

Lessons in Chemistry

Climate Action Giants



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Executive Summary

The chemical industry, which accounts for up to 6% of global greenhouse gas (GHG) emissions, is a key player in the transition to a net-zero economy. However, it faces sector-specific challenges such as long asset lives, high process emissions, and complex global supply chains. This report provides a structured and evidence-based framework to help investors in the chemical sector to:

- Differentiate between transition leaders and laggards.
- Identify high-risk exposures and engagement priorities.
- Align portfolios with a 1.5°C expected pathway.

Specifically, this report benchmarks the climate transition performance of eight of the world's top chemical companies: **BASF, Bayer, Dow, Incitec Pivot, Air Liquide, LyondellBasell, SABIC, and Toray Industries**. It evaluates them across emissions performance, value chain engagement, governance and remuneration, capital allocation, and policy advocacy. The goal is to provide financial institutions with a clear picture of these companies' transition readiness and their potential climate-related risks and opportunities.

Key Findings

- **Emissions Alignment:** Only three companies, namely, **BASF, Bayer, and Incitec Pivot** show declining historic emissions trajectories which would bring them closer to a 1.5°C scenario alignment. In contrast, **Air Liquide** and **Dow**, exhibit high emissions growth inconsistent with their climate goals and lack Scope 3 targets.
- **Scope 3 Ambitions:** All eight companies acknowledge the importance of Scope 3 emissions management, which account for 70% to 83% of the chemical sector's total footprint. However, only a subset, including **BASF, Bayer** and **LyondellBasell**, have a Scope 3 mitigation target. Others, like **Air Liquide** and **Incitec Pivot**, rely on their value-chain engagement to curve their Scope 3 footprint.
- **Governance and Accountability:** Climate governance maturity varies considerably. **Air Liquide, Bayer, and Incitec Pivot** have established board-level ESG committees and include climate metrics in executive pay. Still, only **Incitec Pivot** and **Dow** meet the materiality threshold of ≥10% variable long-term compensation linked to climate metrics.
- **Capital Allocation:** **Dow**, for example – with 36% of its 2023 capital expenditures and over 60% projected by 2025 aligned with sustainability goals – demonstrates, in theory, a strong capital alignment with its sustainability strategy. However, these investments are linked to the development of new sustainable facilities rather than mitigation, so their magnitude should be considered with caution. Meanwhile, **Air Liquide** stands out with the highest sustainability linked investment (in absolute terms) with an annual average of USD 1.2 billion up to 2030. In contrast, **Bayer** ranks the lowest with only 2% of its capex invested annually in sustainability linked initiatives.
- **Policy Advocacy:** Misalignments persist between corporate climate goals and industry associations advocacy. Only **Bayer** and **Air Liquide** have disclosed and taken some action to address misalignments. **Dow, SABIC, and Toray** remain affiliated with misaligned bodies, with limited transparency.

- **Transition Risk Exposure:** Planet Tracker estimates these eight companies could face up to **USD 14 billion** in cumulative additional costs by 2030 from unaddressed emissions (USD 2 billion operational, USD 12 billion Scope 3). In contrast, climate-aligned capex is projected to average **USD 3.8 billion** annually across the group by 2029.
- **Overall assessment:** Only **LyondellBasell** and **Incitec Pivot** demonstrate credible overall alignment with a 1.5°C scenario, supported by Scope 3 engagement, targeted capital deployment, and integrated governance. Others, such as **Bayer**, **Dow**, and **Toray**, show progress in select areas but fall short on Scope 3 transparency, emissions pathways, and climate policy alignment.
- **Investor Engagement:** Investors have to play a crucial role in driving corporate climate transition through targeted engagement strategies. Recommendations include integrating emissions trajectory and climate alignment into valuation models, prioritising transition leaders, actively engaging boards on governance and Scope 3 disclosures, and strategically allocating capital toward net-zero enabling technologies and infrastructure.

Company Classification Summary

Each company was classified into one of three categories based on their overall climate transition readiness. This classification reflects emissions performance, transparency, value-chain engagement, governance integration, and sustainability-linked investment alignment:

Table 1: Company Classification Summary. ^a					
Company	Overall Assessment	Climate Alignment	Policy and Governance	Risk Analysis	Strategy Assessment
LyondellBasell	1.5°C: LEADER	LEADING	PERFORMING	PERFORMING	LEADING
Incitec Pivot	1.5°C: LEADER	LEADING	PERFORMING	PERFORMING	LEADING
Air Liquide	2°C: PERFORMER	LAGGING	LEADING	PERFORMING	LEADING
SABIC	2°C: PERFORMER	PERFORMING	PERFORMING	LEADING	PERFORMING
BASF	2°C: PERFORMER	PERFORMING	PERFORMING	PERFORMING	PERFORMING
TORAY	2°C: LAGGARD	LAGGING	PERFORMING	PERFORMING	PERFORMING
Bayer	2°C: LAGGARD	PERFORMING	PERFORMING	LAGGING	LAGGING
Dow	3°C: LAGGARD	LAGGING	PERFORMING	LAGGING	PERFORMING

Key recommendations to improve climate transition strategies are highlighted in section [8.5 Recommendations for Best Practice](#):

^a **Leading** – refers to close to or best practice among the eight, **Performing** – refers to good practice, although with some gaps, **Lagging** – is defined as a practice with fundamental gaps.

Investor Recommendations

Investors with exposure to the chemical sector must increasingly assess climate-related financial risks and opportunities as part of their fiduciary duty and regulatory alignment. This report highlights areas where transition performance may materially affect valuations, access to capital, and long-term competitiveness.

1. Integrate Transition Risk into Valuation Models

- Evaluate firms based on emissions trajectory (Scopes 1–3), transition targets, capex alignment, and governance maturity.
- Use shadow carbon pricing and internal risk weightings to reflect exposures to regulation (e.g., EU CBAM), carbon taxes, or mandatory disclosures.

Note that Planet Tracker estimates a potential additional cost of up to USD 14 billion by 2030 for this cohort if they miss their transition targets, USD 2 billion from operational target misses and USD 12 billion from unmanaged value chain exposure.

2. Differentiate Transition Leaders

- Prioritise firms with measurable emissions reduction progress and transparent climate-aligned investment strategies.

These firms show relatively lower risk of regulatory shocks and are more likely to benefit from green premium pricing and sustainability-linked finance access.

3. Engage to Improve Governance and Scope 3 Visibility

- Seek alignment with science-based targets that include full Scope 3 coverage.
- Advocate for executive compensation schemes where at least 10% of variable pay is linked to emissions reductions and climate strategy delivery.
- Promote greater transparency in climate lobbying and alignment with trade associations.

4. Support Real Economy Transition Through Capital Allocation

- Provide capital to companies that can demonstrate net-zero aligned business models.
- Promote sustainability-linked financing structures with robust KPIs tied to greenhouse gas (GHG) reduction and circular innovation.
- Fund transition-enabling technologies such as Carbon Capture, Usage, and Storage (CCUS), electrification, renewable feedstocks, and low-carbon product development.

Long-term investors have a crucial role to play in catalysing the decarbonisation of this sector. Companies that integrate climate into core operations, governance, and investment decisions are more likely to protect long-term value and benefit from a low-carbon economy.

Climate Transition Benchmarking

1. Introduction

The chemical sector is one of the world's most emissions-intensive industries accounting directly for up to 6% of global emissions^b. Yet, it remains vital to the global economy. Its products underpin modern agriculture, construction, energy systems, and mobility. This dual role makes the sector both a key enabler of decarbonisation and a significant contributor to climate change.

As regulatory scrutiny intensifies and downstream customers demand lower-carbon materials, the ability of chemical companies to credibly transition toward net-zero will increasingly define their financial and strategic positioning. However, sector-specific complexity, including long asset lifespans, high process emissions, and globally fragmented operations, creates unique challenges for assessing transition readiness.

