



## Overall Assessment

**TORAY is most likely aligned with a 2°C warming scenario by 2030.**

The company continues to target carbon neutrality by 2050, and its operational emissions (Scopes 1 and 2) fell 6.3% year-on-year in FY2024, with GHG intensity per unit of revenue now 42.8% below FY2013 levels. However, these gains are concentrated in the company's own operations, which represent only about 22% of its total footprint. No absolute Scope 3 reduction target has been publicly disclosed. Supplier engagement has expanded, with initial Category 1 (Purchased Goods and Services emissions) dialogues underway and 85.5% of suppliers agreeing to CSR Procurement Guidelines, yet these measures still lack enforceable quantitative emission reduction requirements. Governance has been restructured with a new Corporate Sustainability Strategic Management Division reporting to the president, and the company states it "will consider" incorporating sustainability metrics into executive compensation from FY2026. Toray continues to identify substantial market opportunities alongside transition risks linked to climate, though no update has been made, especially to reflect the current geopolitical and trade risks. At the same time, the majority of investments and capex seem to fund product development for market growth rather than direct operational or supply chain emission abatement. Without confirmed absolute Scope 3 targets, binding sustainability-linked executive pay, and transparent links between capital investment and quantified emission reductions, Toray's trajectory remains more aligned with a 2°C scenario than the Paris-aligned 1.5°C target.



Aligned with 1.5°C



Aligned with +2°C



Aligned with BAU+3°C

Download the Shareholder [Engagement Sheet](#).



## Climate Alignment

- Toray's FY2024 emissions totalled 21,009 KTCO<sub>2</sub>e, with 77.9% in Scope 3; its footprint fell 6.7% year-on-year, driven by lower operational and downstream emissions, alongside improved intensity.
- However, Scope 1 and 2 targets lag behind the recommended IPCC level to align with a well-below 2°C, and no absolute Scope 3 reduction targets have been set.



## Policy and Governance

- Supplier engagement has expanded, including new Category 1 dialogue, but lacks quantified Scope 3 reduction targets and downstream efforts focus on low-impact logistics, limiting overall mitigation impact.
- Governance structures have evolved, including a new sustainability division and potential pay reform from FY2026; yet, currently, sustainability metrics are not clearly embedded in executive remuneration.



## Risk Analysis

- Toray identifies sustainability-linked market opportunities and material transition risks, but Sustainability Innovation (SI) revenue classification is broad and its risk scenario analysis has not been quantified or updated to reflect the recent evolving geopolitical and macroeconomic conditions.
- An internal carbon price and higher capital expenditure signal progress, yet limited disclosure on capital allocation links to mitigation, timelines, and constrains limit its climate ambition's credibility.



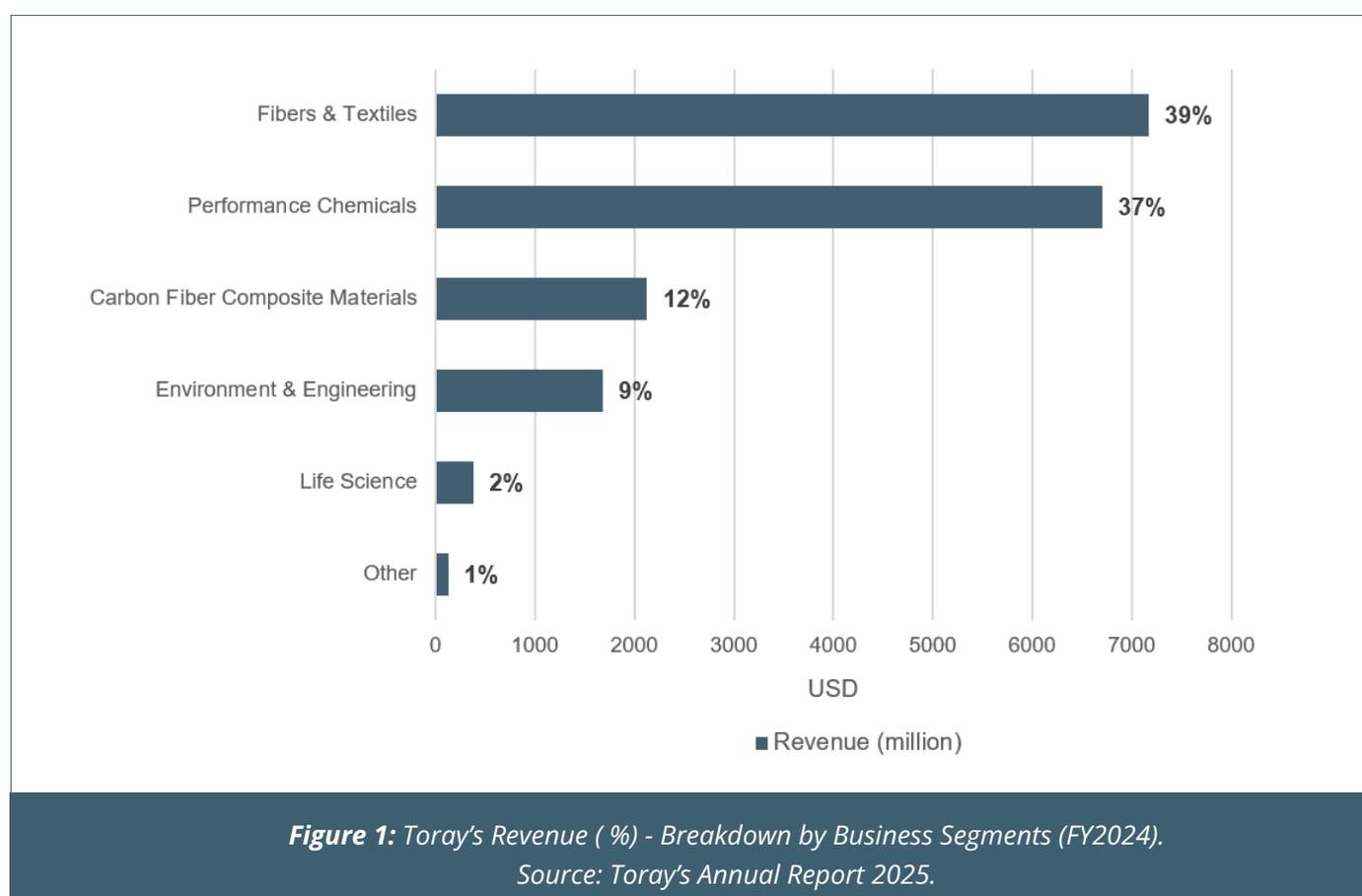
## Strategy Assessment

- Capital investment and R&D spending largely supports business expansion and SI growth (with approximately 52% and 82% of the allocated budget, respectively), with limited disclosure linking investments to quantified operational or supply chain emission reductions.
- Despite operational intensity improvements and new governance measures, the absence of absolute Scope 3 targets, weak executive pay linkage, and limited capital transparency leave Toray aligned closer to a 2°C pathway.

## Company Overview

**Toray Industries (Toray)** is a Japan-based multinational corporation specialising in the integrated chemical industry. In fiscal year (FY) 2024 (ended 31 March 2025), the company reported revenue of JPY 2,563 billion (or USD 16.3 billion<sup>1</sup>), representing a 4.0% increase year-on-year.

The company operates through five core business segments: Fibres & Textiles<sup>2</sup>, Performance Chemicals<sup>3</sup>, Carbon Fibre Composite Materials<sup>4</sup>, Environment & Engineering<sup>5</sup>, and Life Science<sup>6</sup>. **The Fibres & Textiles and Performance Chemicals** segments are the principal revenue drivers, jointly contributing **76% of the company's revenue** in fiscal 2024, as shown in Figure 1.



1 Based on Bloomberg Terminal's currencies exchange of JPY/USD = 0.006361 (end-year for the reporting year).

2 Main products: (a) Filament yarns, staple fibres, spun yarns, woven and knitted fabrics of nylon, polyester, acrylic, and others; (b) Nonwoven fabrics; (c) Ultra-microfiber nonwoven fabric with a suede texture; (d) Other apparel products.

