Electric vehicle capitals: Showing the path to a mainstream market*": [https://theicct.org/sites/default/files/publications/EV\\_Capitals\\_2018\\_20191121.pdf](https://theicct.org/sites/default/files/publications/EV_Capitals_2018_20191121.pdf)

### 1.1.3. The low-carbon transition exposes companies to uncertainties

The broad lines of the changes required in our socio-economic systems to achieve carbon neutrality are established, and explored in particular through transition scenarios (see 2.2.2). However, there are **uncertainties about the magnitude and timing of the low-carbon transition** in the future. The commitments currently planned by states – through their nationally determined contributions (NDCs) – will not keep global warming below 2°C. However, these commitments are expected to change, since the Paris Agreement has provisions for a ratchet mechanism to increase state ambition every five years.

Moreover, there are **uncertainties about the exact nature of the transition** in the future, especially concerning the technologies that will emerge, the policies that will be implemented and the behavioural changes that will support this transition. There are also uncertainties about shifts in other phenomena, which are not themselves linked to the low-carbon transition, but which will interact with the transformations it produces. Examples include changes in geopolitical relations, or the development of digitalisation.

### 1.1.4. A strategic forward-looking approach based on scenarios can help to manage these uncertainties

Scenario analysis belongs to a broader category of “forward-looking” approaches developed according to different schools of thought in France and in the English-speaking countries (see Box 1)<sup>7</sup>.

Implementing a forward-looking approach enables companies to understand **how the low-carbon transition could take shape and affect their business environment**, and thus to **anticipate the risks and opportunities** of the transition. Companies can thus **prepare** for future change and become actors in this process. Forward-looking analysis can help them to **build a strategy that is resilient to possible world changes**, and to thereby **increase the sustainability of their activities** in a rapidly changing context<sup>8</sup>.

Scenario analysis methods play an important part in forward-looking processes. They consist in building **representations of plausible futures in order to guide strategic decisions**. **The goal is not to predict the future, or to “choose” a scenario to describe the most desirable future for the company**, but to explore several plausible futures in order to analyse the impacts they would have on the performance of the company and to develop a strategy that enables the company to prosper in these different futures. These methods are particularly suited to studying the issues of the low-carbon transition (see Table 1).

#### BOX 1 - “LA PROSPECTIVE” OR “STRATEGIC FORESIGHT” – NAVIGATING BETWEEN THESE TWO RELATED CONCEPTS

“*La prospective*”, a French term meaning “forward-looking analysis”, entails **anticipation to clarify present action** in the light of **possible and desirable futures** (Godet and Durance, 2011). The closest concept in English is “strategic foresight”. These approaches stem from different schools of thought, which have evolved in parallel since the 1950s, mainly in France and the United States. “*La prospective*” originally differed from “strategic foresight” in that it gave greater importance to the process (compared to the outcome), entailed greater stakeholder involvement and took greater account of the human factor (compared to technology, for example). The differences between these approaches are diminishing, and the two schools now tend to converge.

<sup>7</sup> This publication is based on tools and methods developed by these two schools of thought.

<sup>8</sup> Incorporating the issues of the physical impacts of climate change into a forward-looking process is clearly just as useful. This guide focuses on the issues of the low-carbon transition, but the process described also applies to the issues of climate change. Resources other than those mentioned in 2.2.2 are then required.

**TABLE 1**  
**THE BENEFITS OF SCENARIO ANALYSIS TO EXPLORE THE ISSUES OF THE LOW-CARBON TRANSITION**

Characteristics of the low-carbon transition	Scenario analysis can:
Far-reaching changes across all sectors of the economy, potentially breaking with current trends	Assess developments that break with current trends and question common beliefs about the future
Uncertainties about the timing and exact nature of the transition	Explore different plausible and contrasting futures, around key uncertainties for the company
Dynamics already at work and knowledge of the key trends of the low-carbon transition	Take into account “hard trends”
A distant decarbonisation target but changes already underway	Take into account long-term trends in strategy development
Multiple manifestations that interact with one another and cascading effects	Raise awareness of the interdependencies between different phenomena

Source: I4CE, 2020

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These methods improve awareness – especially among senior management – of the strategic importance of the low-carbon transition. They help to inform decision-making, by **identifying key issues for the company** and by **streamlining the assessment of the different plausible futures**. They also make it more **flexible**, by incorporating the possibility of potential breaks in strategic planning. Finally, they facilitate change management within the company by creating shared visions and fostering internal communication.

Over and above internal strategic issues, this process enables the company to demonstrate to its financial partners willingness to increase its resilience.

## 1.2. Scenario analysis is beneficial to relations between a company and its financial partners

### 1.2.1. Information that is useful to financial partners

Financial actors are exposed to the risks and opportunities of the low-carbon transition through the companies they finance with debt and equity. To analyse their own exposure, financial actors must therefore understand to what extent the companies included in their portfolios are resilient to the issues of the transition. Companies can provide key information on these issues to their financial partners through disclosure of their scenario analysis of the issues of the transition. **This analysis outlines the company’s capacity to adapt and to continue to prosper in a future that is by nature uncertain.** Financial actors will thus be able to use this information to discuss with the company additional financing opportunities that would enable the

company to ensure its resilience in a context of transition. The company’s forward-looking process provides financial actors with information that is complementary to other processes enabling them to determine how seriously the company is incorporating the issues of the low-carbon transition, like the ACT initiative<sup>9</sup>.

**Demand from financial actors for this type of information is expected to increase** with the growing incorporation of climate issues by the financial sector, driven in particular by regulators.

“A question for every company, every financial institution, every asset manager, pension fund or insurer: what’s your plan?”

**Mark CARNEY – Governor of the Bank of England,**  
First Vice-Chair of the European Systemic Risk Board,  
(December 2019 – BBC Radio 4)

<sup>9</sup> The methods of the ACT (Assessing Low-Carbon Transition) initiative were developed by ADEME and CDP. They are used to assess and grade the strategies companies develop to align with low-carbon pathways. Unlike the scenario analysis described in this report, the main goal of ACT is the assessment of company strategy, rather than strategy development by the company, even if it also enables companies to familiarise themselves with the sectoral issues of the low-carbon transition. The two approaches are complementary and can inform one another, whether from the company’s perspective or from that of its financial partners.

### 1.2.2. Information particularly requested through reporting

In 2017, the TCFD recommendations highlighted the importance of scenario analysis among the information to be disclosed to financial actors on climate-related issues (see **Box 2**). **The TCFD advocates the disclosure of information through public reporting, preferably within the company's annual financial filings.** It can be used directly by the financial partners or processed by a third party, such as a rating agency.

Many companies are already aware of this request, especially through the CDP questionnaire, which includes questions about any scenario analysis processes conducted by companies. In the context of the Action Plan on Sustainable Finance, the European Commission also revised the non-binding guidelines of the Non-Financial

Reporting Directive (Directive 2014/95/EU) in June 2019, explicitly including this TCFD recommendation.

This recommendation to conduct climate-related scenario analysis is expected to feature in the majority of reporting frameworks aimed at informing financial actors, including mandatory frameworks. The European Commission has announced upcoming research by EFRAG (European Financial Reporting Advisory Group) on the implementation of European non-financial reporting standards, and a revision of the Non-Financial Reporting Directive<sup>10</sup>.

Reporting on scenario analysis nevertheless poses certain practical difficulties. Some solutions to the difficulties linked in particular to the confidentiality of the process are suggested in **section 3** of this report. The need for clarification of the information expected by financial actors is also addressed in **section 3**<sup>11</sup>.

#### BOX 2 - THE IMPORTANCE OF SCENARIO ANALYSIS IN THE TCFD RECOMMENDATIONS

The overall ambition of the TCFD is **that companies explain to financial actors how they are progressing in the management of climate-related financial issues.** The issues targeted are the risks and opportunities of the low-carbon transition and the impacts of climate change, with significant financial consequences for the company, referred to as “material issues”. The explanation should focus on four aspects: the incorporation of these issues into strategy; the governance mobilised; the link established with the company's risk management processes; and the implementation of indicators and objectives to guide the process.

In particular, the TCFD requests that companies demonstrate the resilience of their strategy to climate issues, through scenario analysis (item “Strategy c”, one of the 11 recommended disclosures in the main TCFD report (2017b)). Concerning the risks and opportunities of the transition, the TCFD recognises uncertainty about the level of ambition of the transition and about the specific changes it will produce in the economy. It thus recommends analysing the “resilience of the strategy” to different transition scenarios, including at least one scenario reflecting an economic transition consistent with limiting global warming to +2°C.

The TCFD provides further details about good practice in terms of analysis and disclosure of the process to financial actors, especially through its Technical Supplement on scenario analysis (TCFD, 2017c), its report clarifying specific expectations for the most exposed sectors (TCFD, 2017a), and its status reports on reporting practices (TCFD, 2019).

<sup>10</sup> [https://ec.europa.eu/commission/presscorner/detail/en/SPEECH\\_20\\_139](https://ec.europa.eu/commission/presscorner/detail/en/SPEECH_20_139)

<sup>11</sup> Companies will also find useful information in the EFRAG report (2020), which takes stock of reporting on scenario analysis.

## 2. How to conduct a scenario analysis of the issues of the transition

The implementation of a scenario analysis is extremely useful to companies in order for them to understand the implications of the low-carbon transition for their business, to prepare for it, and to become actors in this process. The analysis can be organised in successive steps, during which companies can use numerous resources to facilitate this exercise (see Figure 1).

Section 2.1 sets out the general steps of a scenario analysis and section 2.2 presents the resources available to companies to support them in this process.

### 2.1. A flexible organisation in five steps

Many different scenario analysis methods are used in both the prospective and strategic foresight schools of thought, and are widely documented in the literature. Despite differences between methods, they share the same principles and the same key steps (Mietzner and Reger, 2004), which are summarised in this section<sup>12</sup>. Implementation of the whole scenario analysis process can easily take from several months to more than a year, but the **approach can be adapted according to the needs and resources of companies**. A first exercise may, for example, focus on identifying the most important issues of the low-carbon transition for the company. This is an **iterative process**, whose scope and complexity can gradually be increased.

