ACT

ROADTEST REPORT

Assessing low-Carbon Transition

Chemicals

May 2022

ACKNOWLEDGMENTS

ADEME and CDP warmly thank the companies involved in the road test of the methodology for their contribution to the methodology improvement:

TECHNICAL COORDINATION:

Yann ROSETTI (ADEME)
Esther STOAKES (CDP)

ACT CO-FOUNDERS:

SUPPORTED BY:

Co-funded by the European Union

Technical assistance provided by:

Quality assurance and methodology harmonization provided by:

André PEDROSA-RODRIGUES

Patrick HARDY

Background and purpose of this document

This document is part of the Assessing low-Carbon Transition (ACT) initiative and provides the main details of the ACT Chemicals road test. As part of the development of a new ACT sector methodology, this road test is conducted to improve the existing methodology and adjust the tools and inputs used to assess companies in this sector.

The current report is intended for the Board (ADEME and CDP) and the members of the technical working groups (TWGs).

This report aims to provide the key findings of the assessment and an overview of results for the sector. Additional materials prepared during the assessment process, including detailed company data and feedback, informed the results summarised in this report but remain confidential.

Contents

1. ACT Chemicals Road Test

1.1. CONTEXT OF THE ROAD TEST

CHEMICALS SECTOR

The chemicals industry is a pillar of the current world economy. It aims to convert raw materials such as oil & gas products, minerals, metals or water into thousands of end-products. Different categories exist within the sector as stated within the NACE code 20: industrial inorganic chemicals; plastics and synthetics; drugs; soap, cleaners, and toilet goods; paints and allied products; industrial organic chemicals; agricultural chemicals; and miscellaneous chemical products.

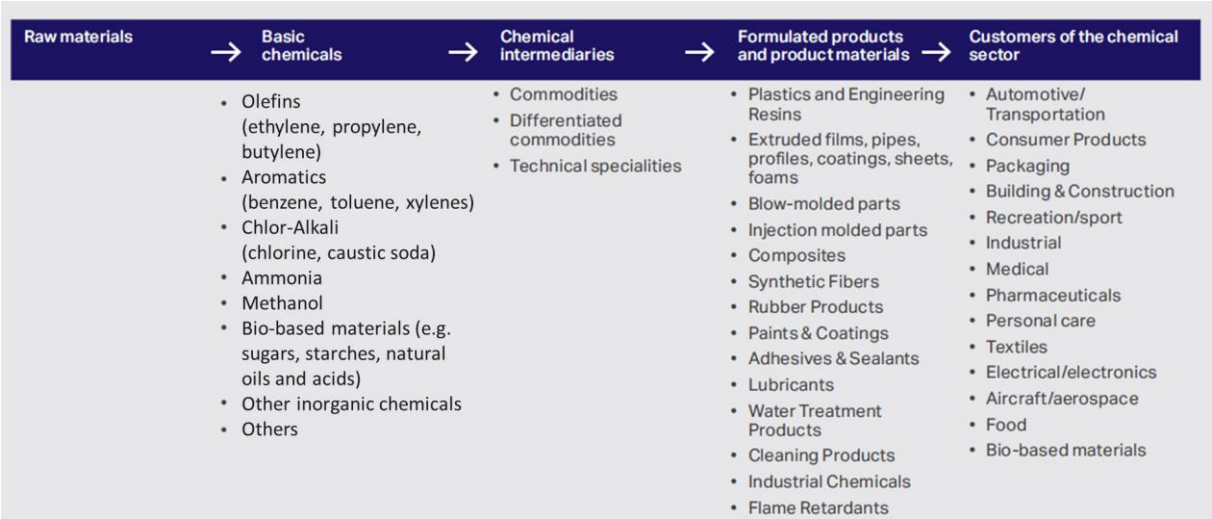


FIGURE 1: CHEMICALS SECTOR VALUE CHAIN[1]

A major challenge to be addressed in the ACT Chemicals Methodology is to reach a rating system that suits all actors and activities.

Focus on the primary chemicals

On the upstream side of the value chain of the chemicals sector there are a few main chemicals, which are often referred to as 'primary' or 'basic'. Petrochemistry corresponds to the transformation of crude oil and natural gas into raw materials. The main outputs are[2]:

- **Ethylene**, **propylene** and **BTX** (benzene, toluene and xylenes, which are aromatic compounds) mainly resulting from naphtha cracking or fluid catalytic cracking. These chemicals are mainly used as precursors for polymers (polyethylene, polypropylene) or secondary chemicals (styrene, cumene, terephthalic acid, etc.)

[1] From WBCSD - Chemical Sector SDG Roadmap - 2018

[2] Various processes can be used to obtain some of these primary chemicals, the main ones are described here.

- **Ammonia**, **methanol** and **hydrogen**[3] mainly resulting from natural gas reforming. Ammonia is the basis of a high share of the fertilizers used worldwide, methanol is mainly used for fuels, and hydrogen is a reagent to produce ammonia and methanol and appears today as a potential key element to decarbonize many sectors as a vector for energy transportation and storage.

Inorganic chemistry produces a wide range of products. Due to high carbon intensity and volumes of production, chlorine has the highest overall associated emissions within inorganic chemistry. It is used as a raw material to obtain a large range of chemicals and products, amongst which is polyvinyl chloride (PVC), one of the most common polymers.

Since the whole chemicals sector relies on these several basic chemicals and since they are extremely carbon-intensive (covering approximately two thirds of the direct emissions of the entire sector), they are given a particular focus in the ACT methodology.

Statistics of the sector

Among heavy industries, the chemicals sector accounts for 18% of emissions from heavy industries, which amounts to 1.5 $GtCO_2$ scope 1 worldwide, which corresponds to about 4% of global CO_2 emissions[4].

Direct CO_2 emissions from the production of seven primary chemicals[5] amounted to 880 $MtCO_2$ in 2018, a nearly 4% increase from the previous year, which was driven by growth in production. The chemicals industry is not the most emission intensive industry in terms of direct CO_2 emissions: it ranges third behind the cement and the iron & steel industries. However, the chemicals sector is the largest industrial energy consumer - accounting for 15% of total primary demand for oil on a volumetric basis and 9% of gas demand[6]. This is largely because around half of the chemical sector's energy input is consumed as feedstock – where fuel is used as raw material input rather than as a source of energy. Hence, the chemicals industry would be the most emissions-intensive industry if feedstock were to be considered as an emission.

In 2019, the amount of chemicals produced in the world reached 2 Gt with the main products being ammonia (9.3% of production, 185 Mt/year), ethylene and propylene (12.8% of production, 255 Mt/year), BTX (5.5% of production, 110 Mt/year), chlorine (3% of production, 60 Mt), methanol (5% of production, 100 Mt/year) and hydrogen (3.5% of production, 70 Mt/year). Energy demand from the chemicals sector is projected to increase by half by 2050, according to the IEA[7].

CONTRIBUTING TO ACT: NEW SECTOR DEVELOPMENT

For the past six years, ADEME and CDP have been working together on developing the 'Assessing low-Carbon Transition' (ACT) initiative, a mechanism for assessing companies that have set climate commitments and want to take climate action in line with the Paris Agreement. The ACT methodologies use a holistic approach to assess a company's climate strategy and determine its readiness to transition to a low-carbon economy. The ultimate goal is to drive action by companies and encourage them to set their business on a below 2°C-compatible pathway.

---

[3] In this report, "hydrogen" is used to refer to hydrogen gas H_2 (not the isolated H atom).

[4] Considering annual global CO_2 emissions to be 36.44 Gt (2019), data from https://ourworldindata.org/co2-emissions

[5] Including ammonia, ethylene, propylene, BTX, methanol.

[6] IEA, Energy Technology Perspectives, 2020

[7] IEA, The Future of Petrochemicals, 2018

ACT's ambition is to prioritise the most GHG emissions-intensive sectors. This approach implies that tools and methods have to be adapted for each new sectoral development process in order to accurately reflect their impact on climate change. So far, the methodologies for the Auto, Electric Utilities, Retail, Construction, Real Estate and Property Developer, Cement, Transport, Oil & Gas and Iron & Steel sectors have been released. The Agriculture & Agrifood sector methodology is in the final stage of refinement before publication. As of May 2022, road tests for the Chemicals, Pulp & Paper, Aluminium and Glass methodologies are all in their final stages, with these sector methodologies due to be published in summer 2022.

The stages of methodology development are as follows:

- Stage 1: Methodology development (including a one month-public consultation)
- Stage 2: Methodology experimentation (road test)
- Stage 3: Methodology refinements & release

The Chemicals Methodology is designed to assess a company's climate impacts across its value chain.

In practice, not all companies have activities at all stages of the value chain. As a result, the ACT methodology for the road test categorises companies as producers of primary chemicals, producers of other chemicals or integrated, according to the type of activities they engage in (see Figure 2). This classification influences the overall ACT performance results through score weightings, which adapt raw scores according to the relevance of each indicator to a company's activities.

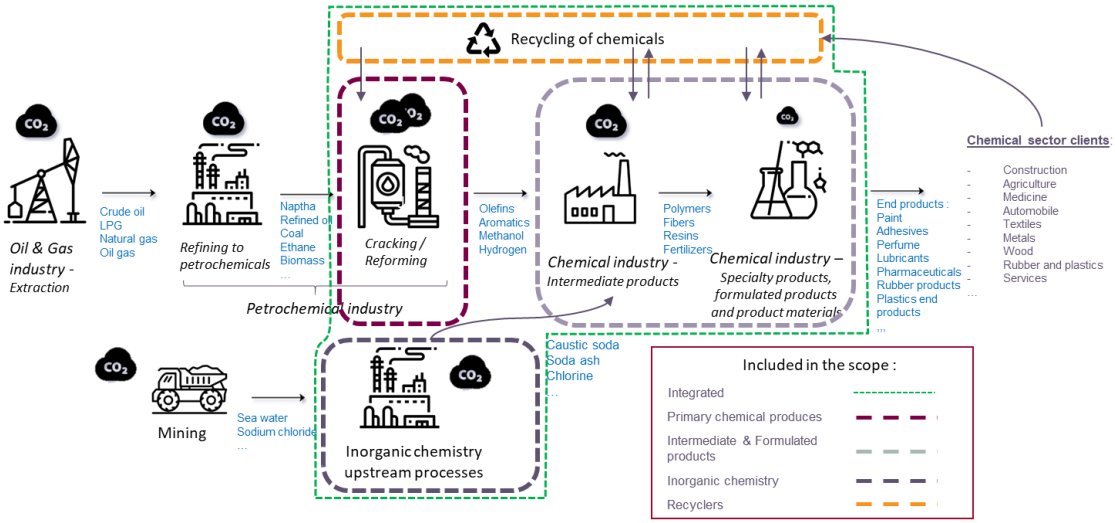


FIGURE 2: SYNTHESIS OF THE SCOPE OF THE ACT CHEMICALS METHODOLOGY ROAD TEST VERSION

GOALS OF THE ROAD TEST

The project's objectives were:

- to road test the ACT Chemicals draft methodology and accompanying tools;
- to provide recommendations to refine the methodology in order to ensure that ACT Chemicals is relevant and robust for the sector;
- to engage companies and other stakeholders in the low-carbon transition.

The road test for the ACT Chemicals Methodology has been carried out, on behalf of ACT, by I Care and Deloitte.

ASSESSED COMPANIES

The ACT methodology relies on the principle of relevance, and therefore only the companies that have both significant climate impact and significant mitigation levers can be assessed with ACT's approach. In order to assess companies in the most accurate way in regard to their activity and the available benchmark, 3 company types were identified for the road test version of the methodology:

- Type A companies: Companies exclusively focused on producing primary chemicals (either Ammonia, Methanol, Ethylene, Propylene, BTX, Chlorine or Hydrogen)
- Type B companies: Companies that produce any other chemicals but do not produce primary chemicals as defined above.
- Integrated companies: Companies producing both primary chemicals and other chemicals.

