



Overall Assessment

Planet Tracker:

Dow is expected to align with a 3°C warming scenario by 2030.

According to Planet Tracker, Dow's climate strategy lacks sufficient ambition, aligning with a 3°C warming scenario by 2030 rather than the well-below 2°C pathway. Despite a reported 10.9% emissions reduction in the last four years its overall mitigation target of 4% by 2030 is modest compared to its peers. The recently implemented supplier and customer engagement, with key data gaps, and the unclear impact of executive incentives also raises concerns. Moreover, with potential carbon pricing costs of up to USD 1.9 billion annually by 2030 and operational disruptions from climate events, Dow's planned increase in sustainability spending (from 36% of 2023 expenditures to up to 60% by 2025) to achieve carbon neutrality by 2050, will reduce operating emissions by 15% by 2030, under current plans. This is insufficient to position the company in alignment with the latest science-based targets recommended by the Paris Agreement.



This report is one of a series examining the climate transition plans of companies in the Climate Action 100+ list. This project is separate to and not affiliated with Climate Action 100+.

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Climate Alignment

- Dow's restatement of its historical emissions data (2020-2023) shows a reduction of 10.9% in the last four years whereas the original data indicated an increase of 6.6%. We recognise that management should be able to restate figures where improved measurement permits or GHG accounting methodology is changed.
- Although Dow will meet its 2030 ambitions, its 4% total emissions reduction target is modest compared to peers, aligning with a 3°C warming scenario instead of the well-below 2°C pathway.
- Dow does not adhere to the SBTi methodology, which this report follows for its climate alignment, but rather a slower pathway which follows the IEA approach.



Policy and Governance

- Dow's lack of transparency in supplier and customer engagements, along with mixed policy stances, makes it difficult for investors to assess potential emissions reductions and raises concerns about its climate ambitions.
- While Dow has established a solid governance structure and links executive compensation to sustainability goals, the unclear relationship between remuneration and climate objectives brings into question its effectiveness.



Risk Analysis

- Dow faces significant financial risks from potential carbon pricing (up to USD 1.9 billion) and climate physical impacts (largely undisclosed).
- The company's lack of detailed financial plans for managing climate risks creates uncertainty about the effectiveness of its risk management approach, especially when it comes to physical risks.



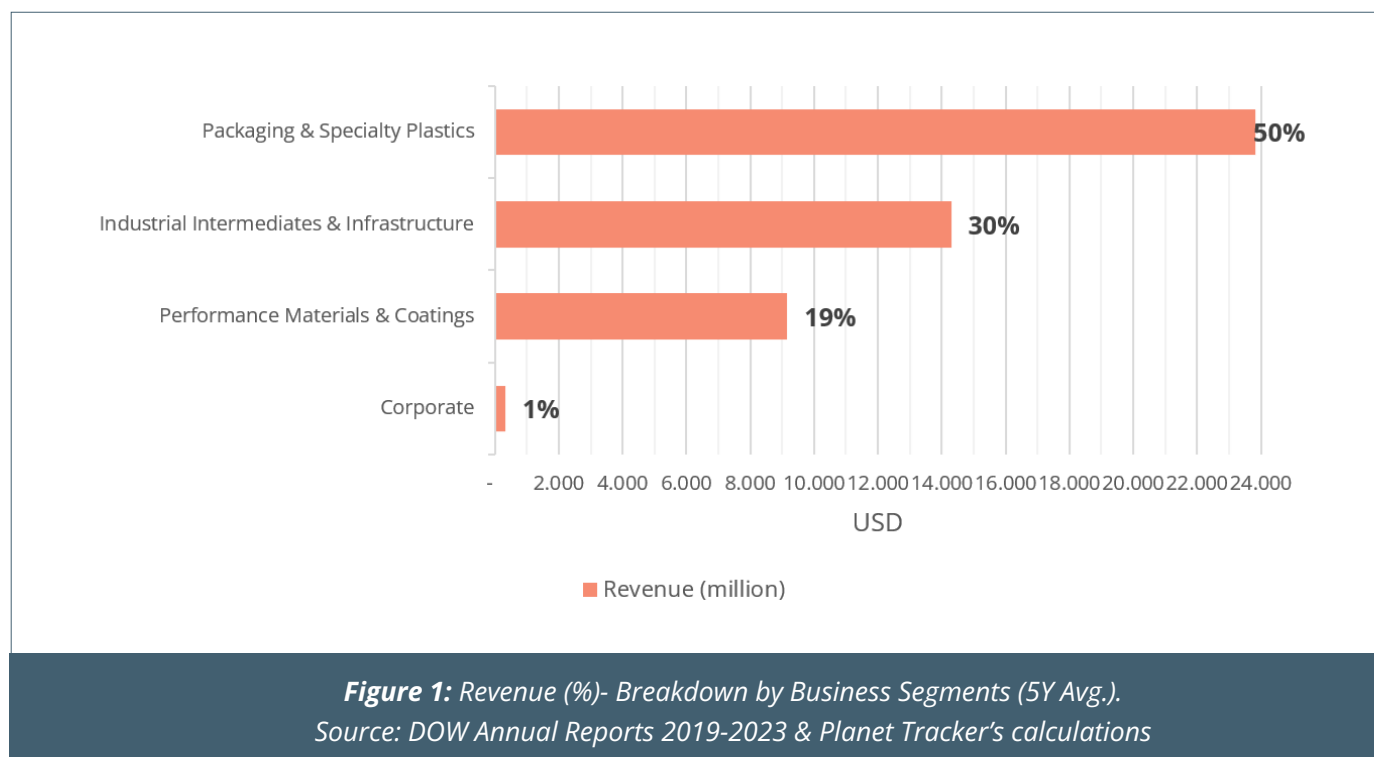
Strategy Assessment

- Dow allocated 36% (USD 848 million) of its 2023 capital expenditures to climate-related initiatives and, by 2025 anticipates that more than 60% of its annual capital expenditures will be dedicated to projects with environmental sustainability drivers.
- However, to meet the well-below 2°C pathway and its own long-term goal of carbon neutrality by 2050, Dow would need to enhance its emissions reduction targets and increase transparency in its sustainability initiatives.

Company Overview

Dow Chemical (DOW), established in 2019 following the DowDuPont merger and subsequent separation¹, is a leading player in the global chemical industry. As of 2023, Dow ranks among the top three global chemical producers by revenue, surpassed only by BASF and Sinopec². Therefore, the company has a critical influence in shaping the future of the chemical industry, including its climate transition.

From 2019 to 2023, Dow’s revenue composition shows a diversified portfolio, with the “Packaging & Specialty Plastics” segment consistently contributing to approximately 50% of its total revenue. This is followed by the “Industrial Intermediates & Infrastructure” segment, which accounts for 30%, and the “Performance Materials & Coatings” segment, contributing 19% of the total, as detailed in Figure 1.



Geographically, Dow maintains a strong presence in North America, with 36% of its revenue during the same period being generated in the U.S. and Canada. The EMEA region (Europe, Middle East, Africa, and India) contributed 34%, Asia Pacific 19%, and Latin America 10%, as detailed in Figure 2. These figures reflect Dow’s exposure to diverse regulatory environments, each with its own climate policies and risks.

¹ Overall, accounting for the time before the merger Dow has over 125 years of history.