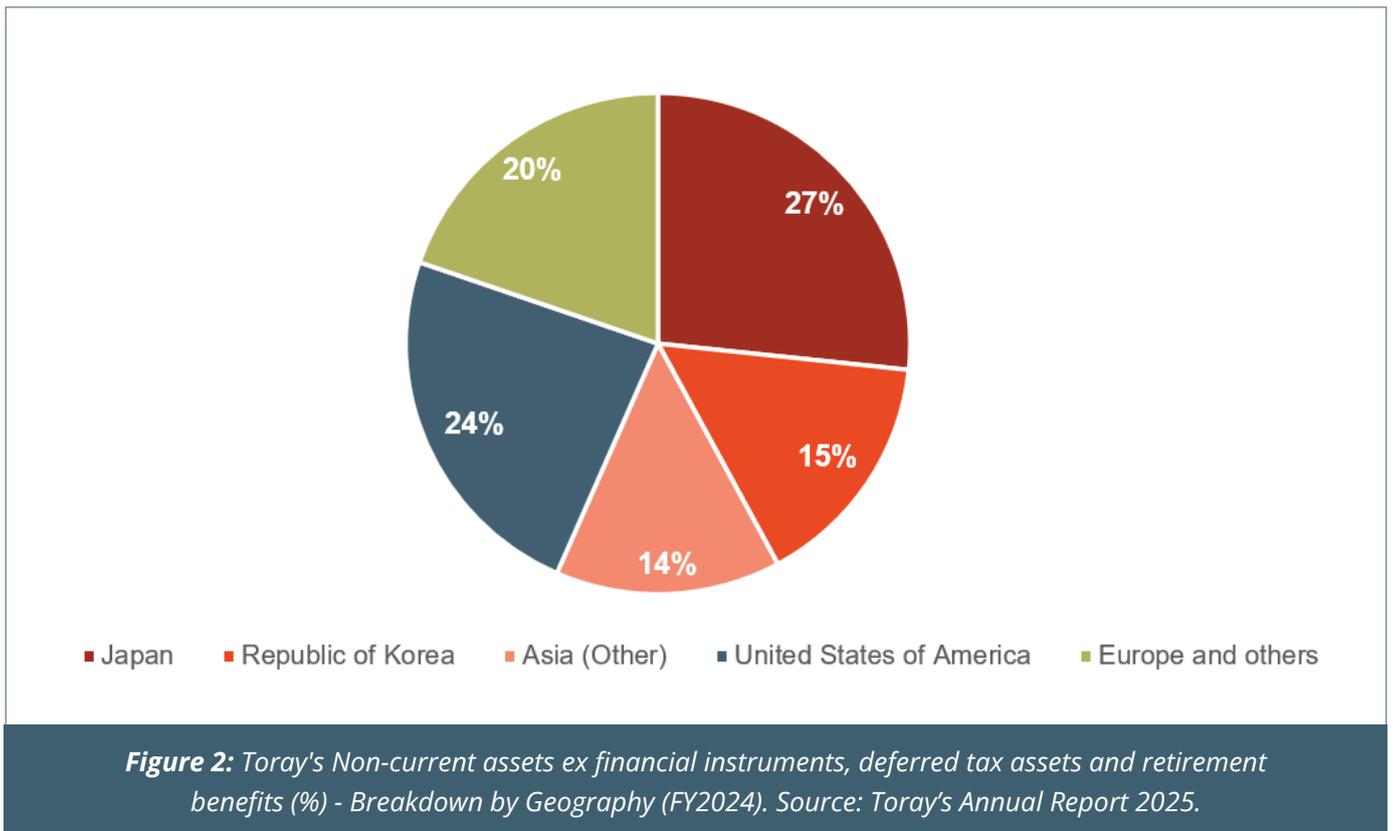
3 Main products: (a) Nylon, ABS, PBT, PPS, and other resins and moulded products; (b) Polyolefin foam; (c) Polyester, polyethylene, polypropylene, and other films and processed film products; (d) Raw materials for synthetic fibres, and other plastics; (e) Fine chemical; (f) Electronic and information materials, and graphic materials.

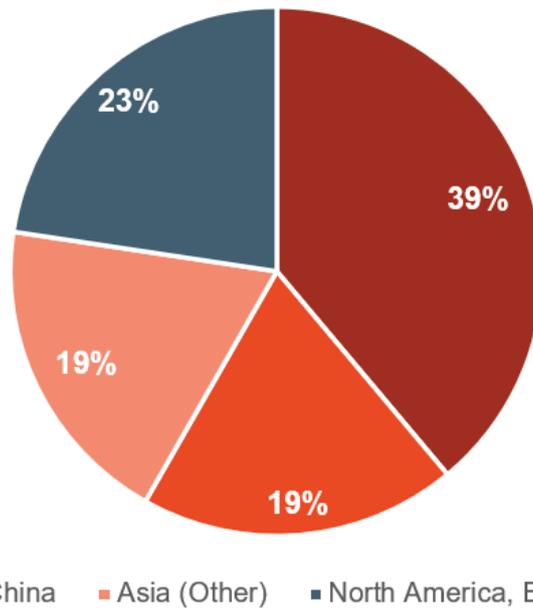
4 Main products: Carbon fibres, carbon fibre composite materials, and their moulded products.

5 Main products: (a) Comprehensive engineering; (b) Condominiums; (c) Industrial equipment and machinery; (d) IT-related equipment; (e) Water treatment membranes and related equipment; (f) Materials for housing, building, and civil engineering applications.

6 Main products: (a) Pharmaceuticals; (b) Medical devices.

Geographically, Toray has established a significant position in its domestic market with smaller but diversified presence across most other core regions such as China, Europe, and North America. The Asian market constitutes the majority of Toray's revenue, supported by the distribution of its subsidiaries and affiliates, with over one-quarter of its total non-current assets (of USD 8.7 billion) located in Japan (see Figure 2). In FY2024, its revenue distribution by geography was: Japan (USD 6.4 billion), China (USD 3.1 billion), other Asian countries (USD 3.1 billion), and North America, Europe and others (USD 3.7 billion), as shown in Figure 3.





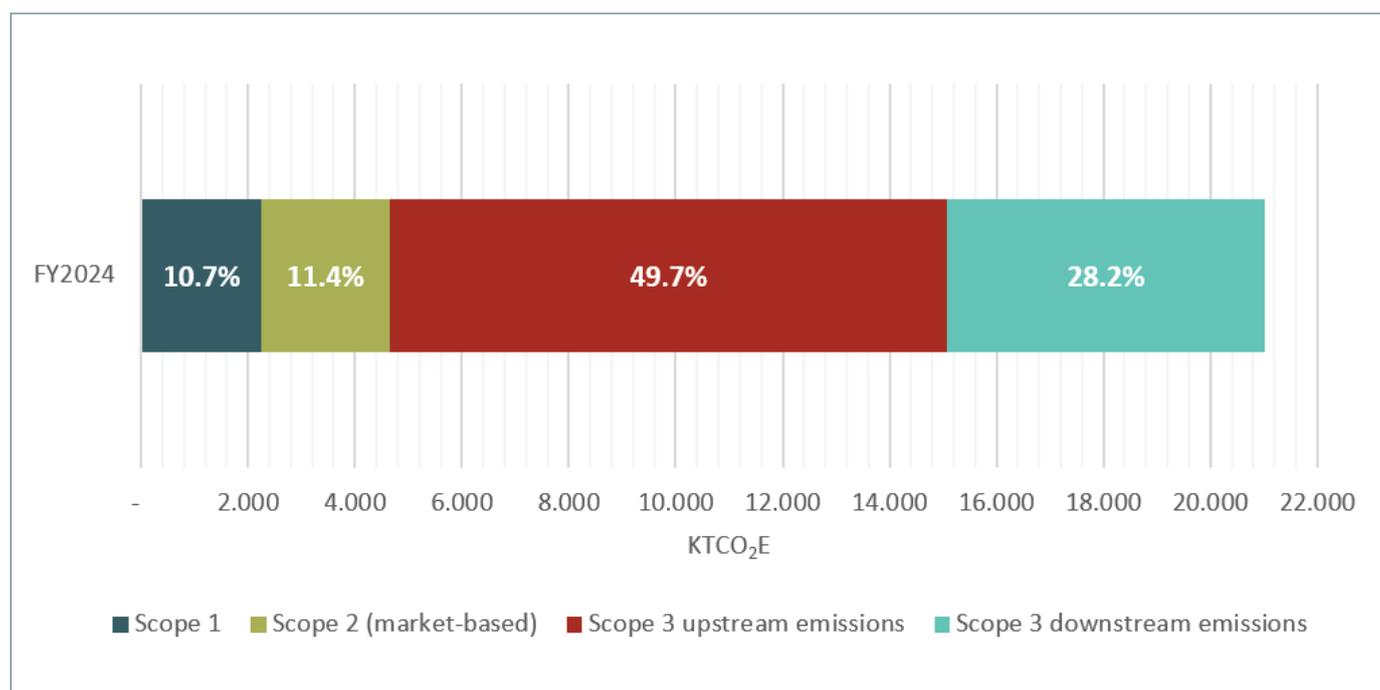
**Figure 3:** Toray's Revenue (%) - Breakdown by Geography (FY2024). Source: Toray's Annual Report 2025.