This report offers a comparative, investor-focused benchmark of eight major chemical companies as selected by the Climate Action 100+ investors initiative. It evaluates their emissions performance, climate ambition, investment alignment, and governance practices using a structured, transparent framework. The aim is to equip financial institutions with the insights needed to:

- Differentiate between transition leaders and laggards.
- Identify engagement priorities.
- Align portfolios with a 1.5°C potential pathway.

2. Methodology

The benchmarking draws from publicly disclosed data, independent research, and proprietary analysis to build a holistic view of transition performance^c. Accordingly, this comparison framework consists of seven main sections:

- A. Emissions Trajectory and Target Setting**
- B. Value-chain Engagement**
- C. Governance and Climate-linked Compensation**
- D. Policy Advocacy Alignment**
- E. Risk and Opportunity Management**
- F. Climate-Aligned Capital Allocation**
- G. Investor Actionability**

Each company was assessed against these dimensions and scored as:

- **Leading** – referring to close to or best practice among the eight.
- **Performing** – referring to good practice, although with some gaps.
- **Or Lagging** – defined as a practice with fundamental gaps.

^b Source(s): 2% - *Decarbonizing the chemical industry*; 5% - *Net-zero emissions chemical industry in a world of limited resources*; 6% - *The chemical industry has a key part to play in tackling climate change*.

^c Examples of previous work done in this space by Tracker Group include: *Tomorrow's Chemistry* (by Planet Tracker) and *Flying Blind: In a Holding Pattern* (by Carbon Tracker).

3. Emissions Trajectory and Target Setting

3.1 Overview

The emissions performance of the eight chemical companies reveals significant variation in both transparency and ambition. While most companies have adopted long-term emissions reduction goals, only a subset have published their GHG emissions across all scopes for the last 3 to 5 years or established decarbonisation pathways consistent with a 1.5°C scenario.

3.2 Emissions Breakdown: Operational vs. Value Chain

A breakdown of company emissions per scope reveals the predominance of Scope 3 (value chain) emissions across the sector. As highlighted in Figure 1, with the exception of Air Liquide, Scope 3 accounts for 70% to 83% of total corporate emissions among the companies analysed.

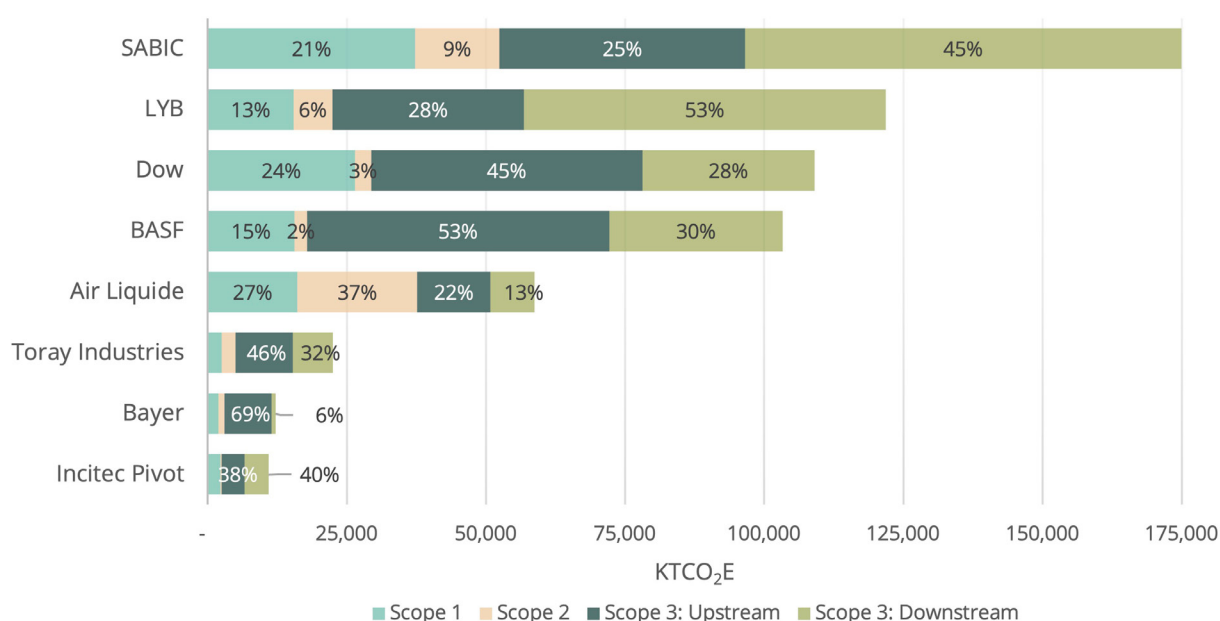


Figure 1: GHG Emissions Breakdown by Scope at the time of the CTA analysis. Source: Planet Tracker.
Notes: Scope 1 for Toray, Bayer, and Incitec Pivot, represent 11%, 16% and 21% respectively of their total emissions, while Scope 2 stands at 11%, 9%, and 2% respectively.

- **Operational emissions (Scope 1 and 2):** Air Liquide has the largest share of operational emissions, with 64% of its total GHG footprint coming from Scope 1 and 2, mainly due to the on-site energy-intensive requirements to generate industrial gases.
- **Upstream Concentration (upstream Scope 3):** Bayer stands out with 92% of its Scope 3 emissions coming from upstream activities. However, the company does not disclose its downstream “use of sold products” emissions which could impact significantly its breakdown. BASF, Dow, and Toray are the other three companies with a majority of upstream emissions with 64%, 61%, and 59% of Scope 3, respectively.
- **Downstream concentration (downstream Scope 3):** For SABIC and LYB, 64% to 65% of Scope 3 emissions came from downstream activities; while Incitec Pivot has a more moderate split with 51% coming from downstream activities, mainly related to its nitrogen-based products.

- Based on these findings it can be observed that basic chemical and polymer producers tend to show downstream emissions dominance (mainly due to product use and end-of-life emissions), whereas those in specialties or agriculture report larger upstream footprints. This would imply different decarbonisation levers for each set of companies.

3.3 Historic Trends

To establish a projection of future emissions, we analysed each company's emissions trajectory over the past 3 to 5 years and extended that trend through to 2030^d. This trend-based extrapolation is backward-looking as it reflects where emissions are headed if historical patterns continue unchanged. It does not account for planned future initiatives or investments, which are addressed in the following sections. In short, this analysis shows where each company would stand in 2030 if their recent pace of emissions change remains the same.

Three-year trends (2020–2022):

- **SABIC's** emissions remained relatively stable, with a 0.5% increase.

Four-year trends (2020–2023):

- **Air Liquide's** emissions increased by 13%, driven by Scope 2 and upstream Scope 3 growth.
- **Dow's** footprint grew by 7%, mainly led by downstream Scope 3 emissions increases.
- **LyondellBasell's** emissions grew by 3%, mainly due to single digit increases across upstream and downstream categories.

Five-year trends (2019–2023):

- **Bayer's** emissions decreased by 11%, largely due to operational efficiencies.
- **BASF** reduced its footprint by 14%, with overall emissions decreases.
- **Incitec Pivot** stood out with the largest footprint reduction of 22% over the period.
- **Toray** increased its emissions by 4%, limited to operational and upstream Scope 3 emissions as downstream emissions were only disclosed in 2023.

^d The length of historical emissions analysis varies as companies have updated their emissions accounting methods over time. Our goal is to ensure a consistent, like-for-like comparison.

3.4 Projected Trends (to 2030)

Assuming historic trajectories continue:

- **SABIC's** footprint would **increase by 13% by 2030** due to rising upstream Scope 3 emissions, which in the long-term surpasses the reduction in Scope 2 and downstream Scope 3 emissions.
- **Air Liquide's** emission would increase **up to 74%**, driven mainly by upstream inputs.
- **Dow's** emissions would be **71% higher** due to its high growth in downstream Scope 3.
- **LyondellBasell** would increase its footprint by 9%, mainly due to growth in upstream Scope 3 emissions.
- **Bayer's** emissions would potentially decrease by 17% by 2030, with overall reductions.
- **BASF's** footprint would decline by 25%, as a result of significant value-chain emissions reductions.
- **Incitec Pivot** stands out with the largest projected decrease of 33% by 2030, mainly due to key mitigation outcomes in Scope 1 and downstream Scope 3 emissions.
- **Toray's** 16% potential emissions increase would be caused by the raise in upstream Scope 3 emissions.