#### 2.1.1. Framing the process and defining governance

Before launching a forward-looking analysis, it is essential to clearly define the **objective** pursued: over and above the general objective – which consists in understanding the possible implications of the low-carbon transition for the company and developing strategic responses to these issues –, it is also important to define the **degree of strategic impact** and the **level of mobilisation** expected<sup>13</sup>. The strategic impact of a forward-looking process will be more or less direct, depending on the way in which the two phases – the exploration of issues and the development of strategic responses – are integrated with one another. To ensure the strategic impact is as direct as possible, **the senior management must be involved right from the exploratory phase**. Moreover, forward-looking analyses are **interactive and participatory processes**, typically including the organisation of workshops that may involve different numbers of participants within the company. Where possible, it is important that **teams representative of different business areas within the company** take part in this exercise, in order to inform thinking on the challenges facing the company at the operational level. They must then be able to take ownership of the strategy – or even to participate in its development – and to contribute to its implementation. In particular, the involvement of financial planning teams is useful in order to assess the financial impacts of the transition and to structure a strategic response that takes the company's financial capacities into account.

FIGURE 1

#### THE STEPS OF A SCENARIO ANALYSIS AND THE RESOURCES AVAILABLE TO COMPANIES

5 steps for scenario analysis of the issues of the transition		Available resources
<b>Framing and governance</b>	<ol style="list-style-type: none"> <li>1. Defining the objective, method and scope</li> <li>2. Establishing governance</li> </ol>	<p>Bibliography to explore the sectoral issues of the low-carbon transition</p>
<b>Exploration of issues</b>	<ol style="list-style-type: none"> <li>1. Mapping the variables – internal or external to the company – that determine profitability</li> <li>2. Documenting interactions between the different variables as well as the dynamics at work, in connection with the low-carbon transition</li> </ol>	
<b>Identification of material issues</b>	<ol style="list-style-type: none"> <li>1. Identifying the key variables for the company</li> <li>2. Making assumptions about their possible evolution in connection with the low-carbon transition</li> </ol>	<p>Tools and methods to support the implementation of a forward-looking analysis</p>
<b>Scenario-building</b>	<ol style="list-style-type: none"> <li>1. Building contrasting stories around key uncertainties</li> <li>2. Possibly quantifying certain changes</li> </ol>	
<b>Strategic response</b>	<ol style="list-style-type: none"> <li>1. Assessing potential impacts, by scenario and time horizon</li> <li>2. Developing strategic response options</li> <li>3. Implementing strategy</li> </ol>	

Source: I4CE, 2020

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<sup>12</sup> The summary of the different steps involved in implementing a scenario analysis does not necessarily reflect the characteristics of all methods, and is only for illustrative purposes.

<sup>13</sup> The classification of forward-looking analysis processes according to these two criteria is taken from the paper "Proposition d'une typologie des démarches de prospective participative pour les entreprises" (Bootz, Jean-Philippe & Monti, Régine, 2008).

The objective pursued, as well as constraints on resources (financial and human), will condition the method to be used and the duration of the process. The implementation of a forward-looking analysis can be more or less time-consuming and costly.

In this framing phase, the **governance** of the forward-looking analysis must be defined – the establishment of working groups, the assignment of responsibilities, the possible involvement of stakeholders external to the company –, as well as its **incorporation into existing planning processes**.

Finally, this phase should define the scope of the forward-looking analysis, and especially the time **horizon** considered. In view of the issues of the low-carbon transition, the time horizon should be fairly long. Indeed, the company must endeavour to **understand the long-term trends of the transition**, in order to draw **lessons about the dynamics and opportunities for action in the shorter term**.

### 2.1.2. Exploring the issues of the low-carbon transition from the company's perspective

A key step in the implementation of a scenario analysis process consists in acquiring **in-depth knowledge of the company** by accurately assessing its **expertise and resources** – human, financial, technological, etc. – then comparing the analysis of the company to **changes in its environment, in relation to the transition to a low-carbon economy**. This crucial step is generally the most time-consuming part of the implementation of a scenario analysis method.

The first goal is to **identify the variables** – whether internal or external to the company – that determine its profitability in its different business segments and geographical areas, and to understand the **interactions between these different variables** (see Figure 2 for examples). Since the transition is an unprecedented process affecting the whole economy with cascading effects, it is important to think broadly in this phase, and to include variables that may initially appear to be secondary.

After mapping the variables, it is then essential to develop an **understanding of the dynamics at work**. This exercise should be informed by a **retrospective analysis** of each of the variables, in order to comprehend their past determinants. It also consists in assessing their **possible future evolution**, building on knowledge of the dynamics of the transition to a low-carbon economy. In particular, this analysis should help to **understand the timing of the different phenomena**, and the possible changes in variables over different time horizons. It should also help to distinguish the **hard trends** – in other words the highly probable, almost certain changes – and the **uncertainties**.

This step can be informed by interviews, bibliographic research and workshops, for example. It is useful to include stakeholders external to the company in this phase, in order to enrich and develop the thinking process. Resources that can be used to understand the issues of the low-carbon transition are presented in section 2.2.2.

### 2.1.3. Identifying the material issues for the company

The next step consists in identifying the **most important variables external to the company** in order to study the strategic risks and opportunities resulting from its changing environment (the **key variables**). These are the variables whose evolution – subject to uncertainties – may have significant impacts on the profitability of the company, or even on its viability. The key variables may also have an indirect impact on the company, and be identified through their influence on the other variables.

Numerous tools and methods exist to identify these key variables, and companies can therefore find methods that are suited to their financial and human resources (see 2.2.1). Assumptions must then be made about their **possible evolution**, using the analyses conducted in the previous step.

### 2.1.4. Building scenarios

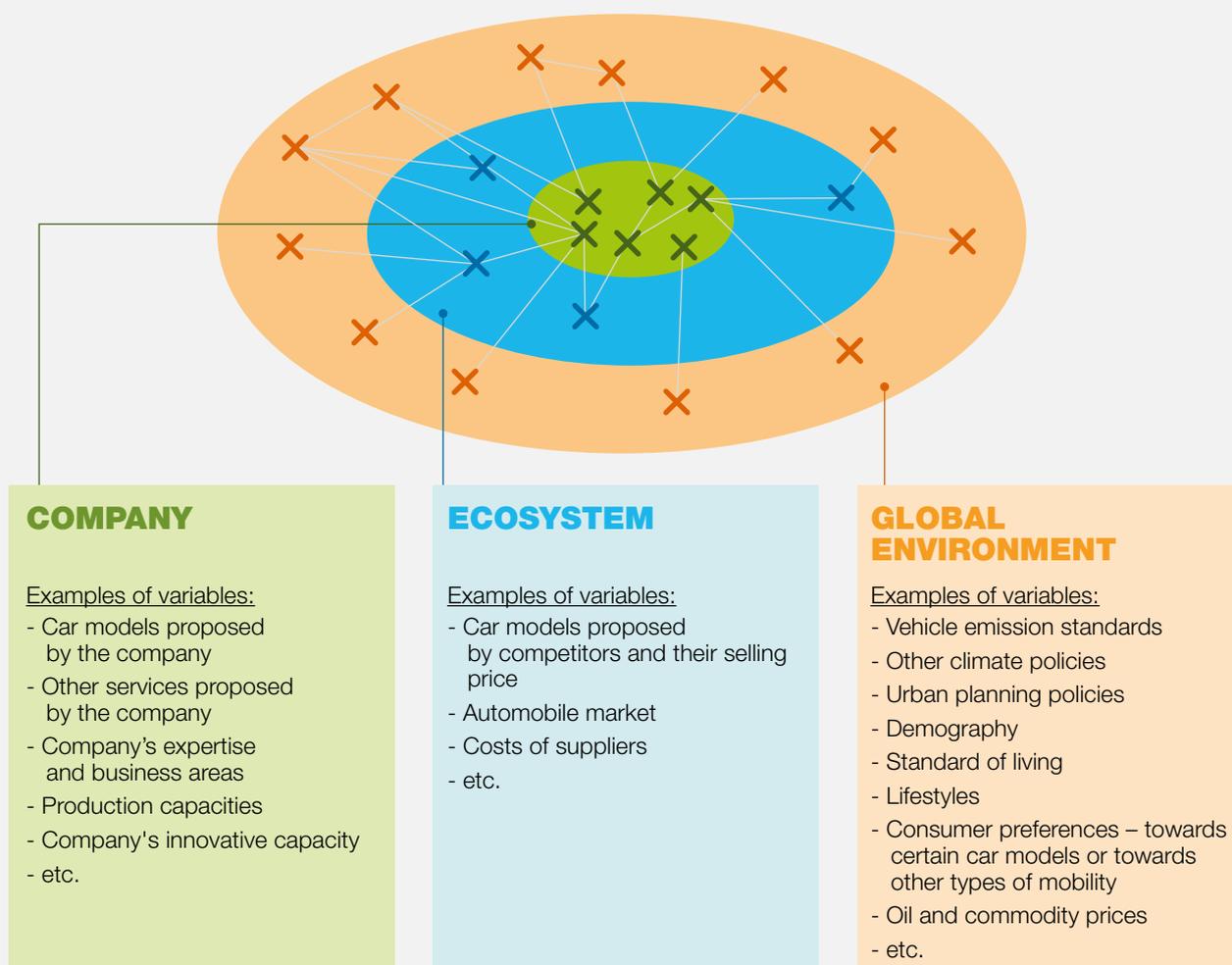
The scenario building phase consists in defining **contrasting stories** around the possible – and **consistent** – evolution of certain key variables of the global environment (see Figure 2). The hard trends are generally found in all scenarios, while the key uncertainties can serve to structure separate scenarios (see Figure 3).

Typically, **between three and five scenarios** are defined, making it possible to capture the relevant issues for the company while streamlining the analysis process. A limited number of scenarios also facilitates communication on the exercise and its ownership by the different stakeholders.