Toray's global operations in key developing regions like Asia-Pacific and developed markets such as Japan suggest that its climate transition risks and opportunities, along with regulatory impacts, are concentrated in these areas. The company's financial performance remains highly dependent on climate transition developments within the Fibers & Textiles and Performance Chemicals segments.

## Climate Alignment

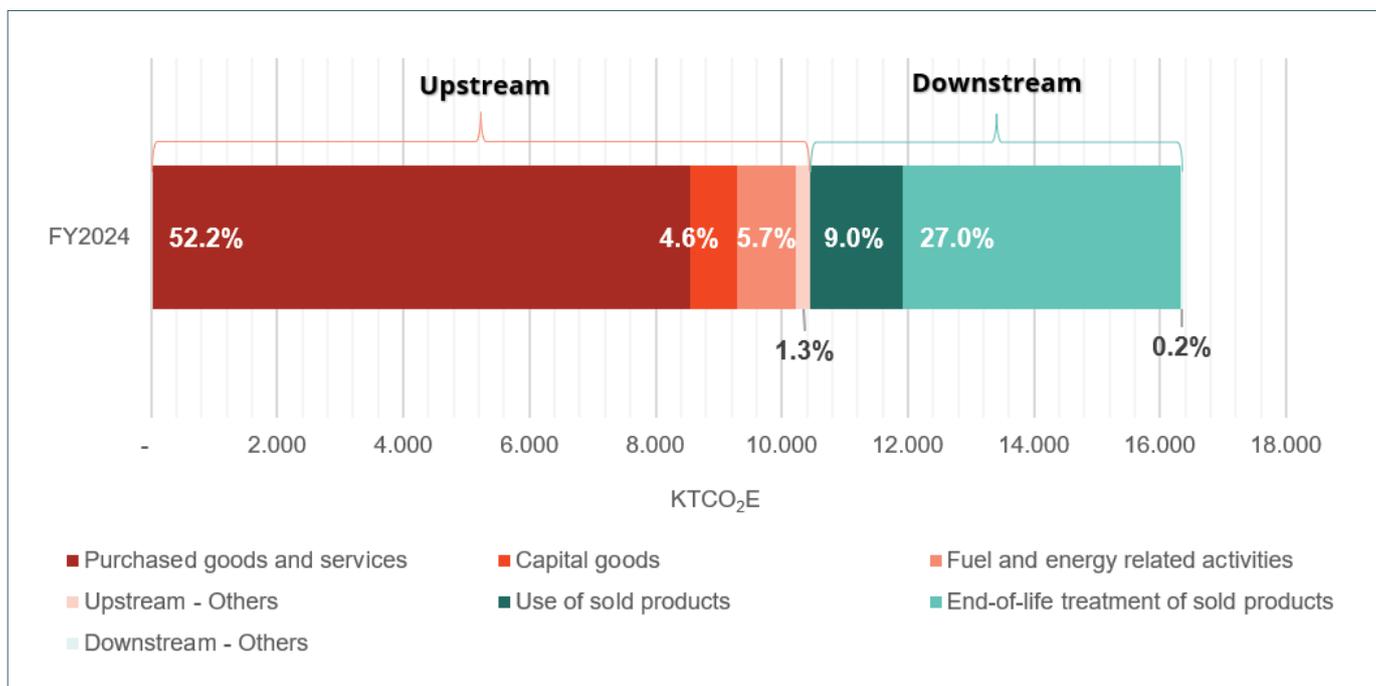
### EMISSIONS INVENTORY

In FY2024, Toray's total greenhouse gas (GHG) footprint stood at 21,009 kilotons of CO<sub>2</sub> equivalent (KTCO<sub>2</sub>e). Operating activities (Scope 1 and 2) accounted for 22.1% of these emissions (with 8.4% coming from inside of Japan and 13.7% from outside) while the majority, 77.9%, came from Scope 3 activities. For more details, see Figure 4.



**Figure 4:** Total GHG Footprint (FY2024) - Percentage Breakdown by Scope. Source: Toray's [ESG Data](#).

Within the Scope 3 category, key contributors were: Purchased Goods and Services (upstream) with 8,547 KTCO<sub>2</sub>e (or 40.7% of total emissions); End-of-Life Treatment of Sold Products (downstream) with 4,419 KTCO<sub>2</sub>e (21.0%); and Use of Sold Products (downstream) with 1,467 KTCO<sub>2</sub>e (7.0%) – see Figure 5.



**Figure 5:** Scope 3 GHG Footprint (FY2024) - Percentage Breakdown by Category. Source: Toray's ESG Data.  
\*Note that the percentage breakdown here refers to its S3 share not to total emissions.

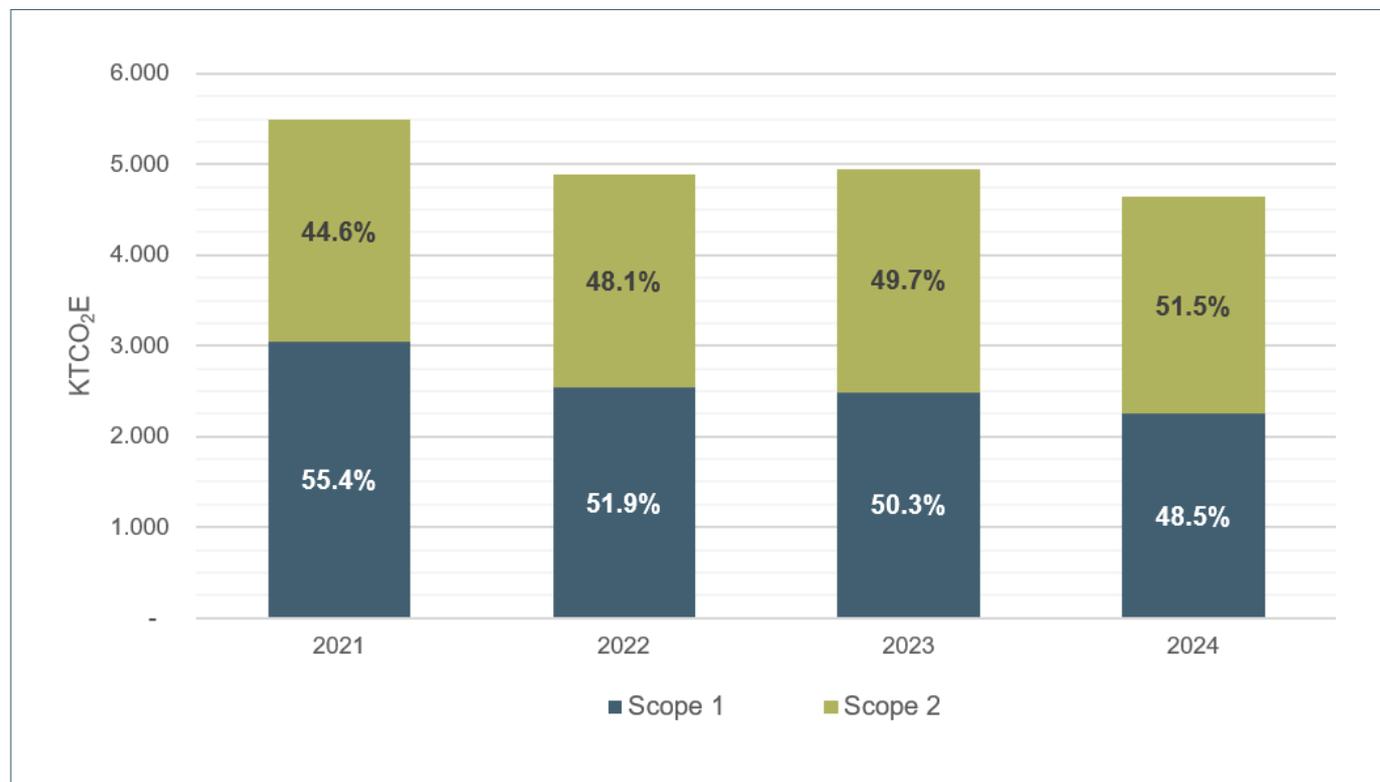
## EMISSIONS TRENDS AND TARGETS

### Historical Emissions Performance

Toray saw a reduction in its GHG footprint in FY2024 compared to FY2023. Year-on-year operating emissions decreased from 4,952 KTCO<sub>2</sub>e in FY2023 to 4,638 KTCO<sub>2</sub>e in FY2024, representing a 6.3% absolute reduction, with Scope 1 decreasing by 9.7% and Scope 2 by 3.0%. Meanwhile, Scope 3 emissions decreased from 17,556 KTCO<sub>2</sub>e in FY2023 to 16,371 KTCO<sub>2</sub>e in FY2024, a 6.7% absolute reduction, with upstream emissions increasing 1.5% and downstream emissions decreasing by 18.4% (mainly due to reductions in Category 11).