A summary of historic and projected trends is presented in Table 2:

Table 2: GHG Emissions (in million metric tonnes CO ₂ -equivalent) Trend(s) up to 2030. Source: Planet Tracker.				
Company	Baseline year GHG emissions (MtCO ₂ e)	Total current GHG emissions (MtCO ₂ e)	2030 Extrapolated Emissions	% absolute change from current level
Air Liquide S.A.	52.0	58.7	101.9	74%
BASF SE*	114.0	103.3	77.8	-25%
Bayer AG	13.8	12.2	10.1	-17%
Dow Inc.	102.3	109.0	186.5	71%
Incitec Pivot Ltd.	13.1	10.9	7.3	-33%
LyondellBasell Industries N.V.	118.2	121.8	133.0	9%
Saudi Basic Industries Corp. (SABIC)	127.8	174.9	197.3	13%
Toray Industries, Inc.**	5.7	15.2	17.6	16%
* BASF's baseline emissions represent the sum of its operating (S1+S2) in 2018 of 22.7 MtCO ₂ e of 22.7 MtCO ₂ e and its Scope 3 emissions in 2020 of 91.4 MtCO ₂ e.				
** Toray's baseline year only refer to its operating (S1+S2) emissions in 2013, while total current emissions refer to its operating plus its upstream Scope 3 emissions in 2023; the projected extrapolation covers operating plus upstream Scope 3 emissions by 2030.				

3.5 Net Zero and Interim Targets

Only three companies, **BASF**, **Bayer**, and **Incitec**, have committed to net-zero targets by 2050 or earlier, although with limited Scope 3 ambition. However, definitions vary:

- **Air Liquide** and **LyondellBasell** reference "net-zero" but only include Scope 1 and 2 in their main 2050 target.
- **Dow**, **SABIC**, and **Toray** continue to use the term "net-zero" inconsistently or interchangeably with "carbon neutral," which under SBTi and ISO standards represent materially different levels of ambition.

Notably, stakeholders should pay attention to what scopes companies' targets include and question those that market their climate transition plan as a net-zero ambition, while only covering operating emissions. As highlighted in Table 3, most companies will have critical gaps in their climate transition ambitions. For instance:

- **Incitec Pivot** despite its strong historical decline (–33%) lacks specific Scope 3 targets.
- **Air Liquide**, **Dow**, and **SABIC** also lack Scope 3 mitigation goals.
- **LyondellBasell's** –30% Scope 3 target is the most ambitious, but only aims for carbon neutrality by 2050.
- **BASF's** and **Bayer's** Scope 3 targets are limited to upstream emissions.
- And, **Toray's** mitigation goals only focus on Japan's operating emissions.

*Table 3: GHG Emissions (in million metric tonnes CO₂-equivalent) & Short and Long-term Mitigation Targets.
Source: Planet Tracker.*

Company	Baseline year GHG emissions (MtCO ₂ e)	Total current GHG emissions (MtCO ₂ e)	Short-term Emissions Target (& Coverage)	Long-term Emissions Target
Air Liquide S.A.	52.0	58.7	–33% Scope 1+2 by 2035 (vs 2020); no Scope 3 target	Carbon neutral (i.e., Scope 1+2) by 2050
BASF SE*	114.0	103.3	–25% Scope 1+2 and –15% Scope 3.1 by 2030 (vs 2018 and 2020, respectively)	Net-zero by 2050 (Scopes 1, 2 and Scope 3.1 included in ambition)
Bayer AG	13.8	12.2	–42% Scope 1+2, and –12.3% select upstream Scope 3 by 2029 (vs 2019)	Net-zero by 2050 (across value chain)
Dow Inc.	102.3	109.0	–5 Mt (~4% of total GHG) Scope 1+2 by 2030 (vs 2020); no Scope 3 target	Carbon neutral (Scope 1+2, and undefined Scope 3 emissions) by 2050
Incitec Pivot Ltd.	13.1	10.9	–25% to –42% Scope 1+2 by 2030 (vs 2021); no Scope 3 target	Net-zero by 2050 (across value chain)
LyondellBasell Industries N.V.	118.2	121.8	–42% Scope 1+2 and –30% Scope 3 by 2030 (vs 2020)	Carbon neutral (i.e., Scope 1+2) by 2050
Saudi Basic Industries Corp. (SABIC)	127.8	174.9	–20% Scope 1+2 by 2030 (vs 2018); no Scope 3 target	Carbon neutral (Scope 1+2, and undefined Scope 3 emissions) by 2050
Toray Industries, Inc.**	5.7	15.2	~–30% Scope 1+2 by 2030 (vs 2023 implicit; –42% in Japan vs 2013); no absolute Scope 3 target	Carbon neutral (i.e., Scope 1+2) by 2050

* BASF's baseline emissions represent the sum of its operating (S1+S2) in 2018 of 22.7 MtCO₂e and its Scope 3 emissions in 2020 of 91.4 MtCO₂e.

** Toray's baseline year only refer to its operating (S1+S2) emissions in 2013, while total current emissions refer to its operating plus its upstream Scope 3 emissions in 2023; Also, the extrapolation refers to operating plus upstream Scope 3 emissions by 2030.

3.6 Assessment

- **Leading: LyondellBasell** and **Incitec Pivot** combine high ambition (LYB in the short-term and Incitec Pivot in the long-term), with leading downward emissions trends (Incitec) and clearly defined mitigation actions (LYB).
- **Performing: BASF** and **Bayer** show a relatively ambitious set of mitigation targets, which paired with their downward emissions trends could indicate a leading position; however, several factors detract from it. For instance they need stronger Scope 3 disclosures^e and target integration^f. Also, their historical emissions reduction trend is likely to be temporary, if additional actions are not implemented^g.
- **Lagging: Air Liquide, Dow, SABIC, and Toray** exhibit emissions growth and also lack absolute Scope 3 mitigation targets. Notably, Air Liquide has the highest potential emissions growth by 2030, while Dow has the lowest mitigation ambition, only aiming to reduce around 4% of its total GHG footprint.
- In the next sections we compare the companies on forward looking initiatives and actions in order to determine their **overall climate pathway alignment**.

^e Bayer's "use of sold products" emissions are not included in its downstream footprint.

^f BASF only includes its Scope 3.1. in its targets.

^g Bayer: While its emission are expected to decline by 17% using a 5 years projected trend, when using a 3 year scenarios analysis the outcomes would vary significantly showing a -45%, +3% or +14% potential result (for more details see [Bayer CTA](#)).

BASF: the new Verbund site in China could increase its emissions significantly (for more details see [BASF CTA](#)).

4. Customer and Supplier Engagement

4.1 Overview

- Customer and supplier engagement are central to the decarbonisation of the chemical sector. Scope 3 emissions, which make up the majority of a chemical company's footprint, cannot be meaningfully addressed without influencing upstream procurement practices and downstream product use. This section evaluates how the eight benchmarked companies engage and influence their customers and suppliers.

4.2 Supplier Engagement

- When assessing chemical companies' supplier engagement strategies the main practices that stand out are (1) procurement compliance leveraging, (2) supplier development, and (3) logistics and transportation initiatives. A summary of this review is provided in Table 4.

Table 4: Supplier Engagement Summary. Source: Planet Tracker.