² As shown in “Global Top 50” by Chemical & Engineering News – July 22, 2024.

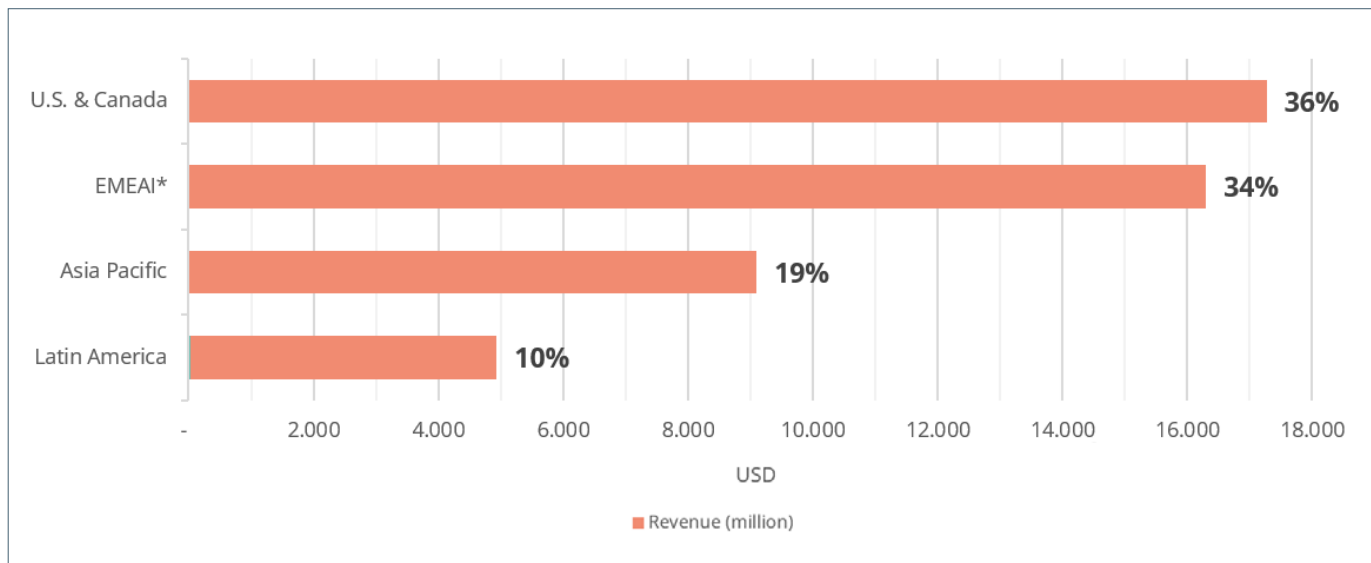


Figure 2: Revenue (%) - Breakdown by Geography (5Y Avg.). * Europe, the Middle East, Africa and India.
Source: DOW Annual Reports 2019-2023.

Given its substantial market share in both North America and EMEAI regions, Dow is particularly exposed to climate transition risks and opportunities driven by the evolving regulatory landscapes in these geographic areas. Furthermore, the company's reliance on its "Packaging & Specialty Plastics" segment makes its climate transition progress highly dependent on the advancements in this sector.

Climate Alignment

EMISSIONS INVENTORY

In Dow's most recent greenhouse gas (GHG) emissions disclosures³, its total footprint stands at 109,011 KTCO₂e. Examining the breakdown of these emissions in 2023, we found that operational emissions represent 26.9% of its footprint, with Scope 1 GHG emissions accounting for 24.3% of the total emissions, and Scope 2 emissions (location-based) making up the remaining 2.7%. The majority, amounting to 73.1%, originated from Scope 3 activities. Within this scope, 44.7% of the total footprint can be attributed to upstream activities⁴, while downstream activities⁵ were responsible for 28.4%. Notably, the main contributors include "Purchased Goods," accounting for 37.3% of total emissions, and downstream "Consumption" contributing 24.7%, as shown in Figure 3.

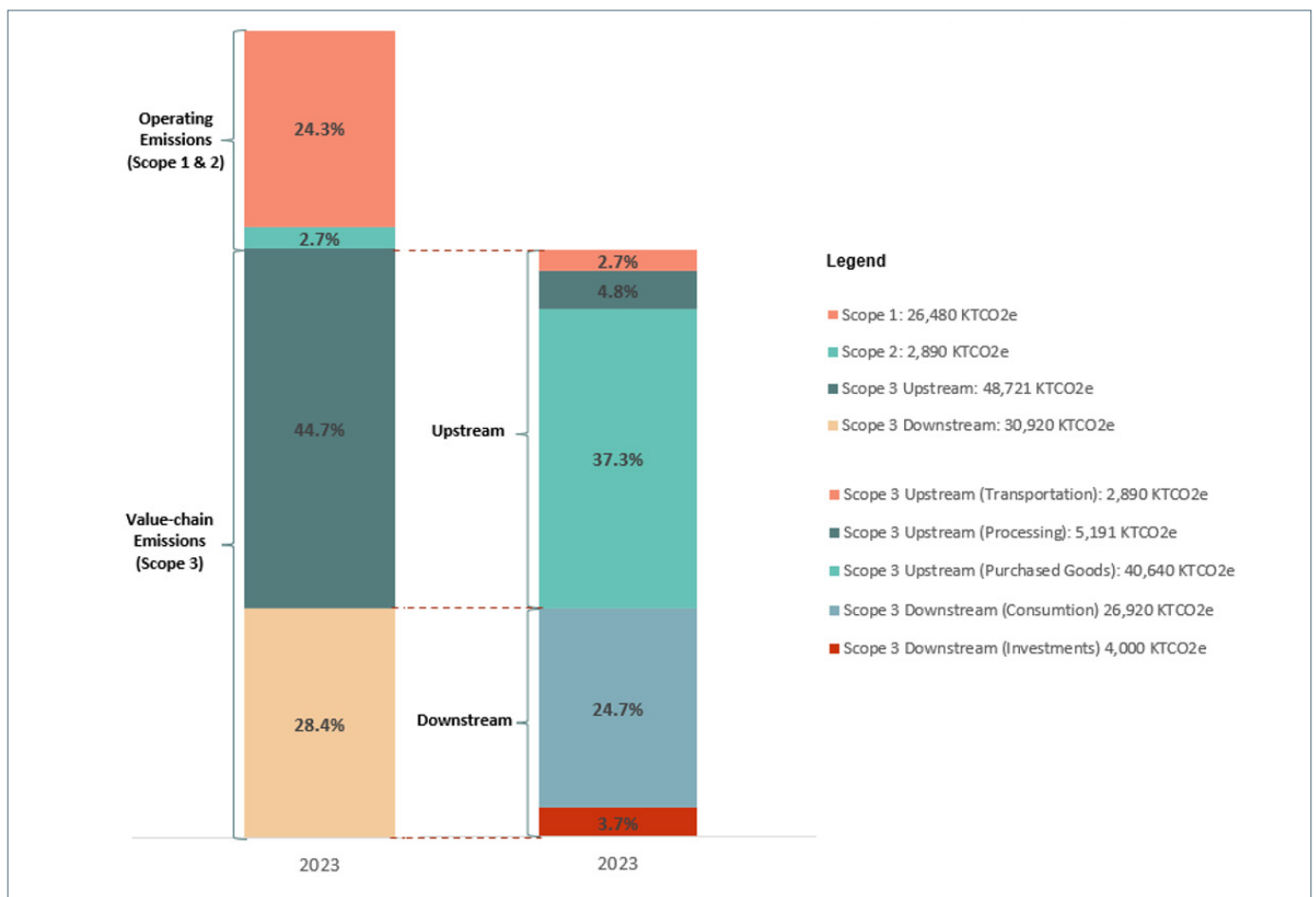


Figure 3: Value Chain GHG Emissions (2023) - Percentage Breakdown by Scope.
Source: Dow 2023 Greenhouse Gas (GHG) Protocol Disclosure Report.