Overall, Toray's total GHG footprint decreased from 22,508 KTCO<sub>2</sub>e to 21,009 KTCO<sub>2</sub>e, a 6.7% absolute reduction, representing 1,499 KTCO<sub>2</sub>e. Also, the reductions were accompanied by a 10.9% decrease in total energy consumption (from 93.3 million gigajoules to 83.1 million gigajoules) and a doubling of renewable energy's share from 1.8% to 3.5% of total energy consumption. Moreover, emissions intensity improved by 10.0% year-on-year (FY2023 to FY2024), reaching 1.81 TCO<sub>2</sub>e per billion yen revenue, according to the company.

Operational emissions (Scope 1 and 2) declined by 15.5% in total over the last three years, from 5,491 KTCO<sub>2</sub>e in FY2021 to 4,638 KTCO<sub>2</sub>e in FY2024, as shown in Figure 6.



**Figure 6:** Operational GHG Footprint - FY2021 to FY2024 Evolution by Scope. Source: Toray's ESG Data.

However, Scope 3 multi-year trends remain challenging to determine due to their later integration in reporting and methodological changes. Between FY2022 and FY2024, disclosed Scope 3 emissions increased by 54.9% (from 10,571 to 16,371 KTCO<sub>2</sub>e), though this reflects the inclusion of previously unreported downstream categories rather than Scope 3 emissions growth per se. In fact, upstream emissions decreased by 1.2% between FY2022 and FY2024.

## Decarbonisation Targets

Toray's goal of achieving carbon neutrality by 2050 remains unchanged. The company continues to structure its decarbonisation approach around two main pillars, its Sustainability Innovation (SI) Business Expansion Project and its Climate Change Action Project.

For the **Climate Change Action Project** (own operations), Toray retains its group wide target set in 2023 to reduce Scope 1 and 2 GHG emissions per unit of revenue by more than 50% by FY2030 versus FY2013, and to cut Toray Japan's absolute Scope 1 and 2 emissions by at least 40% over the same period. According to the company, by the end of FY2024, the Group as a whole achieved a 42.8% reduction in GHG emissions per unit of revenue since FY2013, and a 28% reduction in GHG emissions within Japan. This exceeded its FY2025 interim target of ≥40% one year early and is now on a credible trajectory toward the 50% FY2030 target. Furthermore, Toray states the Group "is considering even more ambitious reduction targets as well as measures to achieve such targets".

However, this progress should be interpreted with considerable caution once the intensity metric is disaggregated into its component parts (i.e., absolute emissions and the revenue denominator), and the effect of foreign exchange is considered.

First, Toray's emissions actually rose between FY2013 and FY2019, with group-wide Scope 1 and 2 emissions increasing by an estimated ~11% to approximately 5.76 MTCO<sub>2</sub>e before declining again. Measured from a 2019 baseline (the standard reference year used by the IPCC) Toray's absolute Scope 1 and 2 reduction to FY2024 is approximately 19%.

Second, the 42.8% intensity improvement is overwhelmingly driven by revenue growth rather than actual emissions cuts. Between FY2013 and FY2024, Toray's consolidated revenue rose 61% (from JPY 1,592 billion to JPY 2,563 billion), while absolute Scope 1 and 2 emissions fell only ~10% (from 5.17 MTCO<sub>2</sub>e to 4.64 MTCO<sub>2</sub>e). In other words, of the approximately 43 percentage-point intensity improvement, roughly three-quarters is attributable to the growing revenue denominator and only about one-quarter to genuine emissions abatement. Third, a substantial portion of that revenue growth is itself an artefact of yen depreciation rather than real volume or pricing gains. The yen weakened by approximately 57% against the US dollar over this period (from ~97 JPY/USD in FY2013 to ~152 JPY/USD in FY2024). Given that Toray derives 55–60% of its revenue from overseas operations, FX translation effects alone may account for roughly half of the 61% nominal JPY revenue increase (and thus, mechanically inflating the denominator and flattering the intensity metric without any underlying change in emissions performance).

Looking forward, if Toray's revenue continues to grow at its FY2013–FY2024 CAGR of ~4.4%, consolidated revenue would reach approximately JPY 3,323 billion by FY2030. At that revenue level, a 50% intensity reduction versus FY2013 would be consistent with absolute Scope 1 and 2 emissions of ~5.4 MTCO<sub>2</sub>e which would represent a 4% increase above the FY2013 level and a ~16% increase above the FY2024 level. From the conventional 2019 baseline, this translates to only a ~6% absolute reduction by FY2030 far short of the IPCC's benchmark of ~43% for 1.5°C alignment or ~25% for well-below-2°C. This raises serious questions about the climate credibility of the group-wide intensity target, which absent a complementary absolute cap could permit emissions to plateau or even rise through 2030.

On the **SI Business Expansion Project** (value chain solutions), Toray has set a target for SI sales in FY2030 to be 4.5x the level of FY2013. In FY2013, SI sales were JPY 570 billion or 36% of total sales. By FY2024, SI sales were 2.4x higher at JPY 1,369 billion (or USD 8.7 billion) equivalent to 53% of sales, implying a CAGR of 8% per annum. Toray's FY2030 target implies a slight acceleration in SI sales growth, of 11% per annum.

Concluding, despite the improvements mentioned, Toray's target framework retains structural limitations from a net zero perspective. The company still has no absolute Scope 3 reduction targets. Targeting SI sales growth helps address downstream scope 3 emissions, representing 28% of total. However, for this to fully address downstream emissions, Toray would need to set timebound targets with SI replacing – not just being additional to – non-SI, i.e. emitting products.