These different scenarios must meet a certain number of criteria (TCFD, 2017): they must be **plausible; distinctive** (in other words they should be structurally different stories rather than variations on a theme); **consistent; relevant** (in other words they must inform strategic thinking on the issues of the low-carbon transition); and **challenging** (in other words they must question common beliefs about the future).

FIGURE 2

A COMPANY IN ITS ENVIRONMENT – THE EXAMPLE OF A CAR MANUFACTURER



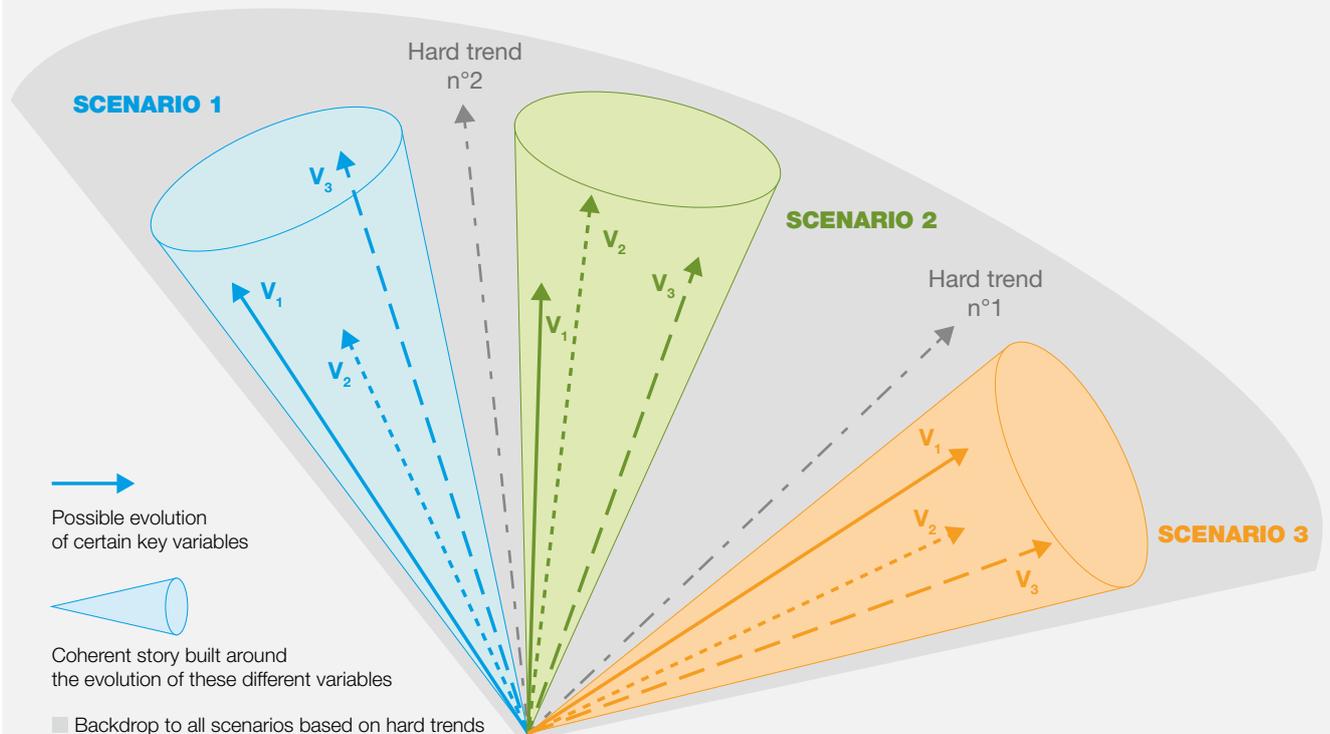
If we take the example of a car manufacturer, the variables internal to the company include the different car models produced, as well as the other services proposed – vehicle maintenance or warranty, for example. The internal variables also include the company's production capacities, such as its assembly lines, or the expertise and business areas of the company. The ecosystem variables include the characteristics of the company's whole value chain – such as the price and availability of spare parts provided by automotive suppliers, or the logistic aspects of supply and distribution. The ecosystem variables also include the models sold by competitors as well as their selling price, and the characteristics of the automotive market. Finally, the external variables include the characteristics of the global environment – political, technological, economic, sociological – that may have an impact on the company's activity. For a car manufacturer, this category could include climate policies, such as vehicle emission standards, or a carbon price applied to fuel consumption (which could influence consumer habits), or to the manufacturing of materials such as steel (which could affect the cost of spare parts). Moreover, variables such as urban planning policies (deploying public transport, limiting urban sprawl, establishing congestion charges, etc.), the standard of living, or oil prices, among others, can impact the automotive market and therefore the company's opportunities.

Source: I4CE, 2019, inspired by the Scenaring Tools, developed by F. Bourse and M. Godet

@I4CE\_

FIGURE 3

ILLUSTRATION OF SCENARIO BUILDING AROUND POSSIBLE CHANGES IN KEY VARIABLES FOR THE COMPANY



Returning to the example of the car manufacturer presented in Figure 2, three key variables of the global environment could be: urban planning policy changes (V1), electric vehicle deployment (V2), and lifestyle changes (V3). A first scenario (blue) could be built around the following combined evolutions: the implementation of policies to limit urban sprawl, the establishment of congestion charges and extensive deployment of bikeways and public transport (first possible evolution of the first variable), very limited deployment of electric vehicles with little charging infrastructure set up, weak consumer demand (first possible evolution of the second variable), a major increase in teleworking in office jobs, deployment of peer-to-peer car rental platforms, and a decrease in consumer preferences for private vehicle ownership (first possible evolution of the third variable). Two other scenarios (green and orange) could be built around other changes (consistent with one another) in the three key variables. The backdrop to these scenarios could be built around hard trends identified, one of which could be, for example, population ageing\*.

Source: I4CE, 2020

@I4CE\_

\* This example is for illustrative purposes only, and is by no means prescriptive regarding the scenarios that could be defined by a car manufacturer. The scenarios of interest to a company depend on its specific context and should be determined through in-depth analysis of its key issues as described in 2.1.2 and 2.1.3.

As with the identification of key variables, there are many different methods for building scenarios, which are widely documented in the literature (see 2.2.1).

If they have the means to do so, companies can at this stage **quantify certain parameters in their scenarios**, using models that represent the relationships between different variables of interest. This quantification can be based on the analysis of possible changes in different variables previously conducted, and can generate sensitivity analyses to assess the impact of changes in one variable in particular.

### 2.1.5. Developing a strategic response

The final phase begins with the **assessment of risks and opportunities** for the company in each of the scenarios in the short, medium and long term. This assessment is made in particular in terms of **potential impacts** on the evolution of key financial aspects for the company (e.g. costs, turnover, benefits) in a qualitative or a quantitative manner.

This analysis of potential impacts should inform senior management about the company's capacity to meet its strategic objectives under the different scenarios and time horizons. In particular, it may lead the management to realise that certain strategic choices are already limiting the company's ability to adapt to the different pathways in the medium-term.

The next goal is to develop **strategic response options** that are consistent with both the company's identity and the potential impacts assessed under the different scenarios. These options must build on the company's expertise, **over and above the products and services currently provided**. This may entail, for example, strengthening a certain business area or, on the contrary, abandoning part of the company's current activity, developing new products or services, investing in R&D on a particular subject, or establishing partnerships with external organisations, etc. These options must take account of financial feasibility issues, by involving financial planning teams, for example.

The leaders must then **make strategic choices** on this basis, which will subsequently be translated into an **action plan**, possibly with the definition of intermediate steps towards achieving the strategic objectives. This action plan must incorporate the uncertainties identified about changes in the company's business environment, and can be flexible in order to take account of the risks of disruption. A **monitoring system** can be established and indicators defined to determine whether the changes in the environment lead towards one of the scenarios.

The final step consists in **implementing the action plan** and results in the different teams within the company taking ownership of it.

## 2.2. Numerous resources are available to companies

### 2.2.1. Many different forward-looking analysis methods and tools can be used by companies

Forward-looking analysis methods have been developed over the last few decades. There is now a wealth of resources on this subject: both in the academic literature and in feedback from practical cases. In particular, a multitude of scenario analysis methods have been developed by the prospective and strategic foresight schools of thought (see **Box 1**). These methods are **more or less formalised**, require **varying degrees of expertise**, and take **more or less time** to implement.

Companies thus have access to multiple resources, which can support them in the implementation of this process (see **Box 3**). However, beyond the tools used, the most important thing in the implementation of scenario analysis is to **ask the right questions**, to **identify the crucial issues for the company**, and to get **the right people around the table**.

### BOX 3 - METHODS AND TOOLS TO GUIDE THINKING

Many different forward-looking analysis methods have been developed over the last few decades, and applied in different contexts. Companies wishing to implement scenario analysis can refer to these methods to guide their thinking. In France, Futuribles, a centre for forward-looking thinking and studies, provides numerous resources, including:

#### *Factsheets to navigate between the existing methods and tools*

<https://www.futuribles.com/fr/groupe/prospective-and-strategic-foresight-toolbox/les-fiches/>

These factsheets describe the main characteristics of the methods and tools, the technical prerequisites, and the cost and duration of implementation. The factsheets, some of which are in English and others in French, include the description of methods – derived from the prospective or strategic foresight schools of thought – to define the key variables and the rationale of scenarios, such as:

- the **2x2 Matrix Technique**: This consists in defining scenarios according to two high-impact and high-uncertainty variables. This is the most commonly used method, due to its ease of use. It does not however take into account interactions between the different variables;
- the **morphological analysis**: This is used to systematically explore the plausible futures based on combinations of the assumptions associated with the variables identified.