Conversely, certain activities and subsectors were excluded from the road test version of the ACT Chemicals Methodology due to their limited levers and scope of action, or because they are already covered by another ACT Methodology. These include:

- Manufacturing of refined petroleum products
- Manufacturing of basic pharmaceuticals products and pharmaceuticals preparations
- Manufacturing of rubber and plastics products
- Extraction and mining of raw materials

The road test companies were carefully considered to ensure that different regions and steps in the value chain were represented. 13 companies volunteered for the road test (see Figure 3). 2 additional companies were assessed using publicly available data.

FIGURE 3 - COMPANIES SELECTED FOR THE ROAD TEST

Despite the efforts made to find companies illustrating each of the 3 types developed in the methodology, no company producing exclusively primary chemicals (Type A companies) were found. However, most of the indicators developed specifically for Type A companies could be assessed thanks to the Integrated companies.

ASSESSMENT PROCESS

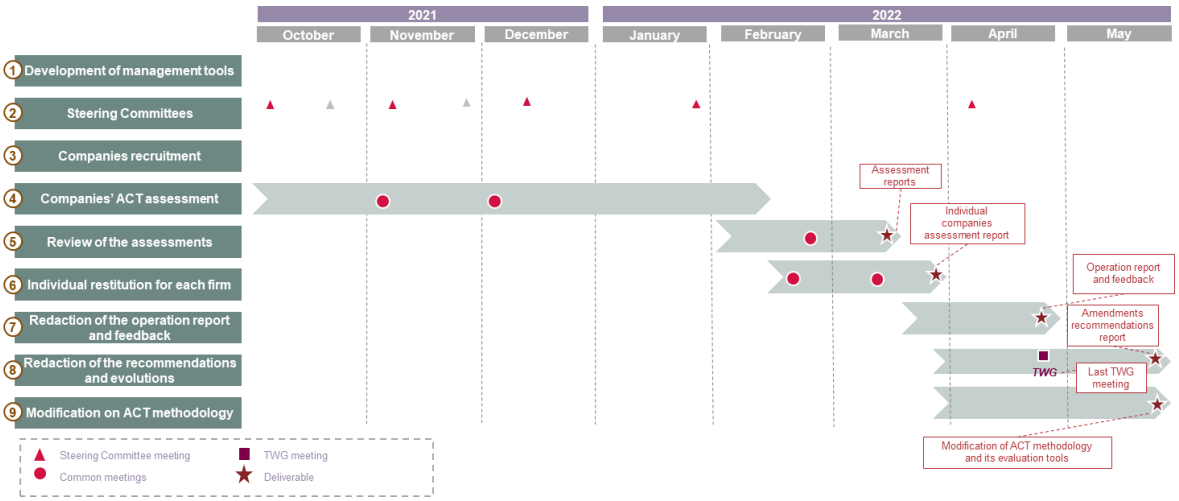


FIGURE 4 - ACT CHEMICALS ROAD TEST PROCESS

I Care and Deloitte planned and conducted the assessment, which involved direct engagement with companies and leading monthly meetings with ACT's Chemicals Steering Committee. Engagement with companies was conducted by analysts from I Care and Deloitte directly and followed the steps described in Figure 4.

The main inputs for undertaking the assessment were provided to I Care and Deloitte by way of 4 complementary files:

- **The ACT Chemicals Methodology v1.1 (dated October 2021)**. This document contains the scoring criteria for each of the indicators and lists how the scores are calculated and weighted. The methodology also provides relevant context for each of the indicators and an overview of the main goals of each Module.

- **The Excel data collection tool**. Companies were asked to directly fill out their response to the ACT questionnaire, which is an Excel data collection tool, with the assistance of the assessor. Once completed, analysts review the responses and report them into a tool which calculates the score according to the methodology. The analysts record their comments in this same tool.

- **The narrative scoring tool**. This is a specific tool which includes the narrative scoring maturity matrix (as per the methodology).

- **The trend scoring tool**. This is an Excel-based tool which includes assessment guidance based on the scoring of some indicators of the ACT questionnaire.

In addition, analysts used the ACT Framework and Analyst Guide to ensure consistency with other ACT methodologies.

The road test started with an opening webinar to introduce the tools and the key methodological aspects of the ACT Chemicals Methodology. This webinar provided initial guidance and explanation to the participating companies. Discussions with companies started with an initial call between the companies and an analyst from I Care or Deloitte. During the one-hour call, the companies' teams were given a brief explanation of the ACT initiative, the expected timeframes and deadlines, a general description of the relevant inputs, and an overview of the Excel data collection tool. Companies were subsequently sent the Excel data collection tool

and the methodology documents and were encouraged to send questions via e-mail or through follow-up calls. Company questions were collected in a spreadsheet accessible to all analysts to ensure shared learnings, and consistency in the responses. A bi-monthly checkpoint meeting was organised to track the progress of the data collection process. These meetings allowed the companies to share their feedback and challenges regarding the data collection, the tool and some methodological aspects.

Once companies submitted the completed Excel data collection tool with their inputs, as long with supporting documents, analysts reviewed the responses and began the scoring process. Analysts listed their scoring questions and additional questions sent by companies in a 'post-review' company-specific spreadsheet. These questions were often more precise, referring to the company's business model and/or to the interpretation of the scoring criteria given the assessed response. These spreadsheets were reviewed by I Care and Deloitte "Technical" teams and ultimately shared during monthly Steering Committee meetings with ADEME and CDP, with customised solutions to improve the methodology.

After the analysts finalised a company assessment, the lead team would review the analyses, and ensure scores gave a consistent and accurate reflection of the company response.

All through the road test, an independent third party (Eco2 Initiative and ClimateCheck – the Monitoring, Harmonisation and Quality Assurance team) conducted a methodology harmonisation and quality assurance process.

1.2. THE ACT CHEMICALS METHODOLOGY

GENERAL APPROACH

While each ACT methodology is sector-specific, they are all based on the ACT Framework and as such there are fundamental commonalities among all of them. The assessment's main goal is to evaluate past, present and (anticipated) future company performance to determine the company's maturity level with respect to its transition to a low-carbon economy. The ACT initiative focuses on five guiding questions to determine company performance:

1. **Commitment**: What is the company planning to do?
2. **Transition plan**: How is the company planning to get there?
3. **Present**: What is the company doing at present?
4. **Legacy**: What has the company done in the recent past?
5. **Consistency**: How do all these plans and actions fit together?

These guiding questions are assessed through a series of Modules composed of key performance indicators and sub-indicators, many of which are specifically designed for each sector. For the chemicals sector, there are a total of 34 indicators distributed within nine Modules.

Table 1 shows how these indicators assess company performance at different points in time.

TABLE 1: CHEMICALS METHODOLOGY INDICATORS, MODULES AND TIME HORIZON ASSESSED

			Past	Present	Future
		1.TARGETS	CH 1.4 Historic ambition and company performance		
				CH 1.1 & CH 1.2 Alignment of scope 1+2 and scope 1+2+3 emission reduction targets CH 1.3 Time horizon of targets	
Core business performance	Investment	2. MATERIAL INVESTMENT	CH 2.1 Past performance – Scope 1+2 emissions	CH 2.3 Trend in future Scope 1&2 emissions CH 2.3 Locked-in emissions	
			CH 2.4 Low carbon, mitigation and carbon removal technologies CAPEX share		
			CH 2.5 Energy management		
		3. INTANGIBLE INVESTMENT	CH 3.1 R&D spending in low-carbon, mitigation and carbon removal technologies CH 3.2 Company low-carbon patenting activity		
		4 SOLD PRODUCT PERFORMANCE	CH 4.1 Past performance – Scope 1+2+3 emissions	CH 4.3 & CH 4.4 & CH 4.5 Ammonia, methanol & HVC feedstock CH 4.6 Recycled content of products (including CO_2) CH 4.7 Bio-based Type B products	
				CH 4.2 Trend in future Scope 1+2+3 emissions	
		5. MANAGEMENT		CH 5.1 Oversight of climate change issues CH 5.2 Climate change oversight capability CH 5.4 Climate change management incentives CH 5.6 Carbon pricing integration	CH 5.3 Low-carbon transition plan CH 5.5 Climate change scenario testing
Influence		6. SUPPLIER ENGAGEMENT		CH 6.1 Strategy to influence suppliers to reduce their GHG emissions CH 6.2 Activities to influence suppliers to reduce their GHG emissions	
		7. CLIENT ENGAGEMENT		CH 7.1 Strategy to influence customer behaviour to reduce their GHG emissions CH 7.2 Activities to influence customer behaviour to reduce their GHG emissions	
		8. POLICY ENGAGEMENT		CH 8.1 Company policy on engagement with trade associations CH 8.2 Trade associations supported do not have climate-negative activities or positions CH 8.3 Position on significant climate policies	
		9. BUSINESS MODEL		CH 9.1 Business activities that develop low-carbon, mitigation and carbon removal technologies CH 9.2 Business activities that develop products enabling energy transition CH 9.3 Business activities that promote circular economy	

The assessment is carried out based on the information provided for each of these indicators by the company. The Chemicals Methodology uses a combination of quantitative and qualitative indicators. Purely quantitative indicators are scored according to a formula and based on the data provided by the company. In these cases, analysts must ensure the calculation is correct and the information provided by the company is consistent and, to the extent possible, verifiable. However, given the granularity of quantitative data required and the confidentiality of this information, it wasn't always possible to verify the data provided. Qualitative indicators are evaluated by the scorer using the company responses and indicator-level maturity matrices with up to five scoring levels: Basic (0 points), Standard (0.25 points), Advanced (0.5 points), Next Practice (0.75 points), and Low-Carbon Transition Aligned (1 point). Maturity matrices provide scoring criteria per indicator for each of these levels.

ACT CHEMICALS METHODOLOGY ASSESSMENT

Like all ACT assessments, the Chemicals Methodology generates a three-part score that allows companies to understand how they performed based on the key performance indicators, how their overall strategy is rated with reference to a low-carbon (below 2°C) transition scenario, and if their strategy is effective in aligning with a low-carbon pathway. The final score is described below:

1. **The performance score** ranges from 0 to 20 and is the result of the sum of all points achieved and weighted according to the company's classification (Type A, Type B, Integrated). The Chemicals Methodology includes 3 different weighting profiles, one for each company classification.

2. **The narrative score** is the result of the scorer's evaluation of the overall response, complemented by an external data review for the company in question, and graded from E (lowest score) to A (highest score). The narrative score is assessed using a maturity matrix developed by the ACT initiative and composed of 4 dimensions (Business Model and Strategy; Consistency and Credibility; Reputation; and Risk).