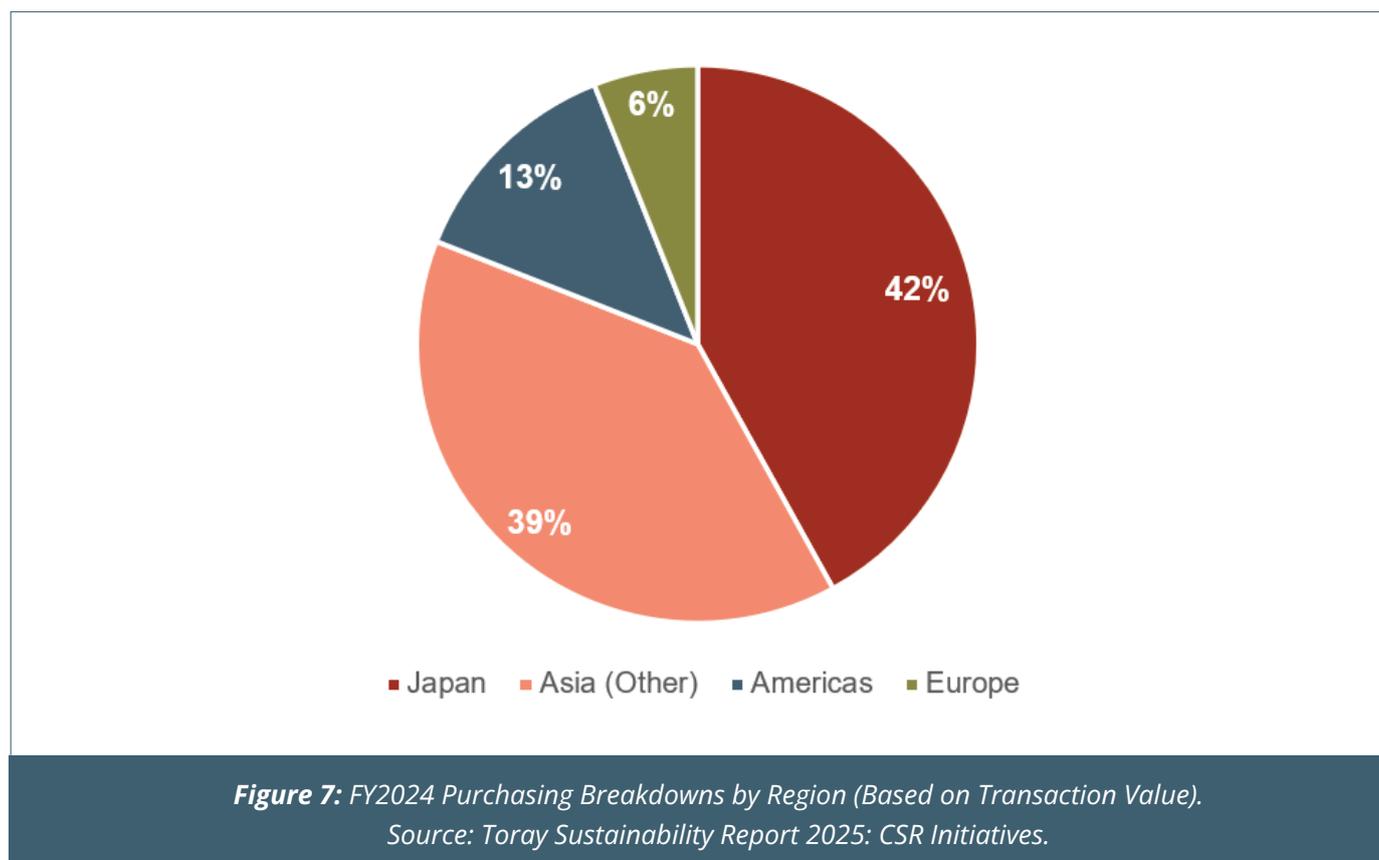
Toray's disclosures acknowledge the need to focus on Scope 3 hotspots stating that it “will set targets centred on Category 1 (purchased goods and services)”. However, this intent has not been translated into formal, quantified Scope 3 targets, and there is no published timeline for doing so.

## Policy and Governance

### ENGAGEMENT AND INFLUENCE

#### Suppliers' Engagement

Toray operates a global supply chain, with procurement activities concentrated in Asia, but also distributed across the Americas and Europe as shown in Figure 7.



The company maintains its CSR Procurement Policies and accompanying Guidelines (revised March 2022), which set out expectations for suppliers across environmental management, GHG emissions reduction, waste management, chemical substance management, and biodiversity conservation.

In FY2024, Toray conducted CSR procurement surveys of its major suppliers and received 451 responses (125 raw material suppliers, 153 equipment and material suppliers, 38 logistics companies, and 135 production and processing contractors). Approximately 99% of surveyed companies were rated S, A, or B,<sup>7</sup> meeting Toray's standards, while only around 1% were rated C or D, requiring further investigation<sup>8</sup>. The company reports that 87% of its major suppliers are "taking steps to reduce GHG emissions," an increase from the 84% reported in FY2022. Additionally, 86% of group-wide suppliers had agreed to the Toray Group CSR Procurement Guidelines by the end of FY2024, up from 77% in FY2023 and against a target of 90% for FY2025.

<sup>7</sup> Where "S" is regarded as the highest rank.

<sup>8</sup> Please note that this seems marginal so it might bring into question whether only the companies thought to meet Toray's standards answered the surveys.

A notable development is Toray's new engagement on Scope 3 emissions. The CSR Report 2025 states that emissions "targets have been set with a focus on Category 1, which accounts for the largest share, and engagement with major suppliers has begun" to reduce the carbon footprint of purchased raw materials. This involves "confirming their basic policies, reduction plans and targets, as well as relevant issues, while establishing constructive dialogues with the suppliers". Additionally, the company has begun implementing supply chain due diligence across its overseas group companies, achieving a 66.7% implementation rate against its FY2024 target of 60%, with the FY2025 target set at 90%.

While these developments signal incremental progress, the supplier engagement framework still lacks critical details. The surveys confirm whether suppliers have policies or are taking steps, without specifying what those steps entail or how they contribute to quantifiable emission reductions. The statement that 87% of suppliers are "taking steps to reduce GHG emissions" provides no detail on the ambition, pace, or scale of those reductions. Additionally, while a supply chain due diligence process has been developed (including risk identification, questionnaires, and audit procedures for human rights, safety, and environmental protection) only three high-risk suppliers were actually surveyed in FY2024, of which one required further follow-up. Given Toray's approximately 4,200 primary suppliers worldwide, this pace of investigation appears insufficient.

Toray has said that it has begun to set Scope 3 targets with a focus on Category 1, along with its supplier engagement initiatives. However, it has not publicly disclosed these targets. This remains a significant gap, as Category 1 (Purchased Goods and Services) accounts for 52% of Toray's Scope 3 emissions (8,547 KTCO<sub>2</sub>e in FY2024).

## Customers' Engagement

Toray continues to engage downstream through its Basic Distribution Policies (revised March 2022), hosting annual briefings for logistics companies and pursuing emission intensity reductions in transport activities. The CSR Roadmap 2025 tracks CO<sub>2</sub> emissions intensity per unit of sales from distribution activities as a KPI, with FY2024 showing a 15.5% year-on-year reduction. However, transport and distribution accounted for only approximately 1.1% of Toray's total GHG footprint in FY2024, limiting the overall impact of these downstream initiatives.

The company's downstream engagement beyond logistics remains narrowly focused. Toray does not disclose specific programmes targeting higher-impact downstream emission categories such as End-of-Life Treatment of Sold Products (Category 12), which accounted for 4,419 KTCO<sub>2</sub>e or 27% of Scope 3 emissions in FY2024. To make a substantive contribution to its climate goals, Toray would need to expand its downstream engagement to address these higher-impact value chain activities.

## Influence on Policymakers

Toray's engagement with climate policy through industry associations remains largely unchanged from the prior assessment. The company continues to participate in Keidanren (Japan Business Federation), the Japan Chemical Industry Association (JCIA), the Japan Chemical Fibers Association (JCFA), the Japan Association for Chemical Innovation (JACI), and the GX League. These affiliations present the same mix of general support for the energy transition and, in some cases, historical resistance to ambitious climate regulations.

A notable addition is Toray's publication of a TNFD (Taskforce on Nature-related Financial Disclosures) report in December 2024, and the company's preparatory work for compliance with the EU Corporate Sustainability Reporting Directive (CSRD) and Japan's Sustainability Standards Board (SSBJ) disclosure standards. These developments suggest a growing awareness of evolving regulatory expectations. However, the company's stance on specific climate regulations remains ambiguous; while it participates in GX League discussions and supports carbon neutrality in principle, there is no evidence of the company publicly advocating for stricter emission regulations or carbon pricing mechanisms.

## **MANAGEMENT ALIGNMENT**

### **Sustainability Targets Oversight**

Toray's governance structure continues to comprise a Board of Directors (12 members, including 5 outside directors) and a Board of Corporate Auditors. The Board of Directors decides on the business execution and supervises the execution of duties by the management; while the Board of Corporate Auditors includes outside auditors and independently audits the execution of duties by management (separately from the Board of Directors).

In addition, there is a Governance Committee, which serves as a voluntary advisory body to the Board of Directors. The Governance Committee is chaired by an outside director and includes the chairman, president, and all outside directors.

The Board's skill matrix is shown in Table 1, and notably shows only one director (Kunio Ito) tagged specifically for ESG expertise.

**Table 1: Toray Group's Corporate Governance Structures and Skill Matrix.**  
Source: Toray Sustainability Report 2025: CSR Initiatives.