Company	Emissions Coverage Disclosure	Key Actions/Strategies	Emissions Coverage Clarity	Notable Tools/Programs
Air Liquide	~47% of Scope 3 (17% of total) emissions	1. Zero-carbon electricity 2. TCO₂ tool in procurement 3. Clean Fleet initiative	Yes	TCO ₂ tool, Clean Fleet
BASF	Not specified; 100% of Scope 3 upstream emissions implied	1. Supplier Code of Conduct 2. Supplier CO₂ Management Programme and TFS learning partnership	Implied	Product Carbon Footprints (PCFs), TFS Academy
Bayer	Partial: ~39% of procurement expenditure	1. Supplier Code of Conduct 2. EcoVadis & TFS evaluations and corrective action follow-ups	Partial (procurement spent based)	EcoVadis, TFS
Dow	80% of upstream Scope 3 via CDP engagement	1. ESG-embedded procurement 2. Supplier dashboard, data monitoring and incentives for sustainability performance	Yes (limited)	CDP Supply Chain, Scope 3 internal dashboard
Incitec Pivot	Not specified; 100% of Scope 3 upstream implied	1. Supplier-specific emission factors 2. Joint decarbonisation planning 3. Transport decarbonisation partnerships	Implied	Global GHG Data Platform with Scope 3 module, green hydrogen pilots
LyondellBasell	Not specified; Focused on material suppliers	1. EcoVadis risk mapping and PCF data requests 2. SCF for ESG-performing suppliers	No	EcoVadis, PCF data-sharing via TFS, Supply Chain Finance (SCF)
SABIC	35% of procurement spent; 15% of supplier-related Scope 3 emissions	1. Supplier Lifecycle Management, TFS audits 3. Logistics optimisation	Yes (limited)	SLM programme, TFS
Toray	Partial: 90% of procurement value (self-assessed)	1. CSR-based procurement policies and biennial supplier surveys	Partial (procurement spent based)	CSR Surveys, Procurement Policy

4.2.1 Key Observations:

- **Granularity of Data:**

The emissions coverage clarity varies widely. A few companies disclose the upstream Scope 3 emissions their initiatives cover (e.g., Air Liquide, Dow, and SABIC), others provide a partial link via the procurement spent (e.g., Bayer and Toray), while some leave it open to interpretation implying a focus on all material suppliers (e.g., LYB).

- **Procurement Leverage:**

All companies argue they integrate ESG criteria through codes of conduct or procurement policy frameworks. However, companies like Air Liquide, BASF, and Incitec Pivot take it to the next level by using decision-grade tools (i.e., the TCO2 tool and PCFs integration,) that aim to influence procurement outcomes.

- **Supplier Development Programs:**

Similar to the procurement approach all companies argue they support their suppliers with sustainability educational programmes (mainly through TfS). However, a couple take it beyond offering monetary incentives (e.g., LYB's Supply Chain Finance program and Dow's sustainability awards) aiming to align financial levers with ESG performance.

- **Transport and Logistics Emissions Ambitions:**

Only a few players (Air Liquide, Incitec Pivot, SABIC) address transport-specific emissions. However their contribution to Scope 3 in this sector is not significant (e.g., 2% of Scope 3 emissions for Air Liquide).

4.3 Customer Engagement

Customer engagement strategies seem to be focusing on enabling downstream decarbonisation through (1) product-level emissions management, (2) technical support, and (3) low-carbon innovation. While the companies do not disclose directly the emissions their initiatives are linked to, implicitly most of them refer to Scope 3 Categories 11 (“Use of Sold Products”) and 13 (“Downstream Leased Assets”), as well as Category 12 (“End-of-Life Treatment of Sold Products”). A summary of these initiatives is presented in Table 5.

Table 5: Customer Engagement Summary. Source: Planet Tracker

Company	Emissions Linkage	Key Actions/Strategies	Targeted Impact/Metrics	Notable Tools/Programs
Air Liquide	Yes: Limited - product level	1. Decarbonisation targets for top customers 2. Industrial gases for battery value chains 3. Technology provision (e.g. ATR)	75% of top 50 customers committed to net-zero by 2025; 100% by 2050	ATR Tech, Bécancour Platform, customer Net Zero tracking
BASF	Yes: Limited - product level	1. Product Carbon Footprint (PCF) analysis 2. Circular economy collaborations 3. Portfolio steering (TripleS)	>50% of sales from Sustainable-Future Solutions by 2030 (2023: 41%)	TripleS, PCFs, Ellen MacArthur Foundation, Global Battery Alliance
Bayer	Yes: Partially quantified	1. Decarbonisation target for customer in-field emissions 2. Regionalised initiatives 3. Carbon farming programs	30% reduction in customer emissions per kilogram of crop produced in key markets by 2030	PRO Carbono (US), Brazil Carbon Program, India Rice Initiative
Dow	Indirect: qualitative description	1. Low-carbon chemical products 2. Industry-wide efficiency solutions 3. Circular feedstocks	GHG reductions on multiple product lines / not quantified	CEcoSense™, ENDURANCE™, bio-PG line
Incitec Pivot	Indirect: qualitative description	1. Yield incentives for low-carbon solutions 2. Technology trials in mining 3. Enhanced Efficiency Fertilisers (EEFs)	Yield gains and emission cuts in pilot markets stated / not quantified	eMPU, EEF trials, fertiliser adoption incentives
LyondellBasell Industries	Indirect: qualitative description	1. Customer & Commercial Excellence group to integrate customer needs 2. Life Cycle Assessment (LCA) 3. Circular feedstock integration	Not disclosed	Customer & Commercial Excellence unit, LCA-based design
SABIC	Indirect: qualitative description	2. Co-development of sustainable packaging solutions 3. Circular & renewable polymers (TRUCIRCLE™)	Deliver certified circular products at commercial scale / not quantified	TRUCIRCLE™, partnerships with Tesco, Kingsmill, IRPLAST
Toray	Indirect: qualitative description	2. CSR-focused logistics policies 3. SI products aligned with GHG reduction and adaptation	Enhance sustainability in downstream operations / not quantified	Basic Distribution Policy, SI Vision

4.3.1 Key Observations:

- **Strategic Emissions Management:**

Air Liquide and Bayer are most explicit in setting customer-facing emissions targets (e.g., in-field emissions or customer net-zero goals)^h. Another notable mention would be BASF, aiming for >50% of sales from Sustainable-Future Solutions by 2030. This makes their strategies easier to measurable and assess in terms of Scope 3 alignment.

- **Sectoral Customer Engagement:**

All companies seem to be offering products designed to reduce customers' GHG impacts, however their approach would vary based on their targeted market. For instance, Incitec Pivot and Bayer pursue field-level changes in agriculture, tailoring products and guidance to farmers' emission profiles. Others (e.g., Dow, LYB, and SABIC) focus more on embedding circular design into their product development and increase customer partnerships.

4.4 Assessment

4.4.1 Supplier Engagement Ranking – Table 6

Table 6: Supplier Engagement Ranking Summary. Source: Planet Tracker.		
Rank	Company	Rationale
1	Air Liquide	Strongest across all dimensions: clear data disclosure, procurement tools (TCO ₂), logistics inclusion.
2	LyondellBasell	Moderate data clarity but advanced supplier financing and financial incentives.
3	Dow	High data clarity, procurement influence through PCFs, and supplier incentives (awards).
4	BASF	Strong procurement integration, but no mention of logistics or incentive-based supplier support.
5	SABIC	Strong data granularity and logistics reporting, but weaker on procurement and supplier incentives.
6	Incitec Pivot	Advanced procurement tools and logistics coverage, but weak in supplier incentive programs.
7	Bayer	Moderate engagement (spend-based data), basic supplier support through TfS.
8	Toray	Least specific; provides only general supplier ESG engagement references.

^h Notably, this engagement contradicts Bayer's lack of Scope 3 "use of sold products" emissions disclosures, under the rationale that is deemed not significant by the company.

4.4.2 Customer Engagement Ranking – Table 7

Table 7: Customer Engagement Ranking Summary. Source: Planet Tracker.		
Rank	Company	Rationale
1	Bayer	Strongest customer-aligned targets and highly sector-specific (agriculture), enabling real Scope 3 impact.
2	Air Liquide	Clear customer emissions targets and net-zero enablement, though less sector-specific than Bayer.
3	BASF	Strategic commitment (>50% of sales from "Sustainable Solutions") but sectoral approach less tailored.
4	Incitec Pivot	Strong sectoral targeting in agriculture, but lacks measurable customer emissions KPIs.
5	Dow	Focused on circular design and customer partnerships, but no specific customer emission targets.
6	LyondellBasell	Emphasis on design and recyclability, but lacks clarity on customer-facing impact metrics.
7	SABIC	Innovation in product circularity, but low transparency on emissions impact or tailored strategies.
8	Toray	No specific disclosures on measurable customer emissions outcomes or sectoral aligned engagement.