3. **The trend score** evaluates whether a company is increasingly aligning itself with or distancing itself from a low-carbon transition pathway. The trend score is indicated by a "+" sign (best score, reflecting increasing alignment), a "-" sign (worst score, reflecting reducing alignment), and an "=" sign (indicating no projected change in its alignment, or no possibility for the analyst to define a clear trend). A specific tool was developed by ACT for the trend score. This tool has been used as a guidance for the analyst, but the outcome could also be influenced by the analyst's final judgment. The inputs for this tool were taken directly from the Iron & Steel Methodology using a simple grading scale from -1 to 1 that analysts assigned based on the results of the following forward-looking indicators:
    - CH 1.1 Alignment of Scope 1+2 emissions reduction targets
    - CH 1.2 Alignment of Scope 1+2+3 emissions reduction targets
    - CH 1.3 Time horizon of targets
    - CH 2.2 Trend in future Scope 1+2 emissions
    - CH 2.3 Emissions locked-in from material investment
    - CH 2.4 Low-carbon, Mitigation and Carbon removal technologies CAPEX share
    - CH 3.1 R&D spending in Low-carbon, Mitigation and Carbon removal technologies
    - CH 4.2 Trend in future Scope 1+2+3 emissions intensity
    - CH 5.3 Low carbon transition plan
    - CH 5.5 Climate change scenario testing
    - CH 5.6 Internal carbon pricing integration

- CH 9.1 Business activities that develop low-carbon, mitigation and carbon removal technologies
- CH 9.2 Business activities that develop products enabling energy transition
- CH 9.3 Business activities that promote circular economy

The results shown by the tool implied positive scores (>0) were more likely to be trending in a carbon-aligned pathway, while negative scores (<0) were more likely to be diverging from a carbon-aligned pathway.

On completion of the assessment, companies received two main files:

1. The Excel calculation tool with the company's response and analyst score. This file includes the scores per indicator and sub-indicator, as well as explanations of the scorer's rationale. This file also contains company comments and questions about the methodology and the tool. This remains confidential between I Care, Deloitte, ADEME, MHQA team and the reporting company.
2. An ACT company feedback report (PowerPoint) summarising the results and providing a brief overview of the challenges and opportunities the company may be facing. This presentation is shared only with the company involved and is built based on a template generated by ACT.

FOCUS ON THE ACT CHEMICALS SCORE

The Chemicals questionnaire is structured according to nine Modules presented in the table below:

TABLE 2: LIST OF ACT PERFORMANCE MODULES IN THE ACT IRON & STEEL ASSESSMENT

Modules
1. Targets
2. Material investments
3. Intangible investments
4. Sold product performance
5. Management
6. Supplier engagement
7. Client engagement
8. Policy engagement
9. Business model

Modules 1 to 4 contain mostly quantitative indicators that are evaluated by the scorer based on the results of a quantitative calculation. These Modules rely on companies entering internal data and Locked-in emissions calculation tool. The results from this calculation tool is described in detail below.

> ***Calculator for Locked-in Emissions****: The calculator measures the company's cumulative emissions from reporting year to reporting year + 15. It then compares these with the company's emissions budget, defined either by the Sustainable Development Scenario (SDS) from the International Energy Agency (IEA) Energy Technology Perspective (ETP) 2020 (for Type A companies) or the Absolute Contraction Approach, aligned with a well-below 2°C (WB2°C) ambition (for Type B companies).*

Another element specific to the ACT Chemicals Methodology and scoring is the weighting system used to adjust the scores according to company activities along the value chain. ACT has defined three company profiles for which different weightings are applied per indicator (see Table 3).

Modules 1, 5, 8 and 9 have the same weightings for all categories. As regards the other Modules, weightings can differ per indicator. Important differences need to be highlighted:

- **Module 2. Material investment** is focused on the actions of the company to reduce its Scope 1+2 emissions. Therefore, Type A companies have a higher weighting as they own assets (production sites) and could represent a high source of emissions. The weighting of the module is adjusted according to the share of emissions attributable to Chlorine and Hydrogen production. For Integrated companies, the weighting is calculated according to the breakdown of emissions between Ammonia, Methanol, HVC, Chlorine, Hydrogen and other chemicals production.
- **Module 3. Intangible investment** is focused on R&D expenditures and patent activity for low-carbon innovation. This is considered crucial for the upstream segment of the chemicals value chain (Type A companies) and less for the downstream segment (Type B companies).
- **Module 4. Sold product performance** is focused on the actions of the company to reduce its Scope 3 upstream emissions. The upstream emissions represent a large part of emissions for Type B companies. For integrated companies, the weighting is adjusted according to the breakdown of emissions between production of primary chemicals and other chemicals.
- **Module 6. Supplier engagement** is focused on relationship with supplier, which is not material for Type A companies but is very strategic for Type B companies which can have a high level of influence on the upstream part of the value chain.
- **Module 7. Client engagement** is focused on relationship with client, which is not considered as very material for chemicals companies. However, Type B companies are expected to have a higher level of influence on the downstream part of the value chain.

TABLE 3: CHEMICALS SCORE WEIGHTINGS

	Type A company		Type B company		Integrated company	
Module	Weighting	Rationale	Weighting	Rationale	Weighting	Rationale
1. Targets	15%	Fixed weighting across all sectors	15%	Fixed weighting across all sectors	15%	Fixed weighting across all sectors
2. Material Investment	27-32%	Owned assets (production infrastructure) represent the highest source of emissions	10%	Owned assets (production infrastructure) represent a significant source of emissions	10-32%	Owned assets represent a high source of emissions
3. Intangible Investment	10%	R&D investments for low-carbon innovation are crucial for the value chain	5%	R&D investments for low-carbon innovation are crucial for the value chain	5-10%	R&D investments for low-carbon innovation are crucial for the value chain
4. Sold Product Performance	2-7%	Indirect emissions (from feedstock or use of products) are significantly lower than direct emissions	20%	Indirect emissions (from feedstock mostly) are significant	2-20%	Indirect emissions can be high depending on the share of type B products
5. Management	12%	Fixed weighting across all sectors	12%	Fixed weighting across all sectors	12%	Fixed weighting across all sectors
6. Supplier	10%	Lower influence on the suppliers midstream/upstream as partly integrated	17%	Suppliers for Upstream are not strategic, compared to the rest of the value chain.	10-17%	High level of influence on the upstream
7. Client	4%	Little leverage on clients	6%	Little leverage on clients	4-6%	Little leverage on clients
8. Policy engagement	5%	Average weighting compared to the other sectors	5%	Average weighting compared to the other sectors	5%	Average weighting compared to the other sectors
9. Business Model	10%	Fixed weighting across all sectors	10%	Fixed weighting across all sectors	10%	Fixed weighting across all sectors
	100%		100%		100%	

1.3. RESULTS OF THE COMPANY ASSESSMENTS

INTRODUCTION

This section presents the results of the ACT Chemicals Methodology road test. It includes an overall comparison of results per Module and a brief overview of indicator-level results per company.

OVERALL RESULTS

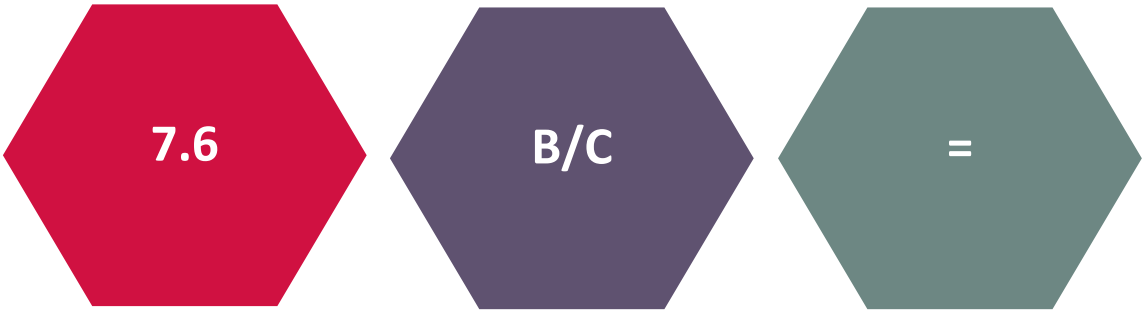


FIGURE 5 - OVERALL RESULTS

The average final score for each score dimension is **7.6B/C=**, where 13.7A= was the best and 2.8C= the worst score amongst the companies assessed.

The average performance score is 7.6, where 13.7 is the highest and 2.8 the lowest score. The top performer's score is driven by its effective strategy aimed at implementing new business models around low-carbon energy (renewable electricity) and circularity (reducing waste and using by-products). The best scores were also the result of more transparency in companies' disclosure, as they provided detailed information at asset level (performance and CAPEX plan). Conversely, some companies struggled to achieve a good score in these sections because of non-disclosure.

There was no significant difference between Type B companies and Integrated companies. As a reminder, no company from Type A was assessed, which prevented the road test from assessing the difference in the low-carbon strategy maturity that could occur between Type A and Type B players.

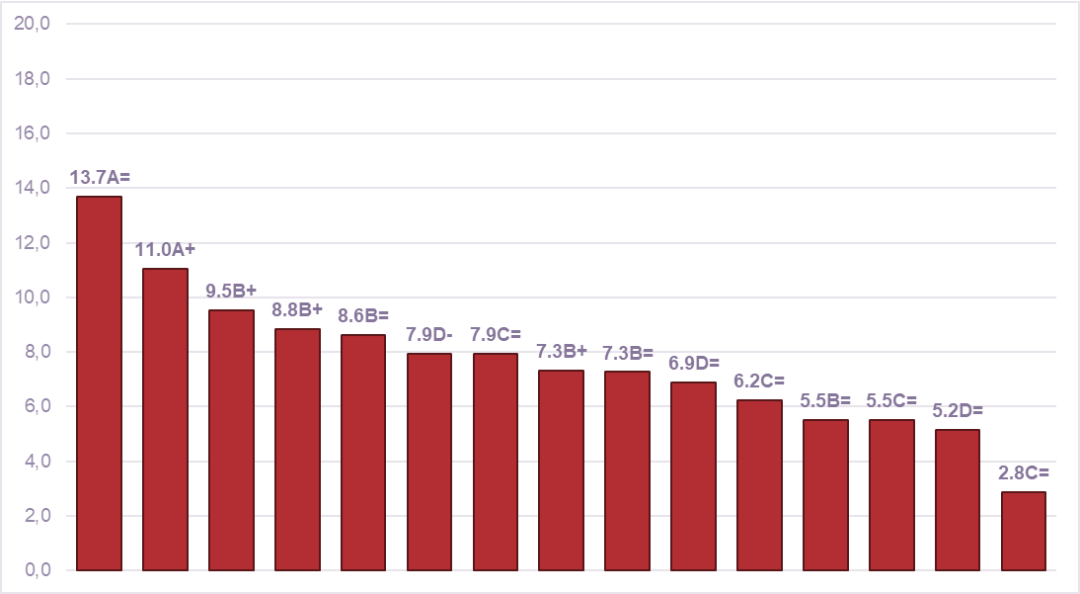


FIGURE 6 - FINAL SCORES OF THE CHEMICALS ROAD TEST (DISPLAYED FOLLOWING THE PERFORMANCE SCORE)

The average narrative score lies between B and C, indicating an overall medium alignment with a low-carbon scenario. In general, companies received lower narrative scores for the Consistency and Credibility dimension, where analysts noted issues with data availability and consistency between Module 1 and Module 2, i.e., between the ambitious nature of targets and the reality of planned investment in assets. Risk was another dimension that received lower scores in general. While some companies have started to evaluate their exposure to transitional and physical risks, others lack scenario testing or diversification of their activity, for instance. Reputation analysis relied on online news research only, which may be affected by the analysts' location and access to specific databases. Therefore, it may not be comprehensive.