³ Presented in its 2023 [Greenhouse Gas \(GHG\) Protocol Disclosure Report](#).

⁴ **Scope 3 upstream** emissions include: (1) Purchased Goods - accounting for the emissions associated with chemicals considered as feedstock; (2) Processing - including the "Capital Goods" emissions - i.e., emissions from any material or chemical not included in the list of feedstocks, the emissions from "Fuel and Energy Activities" not covered in Scope 1 and 2, and emissions from hazardous and non-hazardous "Waste from Operations"; and upstream emissions from "Leased Assets"; (3) Transportation - covering emissions from "Transport & Distribution" associated with inbound (suppliers) and outbound transport operations, as well as emissions from "Employee commuting" and "Business Travel".

⁵ **Scope 3 downstream** emissions include: (1) Consumption - covering emissions associated with the "Use of sold products" and emissions from "End of life treatment of sold products" - i.e., disposal or emissions related to the typical end-of-life treatments arising during recycling, incineration, and landfilling of articles made of plastic products at the end of their service life; (2) Investments - referring to the emissions for investments in associated and joint arrangement manufacturing companies.

To assess the company's potential emissions evolution, we examine their historical changes. While Planet Tracker's preference is to analyse Dow's total emissions evolution over the past five years (2019 to 2023), the company only began disclosing its full emissions footprint in 2020. Hence, this limits the period available for a like-for-like analysis to the last four years (i.e., 2020 to 2023).

EXTERNALITIES TRENDS AND TARGETS

Company Trends

Between 2020 and 2023, Dow achieved a 10.9% reduction in total GHG emissions, lowering its footprint from 122,410 KTCO₂e in 2020 to 109,011 KTCO₂e in 2023. This decline reflects decreases across all emissions categories, including an annual reduction of 2.7% in Scope 1 emissions, 9.9% in Scope 2, 4.4% in Upstream Scope 3, and 3.1% in Downstream Scope 3 emissions, as shown in Table 1.

Table 1: Restated Scope 1, 2, and 3 CO₂e evolution (2020-2023).

Source: Dow's 2023 GHG Protocol Disclosure Report and Planet Tracker Calculations

Scope	Restated 2020 (KTCO ₂ e)	2023 (KTCO ₂ e)	Compounded annual change % (2020-2023)	Absolute Change % (2020-2023)
Scope 1 GHG Emissions	28,760	26,480	-2.7%	-7.9%
Scope 2 GHG Emissions (location-based)	3,950	2,890	-9.9%	-26.8%
Scope 3 Upstream GHG Emissions	55,720	48,721	-4.4%	-12.6%
Scope 3 Downstream GHG Emissions	33,980	30,920	-3.1%	-9.0%
Scope 1, 2 and 3 GHG emissions	122,410	109,011	-3.8%	-10.9%

However, it is important to note that Dow revised its historical emissions data in its 2023 GHG Protocol Disclosure Report⁶. The company stress that the restatement was necessary to account for improvements in Scope 3 calculation methods and data management. If we were to consider the original figures, the results would be notably different. Without the restatement, Dow's total GHG emissions would have increased by 6.6%, driven primarily by an 18.4% annual increase in Downstream Scope 3 emissions, as detailed in Table 2.

⁶ For more details see its 2023 [Greenhouse Gas \(GHG\) Protocol Disclosure Report](#).

Table 2: Scope 1, 2, and 3 CO₂e evolution (2020-2023). Source: Dow's 2023 GHG Protocol Disclosure Report, Dow's CDP Climate Answers 2021-2023 and Planet Tracker Calculations

Scope	Restated 2020 (KTCO ₂ e)	2023 (KTCO ₂ e)	Compounded annual change % (2020-2023)	Absolute Change % (2020-2023)
Scope 1 GHG Emissions	28,165	26,480	-2.0%	-6.0%
Scope 2 GHG Emissions (location-based)	4,855	2,890	-15.9%	-40.5%
Scope 3 Upstream GHG Emissions	50,624	48,721	-1.27%	-3.8%
Scope 3 Downstream GHG Emissions	18,633	30,920	18.4%	65.9%
Scope 1, 2 and 3 GHG emissions	102,276	109,011	2.1%	6.6%

Although the updated data in Table 1 is intended to improve comparability, the differences between the original and restated figures are substantial. As shown in Figure 4, the 2020 baseline changes by 20%, depending on whether we use the original or restated values. This is a significant point to be aware of, given that top chemical companies targeting net-zero alignments typically aim for reductions between 12% and 34% by 2030.⁷

Nevertheless, Dow representatives emphasise that this restatement should be viewed as a more comprehensive disclosure of GHG emissions, especially for Scope 3, and argue that the older data should not be factored into future trend assessments. Furthermore, they state that this restatement has received "limited assurance" from Deloitte⁸, adding a layer of validation to the new figures. Planet Tracker welcomes the verification by external bodies of such methodology changes as we anticipate a significant number of companies restating their emission data.

⁷ For more details see [Tomorrow's Chemistry](#) – Table 10.

⁸ For more details see pages 168 and 175 of the [2023 INtersections Progress Report](#). Notably, Deloitte states: "Because of the limited nature of the engagement, the level of assurance obtained in a review is substantially lower than the assurance that would have been obtained had an examination been performed. We believe that the review evidence obtained is sufficient and appropriate to provide a reasonable basis for our conclusion" & "Further, any information relating to forward looking statements, targets, goals and progress against goals, as well as comparative period disclosures newly included in the 2023 Intersections Progress Report, was not subject to our review and, accordingly, we do not express a conclusion or any form of assurance on such information". Hence, investors will need to double-check with the company what was assured and what was excluded.