4.4.3 Value-chain Engagement Assessment

- **Leading: Air Liquide and Bayer**, both demonstrate a strong engagement across suppliers and customers, combining emissions data with decision procurement tools, sector-specific programs, and quantified emissions targets.
- **Performing: BASF, Dow, LYB, and Incitec Pivot** show strong engagement in either supplier or customer domains (but not consistently both). As an example, BASF and Dow focus on procurement innovation and circularity, while LYB and Incitec Pivot advocate for financial incentives or deep sectoral ties without a full strategic alignment.
- **Lagging: SABIC and Toray** have limited transparency and few quantified targets across both supplier and customer engagement dimensions; i.e., current actions appear foundational rather than transformative.

4.5 Key Implications for Scope 3 Strategy

Robust value chain engagement is a prerequisite for credible Scope 3 mitigation. Leaders are distinguished by their ability to:

- Quantify emissions impact from customer and supplier actions.
- Align procurement incentives with climate goals.
- Provide verifiable upstream and downstream decarbonisation solutions.

Investors should press companies to publish the share of Scope 3 emissions addressed through engagement strategies and provide verified reductions where feasible.

5. Governance and Climate Aligned Compensation

5.1 Overview

Effective governance structures and incentive frameworks are essential for translating climate ambition into action. This section evaluates whether boards and executive teams are accountable for climate performance, and whether their compensation systems incentivise the delivery of net-zero strategies.

As presented in Table 8, we assess:

- Board-level sustainability oversight.
- Integration of climate KPIs into short- and long-term incentives.
- Transparency and accountability mechanisms.

Table 8: Board Oversight and Executive Compensation. Source: Planet Tracker.

Company	Board-Level Sustainability Oversight	Executive Compensation – Climate Linkage	Materiality & Transparency of Climate KPIs
Air Liquide	Environment and Society Committee reports directly to the Board; annual joint reviews with Audit Committee; chaired by sustainability expert.	CEO pay includes ~3.5% STI and ~4% LTI linked to sustainability and climate goals.	Moderate – KPIs are integrated but represent a small share of total pay; clearly disclosed.
BASF	Supervisory Board oversees strategy but lacks a dedicated sustainability committee. Cross-functional board responsibility model.	Climate metrics included in LTI ("Strategic Target 3" – 25% CO ₂ reduction by 2030); unclear impact due to payout caps.	Limited – climate targets exist, but their impact on actual compensation payouts is opaque.
Bayer	ESG Committee within Supervisory Board (since 2022); Board Chair also acts as Chief Sustainability Officer; ESG integrated across divisions.	GHG emissions reduction targets directly embedded in long-term incentives (2024–2027) with a 20% potential payout; STI includes strategic execution but ESG influence is unclear.	High – transparent integration in LTI; scope of STI ESG component less clear.
Dow	Board's Environment, Health, Safety & Technology Committee provides sustainability oversight; Board links capital allocation with GHG strategies.	20% of LTI performance metrics tied to Scope 1 & 2 intensity reduction; STI includes ESG factor via WBCSD's "Sustainability Quotient".	Moderate – clear LTI weighting, but caps may reduce effectiveness; good use of industry frameworks.
Incitec Pivot	Dedicated Sustainability Committee supports Board; Executive Leadership Team (ELT) members hold climate responsibilities in divisions.	10% of STI and 10% of LTI tied to sustainability, including emissions reduction and Scope 3 management.	High – specific KPIs tied to Paris-aligned targets; linked across both STI and LTI.
LyondellBasell	Board-level Health, Safety, Environmental, and Sustainability (HSE&S) Committee oversees ESG progress; CEO holds ESG oversight role.	30% of STI influenced by ESG metrics (10% for sustainability); no climate-linked LTI disclosed.	Limited – ESG weighting exists in STI but lacks depth or long-term alignment mechanisms.
SABIC	Board Risk and Sustainability Committee oversees policies; executive team integrates ESG into core business strategy.	Sustainability KPIs integrated into a new balanced scorecard; includes GHG metrics but without disclosed weightings.	Low – incorporation acknowledged, but limited transparency on weighting and financial impact.
Toray	Sustainability overseen by Board and Management Strategy Committee; quarterly updates; includes independent directors.	Executives receive performance-linked pay tied to broader innovation targets; engineering heads rewarded for GHG and energy KPIs; no clear climate link in top executive compensation.	Low-to-Moderate – only operational teams have measurable climate KPIs; top-level climate-linked pay remains vague.

5.2 Assessment

5.2.1 Governance Structure

- **Leading:** Air Liquide, Bayer, Incitec Pivot have defined, specialist committees that report to the Board.
- **Performing:** Dow, LyondellBasell, SABIC have structured oversight mechanisms but less transparent decision-making.
- **Lagging:** BASF and Toray have limited board-level ESG integration or unclear mandate.

5.2.2 Climate-Linked Executive Compensationⁱ

- **Leading:** Dow and Incitec Pivot have clearly defined, material climate KPIs in both STI and LTI.
- **Performing:** Air Liquide, Bayer and BASF present embedded metrics but with unclear impact or limited (i.e., not material) scope.
- **Lagging:** LyondellBasell, SABIC, and Toray have minimal transparency or coverage of transition-linked compensation.

5.2.3 Overall Governance and Compensation Assessment

- **Leading:** Air Liquide, Bayer, Incitec Pivot and Dow demonstrate strong board-level ESG governance and/or robust climate-linked compensation structures. Air Liquide, Bayer, and Incitec Pivot lead on governance, while Dow and Incitec Pivot are top-tier in sustainability linked remuneration.
- **Performing:** BASF, LyondellBasell, and SABIC show decent progress but with gaps; either structured governance without full transparency (LYB, SABIC), or lack of a dedicated sustainability committee entirely (BASF).
- **Lagging:** Toray demonstrates limited evidence of board-level ESG integration and lacks meaningful linkage between executive incentives and climate performance (rather this is tied to the sales growth of sustainable products).

5.3 Recommendations for Best Practice

Area	Recommended Action	Good Practice Example(s)
Dedicated ESG Committees	Formalise ESG oversight at board level with domain expertise	Air Liquide, Bayer
Material Climate KPIs in LTI	Allocate ≥10% of LTI to quantified, time-bound climate targets aligned with Paris goals	Dow, Incitec Pivot
Transparency in Weightings	Publicly disclose STI/LTI climate metric weightings and payout results	Air Liquide, Incitec Pivot
Link to Operational Strategy	Align GHG and climate metrics to investment decisions, capital allocation, and risk assessments	Toray

ⁱ Previous work in this space includes Planet Tracker's "PLASTICS EXECUTIVE COMPENSATION: A report card for plastic related companies" <https://planet-tracker.org/wp-content/uploads/2023/09/Plastic-Compensation.pdf>

6. Policy Advocacy and Industry Association Alignment

6.1 Overview

A credible climate strategy requires not only internal decarbonisation but also consistent external advocacy. Misalignment between corporate climate goals and the lobbying activities of affiliated industry associations could lead to reputational, regulatory, and financial risks. This section evaluates the alignment between stated company commitments and their industry advocacy, as well as their transparency in identifying and addressing misalignments.