#### *Online tools*

<https://www.futuribles.com/en/qui-sommes-nous/comprendre-la-prospective/tools/>

These tools, developed by the Circle for Prospective Action and the 3IE Digital Innovation Laboratory at the EPITA Graduate School, include:

- The **framework** for prospective workshops: The goal of these workshops is to clearly identify the problems, and to introduce participants to forward-looking analysis and its methods.
- The **MICMAC** structural analysis tool: This tool can be used to analyse relationships between the variables of a system and its environment, and to reveal the most influential and dependent.
- **Scenaring Tools**: These tools are comprised of a module representing the variables of the system and a module on morphological analysis.

### 2.2.2. An abundant literature to understand the issues of the low-carbon transition

Numerous resources help to improve understanding of the dynamics at work between a company and its environment. To grasp the issues of the low-carbon transition, companies can first refer to the numerous publicly available **low-carbon transition scenarios** (the best known of which are presented in the Technical Supplement of the TCFD recommendations). These scenarios, developed by different organisations – research institutes, NGOs, companies, international organisations –, explore changes in socio-economic systems consistent with achieving a 2°C or 1.5°C climate target. They can be used to take stock of the developments required by the transition, and the orders of magnitude of the changes expected.

It is essential to consult several transition scenarios. Indeed, in addition to the broad common trends (decarbonisation of energy, electrification of end-use, etc.)<sup>14</sup>, each scenario proposes **a specific vision of the low-carbon transition**, and the results can vary considerably from one scenario to another. In particular the well-known scenarios should not be considered as predictions about changes in certain variables. Companies will benefit from comparing them with other scenarios, proposing alternative visions of the transition. The main differences between transition scenarios are described in the publication “*Understanding transition scenarios – Eight steps for reading and interpreting these scenarios*” (I4CE, 2019), which provides keys to interpreting transition scenarios and a step-by-step guide to reading them (applied to five well-known scenarios).

Furthermore, the most common transitions scenarios are not sufficient to understand the issues of the low-carbon transition at the company level. Indeed, they are often **centred on the energy sector**, with little information about developments in other sectors. Moreover, these scenarios (and the underlying models) often **focus on the technical aspects of the transition. Behavioural and lifestyle changes** are often absent from them or only briefly mentioned. Finally, **climate policies** are often represented by a carbon price, preventing assessment of the diversity of measures that can be implemented to support the low-carbon transition, or their different consequences for the economy.

Thus, in order to fully understand all of the issues of the transition in a company’s sector of activity, **it is useful to use other scenarios and sources of information**. An abundant literature explores the issues of the low-carbon transition in specific sectors of the economy, and can inform companies’ thinking on the subject. Companies in other sectors can map their linkages with sectors that are more obviously impacted by the low-carbon transition, in order to make use of the literature on these sectors. Numerous resources also enable them to explore the human and political factors of the low-carbon transition (see **Box 4**).

### 2.2.3. Some parts of the work can be coordinated

The implementation of a scenario analysis poses confidentiality issues (see **section 3.1.3**). However, companies may benefit from working together on certain steps – such as identifying the issues of the transition at the level of a particular sector or value chain – in order to increase efficiency. This exercise can be conducted, for example, at the level of a federation or any other grouping of companies. Other actors can also play a role in this joint reflection (NGOs, public authorities, research centres, consumer associations, etc.). Exercises of this kind have already been conducted, and these experiments can inform the structuring of new collaborations (see **Box 5**).

<sup>14</sup> These invariants of the transition are highlighted in the work by the IPCC, see Fifth Assessment Report, WGIII, Chapter 6, “Assessing Transformation Pathways”, and the Special Report on Global Warming of 1.5°C, Chapter 2, “Mitigation Pathways Compatible with 1.5°C”.

**BOX 4 - RESOURCES TO UNDERSTAND THE ISSUES OF THE TRANSITION, IN DIFFERENT SECTORS, AND FROM PERSPECTIVES OTHER THAN TECHNOLOGY**

An extensive literature is available to companies and can enable them to understand the issues of the transition in the different sectors of the economy, as well as the human and political factors of the transition. The list of sources presented here is clearly not exhaustive and some documents are in French only. Its goal is to show that resources exist and can be used to explore these different issues.

**Industry**

In the industrial sectors, companies can for example refer to research published in the framework of the Net-Zero 2050 initiative by the European Climate Foundation, which explores the implications of a transition to carbon neutrality across all sectors of the economy, especially in industry. The [two reports](#) on industry respectively:

- explore different pathways of change in heavy industry that are consistent with achieving carbon neutrality by 2050;
- present an industrial strategy to achieve this neutrality.

The first report thus explains the role different factors could play in the decarbonisation of industry (the establishment of a circular economy, the emergence of new technologies and processes, etc.), and the second identifies the policies that could support these changes.

Where industry is concerned, companies can also refer to the research commissioned by the European Commission in the context of its strategic vision to achieve carbon neutrality by 2050, and in particular the research conducted by Fraunhofer ISI and ICF on [low-carbon technologies](#) in industry and on [scenarios for the deployment](#) of these technologies.

**Agriculture**

In the agricultural sector, companies can refer to the [research](#) conducted by IDDRI on the modelling of the European food and agriculture system. It presents a scenario based on agroecology at the European level, and explores possible implications of the low-carbon transition for this sector. They can also look at the [Afterres2050 scenario](#) by Solagro, which explores changes in agricultural and food systems, particularly in connection with the issues of the low-carbon transition, at the French level.

**Transport**

For the transport sector, companies can use the [study](#) by the Commissariat Général au Développement Durable (General Commission on Sustainable Development -

CGDD) on changes in demand and traffic for passengers and goods in France by 2030 and 2050, for different modes of transport. They can also consult the [report](#) by the Conseil d’Orientation des Infrastructures (Advisory Board on Infrastructure) on investment projects in the transport sector in France for the next 20 years. The [research](#) conducted by the Chaire Energie et Prospérité (Energy and Prosperity Chair) on the possible contribution of different tools to reducing emissions in transport can also be very useful. Finally, the DDP initiative (Deep Decarbonisation Pathways) coordinated by IDDRI has conducted [research](#) on the decarbonisation of the transport sector in a number of countries, including France.

**Human factor**

Resources can also be used to better understand the human factor of the transition, and in particular to explore possible behavioural changes that could emerge and support the transition to a low-carbon economy. These include the [forward-looking exercise](#) by ADEME (the French Agency for Environment and Energy Management), which describes lifestyles of French households consistent with the low-carbon transition, the [research by the CGDD](#) on French lifestyles and environmental practices, and the [study by Futuribles](#) on production and consumption patterns in the ecological transition era. The [ZEN 2050](#) study conducted by the French association Entreprises pour l’Environnement (EpE) also provides useful insights on this issue, exploring possible lifestyle changes.

**Political factor**

Finally, some information sources can be used to better understand the political factor of the low-carbon transition, such as the study by ADEME, “[Propositions de mesures de politiques publiques pour un scénario bas carbone](#)”, which identifies the tools and complementary measures required, beyond existing policies, for France to achieve carbon neutrality. Databases of current policies, such as [the one developed by LSE](#), can also help to determine which policies can be implemented to support the transition. Moreover, documents such as the NDCs or the national roadmaps – like the [Stratégie Nationale Bas-Carbone \(SNBC\)](#) (National Low-Carbon Strategy) in France – can provide information about the policies planned by these countries, as well as about their specific context.

#### **BOX 5 - GOOD PRACTICE IN COORDINATING WORK**

Some federations – such as the *Fédération des Industries Mécaniques* – (Federation of Mechanical Industries) monitor weak signals in order to support companies in their strategic thinking and to detect new market opportunities.

Federations and networks are also developing studies on the contribution of their sector to achieving climate objectives, such as the *Plateforme Automobile et Mobilité* (Automobile and Mobility Platform), or European federations such as *Eurofer* for steel and *Eurelectric* for electricity. Another example is the initiative by a group of EpE companies, which joined forces to explore the implications of carbon neutrality in France and to assess the conditions needed to achieve this objective in the *ZEN 2050* study. The scenarios and roadmaps thus developed – while they cannot replace the implementation of a context-specific process in a given company – are very useful to inform thinking by companies about the possible implications of the low-carbon transition and to facilitate their ownership of these issues.

An international coalition of beverage companies (Beverage Industry Environmental Roundtable - BIER) has produced a [guide](#) to support companies in their scenario analysis of issues identified as key for this sector by 2025. Similar initiatives could be developed more specifically around the issues of the transition to a low-carbon economy.

Finally, the public institutions can also play a role in coordinating the exploration of transition issues in a given sector. One example is the [initiative](#) by ADEME bringing together manufacturers from the cement industry to exchange on the challenges and implications of the low-carbon transition in this sector.

## 3. How to disclose elements of scenario analysis to financial actors

The TCFD invites companies to make disclosures to financial actors on their climate-related scenario analysis, through public reporting. However, the analysis exercise conducted internally generates a large quantity of information, some of which may be sensitive. This raises questions about the choice of information to disclose, its format and the appropriate channel of communication in view of confidentiality issues.

Section 3.1 shows that companies can provide financial actors with useful information on their scenario analysis processes, while managing their confidentiality issues. Section 3.2 contains practical proposals for companies regarding the disclosure process. It presents the information that is useful to financial actors, identified in conjunction with the financial institutions in Paris. Each useful element is illustrated with extracts from company reporting, thereby demonstrating a certain degree of feasibility for disclosure through reporting, despite confidentiality issues.

### 3.1. All analysis processes can produce useful information for financial actors

Companies that conduct scenario analysis all have information that is useful to financial actors, regardless of where they are in the process, and despite differences between their analysis choices. Solutions are also available to companies to help them to communicate on these sensitive subjects.

#### 3.1.1. Wherever they are in the process, companies can provide useful information

##### *Information describing the steps of the process and its results*

Financial actors seek to understand the efforts made by companies to gradually increase their capacity to manage the risks and opportunities of the low-carbon transition. Companies can thus provide useful information about their forward-looking analysis process, right from the early stages, and for each step of the process. The important thing is that companies succeed in demonstrating how seriously they are incorporating the issues of the transition into their strategy, as well as the robustness of their approach.