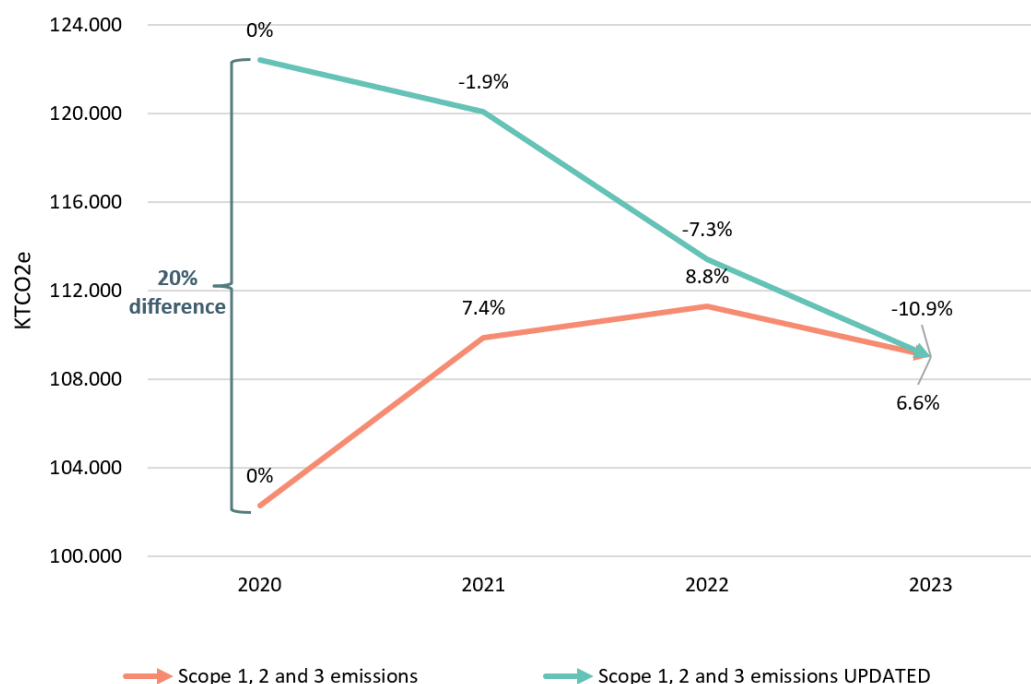


Figure 4: Scope 1, 2, and 3 CO₂e evolution (2020-2023) vs Restated Scope 1, 2, and 3 CO₂e evolution (2020-2023).
Source: Dow's 2023 GHG Protocol Disclosure Report, Dow's CDP Climate Answers 2021-2023 and Planet Tracker Calculations.

Company Targets

In Dow's [2023 Intersections Progress Report](#), the company outlined three key climate targets: a short-term goal to reduce net annual emissions⁹ by 2,000 KTCO₂e by 2025 from a 2020 baseline; a mid-term goal of a 5,000 KTCO₂e reduction by 2030; and a long-term objective of achieving carbon neutrality by 2050.¹⁰

While Dow committed to limiting the global temperature rise well below 2°C, its 2030 target represents only a 4% reduction from its 2020 restated footprint of 122,410 KTCO₂e. Even when focusing solely on operating emissions, its goal by 2030 would still be around a modest 15%. In contrast, as shown in Table 3, the rest of the chemical companies on the CA100+ list target operating emissions cuts of between 25% and 42% by approximately the same year.

⁹ These only include operating emissions – i.e., Scope 1 and 2.

¹⁰ Dow's carbon neutrality includes operation emissions (S1 & 2) as well as some undefined S3 emissions linked to products benefits.

Table 3: CA100+ Chemical Companies - Medium-Term Transition Targets

Source: *Tomorrow's Chemistry*

Company	Target Base Year	Target Achievement Year	Scope 1 & 2 Mitigation Target	Scope 3 Mitigation Target
Air Liquide	2021	2035	35.0%	60.0%*
BASF	2018/2022	2030	25.0%**	15.0%**
Bayer	2019	2030	42.0%	12.3%***
DOW	2020	2030	15.0%	-
Incitec Pivot	2020	2030	42.0%	42.0%
LyondellBasell	2020	2030	42.0%	30.0%
Toray	2014	2031	40.0%****	-

* Air Liquide's Scope 3 mitigation target only covers specific Scope 3 emissions from the use of fossil fuels.

** BASF has two baseline years, one (2018) for its operating emissions and another one (2022) for its Scope 3 ambition. Also, as stated by the company, BASF's 2030 target is 'excluding the effects of the planned growth', and its Scope 3 ambition only covers upstream Scope 3 'Purchased Goods and Services' emissions.

*** Bayer's Scope 3 mitigation target only covers upstream Scope 3 emissions.

**** Toray's commitment to reduce its emissions is limited to its Japanese operations (Scope 1 and 2).

In summary, if we rely on the restated data, Dow appears to be on track to meet its current ambitions. However, with a target of 4% of total emissions, we would argue that the company aligns more closely with a 3°C warming scenario, rather than the well-below 2°C pathway it aims to support. In the following sections, we will assess whether Dow's disclosed initiatives to achieve carbon neutrality reflect a more ambitious strategy than its stated targets suggest.

Policy and Governance

ENGAGEMENT AND INFLUENCE

Suppliers' Engagement

Over 70% of Dow's GHG emissions are classified under Scope 3, with more than half coming from upstream activities. Therefore, suppliers' engagement is critical in the company's transition plans. Accordingly, the company's key 2023 highlights include:

- **Supplier Engagement through CDP:** Dow invited 502 suppliers (out of 30,000), representing 80% of its upstream Scope 3 emissions, to participate in the CDP Supply Chain Program¹¹. While 67% of these suppliers reported climate-related goals, the tangible emissions reductions tied to these commitments are yet to be fully quantified. The company vaguely stated that collectively, its "suppliers have pledged to reduce millions of tons of CO₂e across Scopes 1, 2 and 3 by 2030" ([2023 Intersections Progress Report](#), page 19). Still, no details on specific amounts, strategy, or feasibility were disclosed.
- **Sustainable Procurement:** Dow disclosed that it integrates sustainability criteria into its procurement decisions. This is supported by a 70-point EcoVadis rating, placing the company in the top 25% of businesses in sustainable procurement. While higher clarity regarding the direct link between this rating and measurable emissions reductions would be enlightening, some insights are presented in the subsequent "Sustainable Procurement Policy" section.
- **Improved Scope 3 Accounting:** In 2023, Dow enhanced its emissions reporting by incorporating primary supplier data. This seems to be a positive step toward transparency, though it remains to be seen how these insights will drive actionable decarbonisation efforts across the supply chain.
- **Data Visualization Tools:** A new Dow internal dashboard provides detailed insights into Scope 3 emissions by supplier and material. This tool has the potential to improve decision-making, but its effectiveness in guiding decarbonisation actions is yet to be demonstrated.
- **Logistics Decarbonisation:** Initiatives such as the use of biomethane and CNG in Brazil, and electric trucks in India, show progress in reducing logistics emissions. These efforts, while positive, address only a small portion of Dow's footprint – i.e., 2.7% of its total GHG emissions.

¹¹ With less than 2% of suppliers by number representing 80% of Dow's upstream Scope 3, investors should pay attention when chemical companies argue they have thousands of suppliers and cannot engage with them all. As shown in this case, that might not be a solid argument as engaging approximately 5% of them may cover close to 100% of their upstream Scope 3.

Sustainable Procurement Policy

According to the company, Dow's procurement policies now include sustainability metrics, and its [Code of Business Conduct for Suppliers](#) outlines its ESG expectations. Furthermore, these standards are aligned with global frameworks like the UN Global Compact, though the impact of enforcement actions or compliance is not extensively detailed. Key 2023 actions include:

- **ESG Training:** Dow introduced mandatory ESG training for procurement teams, which aims to enhance the internal alignment with sustainability goals, though the measurable effect on procurement outcomes remains to be assessed.
- **Supplier Improvement Efforts:** Dow used supplier assessments to guide corrective action plans for underperforming suppliers. While this indicates proactive engagement, the long-term impact on emissions reductions and overall sustainability improvements needs further validation.
- **Recognition Programs:** High-performing suppliers were acknowledged through awards and financial incentives, an encouraging step to promote sustainable practices.