6.2 Advocacy Positions and Public Statements

Table 9: Policy Engagement & Trade Associations Memberships Summary. Source: Planet Tracker. ^j				
Company	Climate Advocacy	Disclosure & Transparency	Action on Misalignment	Key Associations of Concern (number)
Air Liquide	Supports EU Fit for 55 & clean energy tax credits but advocates for less regulation (e.g., Antwerp Declaration)	Disclosed up to 5 misalignments back in 2023	Exited AFPM; remains in misaligned groups (e.g., US Chamber, MEDEF)	US Chamber of Commerce, MEDEF, NAM (3)
BASF	Endorses EU climate neutrality but calls for Green Deal “reset” and free EU ETS allocations	No misalignments disclosed	No known exits; maintains leadership roles in controversial associations	VCI, BDI, Cefic (3)
Bayer	Supports Paris Agreement, phaseout of coal, and EU ETS; cautious on carbon removals	Acknowledges and discloses misalignments	Seeks to reform from within rather than exit	VCI, BDI, US Chamber of Commerce (3)
Dow	Supports carbon pricing and net-zero goals but resists stringent US GHG rules (e.g., EPA)	No formal misalignment review published	Retains memberships; claims internal advocacy to shift positions	AFPM, NAM, VCI, US Chamber, Business Roundtable (5)
Incitec Pivot	Supports Australian reforms with caveats (e.g., slower baselines, offset burden concerns)	Reviewed 27 associations; disclosed 10 misaligned or partially aligned	No action on undisclosed or misaligned groups like CME and MCA	Minerals Council of Australia, Business Council of Australia, CME (3)
LyondellBasell	Publicly backs climate action; vague on regulatory details	Disclosed memberships; weak on alignment analysis	Only notes misalignment with AFPM; maintains leadership roles in others	AFPM, NAM, ACC, Cefic (4)
SABIC	Vague on EU policy positions; supports Saudi efficiency measures	Published association list; lacks stance disclosures	Holds board seat in Cefic but doesn't comment on alignment	Cefic (1)
Toray	Supports energy transition in Japan; lacks specificity on regulations	No misalignment analysis shared	Maintains ties with historically climate policy obstructive groups	Keidanren, JCFA, JACI (3)

^j Misaligned trade associations are those found to be obstructive or directly against an ambitious climate transition in line with Paris Agreement objectives

6.2.1 Climate Advocacy

Most companies project supportive public messaging, but actual engagement varies, as shown above in Table 9:

- **Leaders in policy support** have a strong climate language, and show some measurable support (e.g., Air Liquide and Bayer)
- **A mixed/muted stance** supports top-line goals but largely resists implementation mechanisms (e.g., BASF, Dow, and LyondellBasell)
- **An ambiguous or non-transparent** approach shows a limited or unclear advocacy stance (e.g., SABIC and Toray)

6.2.2 Association Accountability (high variability):

- **Action-oriented: Air Liquide** and **Bayer** have shown some willingness to influence or exit groups, though both still maintain ties to misaligned^k associations.
- **Modest transparency: Incitec Pivot** openly assess alignment, disclosing both affiliations and misalignments, but follow-up actions are unclear. Meanwhile, **BASF**, **SABIC**, and **LyondellBasell** list memberships but do not disclose their stance.
- **Undisclosed: Dow** and **Toray** have no formal misalignment review published.

6.3 Policy and Industry Alignment Assessment

- **Leading: Air Liquide** and **Bayer** combine strong, proactive climate advocacy with measurable actions on association accountability (e.g., reviewing or exiting misaligned groups).
- **Performers: Incitec Pivot, BASF**, and **LyondellBasell** show partial alignment. Incitec Pivot demonstrates transparency on associations but lacks decisive follow-up; BASF and LyondellBasell communicate support for climate goals but fall short on implementation advocacy and disclosure.
- **Laggards: Dow, SABIC**, and **Toray** either maintain unclear or inconsistent public stances (SABIC, Toray) or provide no transparency on association alignment or advocacy misalignment reviews (Dow, Toray), signalling a disconnect between stated ambition and action.

6.4 Recommendations for Best Practice:

Best Practice
Disclose all industry memberships
Conduct annual alignment assessments
Disengage or disclose reform plans for obstructive associations

^k Misaligned trade associations are those found to be obstructive or directly against an ambitious climate transition in line with Paris Agreement objectives

7. Climate Risk and Opportunity Assessment

7.1 Overview

Climate-related risks and opportunities are becoming increasingly material for the chemical sector due to tightening regulations, shifting market preferences, and the growing impacts of physical climate change. This section assesses the transition risk exposure, physical risk disclosure, and strategic approach to low-carbon opportunities across the eight companies analysed.

7.2 Transition Risk Exposure

Table 10 outlines the estimated financial impact difference for each company based on whether they exceed, meet, or fall short of achieving their stated climate transition goals. This analysis applies region-specific carbon pricing projections from the **Inevitable Policy Response (IPR)** through to 2030.

While the theoretical cost increases of failing to close the emissions gap could reach up to **USD 14 billion by 2030**, a more realistic estimate assumes companies will bear:

- **~90%** of the cost associated with **operational (Scope 1 and 2)** emissions (due to limited pass-through capability),
- **~10%** of the cost related to **value chain (Scope 3)** emissions, where costs are largely passed downstream or upstream^l.

Table 10: Transition Risk Exposure Summary. Source: Planet Tracker

Company	Emission Gap Cost (USD million) Trends vs Targets	Avg. Carbon Price (USD/tCO ₂ e)	Expected Gap Cost – Operating Emissions (90%)	Expected Gap Cost – Value Chain (10%)	Total Pro-Rated Gap Cost (USD million) ^m
Air Liquide	2,742	54	1,462	112	1,574
BASF	-977	59	-178	-78	-256
Bayer	-40	56	-2	-4	-6
Dow	4,334	56	-232	459	227
Incitec Pivot	-268	63	-62	-20	-82
LyondellBasell	3,355	68	426	288	714
SABIC	4,498	53	124	436	560
TOTAL	13,644	58	1,538	1,193	2,731

^l See Air Liquide example in the next section 7.3 Key Observations.

^m Please note that companies with a negative gap cost will not make a profit. Rather, this figure reflects a mathematical outcome of exceeding their targets and, as a result, facing lower potential CO₂e tax payments.

7.3 Key Observations:

- **Air Liquide** stated that most of its customer contracts include provisions allowing it to pass on increased carbon pricing costs, limiting its net exposure to approximately **10%** of total projected costs. However, the longevity and enforceability of these pass-through provisions could most likely vary over time.
- Only **three companies** disclose internal carbon pricing assumptions used in investment evaluations:
 - **Air Liquide: USD 54 to 108** per tCO₂eⁿ
 - **Bayer: USD 108** per tCO₂e^o
 - **Incitec Pivot: USD 91** per tCO₂e
- Other companies, i.e., **BASF, Dow, LyondellBasell, and SABIC**, refer to assumed policy-related carbon costs in their risk disclosures, but do seem to integrate internal carbon prices into investment planning (see Table 11).
- With the exception of **Toray** (which only began full Scope 3 disclosure in 2024, and thus, cannot be comparatively assessed here), all companies appear to underestimate their exposure to climate policy risk.
- Collectively, the eight companies disclosed close to **USD 2 billion** in potential carbon-related cost increases (see Table 11: Company Estimated Carbon Cost by 2030).
- By contrast, **Planet Tracker estimates** the actual exposure at **USD 11.8 billion**.^p
- Additionally, the **cost of missing stated climate targets** is estimated at **USD 2.7 billion**, nearly 50% higher than disclosed risk figures by the companies (see Table 10: Total Pro-Rated Gap Costs - USD million).

n Average exchange rate in 2023: 1EUR =1.0824 USD.

o Average exchange rate in 2023: 1EUR =1.0824 USD.

p Per Planet Tracker's pro-rated calculations (90% operating costs, 10% value-chain costs) presented in Table 11.

Table 11: Company Disclosed Transition Risk Exposure^q. Source: Planet Tracker.