Name		Business Operations				Corporate			Strategic
		Management experience	Global business	Technology / Manufacturing / R&D	Sales and marketing	Legal / Intellectual property / Risk management	Accounting / Finance	Human resource management / diversity	
Member of the Board	Akihiro Nikkaku	●	●	●					
	Mitsuo Ohya	●			●		●		
	Kazuhiko Shuto	●	●		●				
	Tetsuya Tsunekawa	●		●				● (DX)	
	Shigeki Terada		●					● (Business Strategies)	
	Yuichiro Kato					●	●		
	Kunio Ito						●	● (ESG)	
	Susumu Kaminaga	●	●	●					
	Yuko Harayama							● (Innovation)	
	Akiko Innes-Taylor	●			●			●	
Corporate Auditor	Hideki Hirabayashi	●	●			●			
	Mitsuharu Mano		●			●	●		
	Makiko Takabe					●	●		
	Kozo Ogino	●					●		
	Masahiko Inoue					●	●		

As noted in the prior assessment, the former executive Sustainability Committee was dissolved in 2024. In its place, sustainability issues were deliberated by the Executive Committee (which Toray describes as a "conference organ of the Board of Directors") on an ad-hoc basis. However, in 2025, Toray established the Corporate Sustainability Strategic Management Division as a new organisational unit reporting directly to the president. This division is tasked with promoting environmental impact reduction, sustainability-related information disclosure, and the expansion of sustainability-related businesses, including climate change initiatives and the circular economy.

While this new division is a structural improvement over the previous ad-hoc arrangement, it remains an executive-level body rather than a Board-level committee. The Board of Directors receives reports on sustainability activities "at least once a year" and considers climate-related challenges in management decisions, with the president reporting on climate issues to the Board on a quarterly basis. The question remains whether this frequency and depth of oversight, and the absence of a dedicated Sustainability Committee at the board level, is sufficient given the scale of Toray's climate transition challenge.

## Management Compensation

The most notable governance development in this reporting period concerns executive compensation. Toray has disclosed that the proportion of performance-linked bonuses within total compensation has been increased starting in FY2025, and a restricted stock remuneration plan has been adopted to enhance value-sharing with shareholders. More significantly, the company states that "from fiscal 2026, which marks the first year of the next Medium-Term Management Programme, the Company will consider incorporating non-financial indicators such as sustainability metrics, alongside financial indicators such as ROIC, as evaluation criteria for determining executive compensation".

This is a forward-looking statement, not a confirmed change. The phrasing "will consider incorporating" leaves considerable ambiguity about whether sustainability metrics will actually be embedded in executive pay from FY2026, what weight they would carry, and which specific metrics would be used. For comparison, the prior assessment noted that only engineering department heads received compensation tied to GHG reduction targets, while executive incentives focused on revenue and product growth, particularly Sustainability Innovation Business expansion (targeting JPY 1,600 billion by FY2025). To date, no disclosure confirms that this framework has materially changed.

The existing executive incentive structure continues to prioritise financial expansion. While marketing sustainability-linked products is commendable, growing SI Business revenue is not the same as reducing absolute emissions. Without confirmed adoption of non-financial KPIs tied directly to emission reduction outcomes, the link between executive pay and Net Zero progress remains weak.

## Risk Analysis

### FINANCIAL IMPACT

Toray's scenario analysis, as presented in the TCFD Report Ver. 2.1 (June 2024), remains substantively unchanged from the prior assessment. The company continues to use 1.5°C, 2°C, and 4°C scenarios, focusing on sectors expected to experience significant climate-related impacts including synthetic fibres for apparel, electric vehicles, aircraft, wind power, lithium-ion batteries, seawater desalination, biopolymers/recycled polymers, and hydrogen-related products.

### Opportunities

Independent of the scenario chosen, Toray's disclosed market opportunities remain the same as previously reported:

- **Circular Economy:** Toray expects a new market worth approximately JPY 800 billion (or USD 5.7 billion<sup>9</sup>) by "around 2040" for bio-based and recycled materials .
- **Electrification of Mobility:** The company calculates around JPY 400 billion (or USD 2.8 billion<sup>10</sup>) by "around 2024" in potential new markets for materials that reduce weight and improve energy efficiency in electric vehicles.
- **Water Treatment and Adaptation:** Toray states that substantial opportunities exist for adaptation-related products, such as advanced water treatment solutions.

At the Group level, FY2024 SI Business revenue of JPY 1,369 billion or USD 8.7 billion<sup>11</sup> (approximately 53% of consolidated revenue) demonstrates that Toray already derives substantial income from products it classifies as contributing to sustainability outcomes.

However, a note of caution is warranted. The definition of "Sustainability Innovation Business" is broad, encompassing products that "accelerate measures to counter climate change," "facilitate sustainable, recycling-based use of resources," "help provide clean water and air," and "help deliver better medical care and hygiene". Not all SI-classified revenue necessarily contributes to absolute emission reductions in the value chain, and the inclusion of healthcare and disaster prevention products under this umbrella inflates the apparent climate-relevance of the figure.

<sup>9</sup> Based on the following JPY to USD exchange rate: 0.007091 (on 31st of December 2023).

<sup>10</sup> Based on the following JPY to USD exchange rate: 0.007091 (on 31st of December 2023).

<sup>11</sup> Based on Bloomberg Terminal's currencies exchange of JPY/USD = 0.006361 (end-year for the reporting year).

## Transition Risks

Toray's disclosed transition risk exposures also remain unchanged from the prior assessment:

- **Circular Economy Delays:** Up to JPY 300 billion (or USD 2.1 billion<sup>12</sup>) in lost revenue near 2040, if the company fails to respond to reduced plastic use and stricter recycling requirements.
- **Electrification of Mobility:** A possible JPY 230 billion (or USD 1.6 billion<sup>13</sup>) revenue contraction in materials for internal combustion engine vehicles.
- **Regulatory Costs:** Carbon taxes in a 1.5°C scenario could cost approximately JPY 85 billion with renewable energy procurement adding an additional JPY 60 billion, for a total of JPY 145 billion (or USD 1 billion<sup>14</sup>).

Given that the TCFD report has not been substantively updated since Version 2.1 (June 2024), the transition risk assessment has not been refreshed to account for evolving geopolitical conditions. The Consolidated Financial Results for FY ending March 2025 note a "growing risk of entering a downturn phase triggered by the imposition of reciprocal tariffs by the U.S." and concerns about "intensifying competition with China". These macroeconomic developments could alter both the opportunity and risk landscape for Toray's climate transition, particularly for carbon fibre composite materials (tied to aerospace and automotive supply chains) and performance chemicals (tied to EV and electronics supply chains).

## Physical Risks

The company's physical risk assessment remains moderate. Water intake restrictions were previously downgraded to "moderate" given that approximately 80% of Toray's water use occurs in Japan. Toray reports continued progress on its water consumption target, achieving a 38% reduction in water usage per unit of revenue compared to FY2013 (against a 50% target by FY2030). The company's business continuity planning (BCP) continues to address wind, flood, and earthquake risks, with FY2022-FY2024 risk surveys of 13 plants in Japan.

<sup>12</sup> Based on the following JPY to USD exchange rate: 0.007091 (on 31st of December 2023).

<sup>13</sup> Based on the following JPY to USD exchange rate: 0.007091 (on 31st of December 2023).

<sup>14</sup> Based on the following JPY to USD exchange rate: 0.007091 (on 31st of December 2023).

## **RISK MANAGEMENT**

Toray's risk management approach continues to combine qualitative and quantitative scenario analysis, operational resilience measures, and resource efficiency targets. The introduction of an internal carbon pricing system at JPY 10,000/ton-CO<sub>2</sub> or USD 63/ton-CO<sub>2</sub><sup>15</sup> (for FY2024), "revised to function as an incentive," is a positive development. However, the company does not disclose how this internal price is applied in practice, for example, whether it influences capital allocation decisions, alters project approval thresholds, or if it is factored into the financial evaluation of new investments.

Regarding transition risk management, the company references its [TORAY VISION 2030](#) and AP-G 2025 Medium-Term Management Programme as the strategic frameworks for adjusting its business portfolio. The FY2024 financial results show that capital expenditures increased significantly to JPY 208 billion or USD 1.3 billion<sup>16</sup> (from JPY 147 billion or USD 0.9 billion<sup>17</sup> in FY2023), with the Carbon Fibre Composite Materials segment alone accounting for JPY 87 billion or USD 0.6 billion<sup>18</sup>. While this investment supports growth in areas potentially aligned with the energy transition (e.g., aerospace lightweighting, wind turbine blades), the company does not break out what proportion of this capex is directed specifically at emission abatement versus general capacity expansion.

The absence of disclosed timelines for transitioning away from higher-emission processes, the lack of specific engagement targets with stakeholders, and the continued non-disclosure of the costs associated with transition risk mitigation limit the ability to assess whether Toray's risk management approach is commensurate with its exposure.