In summary, while Dow's engagement with suppliers and procurement initiatives reflect a structured approach to addressing Scope 3 emissions, the potential emissions reductions achieved through these efforts remain difficult to assess.

Customers' Engagement

Dow's products play a critical role in reducing global GHG emissions through innovations that enable energy efficiency, lightweighting, fuel transitions, and resource reductions across various industries. By aligning its product development with sustainability objectives, Dow could support its customers in lowering their Scope 3 emissions and meeting their own climate goals. The company's 2023 highlights in this area include:

- **ENDURANCE™ HFDD-4201 SC Compound:** This cross-linked polyethylene (XLPE) solution for high-voltage transmission cable systems reduces the degassing period during manufacturing, which typically takes weeks. By cutting degassing times, this product helps reduce emissions in the manufacturing process without compromising on quality, representing a tangible improvement in energy efficiency. The energy efficiency enhancement and its impact on GHG emissions reduction is not disclosed by Dow.
- **Caustic Soda with Reduced Carbon Footprint:** Dow introduced two caustic soda products with up to 90% lower CO₂ emissions, achieved through an electrolysis process powered by renewable energy. This innovation helps customers reduce their Scope 3 emissions, and the process is certified under the ISCC PLUS mass balance framework, reinforcing its sustainability credentials. Yet, the impact of this product on Dow's footprint is not disclosed.
- **EcoSense™ 2470 Surfactant:** Developed in collaboration with LanzaTech, this surfactant leverages carbon capture technology to create sustainable raw materials for the home care market. The product allows customers to meet their formulation sustainability goals, contributing to emissions reductions without sacrificing performance. However, once again, the company does not disclose the link between this product and its Scope 3 GHG mitigation.

- **Propylene Glycol Solutions:** Dow launched a new range of propylene glycol solutions made from bio-based or circular feedstocks. These products, used across industries such as pharmaceuticals and agriculture, offer third-party-validated GHG reductions and are certified by ISCC PLUS through a mass balance approach. Still, overall GHG reduction numbers are not disclosed by Dow.

In short, by introducing innovative solutions that directly address GHG emissions in manufacturing and supply chains, Dow aims to support its customers' sustainability goals while maintaining its product quality. Nevertheless, these examples seem to be anecdotal as the broader impact of these innovations on Dow's overall Scope 3 footprint remains undisclosed.

Influence on Policymakers and Trade Associations

Dow's climate policy engagement presents a mixed picture. While the company's public messaging on climate action is generally supportive of initiatives like the Paris Agreement and market-based carbon pricing, its direct engagement on specific policies reveals more cautious and sometimes opposing stances, particularly regarding the energy transition and stricter GHG regulations. For instance, in 2023 comments on proposed EPA power plant rules, Dow raised concerns over the feasibility of certain emissions standards, questioning their technical and scientific basis.

When it comes to energy transition, Dow has consistently advocated for the continued role of fossil fuels in the energy mix, pending the industry's transition. In 2024, it partnered with the Wyoming State government on the Wyoming Gas Injection Initiative to extend oil field productivity, signalling its preference for incremental changes rather than rapid transitions. Similarly, the company voiced its opposition to aspects of the Inflation Reduction Act's hydrogen tax credits, particularly those aimed at moving away from fossil fuel-based hydrogen. In further comments on EPA regulations, Dow advocated for natural gas connected to carbon capture (CCUS) as a necessary component of the energy transition, while also suggesting delays in compliance mandates for natural gas utilities.

Furthermore, as shown in Table 4, Dow's membership in several industry associations, including the American Fuel & Petrochemical Manufacturers (AFPM) and the US Chamber of Commerce, among others, raises questions about the alignment of its climate advocacy with its public commitments. While Dow discloses its association memberships, it provides limited transparency on how these groups' lobbying activities may influence its climate position. In particular, associations like AFPM and the National Association of Manufacturers (NAM) have a history of opposing ambitious climate policies, which contrasts with Dow's stated support for climate action.

Table 4: Dow's Misaligned Trade Associations
Source: InfluenceMap

Dow's Trade Associations	InfluenceMap Score	Climate Policy Status
Business Roundtable	D	Misaligned
German Chemical Industry Association (VCI)	D	Misaligned
Tennessee Chamber of Commerce & Industry	E+	Misaligned
US Chamber of Commerce	E	Misaligned
National Association of Manufacturers (NAM)	E	Misaligned
Michigan Chamber of Commerce	E-	Misaligned
American Petroleum Institute (API)	E-	Misaligned
Petrochemical Industry Association of Taiwan	E-	Misaligned
American Fuel & Petrochemical Manufacturers (AFPM)	E-	Misaligned
California Chamber of Commerce (Cal-Chamber)	F	Misaligned

In response to Table 4, company representatives argued that Dow's climate policy follows the company's general policy¹², and as a result, their approach is to continue the dialogue with those trade associations at odds with climate transition. Ultimately, they advocate for "change from within" as the key approach to driving the transition forward, with no time limit for change. Dow management can justifiably argue that this approach mirrors that of many of their major shareholders, which defend the ongoing engagement without an agreed date for removal should their engagement approach fail.

¹² For more details see [Dow's Public Policy](#).

MANAGEMENT ALIGNMENT

Sustainability Targets Oversight

A. The Board

According to the company, Dow's [Board of Directors](#) plays a key role in overseeing the company's sustainability strategy, risk management, and overall performance, including climate-related initiatives. The Environment, Health, Safety & Technology Committee (presented in Table 5) is specifically responsible for guiding the company's efforts on carbon emissions reduction, circular economy solutions, and climate protection. This committee aims to ensure that sustainability considerations are integrated into broader business strategy and risk mitigation, aligning with Dow's long-term environmental goals.

Table 5: Board of Directors
Source: [Dow's 2023 Ambition and Governance Overview](#)

Committee	Audit Committee	Compensation and Leadership Development	Corporate Governance	Environment, Health, Safety & Technology
Jim Fitterling (Chairman & CEO) ¹³				
Richard K. Davis (Independent Lead Director)	Chair		•	
Samuel R. Allen		•	Chair	
Gaurdie E. Banister Jr.		•		•
Wesley G. Bush	•		•	•
Jerri DeVard	•			•
Debra L. Dial	•			•
Jeff M. Fettig		Chair	•	
Jacqueline C. Hinman		•	•	Chair
Luis Alberto Moreno		•		•
Jill S. Wyant		•		•
Daniel W. Yohannes	•			•

¹³ James (Jim) Fitterling is also the Chair of the Board for the Alliance to End Plastic Waste – Source: [link](#). Although this organisation improved to some degree in the last couple of years, in the past Planet Tracker concluded their ambitions had little credibility – for more details see [Barely Credible](#).

Key actions taken by the Board in response to stakeholder feedback and Dow's commitment to environmental performance, include:

- Prioritising near-term investments in lower-risk, high-return projects, while maintaining focus on Dow's long-term decarbonise and growth strategy.
- Strengthening the alignment between performance and accountability by incorporating a specific GHG emissions reduction metric into the company's long-term incentive compensation program.
- Establishing detailed GHG emissions reduction plans for Scope 1 and 2 across Dow's top 25 manufacturing sites.
- Committing to defining Scope 3 emissions for purchased goods and services, fuel and energy-related activities, and transportation by the end of 2023.