A first key element concerns the involvement of the board and the senior management, which confirms the strategic impact of the process (see section 3.2.1). Financial actors also seek to obtain concise written elements explaining the position adopted by the company, for each step of its process (see section 3.2). Information on the strategic implications of the scenario analysis is of course crucial (see section 3.2.4). Financial actors are also interested

in any quantified elements of the analysis (assumptions and results).

Financial actors can use this information to assess a company's level of risk and its adaptive capacity; to inform targeted discussions with the company; or to conduct their own analyses. This information can also be used by intermediaries such as rating agencies.

##### *Information produced concurrently with the forward-looking analysis*

A company can also provide information not derived from its scenario analysis, but which will help financial actors to use the elements directly resulting from this process. In particular, this information enables them to clarify how the company's current situation exposes it to potential challenges in the context of a low-carbon transition. The company can, for example, structure financial information by sector and geographical area; detail the green and brown shares of its activities; and explain how its current strategic decisions can lock in changes to its green and brown shares.

In any case, the information disclosed by the company must be concise, should be relevant to explain its strategic resilience, and must focus on its material transition-related issues across the different time horizons analysed.

#### 3.1.2. Despite its heterogeneity, information derived from a scenario analysis is useful to financial actors

Financial actors express a general interest in the standardisation of information disclosed by companies on their climate-related issues, in order to facilitate its use.

However, the possibilities for standardising scenario analyses are limited. In particular, the idea of standardising the scenarios built by a company seems incompatible with the need to take account of the company's specificities and environment in a forward-looking analysis (see section 2). In such analysis, scenarios are built by the company as a step in the exploration of its strategic – and specific – transition-related issues. This also implies that any metrics resulting from the scenario analysis will not be directly comparable, since they derive from a process in which the methodological choices vary from one company to another.

The financial actors questioned understand that the scenarios generated with a view to strategic thinking cannot be standardised. They also explain that a company can facilitate the use of disclosures, even if these are based on heterogeneous scenario analysis practices. The company can thus provide points of comparison: it can, for example, specify how it is situated in relation to the issues in its sector, and how the scenarios used are aligned with well-known scenarios or sectoral roadmaps (see section 3.2.3). The company can also endeavour to disclose the information

recommended in **section 3.2** of this report. These elements provide a certain level of transparency on the process, which enables financial actors to launch targeted discussions with the company. They also provide a certain degree of homogeneity in the format of the information provided by companies. This can help financial actors (or intermediaries such as rating agencies) to interpret disclosures more rapidly.

### 3.1.3. Companies must strike a balance between transparency and confidentiality issues

The TCFD recommends that companies should make disclosures to financial actors on their forward-looking analysis process through public reporting. Scenario analysis is nevertheless a process of strategic interest to companies and disclosure on the subject raises confidentiality issues.

In order to accurately measure the extent of the confidentiality issue, the company can begin by identifying all the information – forward-looking or other – that it already discloses through its different departments and in different forms (CSR, sustainable development or climate reports; annual reports; responses to external questionnaires such as the CDP, etc.). This may provide unexpected insights into the combinations of information already available to financial actors.

The company can then think about the choice and format of information it can publicly disclose, in order to deliver the important points of its analysis, in a manner that is useful to financial actors, and without any breach of confidentiality. To do so, the company can:

- determine the level of disaggregation of information (for example in terms of geographical scale) that will enable it to strike this balance;
- think about the information it can disclose about the different steps of its process, even if it does not wish to specifically describe its strategic response;
- make useful disclosures on a range of scenarios rather than on one single scenario that appears central to its strategic thinking;
- provide qualitative or directional information about the scenario and even the results of its analysis if it does not wish to give figures.

Financial actors also invite the company to clarify the exploratory dimension of this exercise.

Finally, the company can also learn from reporting practices in the most advanced companies, to find out how much information is already disclosed and which disclosure formats are used. **Section 3.2** of this report thus provides reporting extracts from companies in different sectors.

The company should also be prepared to communicate with financial actors about the information it does not wish to disclose publicly and voluntarily. Financial actors could request this information during bilateral exchanges. Regulators could also request this information in the context of new reporting obligations, or through other types of mandatory transparency exercises.

## 3.2. Useful disclosures and the role of climate reporting

This part of the report presents a selection of key information for financial actors, which the company can collect during each step of the analysis process, as illustrated in **Figure 4** below. This selection builds in particular on the elements highlighted by the Paris financial institutions, in relation to the TCFD recommendations and the EU dynamics to harmonise non-financial reporting.

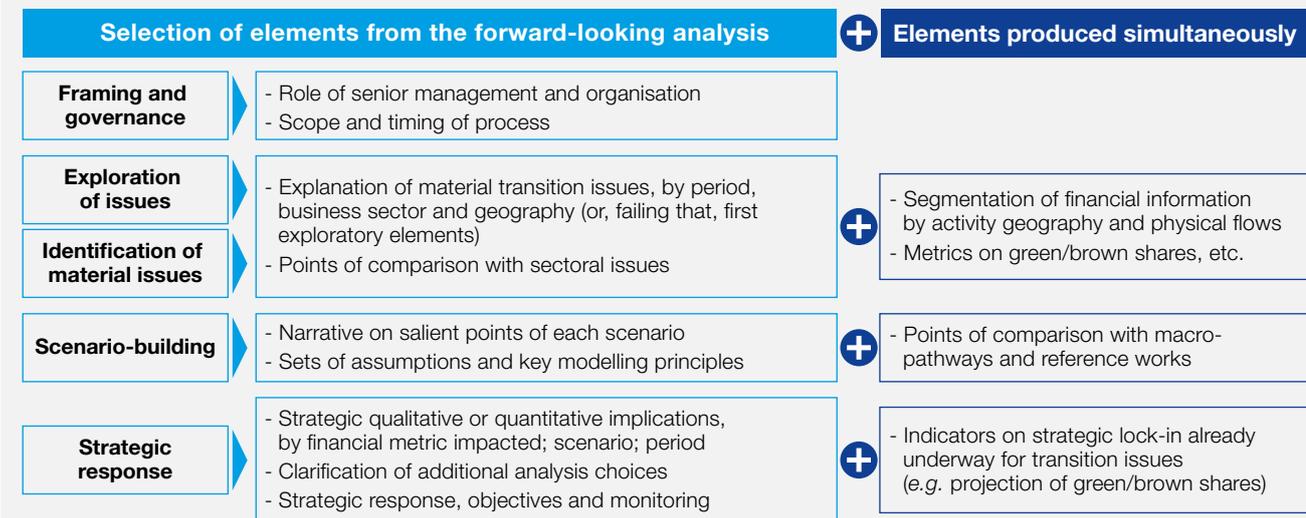
This information could be disclosed to financial actors through different channels. The TCFD prefers public reporting, in particular annual financial filings. In order to illustrate the feasibility of this, each category of information presented in this report is illustrated with examples of company climate reporting<sup>15</sup>. These illustrations do not necessarily fully meet financial actors' requirements for information, nor do they prejudice the overall quality of the forward-looking analysis process implemented by the company.

<sup>15</sup> These companies were identified through research by:

- I4CE: See the publication "*Very few companies make good use of scenarios to anticipate their climate-constrained future*" available on the I4CE website: <https://www.i4ce.org/download/very-few-companies-make-good-use-of-scenarios-to-anticipate-their-climate-constrained-future/>
- WRI: See the article on the WRI website: <https://www.wri.org/blog/2018/07/insider-one-year-4-early-trends-climate-related-scenario-analysis>
- TCFD: Especially the 2019 Status Report: <https://www.fsb-tcf.org/wp-content/uploads/2019/06/2019-TCFD-Status-Report-FINAL-053119.pdf>

FIGURE 4

**USEFUL INFORMATION COMPANIES CAN DISCLOSE TO FINANCIAL ACTORS ABOUT THEIR SCENARIO ANALYSIS PROCESS**



Source: IACE, 2020

@IACE\_

Clarifying the information that is useful to financial actors and the format of disclosures remains an iterative process. It will depend on the efforts of each stakeholder to take ownership of the strategic analysis of transition-related issues, to test the format of disclosures and to discuss their relevance.

In order to measure the relative importance given to the information derived from this process, it is essential to specify **how the forward-looking analysis process is articulated with the processes the company typically implements to inform its strategic thinking** (see example n°2).

**3.2.1. Disclosures on the general framework of the process**

This qualitative information plays a vital role: **informing financial actors about the company's capacity to incorporate forward-looking analysis into the implementation of strategic decisions.**

One key element is **clarifying the involvement of the board and the senior management** in the forward-looking strategic analysis. This implies, for example explaining the role of these decision-makers and of the other teams involved in the process, as well as their procedures for exchanging information (see examples n°1 and 2).

In order to demonstrate the capacity of the organisation to deliver a consistent and sustained forward-looking strategic analysis, the company can summarise the **objectives set** for this analysis (see example n°1), and **its overall implementation plan** indicating progress made on the process (see examples n°1 and 2).

**EXAMPLE N°1 - CONOCOPHILIPS, A US OIL AND NATURAL GAS EXPLORATION, PRODUCTION AND TRANSPORTATION COMPANY**

ConocoPhillips describes its governance of climate-related issues, which includes scenario-based strategic planning and the management of climate-related risks (p.6-8). In particular, the company explains the role of the board in this governance. Moreover, ConocoPhillips specifies the objectives of scenario analysis for the company, how it is incorporated into strategic planning and how it is implemented (p.14-15).

Source: ConocoPhillips, *Managing climate-related risk report, 2019*

### EXEMPLE N°2 - AURIZON, AN AUSTRALIAN RAIL FREIGHT OPERATOR

Aurizon describes the involvement of the board and the management team in the scenario analysis process, called “Strategy in Uncertainty” (p.24). It explains how this process, including transition-related issues, is incorporated into the company’s strategic planning. Aurizon also specifies the scope and different steps in the implementation of their forward-looking analysis process (p.24).