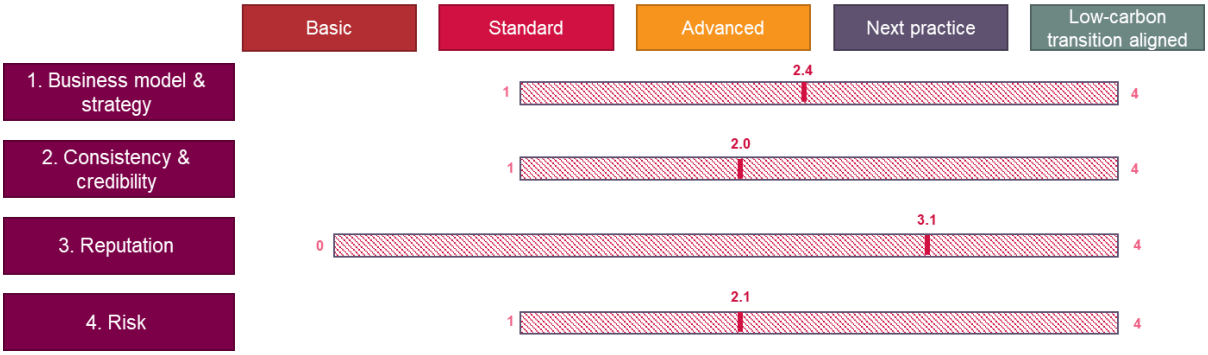


FIGURE 7 - NARRATIVE SCORE RESULTS

The average trend score is rated equal (=) for the chemicals sector. This indicates that most of the companies would be likely to receive a similar score if they were re-assessed in a few years. Also, it suggests that companies need to make additional efforts to switch to a positive trend score in the near future. The trend score considers the results of indicators from different Modules. These specific indicators rely on companies disclosing data such as emissions intensity. Where there was a lack of information, 0 points were scored, and this directly impacted the trend score. However, as agreed with the Steering Committee, the analysts only used the trend score tool as a guide, and also used other information and types of data to give the final trend score. Only 4 companies out of 15 obtained a positive trend score.

OVERALL PROFILE OF THE 5 ACT DIMENSIONS

Like all ACT road tests, the Chemicals road test provides a snapshot of sector performance in each of the 5 ACT dimensions (see Figure 8). The following paragraphs summarise sector-level trends and challenges in these 5 elements. These insights do not apply uniformly to all participant companies and should not be interpreted as indicative of company performance. This is a high-level analysis of common trends identified throughout the road test. Company-specific insights were given to companies in the confidential company feedback reports.

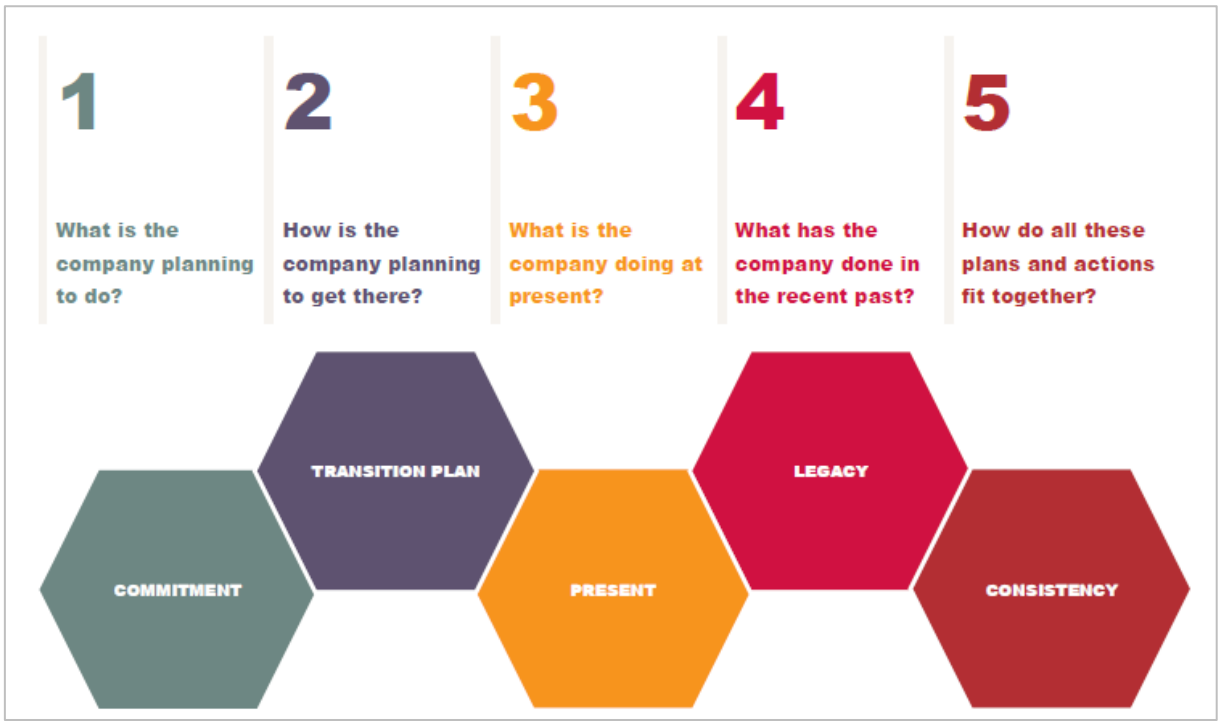


FIGURE 8 - ACT ASSESSMENT FRAMEWORK

Commitment

Companies in the chemicals sector have for the most part set emissions reduction targets. However, some long-term targets, such “net-zero by 2050” targets lack detail, preventing companies from obtaining good scores in the dedicated module. The road test highlighted a lack of targets covering Scope 3 emissions, while companies must also commit to reducing upstream emissions considering their importance for many actors in the sector.

Transition plan

Companies in the sector reported exploring low-carbon business activities (circular economy, generation of renewable energy, commercialisation of by-products, etc.) However, the level of maturity varies considerably between companies. Participants rarely disclosed information on profitability and effectiveness, limiting the analysts’ ability to understand progress in the implementation of transition plans. From a strategic planning perspective, some companies in the sector have developed schemes to implement low-carbon technologies. However, some gaps have been identified between targets set by companies (Module 1) and the ambition of transition plans in aligning with a low-carbon economy (Modules 2 and 4). Companies still need to strengthen their low-carbon transition plans to achieve the climate goals they set.

Present

Most companies have developed sustainability strategies and report current targets to tackle their climate impacts. Current levels of data availability are still below ACT’s standard, and this is an overall challenge for most companies in the sector.

Legacy

Past performance varies between companies. Some companies in the road test have not yet made their low-carbon strategies public and are just starting their sustainability journey. Overall, while some companies are implementing sustainability strategies, the sector is not widely recognised for previous achievements in tackling its climate impact, and this is consistent with the ACT assessment results.

Consistency

Overall, assessments have shown that climate strategies were consistent for each company and fairly reflected the level of maturity of the company. However, some incoherencies and gaps have been identified between companies' commitments and their transition plans. This has been reflected in the narrative score.

AVERAGE RATINGS PER MODULE FOR THE PERFORMANCE SCORE

Overall, the sector had a low performance in the ACT assessment (see Figure 9), with most Modules scoring below 50% on average. Only **Module 5. Management, Module 8. Policy engagement** and **Module 9. Business model** had average scores above 50%. The lowest scoring Modules were **Module 3. Intangible Investment** and **Module 4. Sold Product Performance**. The poor overall results in the quantitative Modules were in part caused by a lack of available data.

Disclosure for the qualitative Modules (5-9) was more complete, especially for companies already disclosing to CDP. Despite this, Modules 6 and 7 obtained rather low scores. While companies had multiple comments

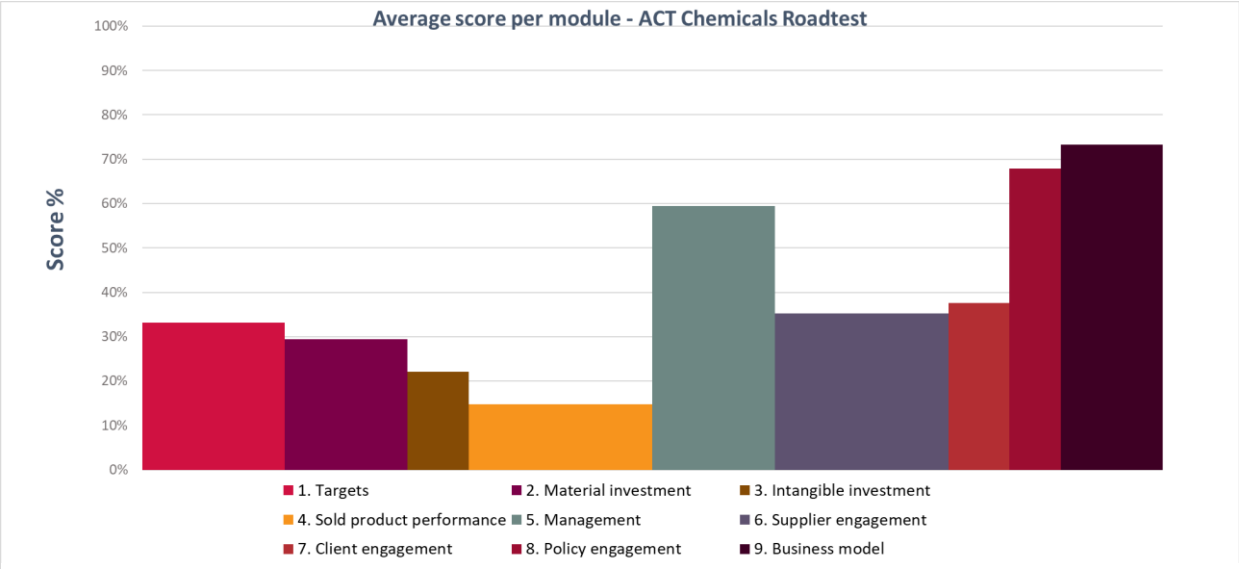


FIGURE 9 - AVERAGE SCORES PER MODULE - ACT CHEMICALS ROAD TEST

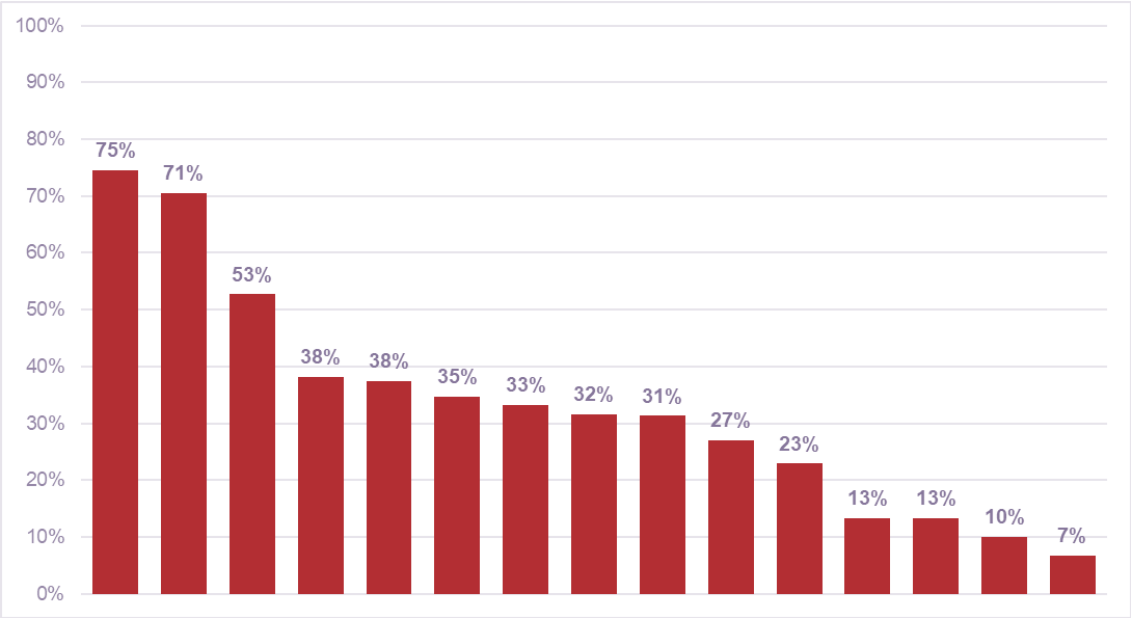
on the concepts and definitions used throughout the Excel data collection tool and the maturity matrices, most participants provided relevant information. Higher achievement in the qualitative Modules indicates that many companies have implemented and are reporting on their sustainability strategies. High scores in Modules **5. Management** and **8. Policy engagement** show that the sector has begun to adopt a governance structure whereby commitments related to climate actions are addressed at the top levels of management. The road test highlighted that the main challenges for companies lie in the implementation and effectiveness of their sustainability strategies.