B. The Management

Dow's executive leadership, as per the company's disclosures, drives its sustainability agenda, with multiple cross-functional teams focused on environmental performance and climate-related objectives. These include the Environmental, Social, and Governance (ESG) Steering Team, the Climate Steering Team, the Circularity Program Management Office (PMO), the Science & Technology Advisory Council (STAC), and the Sustainability External Advisory Council (SEAC). Each group is tasked with specific roles in developing, executing, and monitoring Dow's sustainability strategy.

The CEO holds ultimate responsibility for leading Dow's sustainability efforts, providing oversight for strategy development and execution related to climate change. Accordingly, the CEO engages with the Board regularly to ensure that sustainability and climate change are prioritised in corporate decision-making. Also, the CEO works closely with the Independent Lead Director to ensure these issues are adequately addressed in Board discussions. The Leadership Team, which the CEO chairs, supervises the activities of the Climate Steering Team and PMO, aiming to secure an alignment on key initiatives such as GHG emissions reduction, technology investments, and capital planning.

In summary, this structured governance framework seems to ensure that Dow's sustainability targets are actively managed and integrated into the company's overall strategic objectives. Also, the inclusion of emissions reductions in executive compensation, as detailed in the next section, shows to some degree the company's ambitions to progress in its climate transition efforts.

Management Compensation

In 2023, Dow presented an executive remuneration that includes both short and long-term incentives linked to sustainability¹⁴.

¹⁴ Planet Tracker examined Dow executive compensation, previously, in Sept 2023 and compared it to other plastic companies, unfortunately not much changed - For more details see: [Plastics – Executive Compensation](#).

A. Short Term Incentives (STI)

In the short term, Dow’s management would have on top of their base salary a performance award. As shown below, in Figure 5, the Performance Award will be equal to an individual’s target award multiplied by the performance related to Operating EBIT, Free Cash Flow and certain customer, sustainability, and inclusion and diversity metrics, defined as the Ambition metrics. The payout will be adjusted by the individual performance factor assessment, which includes safety performance. The final award value will range from 0% to 200% of the target.

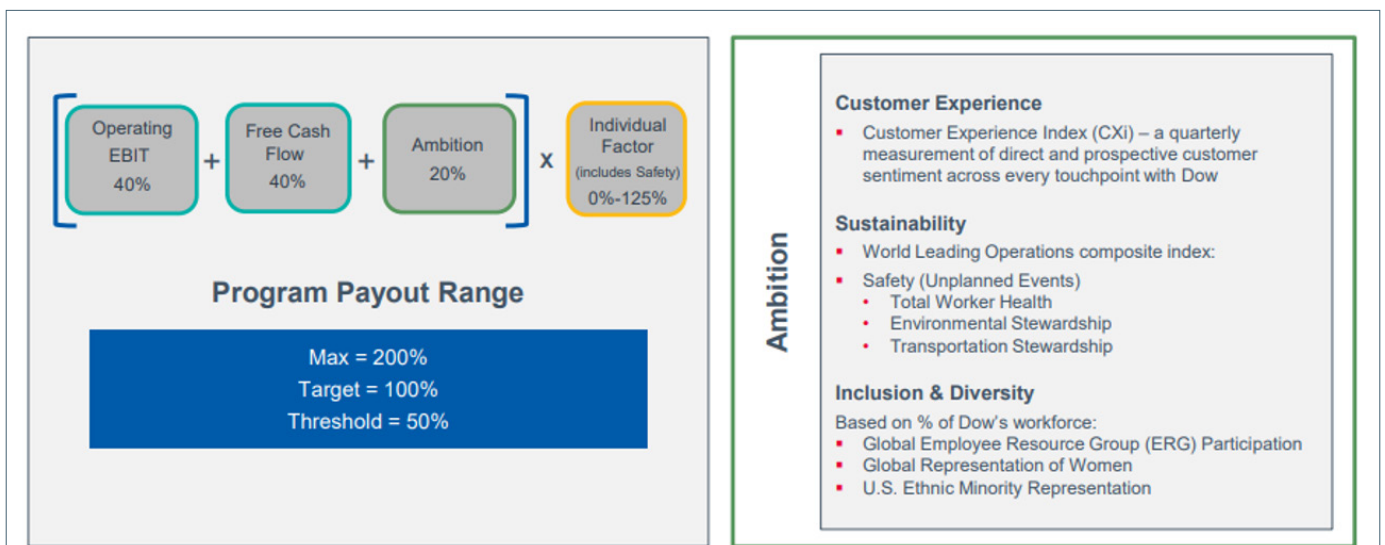


Figure 5: Shot-term compensation - Dow’s Annual Performance Award Design.

Source: [Dow-ambition-and-governance-overview-2023](#).

As detailed in Figure 5, the Ambition metric for short-term incentives is comprised of three elements, one of which is “sustainability”. The “sustainability” metric is measured by the World Leading Operations (WLO) Index—a composite index measuring safety (unplanned events), total worker health, environmental stewardship and transportation stewardship.

Hence, it is unclear how much of the incentive is comprised environmental considerations. If we assume that “environmental stewardship” represents one-third of the sustainability metric and that the sustainability metric represents one-third of the ambition metric, then the environmental considerations would add 2% to the left-hand multiplier. In Planet Tracker view this is not material.

B. Long Term Incentives (LTI)

Regarding long-term compensation (LTI), each year, the company grants equity-based awards to leaders and key employees who demonstrate high performance and contribute to long-term stockholder value creation.

To align the LTI programs to the Dow's strategy to decarbonise and grow, the Compensation and Leadership Development Committee approved including carbon emissions reduction metrics in the 2022-2024 Performance Share Program. According to the company, the program design includes updates that incentivise reaching zero-carbon emissions by 2050 through increasing the positive impact on customers, business, and society, while also supporting Dow's commitment to reduce its net annual Scope 1 and 2 emissions by 5,000 KTCO₂e by 2030 from a 2020 baseline.

The carbon emissions reduction metric represents 20% of the 2022-2024 Performance Share Program design. Consistent with the 2021-2023 Performance Share Program, the Committee determined that Operating ROC and Cumulative Cash from Operations would be key financial performance metrics for the 2022-2024 Performance Share Program with Relative TSR as a modifier, which together represent 80% of the measured performance. This breakdown is presented in Figure 6.