#### REPORTING EXTRACT N° 1: PRESENTING HOW THE SCENARIO ANALYSIS PROCESS IS INCORPORATED INTO THE IMPLEMENTATION OF STRATEGIC DECISIONS

##### Six-monthly process

###### Develop long-term scenarios

FY2019 scenarios: Commodity strong, rational economics, carbon-constrained Asia, port-constrained Australia, mine-constrained Australia, regulatory-constrained Australia, carbon shock

###### Consider and assess financial impacts these scenarios could have

###### Develop a range of management responses, portfolio considerations, and strategic pathways for the organisation

For example: Investment in locomotives/wagons, acquisitions/divestments

Source : Aurizon, Sustainability Report, 2019

### 3.2.2. Disclosures on the material transition-related issues identified

Financial actors need **the company to present and justify its vision of its own strategic transition-related issues**. This information must provide keys to reconstruct the approach the company takes in the next steps of the analysis, and to determine its relevance.

If the company has just begun its forward-looking analysis, it can present its first efforts to identify its material transition-related issues. These might include, for example, possible key elements derived from existing transition scenarios (see **example n°3**).

Once more progress has been made, the company should clarify its **material transition-related issues** (see **example n°3**), identified across different time horizons. Building on step 3 of the forward-looking analysis (see **section 2.1.3**), it is useful to present the key variables chosen for the scenario-building process, and the categories of risks and opportunities that these can generate for the company (see **example n°4**).

It is also useful to explain how the company arrived at these conclusions on the material issues, describing in particular the major dynamics at work (see **example n°4**). This means explaining **how changes in key variables affect the business environment, and impact the determinants of company performance in the form of risks and**

**opportunities** (see **examples n°3, n°4 and n°5**). To do so, the company can build on the elements in step 2 of the forward-looking analysis (see **section 2.1.2**), limited to the scope of key variables.

Financial actors are interested in a **representation of these material issues by business segment and geographical area**, according to their contribution to the company’s revenue (see **example n°5**). This level of detail is important given that transition-related issues vary according to the sectoral and geographical context. It is of particular importance for companies with international value chains. Financial actors also seek comments on the positioning of the company’s issues in relation to issues at the sectoral level.

Financial actors also seek **metrics** to discuss this representation of material issues on a tangible basis, or even to conduct their own analyses. This quantitative information can be generated alongside the forward-looking analysis (whether this analysis is itself qualitative or quantitative). It would, for example, be useful to provide a segmentation of company revenue by geographical activity, and by physical unit (e.g. number of barrels of oil and type of oil), at least on the company’s initial situation. Linking the financial metrics to the issues of the low-carbon transition is also deemed useful. This includes, for example the green and brown shares of revenue and investment amounts (CAPEX and OPEX), which should be disclosed in line with the EU

Taxonomy and the forthcoming EU non-financial reporting requirements<sup>16</sup>. It may also include metrics on the carbon

intensity per unit of revenue, or on scope 3 emissions (whose limitations financial actors acknowledge) (see example n°5).

**EXAMPLE N°3 - RIO TINTO, AN ANGLO-AUSTRALIAN METALS AND MINING COMPANY**

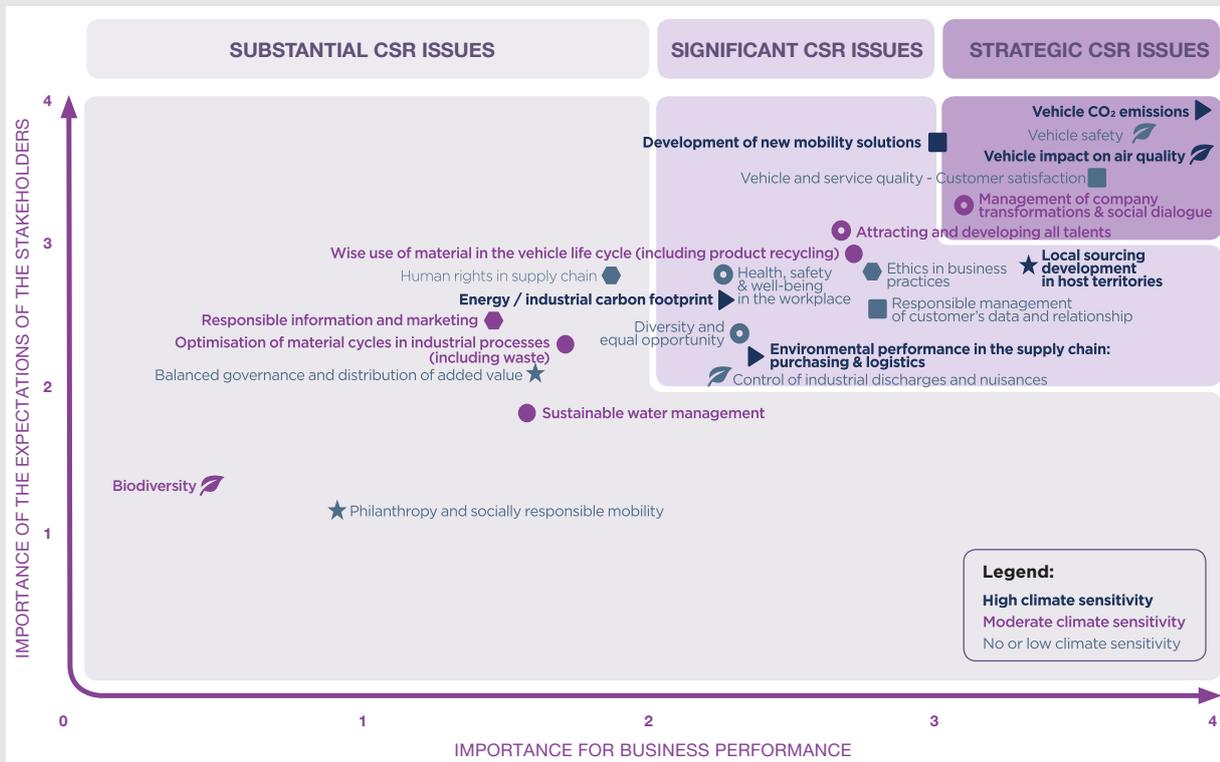
Rio Tinto identifies the material issues of the transition, building in particular on scenarios by the International Energy Agency (IEA) (p.3). The company goes on to describe the transition-related issues specific to its business as well as to each of the minerals it mines, describing their potential role in a low-carbon economy (p.6). Rio Tinto also identifies different transition risks and describes how they could impact its business (p.14).

Source: Rio Tinto, Our approach to climate change, 2019

**EXAMPLE N°4 - PSA, A FRENCH CAR MANUFACTURER**

Groupe PSA describes its approach to identifying its strategic transition-related issues. By mapping CSR (corporate social responsibility) issues considered to be key to the company’s activities, Groupe PSA establishes a materiality matrix assessing the strategic importance and climate sensitivity of the different CSR issues identified (p.5-6). The higher the sensitivity, the more the climate risks impact Groupe PSA activities for the CSR issue in question. Next, the group describes and qualitatively assesses the different transition risks, specifying their time horizon and to which strategic issues they are linked (p.7-8).

**REPORTING EXTRACT N° 2 - PRESENTING THE ANALYSIS PROCESS FOR KEY CLIMATE-RELATED ISSUES (MATERIALITY MATRIX)**



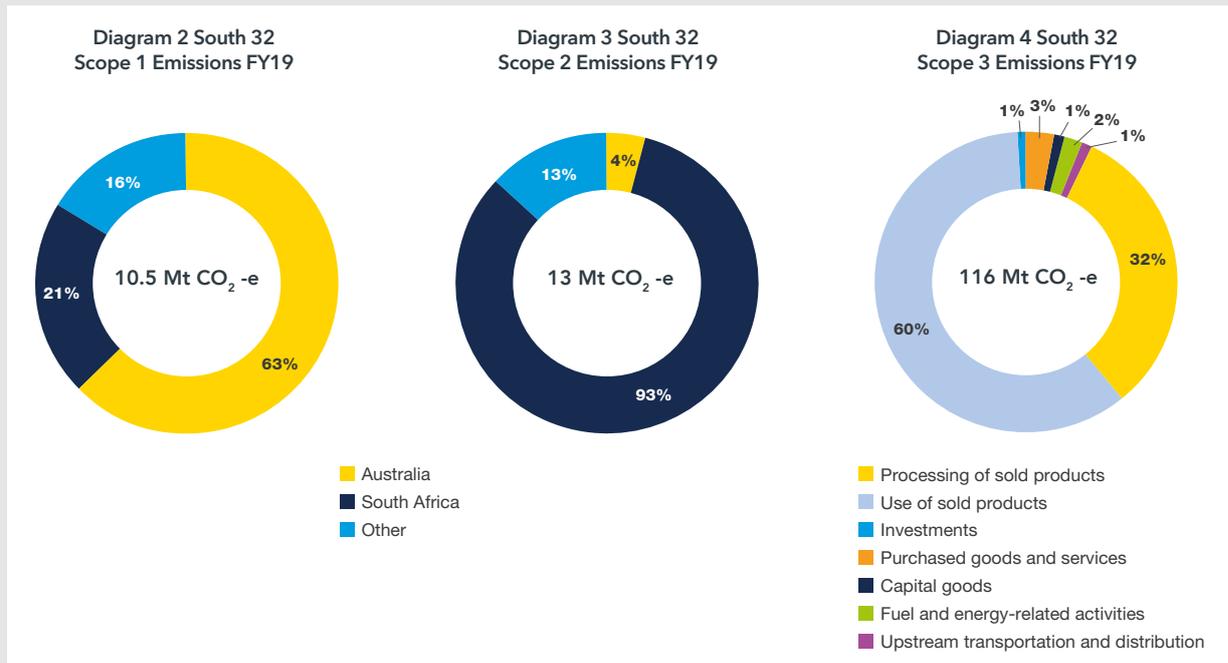
Source: Groupe PSA, Climate Report, 2019

16 The regulation that will implement the EU Taxonomy will require that the 6 000 European companies subject to the Non-Financial Reporting Directive (NFRD) declare, as of the end of 2021, the breakdown of their revenue and investment amount (CAPEX or OPEX) between sustainable, enabling, transition activities and others. It is expected that the procedures for this reporting, in connection with the taxonomy, will be specified by June 2021.