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<sup>15</sup> Based on Bloomberg Terminal's currencies exchange of JPY/USD = 0.006361 (end-year for the reporting year).

<sup>16</sup> Idem 14.

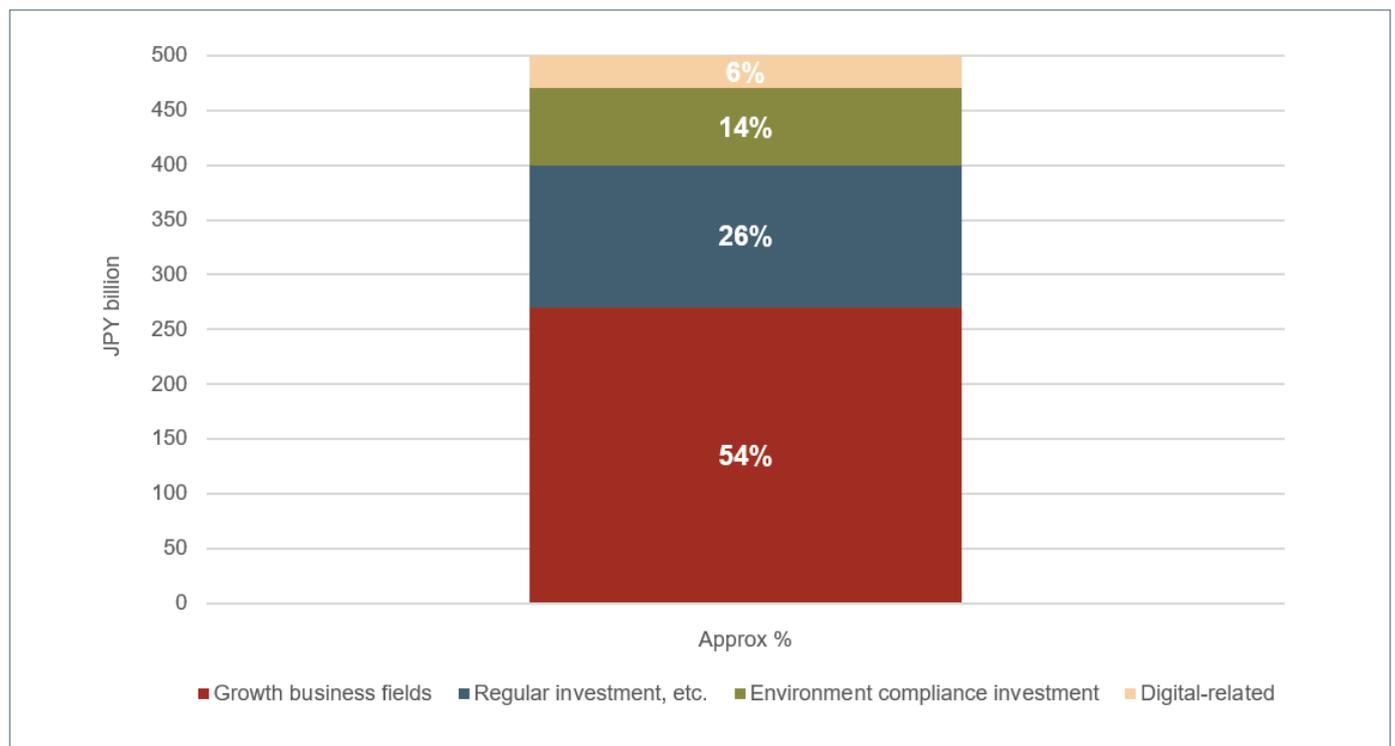
<sup>17</sup> Idem 14.

<sup>18</sup> Idem 14.

## Strategic Assessment

### CAPITAL ALIGNMENT

Under [TORAY VISION 2030](#) and the [Medium-Term Management Programme AP-G 2025](#), Toray has allocated JPY 500 billion or USD 3.5 billion<sup>19</sup> to Capital Investment and JPY 220 billion or USD 1.6 billion<sup>20</sup> to Research & Development (R&D) expenses over the last three years. However, the majority of this allocation is dedicated to business growth rather than mitigation, as shown in Figures 8 and 9.

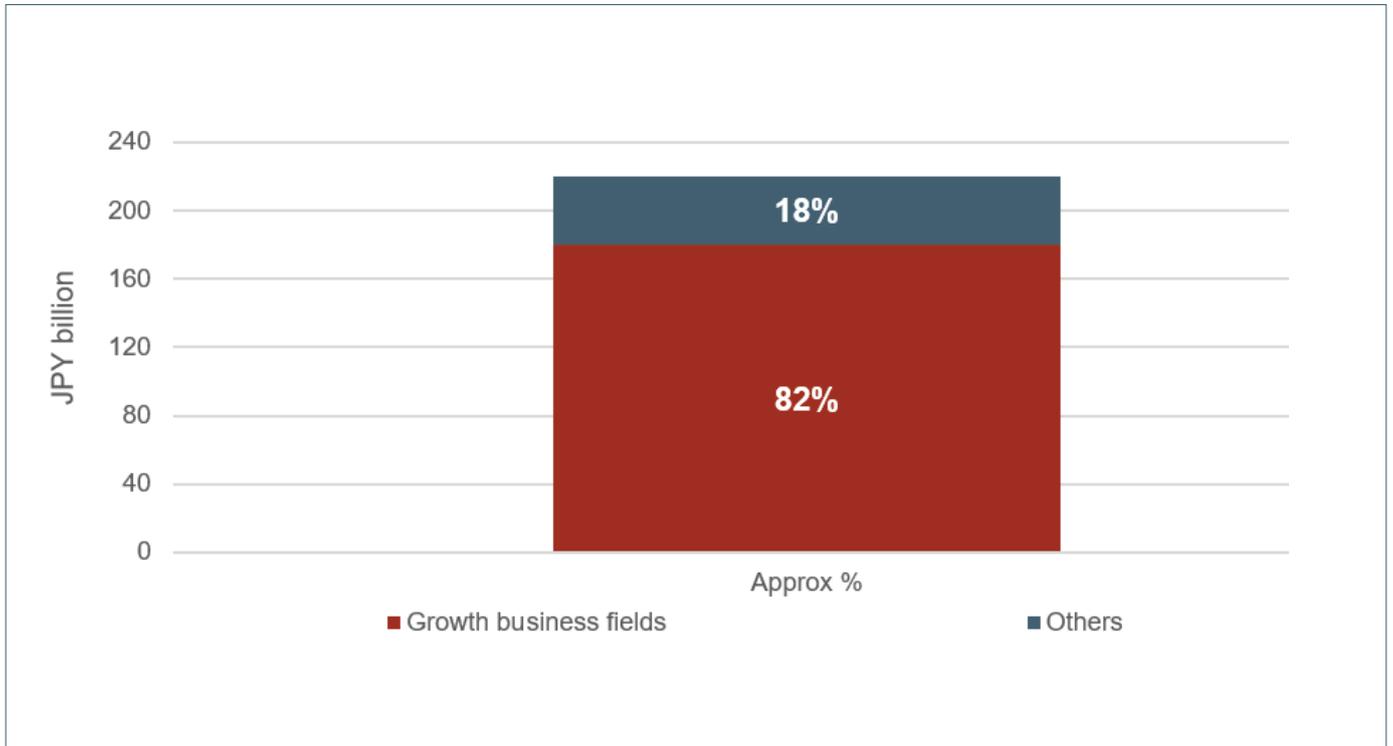


**Figure 8:** Breakdown of Capital Investment FY2023-FY2025.

Source: [Medium-Term Management Programme AP-G 2025](#)