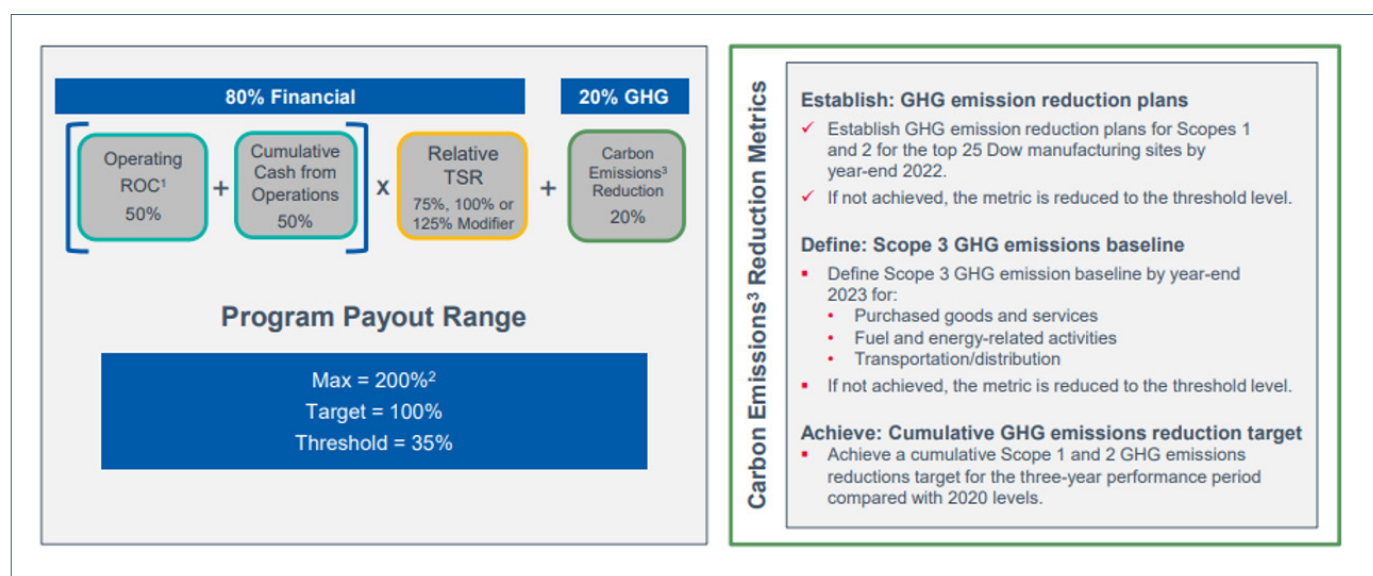


Figure 6: Long-term compensation - Dow's Long-Term Incentive Accountability.

Source: [Dow-ambition-and-governance-overview-2023](#). ¹Operating ROC is a non-GAAP measure. ²Capped at 200% for the combined total of Operating ROC plus Cumulative Cash from Operations, even when considering modification based on Relative TSR, plus Carbon Emissions Reduction Metrics. ³All references to carbon are specific to GHG emissions in carbon dioxide equivalent (CO₂e).

Furthermore, while the LTI would seem material, it comes with a cap of 200% for the combined total of Operating ROC plus Cumulative Cash from Operations, even when considering modification based on Relative TSR, plus Carbon Emissions Reduction Metrics. Hence, it is unclear whether overachieving the financial targets might deem the GHG targets irrelevant from a compensation point of view.

In conclusion, Dow presents a solid governance framework that aims to ensure Dow's sustainability targets. At the same time, the inclusion of emissions reductions in executive compensation supports it. However, greater clarity is needed to understand the level of incentives offered in the short and long term, especially when capping incentive payout at 200% of the target. Consequently, we would recommend a separate bucket approach rather than one where the environmental element could become irrelevant when financial targets are maxed out.

Risk Analysis

FINANCIAL IMPACT

Dow faces a range of climate-related risks and opportunities with significant potential financial impacts, as it navigates its transition.

External Policy Drivers¹⁵

According to the company, one of the most immediate risks involves the cost of regulatory compliance, such as carbon pricing, which is becoming more prevalent across multiple jurisdictions. For example, Dow discloses that its operations in Canada are exposed to carbon pricing that could reach up to USD 100 per ton of CO₂e by 2030. Thus, based on the company's calculations, this compliance tax could potentially impact operational costs by USD 110 million annually. However, based on Planet Tracker calculations, Canada represented only 3.7% of Dow's operation emissions in the last three years (i.e., 2020-2022¹⁶) on average. If we apply the Inevitable Policy Response (IPR) carbon pricing by 2030 to all jurisdictions where Dow operates, the annual cost would be significantly higher, reaching up to USD 1.9 billion, as shown in Table 6.

Table 6: Dow's Potential Carbon Cost - based on the Company's Operating Emissions by 2030 and IPR pricing; Source: Dow's CDP Climate responses 2020-2022.

Region	Scope 1 + 2 GHG emissions % per Region (3Y Avg.)	IPR Carbon Price by 2030 (USD / tCO ₂)	S1+S2 KTCO ₂ e (2030 estimate ¹⁷)	Scope 1&2 Carbon Cost 2030 (USD million)
Canada	3.7%	85.00	1,022.7	86.9
China	0.9%	60.00	244.1	14.6
Central and South America	4.5%	45.00	1,249.5	56.2
South East Asia and Oceania	1.4%	45.00	397.1	17.9
United States	61.1%	65.00	16,928.0	1,100.3
Western Europe	27.7%	75.00	7,676.5	575.7
Rest of World	0.7%	55.48	192.3	10.7
TOTAL	100.0%	67.21	27,710.0	1,862.4

¹⁵ Source: Dow 2023 CDP Climate Change Response – Section C2.3a.

¹⁶ These are the latest years for which we have a geographic breakdown.

¹⁷ The estimate was calculated as the sum of Scope 1 and 2 in 2020 minus 5,000 KTCO₂e (as Dow's target by 2030 is assumed to be achieved).

Furthermore, achieving its decarbonisation goals of reducing Scope 1 and 2 emissions by 5,000 KTCO₂e by 2030, while a relatively modest target¹⁸, requires significant investments. Dow estimates spending approximately USD 1 billion annually across economic cycles to decarbonise its operations, particularly in areas like advanced manufacturing technology and clean energy solutions. This expenditure level is consistent with the potential cost savings of avoiding or reducing the carbon pricing impact Planet Tracker calculated. At the same time, according to Dow, these investments are expected to generate long-term returns, including USD 3 billion in EBITDA improvements by 2030. However, while the financial benefits of these initiatives seem promising, inevitably they depend on successful project execution and external factors like energy prices, regulatory frameworks, and technological advancements.

In short, Dow's ability to manage these risks will be critical to maintaining its competitive advantage while adapting to evolving market and regulatory expectations for sustainability.

Physical Impact Drivers¹⁹

Beyond regulatory costs, Dow has identified physical risks from climate change, particularly acute weather events like hurricanes and cyclones. Its operations along the U.S. Gulf Coast, including key sites like Freeport and St. Charles, are increasingly vulnerable to such disruptions²⁰. For example, severe weather events like Hurricane Ida in 2021 resulted in significant operational downtime, leading to approximately USD 100 million in financial impacts, as disclosed by the company in its 2023 CDP Climate response. Winter Storm Uri in 2021 had an even greater effect, costing Dow around USD 400 million in the first quarter alone. While these examples are notable, Dow does not disclose the expected financial impact of physical risks across all facilities.

Market Impact Drivers²¹

Dow also has opportunities to capitalise on the transition to a low-carbon economy. One such opportunity is the introduction of its Decarbonise and Grow initiative, which includes expanding capacity while reducing emissions. Such an example is its Fort Saskatchewan facility which is expected to generate between USD 700 million and USD 1.2 billion in additional annual revenue by 2030, according to the company. However, these returns are contingent upon successful execution and a stable regulatory environment that incentivises low-carbon technologies. For instance, this project, which aims to establish the first net-zero Scope 1 and 2 emissions-integrated ethylene cracker, highlights both the financial and operational risks of pioneering new technologies. Delays, cost overruns, or regulatory shifts could impact the financial viability of such projects, and management and investors should pay close attention to their delivery.