MODULE 1. TARGETS (33%)

Module description for ACT Chemicals: Module 1 assesses a company's long-term targets and aims to compare these with future projected emissions intensity values.

Materiality for the chemicals sector: This Module is material in the definition of a climate strategy with a weighting of 15%.

Main feedback / conclusions: All companies reported a target and received a score for this Module. However, the level of ambition differs from one company to another. Some companies reported long-term net zero targets, particularly regarding Scope 3 emissions, which can lead to the score being downgraded if the company does not provide the distribution between mitigation and offsetting within the target, according to



ACT guidelines. Besides, only a few companies scored in the indicator "Achievement of past targets", illustrating the recent nature of the low carbon strategies in the chemicals sector.

FIGURE 10 - MODULE 1. TARGETS - BREAKDOWN OF SCORES

MODULE 2. MATERIAL INVESTMENT (29%)

Module description for ACT Chemicals: Module 2 measures material investments in low-carbon activities and technologies. It compares the trend of past emissions to what would have been requested by the benchmark reduction's slope. It also requests figures for the impact of upcoming CAPEX investment at asset level to see if the level of ambition is consistent with the actual transition plan in terms of future emissions and locked-in emissions. Module 2 also looks at energy management actions (energy consumption reduction targets, achieved reduction in energy consumption, low carbon energy procurement, etc.).

Materiality for the chemicals sector: This Module assesses the consistency between a company's investment plan and the targets that have been set. The Module has a weighting ranging from 8 to 32%, according to the location of the company within the sectoral value chain (emissions from owned assets are more material for companies producing primary chemicals than for companies producing other types of chemicals).

Main feedback / conclusions: Module 2 received rather low scores, mostly due to the Locked-in Emissions indicator. However, several companies did not have enough data for the calendar of asset modernization, as well as the impact of such future modernization on the carbon intensity of assets. The asset-level table was time-consuming to complete, particularly for big players. Besides, most companies (10 out of 15) scored 0 in the low-carbon CAPEX indicator, illustrating the mismatch between the targets set and the investments made.

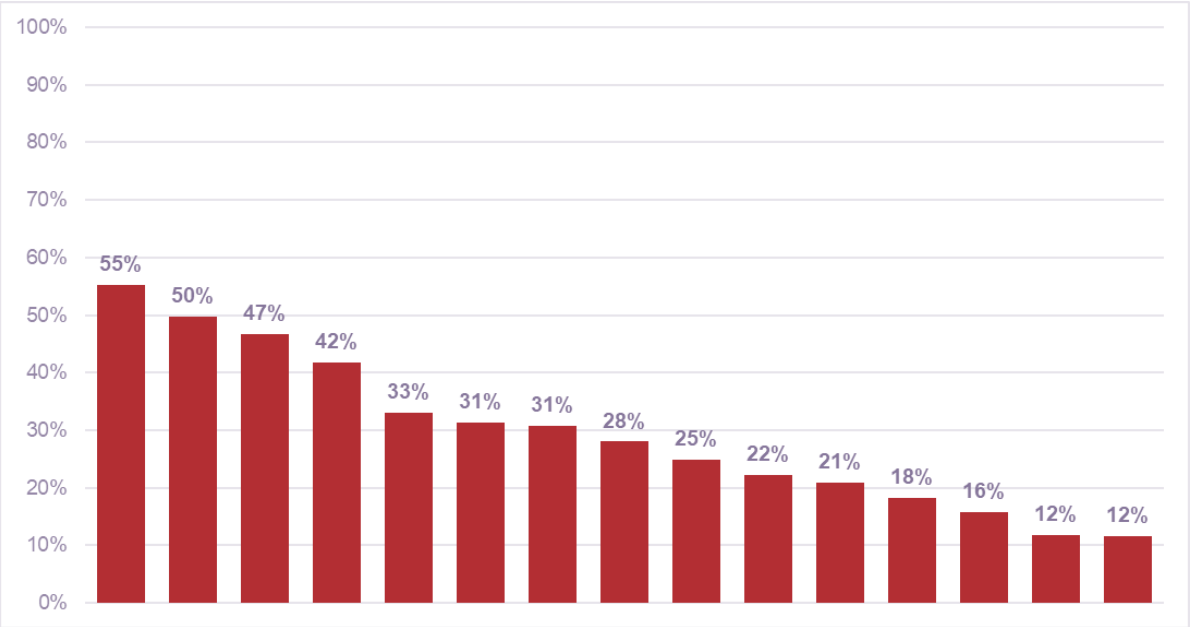
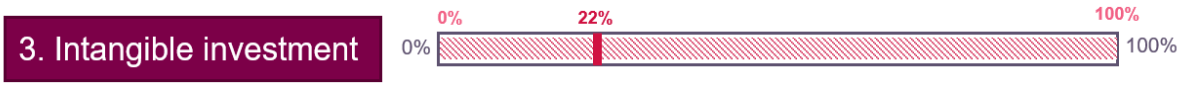


FIGURE 11 - MODULE 2. MATERIAL INVESTMENTS - BREAKDOWN OF SCORES

MODULE 3. INTANGIBLE INVESTMENT (22%)



Module description for ACT Chemicals: Module 3 measures investments in the research and development of low-carbon and mitigation technologies. Companies are also requested to give the share of their patents that are dedicated to climate change mitigation technologies.

Materiality for the chemicals sector: To enable the transition, the chemicals sector relies heavily on the development of low-carbon technological solutions to replace its currently high-emitting systems. R&D is one of the main actions to develop those technologies and is one of the tools enabling cost reduction and market penetration of new technologies. This Module is therefore important, especially for primary chemicals producers, and has a weighting ranging from 5% (producers of other chemicals) to 10% (producers of primary chemicals).

Main feedback / conclusions: This Module received a low average score because companies are not willing to share their expenditure in future research and development or cannot isolate R&D budget in low-carbon technologies. 5 out of 15 firms have a 0% score regarding both their low-carbon R&D investments and patents. One company's business model is fully dedicated to providing low-carbon solutions to its value chain and all its R&D is therefore dedicated to low-carbon mitigation technologies. However, some companies discussed the relevance of the indicator relative to the share of "low-carbon" patents since their activity relies on a specific chemicals process where no further upgrades are expected (since current technologies already have a chemical reaction yield almost equal to the theoretical maximum).

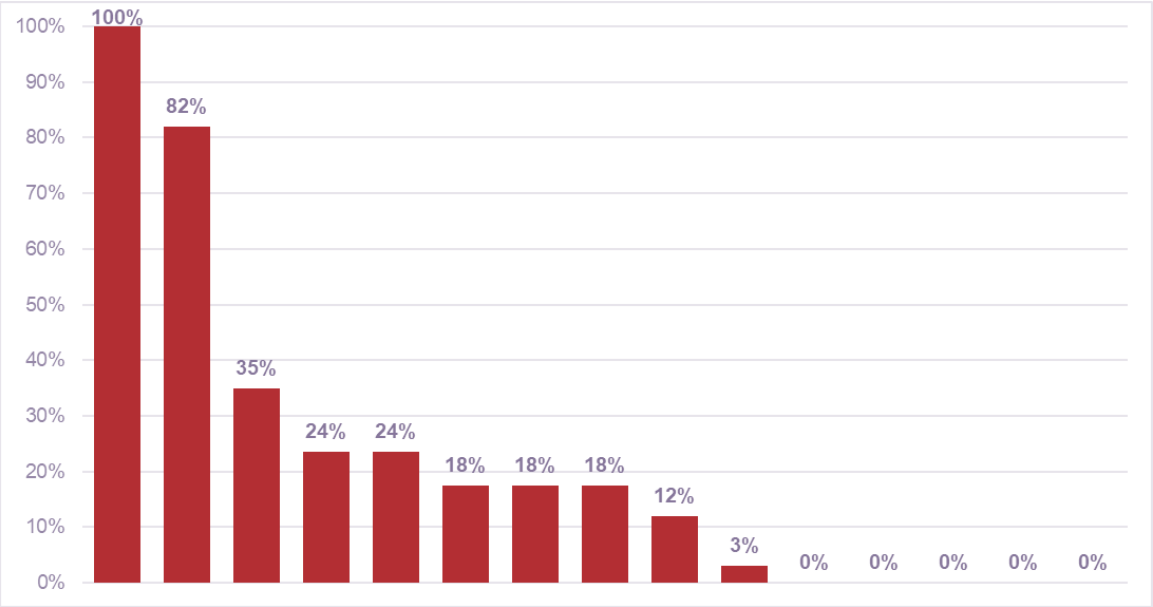
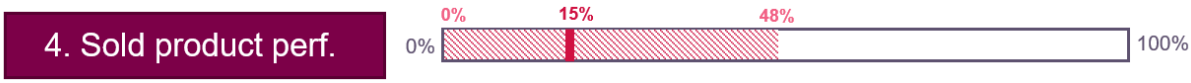


FIGURE 12 - MODULE 3. INTANGIBLE INVESTMENTS - BREAKDOWN OF SCORES

MODULE 4. SOLD PRODUCT PERFORMANCE (15%)



Module description for ACT Chemicals: Module 4 analyses the trend in companies' past emissions as well as future emissions, regarding Scopes 1, 2 and 3. For companies producing ammonia, HVC and methanol, the specific interventions taken by companies to reduce the impact of their feedstock were assessed (e.g. procurement of green H_2). The Module also assessed the share of recycled content and bio-based content in the feedstocks used by companies.

Materiality for the chemicals sector: This Module is not homogeneously material for the sector with a weighting ranging from 2% to 25%. For companies producing primary chemicals, the methodology focuses on direct emissions, assessed in Module 2. However, Module 4 is particularly important for producers of other chemicals, since most of their emissions come from the production of their feedstock. Consequently, ACT encourages the procurement of bio-based feedstock as well as recycled feedstock. For some specific primary products (ammonia, HVC, methanol) ACT aims to encourage companies to reduce the impact of their own feedstock (such as replacing natural gas by green H_2). This is captured by specific indicators, only available for producers of those primary products.

Main feedback / conclusions: Indicators specific to interventions taken by companies producing ammonia, HVC or methanol could not be tested properly as it was not relevant for most of the companies or companies scored 0 as low-carbon solutions were not implemented. The trend in past emissions has scored 31% in average due either to an increase/stagnation of past emissions for most of the companies or to a lack of information related to past emissions. In addition, the results showed very few bio-based or recycled content in the feedstocks used by the companies. For some companies, particularly those operating inorganic chemistry, the indicator relative to the share of bio-based content was found not to be relevant.