**EXAMPLE N°5 - SOUTH 32, AN AUSTRALIAN METALS AND MINING COMPANY**

South 32 assesses the carbon footprint of its business portfolio. The company discloses different metrics assessing the carbon intensity of its business by geographical sector and by type of operation (p.14-15). It also discloses the contribution of different types of operations to its revenue (p.36).

**REPORTING EXTRACT N° 3 - DISCLOSING QUANTITATIVE INFORMATION ON THE COMPANY'S ACTIVITIES AND ON TRANSITION-RELATED ISSUES**



Moreover, South 32 describes the transition-related changes that are likely to generate the most significant risks and opportunities for the company. For each risk identified, South 32 specifies the time horizon (short, medium and long-term) in which it could emerge (p.23-26).

Source: South 32, *Our approach to climate change, 2018*

**3.2.3. Disclosures on the range of scenarios considered**

Information on scenarios should help financial actors to understand **the plausible futures considered by the company**. Useful disclosures consist in clearly **identifying the scenarios chosen and explaining their rationale** and, where possible, **placing them in the broader context of existing research on climate-related scenarios**.

*Explaining the interest of the scenarios chosen*

Financial actors need to understand how the range of scenarios used addresses all of the material issues identified, and questions the regular operations of the company, across different time horizons.

A first disclosure entails a **concise account explaining the company's overall rationale for the scenarios chosen**, and their salient points. The goal is to specify the important elements of the evolution of the socio-economic system; the key transition variables driving the scenario

(see examples n°6 and n°7). It is also essential to explain the joint dynamics leading to changes of major importance for company performance, and the assumptions about their time horizon.

This clarification of the overall intention can be combined with an explanation of the key modelling assumptions and principles, as well as quantified elements where they exist (the important values or series of key variables, the key parameters) (see example n°7). For example, it could be interesting to explain the context of the GDP projection used. This information can serve to assess the coherence of scenarios, or to discuss any impact analyses conducted by the company. For the sake of clarity, the company can synthesise the information in its report (for example in the form of summary tables) (see example n°7), or provide links to any external documents that are appropriate and easily accessible.

### Providing financial actors with points of comparison

Financial actors need to **situate the company's scenarios in relation to those of other companies, and among the types of transition pathways currently being discussed in finance.**

It is thus useful to explain – where possible – how the company's scenarios can be compared to a major given socio-economic pathway. The TCFD insists on 1.5°C or 2°C-compatible transition pathways, possibly contextualised at the country level (see **example n°7**). The Central Banks and Supervisors Network for Greening the

Financial System also draws attention to transitions that are orderly or disorderly, early or late, and that do or do not meet the 2° target<sup>17</sup>.

It is also useful to specify when the company's scenarios can be compared or connected to common or widely known research. They constitute potential points of reference for some financial actors, around which they can more accurately organise the comparison of company scenarios, thereby simplifying the use of information. This entails, for example, indicating the linkage with sectoral initiatives for scenario-building, or elements referring to publicly available scenarios<sup>18</sup>.

#### EXAMPLE N°6 - CONOCOPHILIPS, A US OIL AND NATURAL GAS EXPLORATION, PRODUCTION AND TRANSPORTATION COMPANY

ConocoPhillips describes the three transition scenarios the company uses in its scenario analysis process (p.16). The three scenarios present contrasting visions of the evolution of the socio-economic system, policies and technologies presented as being compatible with achieving a 50% chance of limiting the increase in global temperatures to 2°C (p.15).

Source: *ConocoPhillips, Managing climate-related risk report, 2019*

#### EXAMPLE N°7 - SSE, AN ENERGY COMPANY PRIMARILY OPERATING IN THE UK AND IRELAND

SSE compares its economic model to two transition scenarios: the “**Gone Green**” scenario, which limits global warming to 2°C, and the “**Super Green**” scenario, which limits global warming to 1.5°C. A “low nuclear” version was also produced for each scenario. The geographical scope of these transition scenarios is Great Britain (p.4). SSE also specifies that the “Gone Green” scenario is in line with British climate commitments, in particular the Climate Change Act (p.5). SSE describes the main social, political and technological changes (p.5) and the quantitative assumptions underpinning each scenario (p.6). In an appendix, it provides a table detailing the key quantitative and qualitative characteristics of the scenarios used (p.18-21).

Source: *SSE, Post-Paris Report, 2017*

### 3.2.4. Disclosures on strategic implications

Financial actors seek to understand **how the company's strategic actions enable it to manage the potential impacts and opportunities under the different scenarios.** These disclosures should enable financial actors to complete their assessment of the transition risks for the company. They could also encourage discussions with the company on its strategic direction, and negotiations on opportunities for additional financing to manage these strategic transition-related issues.

Reporting recommendations and practices currently struggle with the definition of the information that can and should be obtained regarding strategic implications. However, several useful disclosures can already be outlined. The reporting extracts provided in this section show how some companies make successful public disclosures on this aspect without compromising their competitiveness issues (see **examples 8, 9 and 10**).

### Clarifying potential strategic lock-ins in the near future

In order to assess the adequacy of the strategic responses envisaged under different scenarios, financial actors first require indications about the **magnitude of the strategic challenge facing the company under these different scenarios.**

To move in this direction, the financial actors questioned consider that it would already be useful to clarify incompatibilities between a low-carbon pathway on the one hand, and the current business model and strategic decisions already made or locked in on the other.

It is, for example, useful to know whether the company plans to buy a gas power plant whose long-term profitability is a strategic issue for the company's accounts in the coming years. Ideally, financial actors need details about the CAPEX plans and the amounts of R&D planned over five years. It could also be useful to quantify how these commitments

<sup>17</sup> For more information on these four narratives, see Box 2 in the first report by the Central Banks and Supervisors Network for Greening the Financial System (NGFS), available at: [https://www.banque-france.fr/sites/default/files/media/2019/04/17/ngfs\\_first\\_comprehensive\\_report\\_-\\_17042019\\_0.pdf](https://www.banque-france.fr/sites/default/files/media/2019/04/17/ngfs_first_comprehensive_report_-_17042019_0.pdf)

<sup>18</sup> Most financial actors refer, for example, to the International Energy Agency scenarios, while recognising limits to their utility as such for companies.

will alter the metrics potentially used by the company (see **example n°8**), such as the brown share of its business.

**Explaining strategic implications in reference to a clear scope of analysis**

Information on strategic implications is useful, especially if the company specifies the associated analysis context, and details the information according to different contexts.

It is particularly useful to mention the financial aspect by which strategic resilience is assessed. The company can thus specify whether it refers to changes in EBITDA, dividends, or asset value, for example (see **example n°9**). Financial actors give special importance to **changes in revenue and costs, as well as in R&D capacity**. It is also helpful to specify to which scenario and time horizon information is attached, as well as the sector of activity and the country of the market concerned, and if possible, to detail the results in each of these cases. It would be useful to provide this information in a directional form or to indicate the range of their possible changes, as suggested by the TCFD:

*“In discussing potential qualitative or quantitative financial implications, the Task Force is not asking organizations to provide a financial forecast (for which scenario analysis is not appropriate). Organizations are asked to provide an indication of direction or ranges of potential financial implications, for example, directionally where key financial aspects such as CapEx, R&D, supply chains, or revenue might be headed.”*

Source: TCFD, 2017a. Implementing the Recommendations of the Task Force on Climate-related Financial Disclosures

The format chosen should remain clear and provide keys for comparison with previous iterations of the analysis.

In order to increase the credibility of information, it is useful for companies to reconfirm the scope analysed in order to achieve these results (e.g. the scope considered for the value chain; the scope considered among the key issues of the scenario), and to provide any other key assumptions (e.g. by geographical area or sector), data, models or analysis choices for the assessment of financial impacts (see **example n°9**).

**Commenting on actions aimed at ensuring “strategic resilience”**

Finally, it is important for the company to explain **how it is enabling itself to adapt to the range of scenarios across the different time horizons**. To do so, the company must comment on the form of its “strategic response” to the different types of issues over time, at the level of the company and of regions and markets with specific issues. The company is free to adopt a format that delivers convincing information without compromising its competitiveness issues. To do so, it can use the processes described in **section 3.1.3**.