Company	Company Estimated Carbon Cost (by 2030)	Assumed/Internally used Carbon Price(s)	Planet Tracker Calculated Costs based on historical emissions trends (USD million) (by 2030)	Planet Tracker's pro-rated calculations (90% operating costs, 10% value-chain costs)
Air Liquide	Not Disclosed	USD 54 to USD 108 per tCO ₂ e	5,254	2,963
BASF	up to USD 339 million (due to EU ETS allowance loss)	USD 70 to USD 135 per tCO ₂ e	5,283	1,262
Bayer	up to USD 87 million (by 2024)	EU ETS compliance	615	164
Dow	USD 110 million (Canadian Tax)	up to USD 100 per tCO ₂ e	10,206	2,169
Incitec Pivot	Not Disclosed	USD 91 per tCO ₂ e	497	109
LyondellBasell	up to USD 325 million (EU ETS shortfall)	USD 87 to USD 162 per tCO ₂ e	8,559	1,935
SABIC	USD 106 million (incl. China ETS & EU ETS)	USD 107 per tCO ₂ e	10,975	3,228
Toray	up to USD 1 billion (carbon tax + Renewable Energy costs)	1.5°C scenario cost (unspecified)	NA	NA

7.4 Scenario and Physical Risk Disclosure

Table 12 summarises each company's use of climate scenarios and their disclosure of physical risks in alignment with **TCFD** guidelines. While most companies reference scenario analysis, none of them provide overall **quantitative estimates** of physical climate risks. Disclosures remain largely qualitative or quantitatively anecdotal.

^q At an average exchange rate of 1 EUR = 1.0824 USD in 2023; At an exchange rate of 1 SAR = 0.2660 USD at the end of 2022; At an exchange rate of 1 JPY = 0.007091 USD at the end of 2023.

Table 12: Scenario & Physical Risks High-Level Summary. Source: Planet Tracker.

Company	Scenario Analysis	Physical Risks Addressed
Air Liquide	SSP2-4.5, SSP5-8.5	Acute/chronic (in design & ops)
BASF	EU ETS, internal pathways	Rhine river site risk, resilience investments
Bayer	IPCC AR6 "Green Road" and "Rocky Road"	Water stress/extreme weather
Dow	RCP 2.6, 4.5, 8.5	Water scarcity, site-level mitigation
Incitec Pivot	Four IPCC-aligned scenarios	Cyclones, flooding; EBIT impact quantified
LyondellBasell	Regulatory/transition focused (EU ETS emphasis)	Generic physical risks (limited disclosure)
SABIC	Consultancy-led coastal risks (sea level rise)	Flooding risks at key operational sites
Toray	TCFD-aligned 1.5°C, 2°C, 4°C scenarios	Supply chain disruption, heat stress, disasters

7.5 Climate-related Opportunities and Strategic Response

All eight companies acknowledge the commercial potential of the low-carbon transition. However, most provide limited detail on the **scale, timing, and impact** of these opportunities. Notably they lack quantified investment commitments, time-bound milestones, or emissions-reduction contributions. A summary of identified opportunity areas by company is presented in Table 13:

Table 13: Climate-related Opportunities by Company. Source: Planet Tracker.

Company	Strategic Opportunity Area(s)	Notable Strategic Response	Quantification/Targets Mentioned
Air Liquide	Renewable hydrogen, biogenic CO ₂ , nitrous oxide abatement	Exploring industrial-scale deployment of renewable hydrogen and downstream N ₂ O abatement applications	No disclosed targets or investment figures
BASF	Battery materials, electromobility, circular and low-carbon product innovation	R&D aligned with future mobility and circularity; product pipeline shift toward low-carbon materials	No explicit capex allocation or EBITDA projection
Bayer	Climate-smart agriculture, on-farm emission reductions, climate resilience	Developing crop inputs designed to reduce GHGs and improve resilience	No disclosed targets or commercial ramp-up timeline
Dow	Circular chemistry, net-zero production technologies, low-carbon product portfolio	Targets USD 3 billion EBITDA from low-carbon products by 2030; investing in advanced recycling and CCUS	Targeted EBITDA (2030) provided
Incitec Pivot	Green hydrogen, low-emission fertilizers, diversification into minerals/construction	Piloting green ammonia, roadening market exposure via low-carbon fertilizer platforms	No specific targets or timelines disclosed
LyondellBasell	Energy efficiency, renewable energy, low-carbon fuels, CCS	Active investment in renewable PPAs and CCS pilots	No quantified outcome yet reported
SABIC	Circular plastics (TRUCIRCLE™), renewable energy generation at selected manufacturing sites	Expanding TRUCIRCLE™ product line; installing renewables at multiple facilities	No capex/margin metrics disclosed
Toray	Advanced materials for EVs, wind power, desalination, biopolymers	Strategic portfolio shift toward clean-tech applications through "Sustainability Innovation" platform	Qualitative narrative; no financial metrics provided

7.6 Assessment:

Leading:

- **Air Liquide** uses a sensible internal carbon pricing, scenario-aligned disclosures, and leads on hydrogen opportunities.

Performing:

- **BASF** has a low pro-rated risk exposure, well-developed internal carbon pricing, circular and battery innovation noted, but lacks capex/opportunity quantification.
- **Bayer** uses internal carbon pricing and IPCC scenarios and has a strong Agri focus but lacks commercial details.
- **Dow** presents a quantified low-carbon EBITDA target, broad scenario use, but underestimates transition risk.
- **Incitec Pivot** quantifies some physical risk impacts, pursues low-carbon products but lacks concrete targets.
- **LyondellBasell** is highly active in energy and CCS investments, but has high risk exposure and limited disclosure depth.
- **SABIC** bets on expanding circular products and renewable energy but ultimately lacks financial or emissions metrics.

Lagging:

- **Toray** presents new Scope 3 disclosure with an unclear risk integration and no quantified opportunity strategy.

7.7 Recommendations for Best Practice:

Area	Recommended Action	Good Practice Example(s)
Internal carbon pricing in decision-making	Integrate and disclose internal carbon pricing in investment and risk planning.	Air Liquide, Bayer, and Incitec Pivot
Transition risk exposure	Align disclosed carbon cost exposures with emission trends and pricing scenarios.	BASF
Physical risk quantification	Quantify physical climate risks at the asset or EBIT level; go beyond generic narratives.	BASF, SABIC
Climate-related opportunities	Disclose expected revenue, EBIT, or emissions impact from low-carbon initiatives.	Dow
Commercialisation timelines or milestones	Provide time-bound roadmaps for climate-aligned product deployment.	Air Liquide, BASF
Scope 3 integration	Account for value chain exposure and test assumptions around pass-through feasibility.	Air Liquide

8. Capital Allocation and Strategic Investments

8.1 Overview

Alignment between capital investment and climate strategy is a critical indicator of a company's transition credibility. This section evaluates the scale, direction, and transparency of capital investments made by the eight chemical companies to support decarbonisation, resilience, and the development of low-carbon products and infrastructure.

8.2 Climate-Aligned Capital Deployment

This section compares in Table 14 the climate-related capital investment plans across the eight chemical companies assessed, focusing on:

- **Annualised sustainability CAPEX** (in USD over the declared period)
- **Sustainability CAPEX as % of total CAPEX**
- **Strategic focus of investment:** mitigation vs new sustainable capacity
- **Key climate technologies and infrastructure funded**

Notably, a higher % of CAPEX toward sustainability may not always imply or lead to a high decarbonisation impact if directed at *new low-carbon capacity* rather than *mitigating existing emissions sources*.

Table 14: Sustainability-linked Capital Allocation Summary. Source: Planet Tracker.

Company	Sustainability CAPEX (Annual Avg.)	% of Total 2023 CAPEX	Investment Period	Climate Focus
Air Liquide	USD 1.21B	33%	2020–2035	Low-carbon H ₂ , O ₂ , CCUS; industrial retrofits
BASF	USD 433M	8%	2023–2027	Electrified crackers, battery value chain
Bayer	USD 57M	2%	2020–2030	Facility retrofits, low-carbon operations
Dow	USD 1.06B	45%	2023–2030	New net-zero cracker; circular innovation
Incitec Pivot	USD 27M	11%	2022–2025	N ₂ O abatement, green ammonia, CCS trials
LyondellBasell	USD 134M	9%	2023–2030	Circular economy, RE procurement
SABIC	USD 438M	16%	2022–2030	Energy efficiency, circular plastics
Toray	USD 395M	37%	2023–2025	Low-carbon R&D, biopolymers, resilience

8.3 Strategic Investment Themes

- High-Intensity Deployers: Air Liquide and Dow lead on absolute and relative climate CAPEX, but with differing strategies: Air Liquide is retrofitting industrial assets and betting on hydrogen hubs while Dow is building new net zero capacity.
- R&D-Heavy Transitioners: Toray and SABIC channel capital into innovation and circularity aiming for forward-looking product resilience.
- Targeted Abatement Strategies: Incitec Pivot and Bayer allocate relatively smaller sums, but with clearer links to mitigation (e.g., N₂O, crop chemicals).