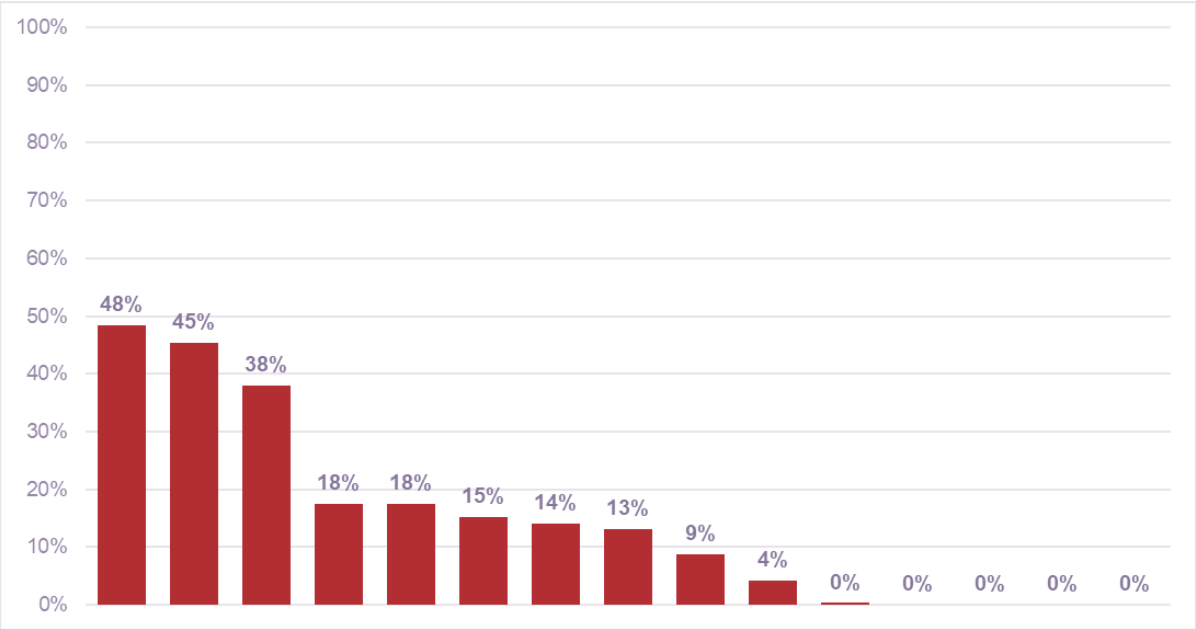


FIGURE 13 - MODULE 4. SOLD PRODUCT PERFORMANCE - BREAKDOWN OF SCORES

MODULE 5. MANAGEMENT (59%)

Module description for ACT Chemicals: Module 5 evaluates whether companies have sound policies, structures, and oversight on climate-related issues. It incorporates many sub-indicators that together draw a picture of the company's management and strategic approach to the low-carbon transition.

Materiality for the chemicals sector: This Module assesses companies' ability to carry out their transition plan and meet ambitious science-based targets. It is therefore material with a weighting of 10%.

Main feedback / conclusions: This was one of the highest-scoring Modules, with an average score of 59%. However, the dispersion of the score (ranging from 34% to 90%) shows that companies from the road test are at different stages along their low-carbon transition journeys. Some already display active management and leadership in this area (transition plan, incentives, oversight of climate change issues, etc.), while others are further behind. The new indicator introduced into this sector methodology, assessing the integration of internal carbon pricing, was successfully tested (only 4 companies scored 0 on this indicator).

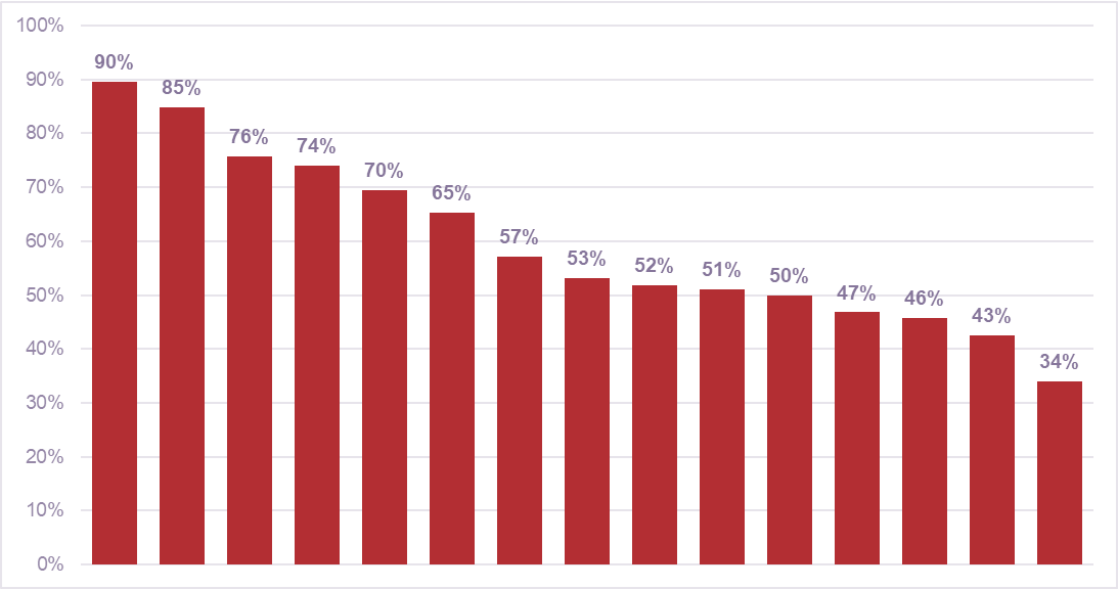


FIGURE 14 - MODULE 5 - MANAGEMENT - BREAKDOWN OF SCORES

MODULE 6. SUPPLIER ENGAGEMENT (35%)

Module description for ACT Chemicals: This Module scores companies' strategies and actions for influencing their suppliers to improve those suppliers' sustainability performance and decrease GHG emissions.

Materiality for the chemicals sector: This Module is not homogeneously material for the sector with a weighting ranging from 10% to 17%. Upstream companies, producing primary chemicals, are not expected to have strong levers on their own suppliers, while the issue is crucial for producers of other chemicals.

Main feedback / conclusions: As was the case with most qualitative Modules, almost all companies were able to provide answers for Module 6. However, the dispersion of the scores (ranging from 0% to 84%) and the low average score shows variation in the level of supplier engagement maturity between companies. Most of the companies have corporate social responsibility (CSR) clauses with their suppliers but are not actively discussing with them to reduce emissions along the value chain. Most high-performing companies in this indicator develop specific partnerships with their suppliers, encouraging them to improve their carbon mitigation performance and increasing the weighting of "best suppliers" in their procurement.

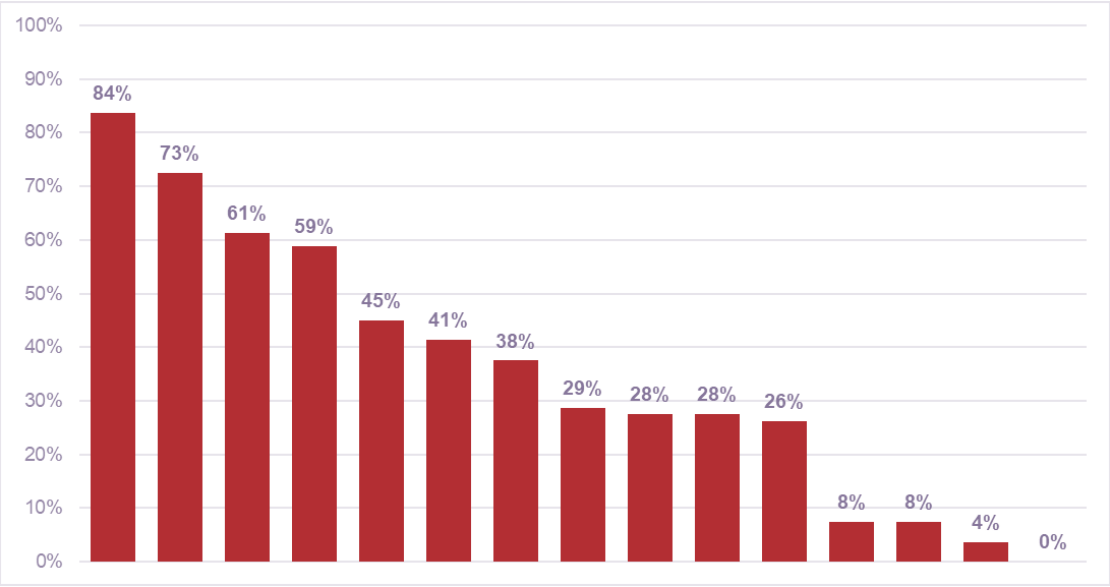


FIGURE 15 - MODULE 6. SUPPLIER - BREAKDOWN OF SCORES

MODULE 7. CLIENT ENGAGEMENT (38%)

Module description for ACT Chemicals: The client engagement Module is focused on companies' efforts to promote low-carbon products and behaviour (e.g. circularity).

Materiality for the chemicals sector: This Module represents a relatively less significant aspect of the sector transition, and the materiality is therefore medium with a weighting ranging from 4 to 6%.

Main feedback / conclusions: The criteria for this Module require companies to implement a mix of actions to encourage customers to decrease their climate impact, including awareness and education campaigns, monetary incentives, offering low-carbon products, etc. Results suggest that only a few companies have developed partnerships regarding GHG emissions reduction plans with their clients. Besides, most of the score in the Module 'Client Engagement' is obtained because the company offers low carbon solutions and products, rather than thanks to specific partnerships with clients. The average score (38%) hides a high dispersion of results (ranging from 0% to 100%). It illustrates the high variation of the maturity of client engagement between companies: while 3 companies achieve more than 85%, 6 achieve less than 15%.

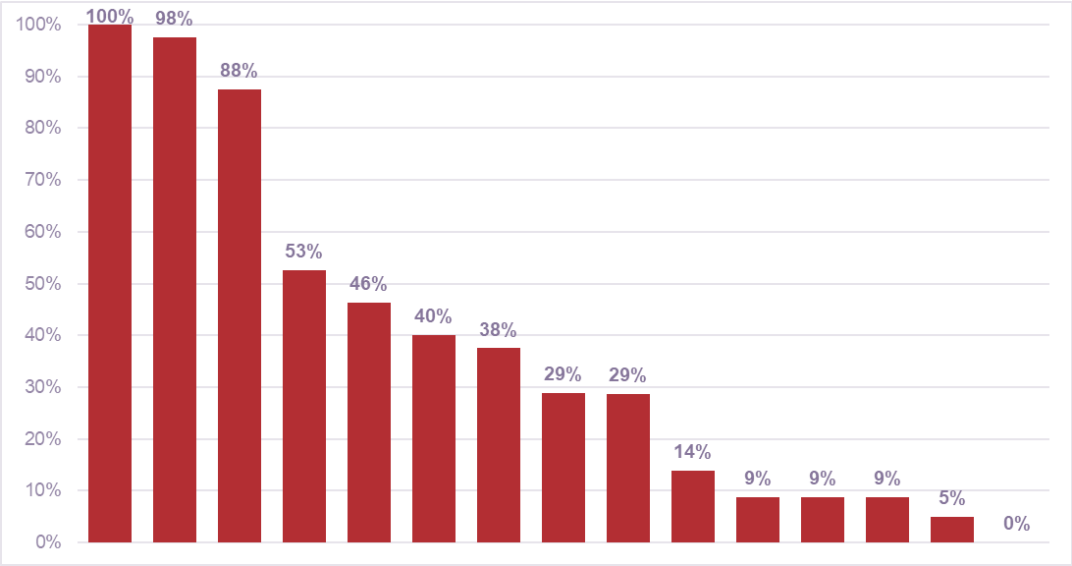
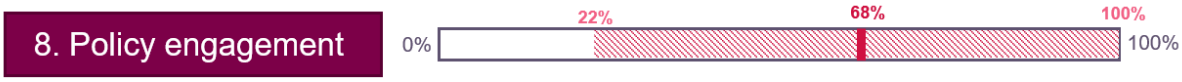


FIGURE 16 - MODULE 7 CLIENT ENGAGEMENT - BREAKDOWN OF SCORES

MODULE 8. POLICY ENGAGEMENT (68%)



Module description for ACT Chemicals: The Module evaluates companies' engagement with trade associations and their public positions on climate policies. Indicator 8.1 requires companies to disclose their internal policies and processes for joining, interacting with and influencing trade associations. Indicator 8.2 asks if companies support trade associations with climate-negative positions. Similarly, indicator 8.3 asks companies to disclose their position on significant climate policies.