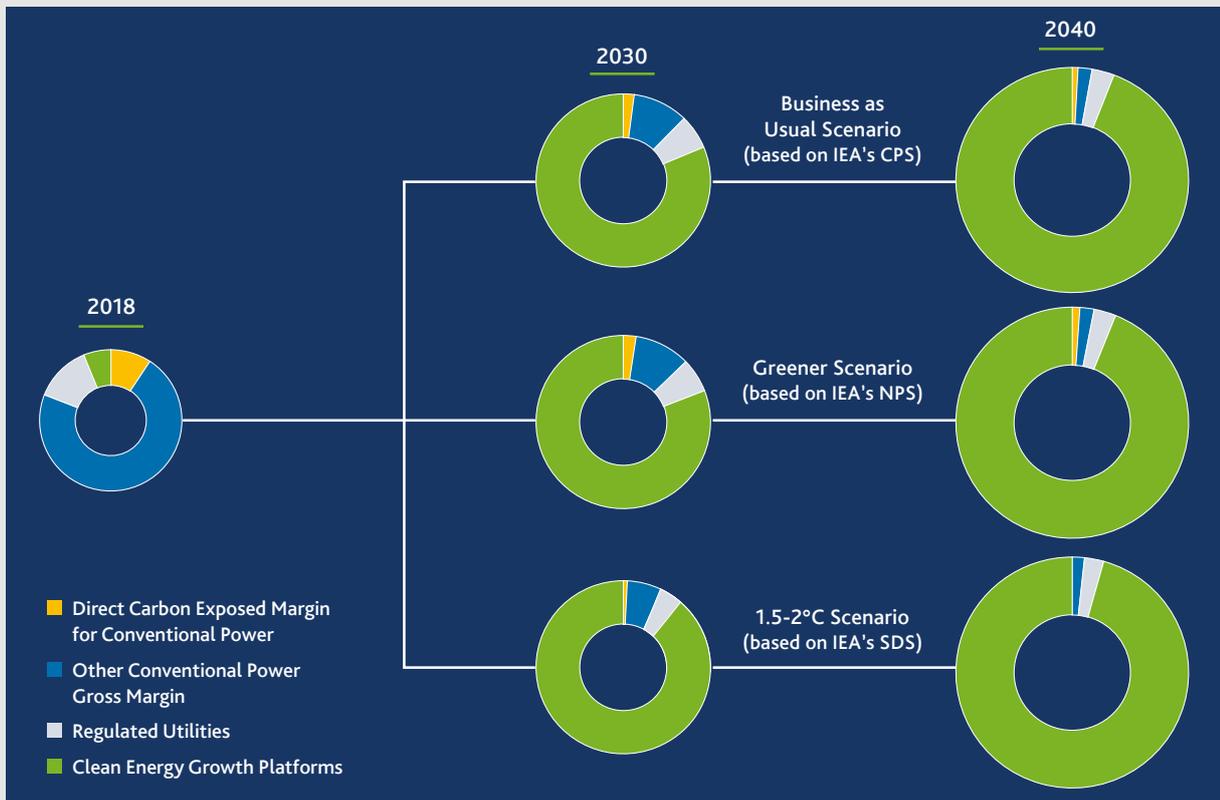
It can thus explain how it is already incorporating these exercises into its strategic planning and thinking across the different time horizons considered. It can also provide general information about the types of action already taken or which could be implemented to ensure the flexibility of its strategy, in reference to a material issue identified (see **examples n°8 and 10**).

Finally, financial actors pay particular attention to the implementation of indicators to be monitored, the setting of quantified objectives associated with deadlines, and their monitoring over time.

**EXAMPLE N°8 - AES, A US POWER GENERATION AND DISTRIBUTION COMPANY PRESENT IN LATIN AMERICA, THE US AND EUROPE**

AES details the resilience of its strategy and its business portfolio under several scenarios, including a “1.5-2°C” transition scenario. It explains that this analysis corresponds to an in-depth financial analysis assessing the sensitivity of gross margin across its entire business, from each individual plant, through to its strategic business units (p.18). In a section entitled “The Strength of our Portfolio”, AES discloses the results of this analysis (p.25-29). The company gives a quantitative description of changes in its business areas and revenue sources across the different scenarios (p.26). Its gross margin is defined in four categories of revenue sources: sources that are directly exposed or already subject to a price on carbon; sources from other conventional power plants; revenue from regulated utility businesses; and revenue from the four clean energy growth platforms (renewables, energy storage solutions, energy efficiency and LNG). Based on the scenario analysis, AES identifies and gives a qualitative description of the strengths but also the weaknesses of its business (p.27-28).

**REPORTING EXTRACT N° 4: PRESENTING THE CURRENT BUSINESS MODEL AND ITS EVOLUTION ACROSS DIFFERENT SCENARIOS REFLECTING THE ADAPTATION OF STRATEGIC GUIDELINES TO THESE DIFFERENT SCENARIOS**



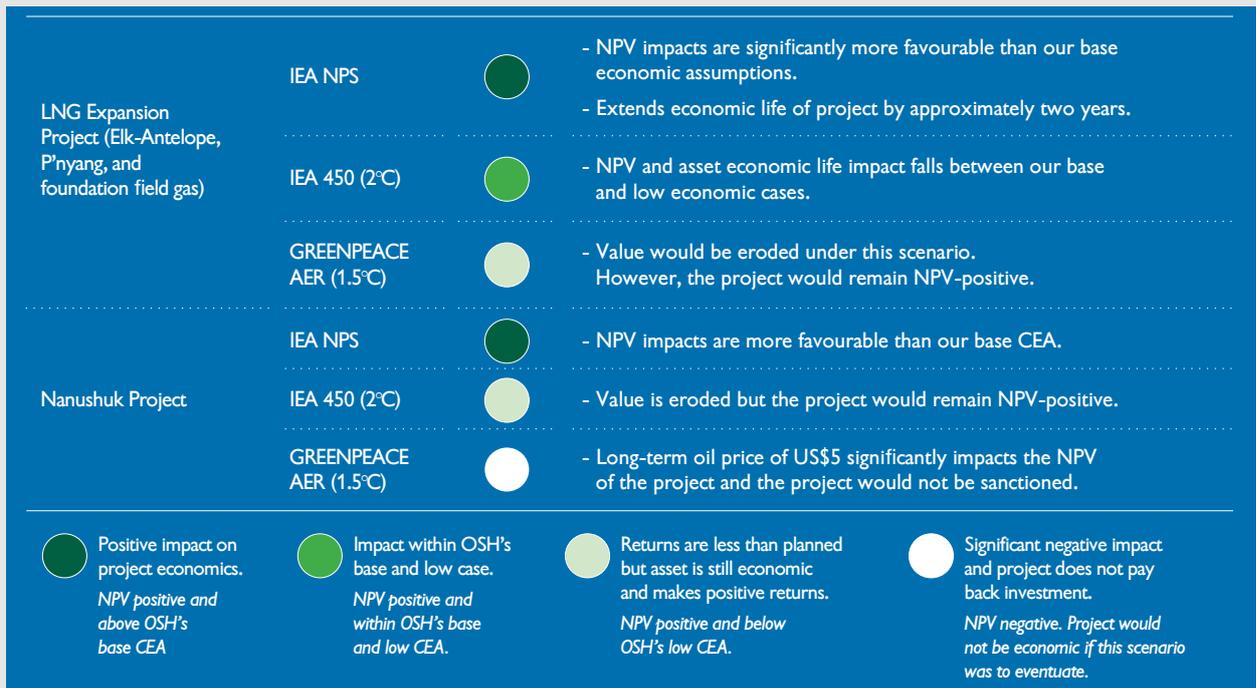
Source: AES, Climate Scenario Report, 2018

### 3. HOW TO DISCLOSE ELEMENTS OF SCENARIO ANALYSIS TO FINANCIAL ACTORS

#### EXAMPLE N°9 - OIL SEARCH, AN OIL AND GAS EXPLORATION AND PRODUCTION COMPANY IN PAPUA NEW GUINEA

Oil Search describes the impacts of the different transition scenarios on the net present value (NPV) of its different projects (p.26-27). It provides information about the choices made for the analysis, especially concerning the scope assessed, the key input assumptions (gas and oil prices) and the models used (p.34-35).

#### REPORTING EXTRACT N° 5 - ASSESSING THE BUSINESS IMPACTS OF DIFFERENT TRANSITION SCENARIOS FOR THE COMPANY



Source: Oil Search, Climate Change Resilience Report, 2017

#### EXAMPLE N°10 - LANDSEC, A BRITISH REAL ESTATE COMPANY SPECIALISED IN BUYING SELLING AND MANAGING COMMERCIAL PROPERTIES

Landsec describes the different measures it has already taken and that it will continue to implement in order to address the climate-related risks and opportunities identified in the scenarios (p.26). The company also identifies the strategic responses enabling it to increase the resilience of its business to transition-related changes and to take advantage of these (p.27).

Source: Landsec, Sustainability Performance and Data, 2019

# Conclusion

The TCFD recommends that companies should **incorporate into their strategy the risks and opportunities of the low-carbon transition and of the impacts of climate change**. Forward-looking analysis, and in particular scenario analysis, enables them to integrate **long-term trends – potentially breaking away from current trends – into strategy development**. It is therefore particularly suitable to inform strategic thinking on the issues of the low-carbon transition.

Such an approach cannot be limited to interpreting scenarios developed by external organisations. A key step consists in developing an **in-depth understanding of the company**, and **exploring and documenting the dynamics at work between the company and its changing environment**. This exercise enables the company to define a range of scenarios around key uncertainties for its business, then to develop strategic responses that will help it to **increase its resilience across the different futures envisaged**.

Companies can **overcome the difficulties of implementing a scenario analysis using numerous resources**. Different scenario analysis methods can support them in this process, according to their human and financial resources. An extensive literature can also enable them to understand the issues of the low-carbon transition. Finally, efforts to explore these issues can be coordinated, for example at the sectoral level, possibly with the help of organisations capable of federating companies and supporting them in this process.

The TCFD advocates the **disclosure of information derived from this process to financial actors**. This information is useful to them to understand the exposure of their own portfolio, and to discuss the financing required by companies to increase their resilience. The key issue for

companies is to succeed in demonstrating serious efforts to incorporate the issues of the low-carbon transition into their strategic decisions. This is why they are invited to explain their rationale at each step of the process, without waiting until they have conclusive results to present.

**Efforts to increase transparency on this process of strategic interest come up against confidentiality issues**, especially where disclosures through public reporting are concerned – as recommended by the TCFD. **However, this obvious difficulty does not appear to be entirely insurmountable**. This report suggests ways that companies can accurately gauge the confidentiality issue, and manage it through disclosures that are both useful and consistent with their procedures. The extracts from voluntary reporting cited in this report also suggest that some companies already see possible advantages in disclosing this type of information.

Companies benefit from testing their ability to disclose different types of information, through different channels. This enables them to **contribute to the ongoing process to clarify the specifications for this transparency exercise**, before its rules and methods are potentially imposed by regulators.

Over and above the issues of the low-carbon transition addressed in this report, it is just as important that companies **prepare for the physical impacts of climate change**, as recommended by the TCFD. Indeed, the effects of climate change are set to increase and will severely disrupt the economy, affecting all companies. To get started on these “physical climate risks”, companies can consult an introduction to climate change scenarios and climate impact scenarios respectively in sections 1.3 and 1.4 of the I4CE publication entitled “*Understanding transition scenarios*”.

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