Going further a summary of key strategic actions enabled by these sustainability linked investments is presented in Table 15.

Table 15: Key Strategic Actions Enabled by Sustainability linked Investment. Source: Planet Tracker	
Company	Key Climate & Resilience Actions
Air Liquide	CO ₂ pricing in project evaluation; large-scale investment in hydrogen; biogenic CO ₂ roadmap; green bond financing of hydrogen, CCUS, O ₂
BASF	Electrified steam crackers; large-scale battery CAM expansion; climate-resilient infrastructure (Rhine); battery recycling R&D
Bayer	Facility retrofits; EV fleet rollout; climate-neutral production processes; optimised energy management systems
Dow	Net-zero cracker; 25-site GHG reduction roadmap; circular chemistry platforms; process water recycling in water-scarce areas
Incitec Pivot	N ₂ O abatement (Moranbah); green ammonia trials; EEf scale-up; CCS/green hydrogen supply chain collaboration
LyondellBasell	Emissions reduction tech deployment; renewable energy infrastructure; low-carbon tech (CCS, CCU); plastic recycling innovations
SABIC	Site electrification; steam-trap systems; circular economy development (TRUCIRCLE™); renewable strategy
Toray	EV, hydrogen, and desalination tech development; biopolymer R&D; carbon fibre gas separation; CO ₂ recycling; seismic & flood resilience

8.4 Assessment

Many companies mix capex for mitigation and expansion, making it difficult to assess real transition impact. Greater transparency in taxonomy alignment, SBTi-linked financing, and return on decarbonisation would improve this assessment. Give the current data the benchmark would be as follows:

- **Leading:** **Air Liquide**, **Dow**, and **LyondellBasell** present large-scale and/or high-impact investments with clear decarbonisation and circular economy linkages. Largely, they aim for a **strategic alignment** with net-zero infrastructure and industrial abatement.
- **Performing:** **BASF**, **Incitec Pivot**, **SABIC**, and **Toray** show moderate to high sustainable capital flows but have a partial gap between sustainability investment and measurable decarbonisation outcomes.
- **Lagging:** **Bayer** presents modest investments and largely at a project-level, without a credible pathway or volume to meet corporate-wide decarbonisation needs.

8.5 Recommendations for Best Practice:

Area	Recommended Action	Examples
Capex Climate Attribution	Disclose % of annual capex directly aligned to climate or sustainability outcomes	LyondellBasell
Carbon Pricing Integration	Embed shadow prices or abatement cost curves into project IRRs and investment criteria	Air Liquide
Sustainable Innovation-Capex Linkage	Map capital investments directly to climate-aligned product innovation and transition technologies	Toray
Transition vs. Growth Capex Clarity	Distinguish between capital for abatement/retrofit vs. expansion of low-carbon capacity	Dow
Taxonomy or SBTi Alignment	Disclose % of capital aligned to EU Taxonomy, ISSB standards, or SBTi-approved pathways	BASF (EU Taxonomy)
Outcome-Based Reporting	Quantify expected GHG reductions or mitigation benefits per USD invested	Incitec Pivot (EEF, N ₂ O trials)

9. Future Outlook

This section highlights key **emerging trends** identified by Planet Tracker over the past year while conducting the climate transition analysis of the eight chemical companies reviewed in this paper. These developments signal where regulatory, technological, and financial pressures are converging. The outlook focuses on five areas likely to shape competitive dynamics and investor expectations through the end of the decade.

A. Technology Inflection Points

- Electrified crackers, CCUS, and renewable hydrogen are approaching **commercial inflection points**. Cost declines and supportive policy (e.g., IRA, EU Green Deal) will drive **broader capital deployment post-2027**.
- Companies like **BASF**, **Dow**, and **Air Liquide** stand to benefit if they maintain technological leadership and speed to scale.

B. Policy Tightening

- The EU's Carbon Border Adjustment Mechanism (CBAM) is a bellwether. Other jurisdictions are likely to introduce similar frameworks, raising exposure for high-intensity exporters.

C. Circular Economy Pressures

- Emerging regulation (e.g., **plastic taxes, recycled content quotas, EPR**) will challenge polymer-heavy models (e.g., **Dow, SABIC, LyondellBasell**) unless they scale **recycling innovation and feedstock diversification**.
- Early movers into closed-loop systems and circular product portfolios would be well positioned to capture regulatory and customer preference upside.

D. Capital Market Scrutiny

- Investor coalitions (e.g., CA100+, IIGCC) are intensifying expectations on lobbying transparency, emissions targets, and climate-linked remuneration. Access to capital might increasingly depend on credible transition plans.

E. Industry Consolidation

- Rising carbon costs may prompt M&A activity or plant closures. Transition leaders could benefit through asset acquisitions and market share gains.

Conclusion and Call to Action

1. Overview

The decade to 2030 will be fundamental in determining the long-term competitiveness and climate resilience of the global chemical sector. While all eight companies analysed in this paper acknowledge the need for transition, their responses vary widely in scope, pace, and strategic coherence.

Leaders such as **LyondellBasell** and **Incitec Pivot** demonstrate credible alignment with a 1.5°C scenario, underpinned by measurable Scope 3 engagement, targeted investments, and integrated governance. In contrast, companies such as **Bayer**, **Dow**, and **Toray** present a mixed picture. While showcasing innovation in specific areas, on average they are lagging on Scope 3 disclosure, emissions trajectories, and policy alignment.

Transition risk for financial institutions is increasingly tangible: carbon pricing regimes, customer preferences, and climate regulation will challenge business models with high emissions exposure and low adaptability. Meanwhile, firms that transparently quantify their risks, align capex with net-zero outcomes, and leverage innovation to capture low-carbon opportunities are positioned to gain competitive advantage and attract capital.

This creates both a **strategic imperative and a fiduciary responsibility** for investors to actively shape the transition trajectory of these companies.

2. Investor Call to Action

To safeguard long-term value and accelerate real-economy decarbonisation, investors in the chemical sector should:

- A. Engage with intent:** Demand science-based targets with interim milestones, full Scope 3 disclosure, and credible alignment of executive remuneration with climate goals.
- B. Push for transition-aligned capital allocation:** Press companies to disclose the share of capex directed to net-zero-aligned technologies and products – particularly in high-emission areas like plastics, fertilisers, and industrial gases.
- C. Apply differentiated capital strategies:**
 - **Underweight** or divest from firms lacking credible transition plans or aligned policy advocacy.
 - **Overweight** leaders with robust emissions strategies, innovation pipelines, and green capex integration – signalling long-term resilience and upside.
- D. Use voting and stewardship influence:** Align proxy voting policies with climate benchmarks (e.g. CA100+, IIGCC), and hold boards accountable for policy misalignment and delayed action.
- E. Support system-level enablers:** Advocate for clearer climate regulation, high-integrity carbon markets, and standardised disclosure frameworks (ISSB, ESRS) that reduce ambiguity and enable comparability.

In conclusion, the chemical sector's transition is an investment imperative. By leveraging stewardship, capital allocation, and strategic engagement, investors can play a decisive role in scaling decarbonisation while preserving long-term value.

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Planet Tracker is an award-winning non-profit financial think tank aligning capital markets with planetary boundaries. Created with the vision of a financial system that is fully aligned with a net-zero, resilient, nature positive and just economy well before 2050, Planet Tracker generates breakthrough analytics that reveal both the role of capital markets in the degradation of our ecosystem and show the opportunities of transitioning to a zero-carbon, nature positive economy.

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