Materiality for chemicals sector: The policy engagement indicators provide a narrative about the company's stance on climate change and how the company expresses this in their engagement with policymakers and trade associations. The materiality of this Module is therefore medium with a weighting of 5%.

Main feedback / conclusions: Companies performed rather well in this Module. Feedback from companies revealed that more guidance was needed regarding both how to fill out the maturity matrices, and the specific topics they should address. Some companies found it difficult, due to their relatively small size, to have an impact through public policy. This Module would therefore be more relevant for larger players with a large scope of influence in the sector.

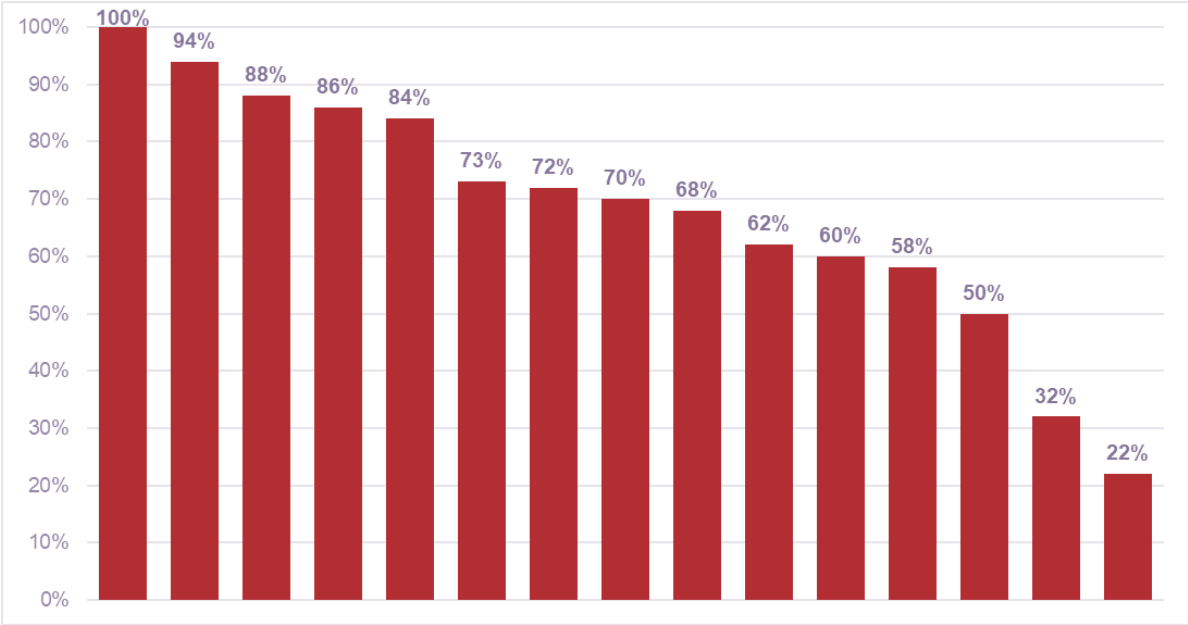


FIGURE 17 - MODULE 8 POLICY ENGAGEMENT - BREAKDOWN OF SCORES

MODULE 9. BUSINESS MODEL (73%)

Module description for ACT Chemicals: This Module aims to evaluate new business activities that are being undertaken for the low-carbon transition. It evaluates activities that 1) contribute to the use of low-carbon energy or the development of low carbon technologies, 2) develop products enabling low carbon transition, or 3) promote circularity in the chemicals value chain.

Materiality for the chemicals sector: This Module is future-oriented since it asks companies about their narrative on specific changes to business models and strategy that the sector can/must make to transition. As this is an important aspect of long-term future planning, it is material for the sector with a weighting of 10%.

Main feedback / conclusions: Results suggest that most companies are investing in at least one of the business activities targeted by the Module. The average score is surprisingly high (taking into account the average scores that are obtained in other ACT sectoral road tests, lying around 50%), which might illustrate a scoring method not stringent enough. Indeed, only the “best” business model, i.e. with higher stage of development and maturity, is taken into account. Besides, it is unclear whether business models are being implemented to the degree necessary to drive the evolution of companies’ overall business models. It would be useful to have clearer guidance on the type of data that companies should submit as supporting evidence.

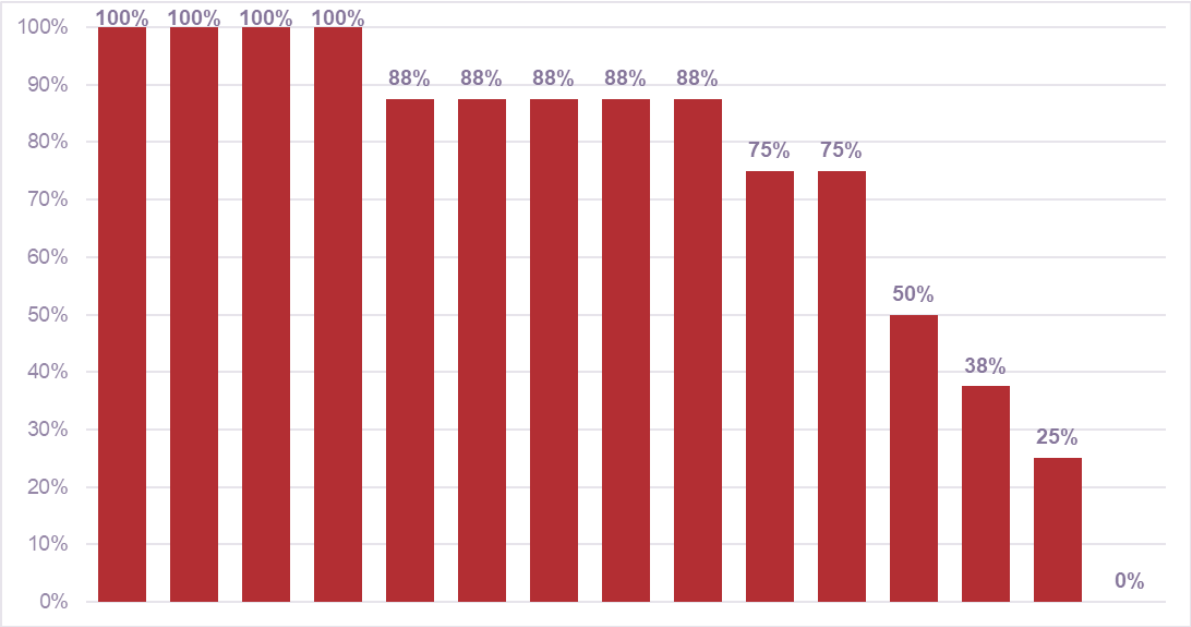


FIGURE 18 - MODULE 9 BUSINESS MODELS - BREAKDOWN OF SCORES

AVERAGE ASSESSMENT RATING BY CRITERIA FOR THE NARRATIVE SCORE

The narrative score assesses the overall response of the company on four dimensions: Business Model and Strategy, Consistency and Credibility, Reputation, and Risk. Once a company's response was reviewed and scored, analysts completed the narrative score in the tool provided by ACT. This includes the scoring criteria for each dimension using the same achievement levels as other maturity matrices, from Basic (0 points) to Low-Carbon Transition Aligned (4 points), as shown in Figure 19.

		Basic	Standard	Advanced	Next practice	Low-carbon transition aligned
1	Business model and strategy	The company does not seem to be able to be profitable in a low-carbon economy and there is no sign of internal efforts.	The company has begun to seek profitable activities in a low-carbon economy.	The company has identified profitable activities in a low-carbon economy, and climate issues have been integrated into its business model and strategy.	The company is in transition toward profitable activities in a low-carbon economy and there is evidence that mechanisms are being put in place for this purpose.	The company's activities seem to be profitable and its short-term strategy and targets are compatible with the low-carbon transition.
2	Consistency and credibility	The past and present actions, and transition plan if there is one, do not demonstrate overall coherence and the company does not seem to be able to achieve its climate objectives. Important efforts are needed for the implementation of a low-carbon transition plan.	The past and present actions are not in line with the company's potential climate objectives. However, there is some evidence that the company already begun to consider mechanisms to implement a low-carbon transition plan.	The past and present actions demonstrate that the company has a climate ambition, but additional efforts may still be needed to achieve climate targets. The company has started to establish an action plan to improve its climate performance.	The past and present actions are coherent with the company's transition plan. Additional efforts are needed but the company has always demonstrated the will to implement the needed mechanisms to stay aligned with its climate goals.	The past and present actions are coherent and already in line or beyond with a low-carbon transition.
3	Reputation	Existence of serious or several environmental controversies harming the company's climate commitments. There is no evidence that the company is addressing or taking the controversies seriously.	Existence of minor environmental controversies. There is no evidence that the company is working to avoid this kind of controversy.	Existence of minor environmental controversies. The company has made reliable commitments to address these types of controversies.	Existence of negligible environmental controversies that do not hamper the company's climate commitments. The company has always resolved environmental controversies with due importance.	No environmental controversies.
4	Risk	There are serious risks that could undermine the company's profitability and its ability to successfully implement a low-carbon transition plan. The company does not consider climate issues related to its activities and remains passive in the face of climate risks.	There are minor risks that could undermine the company's profitability and its ability to successfully implement a low-carbon transition plan. The company has begun to consider climate issues related to its activities.	There are minor potential risks that could undermine the company's profitability and its ability to successfully implement a low-carbon transition plan. However, there is evidence that the company is directing efforts to reduce these risks.	Risks that could undermine the company's profitability and its ability to implement a low-carbon transition plan are very limited. In addition, the company has always addressed and considered climate risks in its strategy.	No potential risk to the future profitability of the company or its ability to implement its transition to a low-carbon economic model.

FIGURE 19: NARRATIVE SCORING MATURITY MATRIX (FROM ACT FRAMEWORK V1.1)

The final average narrative score for the sector lies between B and C, suggesting companies display an overall medium performance and still need efforts to be aligned with a low-carbon pathway. This score is

calculated by assessing each scoring dimension with a maximum score of 4 points. Reputation was the highest-scoring dimension with an average score of 3.1. The dimensions Consistency and Credibility and Risk obtained the lowest average scores, with 2.0 and 2.1 respectively, suggesting that companies must prove that their engagements are followed by a proven track record of actions toward decarbonation and that the relatively recent nature of their transition strategies might pose some risks regarding achievement.

Business Model and Strategy

This dimension obtained an average score of 2.4, which is above 50% achievement. 3 companies obtained the maximum possible score, 3 companies obtained a score of 3 and 6 companies obtained a score of 2. This suggests that most of the companies are adapting their business activities to a low-carbon economy, by investing and taking advantage of low-carbon market opportunities. However, only 3 companies show a relatively high level of maturity regarding their low carbon transition strategy. Companies that received lower scores (1, since no company received 0) reported limited investments for developing a low-carbon offering or have not yet begun implementing a low-carbon strategy.

Consistency and Credibility

The average score for this dimension was 2.0. This dimension evaluates past, present and future performance and how it drives companies' low-carbon plans and commitments. The maximum score was 4 for this Module, achieved by only 2 companies, which were able to provide some track record on their previous achievements regarding decarbonization and detailed measures to keep on improving their performance. Most companies (12 companies, out of 15) have a Basic (1/4) or Standard (2/4) achievement, indicating that they are not yet taking sufficient climate action to transition to a low-carbon economy. It also reveals some mismatches between targets set and actual plans to achieve those targets.