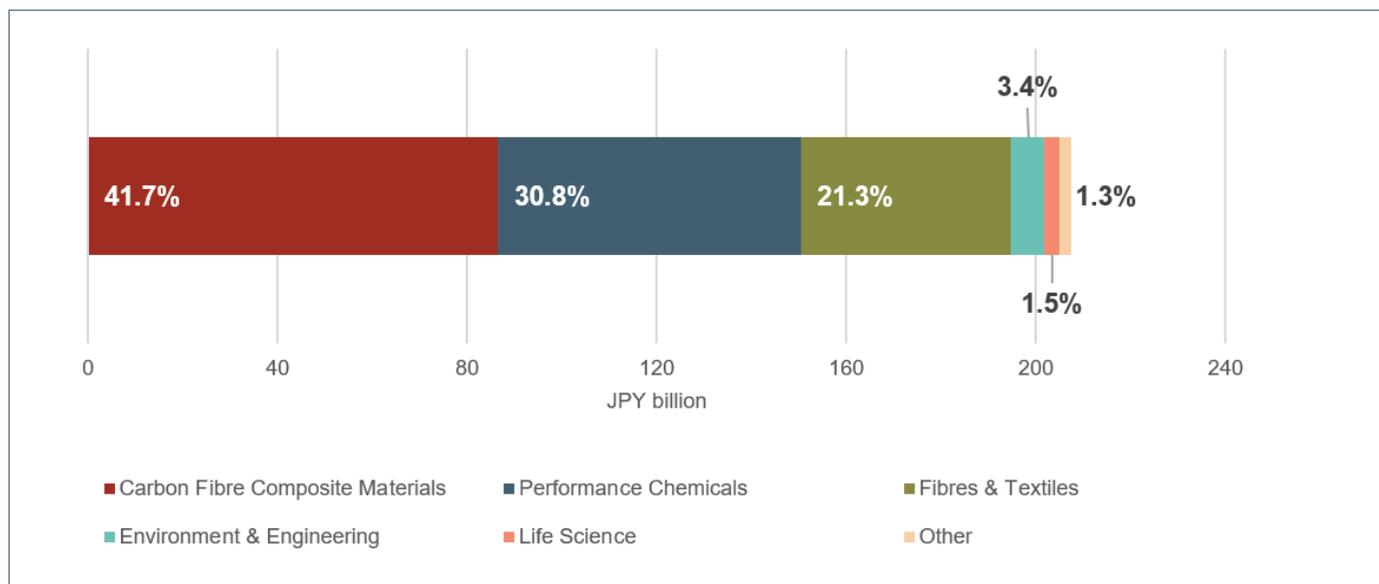
<sup>19</sup> Based on the following JPY to USD exchange rate: 0.007091 (on 31st of December 2023).

<sup>20</sup> Idem 19.



**Figure 9:** Breakdown of Capital Investment FY2023-FY2025.  
Source: *Medium-Term Management Programme AP-G 2025*

In FY2024, the breakdown of capital expenditure (capex) by segment shows the Carbon Fibre Composite Materials leading with JPY 87 billion (USD 0.6 billion), followed closely by Performance Chemicals with JPY 64 billion (USD 0.4 billion) and Fibres & Textiles with JPY 44 billion (USD 0.3 billion) – see Figure 10 for more detail.



**Figure 10:** Breakdown of capex by segment. Source: Toray Consolidated Financial Results 2025

The year-on-year increase in Carbon Fibre Composite Materials capex (from JPY 42 billion or USD 0.3 billion in FY2023) is significant and reflects the ongoing investment in aerospace and industrial sustainable applications. However, while carbon fibre products can support lightweighting and energy efficiency in end-use applications, it is important to note that the manufacturing process for carbon fibre is itself energy-intensive. The company does not disclose the expected emissions impact (positive or negative) of this substantial investment.

Lastly, Toray's Annual Report 2025 indicates continued investment in areas such as PFAS-free materials, NANODESIGN fibre technology, next-generation reverse osmosis membranes, and CO<sub>2</sub> separation membranes. These are relevant to the climate transition but are primarily product development initiatives aimed at market growth, not direct operational emission reduction.

## TRANSITION APPRAISAL

This updated assessment examines Toray's climate transition strategy across its emissions profile, policy and engagement, governance, risk management, and capital allocation, drawing on the most recent available disclosures<sup>21</sup>.

Several developments since the prior assessment are noteworthy. Toray's operational emissions (Scopes 1 and 2) declined to 4,638 KTCO<sub>2</sub>e in FY2024, a 6.3% year-on-year decrease. The group-wide GHG intensity reduction reached 43% versus FY2013, already exceeding the 40% CSR Roadmap 2025 target and approaching the 50% FY2030 target. The establishment of the Corporate Sustainability Strategic Management Division under the president, the introduction of an internal carbon price, and the commencement of Scope 3 Category 1 supplier engagement all represent concrete, incremental steps forward.

However, key structural issues persist. First, the company's operating emissions targets lag behind the recommended level to align with a well-below-2°C<sup>22</sup> and its approach to Scope 3 remains inadequate. Total Scope 3 emissions in FY2024 stood at 16,371 KTCO<sub>2</sub>e, representing 78% of Toray's total footprint. While the company has now stated that it will "set targets with a focus on Category 1" and "begun engagement" with suppliers, no quantitative Scope 3 reduction target has been publicly disclosed. Without such a target, it is impossible to assess whether the company's total emissions trajectory is aligned with any Paris-consistent pathway.

Second, the governance of climate targets at the executive level remains insufficient. The statement that Toray "will consider" incorporating sustainability metrics into executive compensation from FY2026 is not a commitment. Until non-financial KPIs (specifically absolute emission reduction milestones) are formally embedded in executive pay with disclosed weightings, there is no structural mechanism ensuring that senior leadership is incentivised to deliver on decarbonisation outcomes.

Third, the capital allocation, while substantial in absolute terms, continues to prioritise product development and market growth over direct emission abatement. The company does not disclose the proportion of investment directed at reducing its own operational or supply chain emissions. The absence of a link between specific investments and quantified emission reductions remains a key gap.

Fourth, the dissolution of the Sustainability Committee and its replacement by ad-hoc Executive Committee deliberation, even with the new Corporate Sustainability Strategic Management Division, raises concerns about whether sustainability receives sufficiently dedicated and independent oversight at the Board level.

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<sup>21</sup> Based on the data accessed by Planet Tracker until 31st of December 2025.

<sup>22</sup> Remember that from the conventional 2019 baseline, Toray's operating targets translates to only a ~6% absolute reduction by FY2030; short of the IPCC's benchmark of ~43% for 1.5°C alignment or ~25% for well-below-2°C.

In conclusion, Toray has made some progress on operational emission intensity and has introduced new structural elements (the Corporate Sustainability Strategic Management Division, internal carbon pricing, and Scope 3 engagement) that could support a more ambitious trajectory in the future. However, these steps remain incremental relative to the scale of the challenge. The continued absence of absolute Scope 3 targets, the unconfirmed status of sustainability-linked executive compensation, the lack of transparency linking capital investment to emission abatement outcomes, and the broad definition of "Sustainability Innovation" that conflates product revenue with decarbonisation impact all suggest that Toray's trajectory has not materially shifted since the prior assessment. Without stronger absolute reduction commitments across its full value chain, enhanced transparency on the emission implications of its capital allocation, and confirmed governance mechanisms tying leadership incentives to Net Zero progress, Toray's pathway remains closer to a 2°C scenario than the more ambitious 1.5°C target<sup>23</sup>.

**Planet Tracker concludes TORAY is likely to align with a 2°C pathway by 2030.**

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<sup>23</sup> In the past Toray representatives argued that expanding a business and achieving carbon neutrality at the same time is a very challenging task. The company will try to achieve this with a phased reduction of CO<sub>2</sub> emissions (transition) by using available technology, make use of the new technology in the future, and undertake new efforts in cooperation with the Government or industry associations, as well as, new social structures. Hence, according to Toray it is too early to make an assessment which target the company is aligned with.

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## ABOUT PLANET TRACKER

Planet Tracker is a non-profit financial think tank producing analytics and reports to align capital markets with planetary boundaries. We aim to create a significant and irreversible transformation of global financial activities by 2030. By informing, enabling and mobilising the transformative power of capital markets we aim to deliver a financial system that is fully aligned with a net-zero, nature-positive economy. Planet Tracker proactively engages with financial institutions to drive change in their investment strategies. We ensure they know exactly what risk is built into their investments and identify opportunities from funding the systems transformations we advocate.

## PLANET TRACKER'S CLIMATE TRANSITION ANALYSIS

As part of its Petchems programme, Planet Tracker is examining the transition plans of chemical companies covered by the Climate Action 100+ list (<https://www.climateaction100.org/whos-involved/companies>). Our goal is to provide investors with the key information and analysis they need to be able to hold leading chemical companies to account for the quality of their climate transition plans and their execution against those plans. We also encourage investors to use this information to engage effectively with these companies with the ultimate aim of driving the sustainable transformation of the chemical industry.

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