Reputation

This is the highest scored dimension of the narrative score, with 3.1 points. Most companies have obtained the maximum score possible (4) as research indicated they have no controversies or reputational issues related to climate impact. However, 2 companies received a 0, illustrating strong environmental controversies, which affects the credibility of the low carbon transition strategies of those companies.

Risk

The average score for this dimension is 2.1. Most companies received "Basic" or "Standard" scores, which suggests that companies are still exposed to transition risks as they have not implemented scenario testing or have not prepared sufficiently for alignment with a low-carbon economy. Most companies need to develop more advanced processes for identifying climate-related transition risks, and better strategies to mitigate them. However, 2 companies achieved the highest score in this criterion, illustrating the high heterogeneity of the sector in the maturity of the development and implementation of robust carbon strategies.

Final narrative scores

The average narrative score obtained was 12/20, which is lying between a B and a C letter score.

Most companies (10 out of 15) obtained a B or a C score, suggesting they are in the development phase of low-carbon transition plans, but need to go further in the implementation of activities aiming to push forward the evolution of their business models. Companies in the sector should work on increasing transparency,

boosting their low-carbon offering, and increasing their understanding of climate-related transition risks which might affect their future business activities.

Other scores achieved by companies (3 obtained D, 2 obtained A) show once again the high heterogeneity of the assessed actors within the sector, regarding the level of maturity of their low carbon transition strategies.

TREND SCORE

Companies that received a positive trend score (4 companies) have reported relevant investments in low-carbon products and are working to substantially increase and develop their offering with more sustainable fuels and low-carbon technologies. These companies are also those showing the highest level of incorporation of their suppliers and customers into their sustainability strategies and that are attempting to reduce their indirect GHG emissions by implementing marketing strategies (promotion of low-carbon products or training of sales team) or diversifying their sold products.

Only one company obtained a negative trend score, illustrating the fact that the sector is at an early stage of its decarbonization journey and that strategies are being developed, even if current efforts made by most companies are not sufficient to align their climate strategies with low-carbon pathways and practices, as evidenced by the high number of “equal” trend scores (10 out of 15).

FEEDBACK FROM PARTICIPATING COMPANIES

At the end of the assessment, analysts shared a form with participating companies to collect insights and feedback. The answers have been gathered to identify key findings. Several topics have been addressed through this form:

Key topics	Feedback from companies
Data collection process	• Some data are difficult to obtain or estimate (e.g. year of commissioning & expected lifetime of assets) • More uniformity with CDP questions would have helped some companies • Meetings with the corporate teams that are in charge of data collection would have eased the data collection process
ACT Assessment	• The criteria around climate change mitigation technologies could be more detailed • What is being asked in Module 9 should be more detailed
ACT Methodology	• More guidance could be given to navigate among the different tools, particularly for questions that do not overlap CDP questions • Examples could be added in the methodology
ACT Framework	• Some companies are considering that ACT might become a supportive tool in the reporting • Some companies feel that SBTi for chemicals will be a stronger enabler of low carbon transition of the sector

FEEDBACK FROM ANALYSTS

Analysts have a key role during the road test:

- To guide companies through data collection and provide a relevant assessment
- To have a critical view on the methodology and provide relevant feedback on all key aspects of the ACT Chemicals Methodology
- To propose solutions in order to improve the methodology and the data collection tool

Therefore, analysts were asked to complete a form to give their opinion on the road test on 3 topics:

Key topics	Feedback from analysts
Data collection process	• Some changes implemented during the road test led to confusion. For example, the scope of emissions included in the benchmark have changed. Therefore, additional questions had to be asked to the companies; • Most companies were reactive and committed during data collection. However, despite the fact that the methodology was sent at the beginning of the road test, only few companies used it to better understand the questions asked to them. The methodology may be too technical in certain aspects to be concretely used by companies when they complete the data collection tool; • More guidance could be added in the questionnaire, especially on indicators that were challenging for companies (Table Module 2, Module 9); • Some contacts had trouble to gather data from other departments within their company, it might be relevant to warn the key contact person that they might need the help of other departments at the beginning of the road test; • Some very interesting discussion with companies that were really involved, enabling analysts to extend their knowledge on some chemical processes

ACT Assessment	• Performance score:
	  • Some indicators received few or no answers, but for different reasons: No interaction with other department, no data, not available (public assessment), no justification, etc.
	  • For one very recent company, indicators regarding trend in past emissions was not relevant. It might be interesting to discuss the inclusion of recent companies in ACT (question to be asked at ACT Framework level).
	  • In module 4, indicators specific to producers of primary chemicals could not be tested properly as there were no producers of some products in the road test or companies were not implementing any low-carbon action to reduce the impact from their feedstock.
	  • Module 4 indicator regarding bio-based chemicals was not relevant for inorganic chemistry.
	• Narrative score:
	  • Not enough guidance (categories affecting the narrative score if data not available or not justified)
	• Trend score:
	  • Guidelines on trend score could be improved
	• The process is very interesting and permits a constructive dialogue with the company. It helps to point out weaknesses and strengths from the company's climate strategy.

ACT Methodology	• ACT Chemicals is a challenging methodology as the chemicals sector is very heterogeneous. The question of the scope of the methodology is to be discussed to improve the comparability of the results from one company to another; • Examples could be provided to define the level of ambition of each level for the maturity matrices, particularly in the Module 9 Business Model.

2. Conclusion and Outlook

SUCCESS OF THE ROAD TEST

- **A useful number (13) of companies voluntarily participated in the ACT Chemicals road test**. Only 2 companies needed to be assessed using publicly-available data without any further engagement from those companies. A majority of the companies that were involved in the road test were highly engaged and provided, in many cases, very thorough feedback on the data collection tool.

- The consultancies assisting the road test, I Care and Deloitte, believe that with some improvements to the data collection tool and some methodological amendments (for example, definition of the scope), the **ACT Chemicals assessment will provide a fair reflection of a company's readiness to transition to a low-carbon economy**.

- **Members of other companies and initiatives (e.g. SBTi) within the chemicals sector participated in the Technical Working Group to assist methodology development (even though they were not assessed during the road test).** Their contributions were constructive and insightful for key methodological points, especially on sectoral benchmarks used for quantitative modules. This greatly assisted the ACT Chemicals Methodology to be complementary and aligned with other, existing sector initiatives, further enhancing ACT's aims for the low-carbon transition.

- **The current assessment methodology allows analysts to point out with clarity to companies being assessed where the main gaps / areas for improvement can be found**, and encourages much greater transparency on corporate climate performance, strategy and transition planning. This will help to raise the bar for the chemicals sector.

- **The road test made it possible to test the limits of the methodology**. Indeed, the road test included a high diversity of companies, partially playing on some activities at the edge of the scope of the methodology, for example recyclers, air gases, mining.

- **Clear process and good coordination with key actors.** Several road tests have taken place over past years in various sectors. The chemicals sector road test process was shown to be clear and beneficial to key actors in the sector.

LIMITS OF THE ROAD TEST

- **Usability of the data collection tool:** without making the date collection tool more user-friendly, analysts and companies will continue to find it challenging to use the tool to provide the data needed for the assessment. Analysts are expecting more guidance to be directly available in the tool, and a more detailed explanation as to what is expected from companies, especially in maturity matrices. Companies expected more overlap between ACT data requirements and their CDP Questionnaire disclosure responses. (It is noted, however, that disclosure through CDP's Questionnaire is not a prerequisite for an ACT assessment, so analysts and companies must still be able to collect and provide the required data even if CDP Questionnaire disclosure responses are not available.)

- **Sample of companies:** A majority of the companies involved in the road test are located in the downstream part of the sectoral value chain. Since the biggest levers to enable the low-carbon transition are located upstream (production of primary chemicals), it would have been interesting to assess more companies upstream. Three Integrated companies were assessed but no Type A companies participated in the road test. Consequently, the weighting system for Type A companies

(i.e. only primary chemicals producers) as well as some specific indicators (4.3, 4.4, 4.5) could not be tested fully.

- **Comparability of the results**: As the participating companies cover very different production scopes (from industrial gases to carbon black, titanium dioxide and specialty chemicals) the comparability of the results between companies is limited.

MAIN CHANGES & RECOMMENDATIONS TO EXTEND THE METHODOLOGY TO THE REST OF THE SECTOR

The consultancies assisting the road test, I Care and Deloitte, already implemented methodological enhancements as well as improvements to the questionnaire as a result of the road test feedback process.

All inconsistencies or issues experienced by the analysts and companies during the road test were gathered in a logbook and integrated at the end of the road test after discussion with the Steering Committee and the Technical Working Group. The following points summarise the key recommendations that were addressed or will be addressed prior to publication of the methodology:

- **Reduction of the scope of the methodology:** It has proven difficult to create a methodology encompassing and comparing the whole value chain of the chemicals sector due to the wide variety of companies involved in the sector. The current methodology is not sector-specific enough for a number of players and another ACT methodology (ACT Generic) could evaluate downstream specialty chemicals in the same way as the ACT Chemicals Methodology. Since the main goal of ACT sectoral methodologies is to capture the most material GHG emissions activities within each sector, it was decided to reduce the scope of the methodology to only upstream companies producing primary chemicals and midstream players directly using those primary chemicals. Upstream companies will cover not only Type A companies (from the pre-road test classification) but also producers of other upstream chemical products (e.g. carbon black, titanium dioxide, etc.)

- **Consideration of Scope 3:** The road test showed that companies rarely disclose their Scope 3 emissions, or have done so only very recently, using different methodologies and focusing on different emissions sources. To deal with this issue, it was decided to define clearly in the methodology Scope 3 emissions sources to be reported and to penalize companies when a Scope 3 hotspot is not reported. Additionally, Scope 3 emissions will be de-correlated from Scopes 1 and 2 with regard to the modules “Targets” and “Sold Product Performance”.

- **Irrelevance of “bio-based” and “recycled” content for inorganic chemistry**. Several companies highlighted the fact that bio-based and recycled feedstocks are not relevant to their activities. It was decided that when bio-based and recycled feedstocks are not relevant, a new indicator assessing the optimized use of raw material / feedstock will be used.

- **Improve the low-carbon electricity indicator:** The current version of indicator 2.5 did not fully answer the question “*is the company contributing to the development of new low-carbon electricity capacity?*” which was initially aimed to be addressed. An updated version of this indicator will provide more detail on the mechanisms used by companies to consume low-carbon electricity and will value mechanisms that correspond to a commitment to the addition of new low-carbon electricity generation capacities.

- Other technical points were been addressed, including:
    - Clarification of the list of business models (Module 9) that are rewarded by the methodology
    - Change in the scoring system of those business models

CONTRIBUTION OF ACT TO ENGAGING COMPANIES IN THE LOW-CARBON TRANSITION

The ACT Chemicals Methodology road test has shown that the companies in this sector must strengthen their decarbonisation ambitions and efforts and increase their transparency to better allow stakeholders to

understand companies' impacts and the extent of their future ambitions and action on climate change. Current activities and expected future performance are not aligned with a low-carbon pathway, exposing companies in this sector to climate and market risks.

Throughout the road test, most companies showed interest in completing the assessment and acknowledged the role of ACT in encouraging greater leadership within the sector, in relation to increased transparency and ambition around low-carbon transition plans. In addition, companies provided useful feedback on the assessment methodology and tools. With only a few exceptions, companies assessed during the road test demonstrated they are working towards developing and implementing effective transition strategies and plans, but there is still a long way to go before reaching the level of ambition required to align with a low-carbon pathway, and complementing commitments with real action, such as transforming their business models.