¹⁸ Remember that Dow aims to reduce its operating emissions by 15% by 2030. In contrast, the rest of the chemical companies on the CA100+ list are targeting operating emissions cuts of between 25% and 42% by the same year – see [Tomorrow's Chemistry](#) – Table 2 for more details.

¹⁹ Source: Dow 2023 CDP Climate Change Response – Section C2.3a.

²⁰ For more details see [Stormy Outlook - For Us Plastics Refiners](#).

²¹ Source: Dow 2023 CDP Climate Change Response – Section C2.3b.

RISK MANAGEMENT

Dow states that its risk management framework is integrated into its broader sustainability strategy, which covers both, physical and transitional climate risks. Accordingly, the company's **Enterprise Risk Management (ERM)** process, reviewed quarterly, considers various climate-related risks, including regulatory changes, physical disruptions, and evolving market demands.

External Policy Risk Management

According to the company, the **Climate Steering Team (CST)** and the **Program Management Office (PMO)** are instrumental in managing climate-related risks at Dow. They are responsible for tracking emissions reductions, developing new technologies, and ensuring alignment with global regulatory requirements. Dow also discloses the adoption of carbon pricing in its internal investment planning as proof of the company's focus on incorporating climate risks into financial decision-making, ensuring that future capital investments align with decarbonisation goals.

Physical Impact Management

Regarding physical risk management, according to Dow, the company uses climate scenario analysis to assess potential long-term impacts, including the effects of different climate pathways (RCP 2.6, 4.5, and 8.5). These analyses help Dow prepare for both acute and chronic physical risks, such as hurricanes and water stress. For instance, a detailed review of Dow's sites found that several locations, including those in water-stressed regions like Bohlen, Germany, and Terneuzen, the Netherlands, face chronic risks related to water scarcity. Consequently, Dow has implemented water recycling and process optimisation to secure these critical resources, though it has not disclosed the related financials behind the initiative.

In conclusion, while Dow faces significant risks from both regulatory and physical impacts of climate change, its risk management approach has the potential to manage these challenges. However, it's a pity that the company offers little detail about the cost of its mitigation initiatives, especially regarding physical risks, leading to uncertainty when it comes to their feasibility and implementation.

Strategic Assessment

CAPITAL ALIGNMENT

In 2023, Dow's total capital expenditures reached USD 2.36 billion, with 38.5% of these expenditures, approximately USD 908 million, directed toward projects with direct environmental sustainability objectives. Moreover, 36% of the total spending, amounting to USD 848 million, was specifically aligned with climate-related initiatives, according to Dow. Key projects within this climate-aligned capital include:

- **Net-Zero Manufacturing Facility:** Investment in Dow's first net-zero Scope 1 and 2 emissions facility in Fort Saskatchewan, Alberta, is presented as a cornerstone of its decarbonisation strategy. This facility aims to play a significant role in reducing Dow's carbon footprint and its broader climate transition plan, by eliminating 1,000 KTCO₂e annually²² and setting the blueprint for other facilities. The project is expected to cost up to USD 6.5 billion and its construction will start in 2024, aiming for phase one completion by 2027 and phase two by 2029²³.
- **Steam and Power Asset Upgrades:** In Louisiana, Dow replaced obsolete steam and power assets with more efficient technologies, contributing to lower Scope 1 emissions. This investment showcases Dow's focus on modernising its operations to enhance efficiency and reduce emissions.
- **Flare Gas Recovery Projects:** At several U.S. Gulf Coast sites, Dow implemented flare gas recovery systems, enabling the company to recycle or use recovered flare gas as an alternative fuel. According to the company, this project reduces both Scope 1 and Scope 2 emissions and improves resource efficiency within existing operations. However, the mitigated quantity of GHG emissions was not disclosed.

Dow's forward-looking capital alignment reflects its strategic intent to increase sustainability-driven spending. By 2025, the company anticipates that more than 60% of its annual capital expenditures will be dedicated to projects with environmental sustainability drivers. This shift will be driven largely by the continuation of Decarbonise & Grow projects (i.e., Growth Capex), including further investments in carbon-neutral technologies and circularity initiatives.

Consequently, a key component of this strategy is the recent completion of Dow's inaugural green bond offering, which raised over USD 1.25 billion. These funds will support Dow's Path2Zero project in Fort Saskatchewan and its Transform the Waste initiative. These projects are described by Dow as critical to advancing the company's low-carbon and circular economy objectives.

Dow's capital alignment demonstrates its commitment to integrating sustainability into financial and operational planning. Investments in decarbonisation and climate-resilient infrastructure could position Dow to meet its 2030 sustainability goals. However, as previously stated these are relatively modest and its long-term ambition of achieving carbon neutrality by 2050 would require a higher ambition and most likely a higher investment.

²² For context, Dow's Scope 1 and 2 in 2023 totalled 29,370 KTCO₂e.

²³ For more details see [Dow's Board Approves Investment in New Production Facility | Corporate Dow](#)

TRANSITION APPRAISAL

Despite these investments, Planet Tracker believes Dow's current climate strategy is not ambitious enough to align with the well-below 2°C pathway and instead positions the company closer to a **3°C warming scenario by 2030**.

Dow reported a 10.9% reduction in total GHG emissions between 2020 and 2023, with significant revisions to its Scope 3 emissions data. Despite this progress, Dow's target of a 4% reduction in total emissions by 2030 is modest compared to its industry peers. This level of ambition aligns more closely with a 3°C warming scenario rather than the well-below 2°C pathway the company aims to support.

In terms of policy and governance, Dow has engaged suppliers and customers in sustainability initiatives, but the lack of transparency and quantifiable results makes it difficult to assess potential emissions reductions. While the company has established governance structures that integrate sustainability oversight at the board and management levels, the unclear impact of executive compensation incentives raises questions about their effectiveness in driving meaningful progress. Additionally, Dow's policy stance and memberships in trade associations that oppose ambitious climate action raise concerns about the alignment between its public commitments and actual influence.

Financially, Dow faces significant risks from potential carbon pricing, which could amount to up to USD 1.9 billion annually by 2030. The company plans to invest approximately USD 1 billion per year in its decarbonisation efforts, expecting USD 3 billion in EBITDA improvements by 2030. Physical climate risks have already resulted in substantial operational disruptions, such as the USD 400 million impact from Winter Storm Uri in 2021. While Dow has a risk management framework in place, the lack of detailed disclosures regarding risk management and its costs creates uncertainty about its effectiveness.

Strategically, Dow allocated 36% (USD 848 million) of its 2023 capital expenditures to climate-related initiatives, including the development of a net-zero emissions facility. The company plans to increase sustainability-driven spending to over 60% of annual capital expenditures by 2025. However, given the modesty of its 2030 emissions reduction targets, achieving carbon neutrality by 2050 would require greater ambition and more aggressive action.

According to Planet Tracker's assessment, Dow is on a trajectory that aligns with a 3°C warming scenario by 2030. Based on our assessment, to meet the well-below 2°C pathway and its own long-term goal of carbon neutrality by 2050, Dow would need to enhance its emissions reduction targets and linked investment and increase the transparency in its sustainability initiatives. By contrast, company representatives argue that the company is not aligned with the SBTi, which this report follows for its climate alignment, but a slower pathway, following the IEA approach.

According to Planet Tracker, Dow will align with a 3°C pathway by 2030²⁴

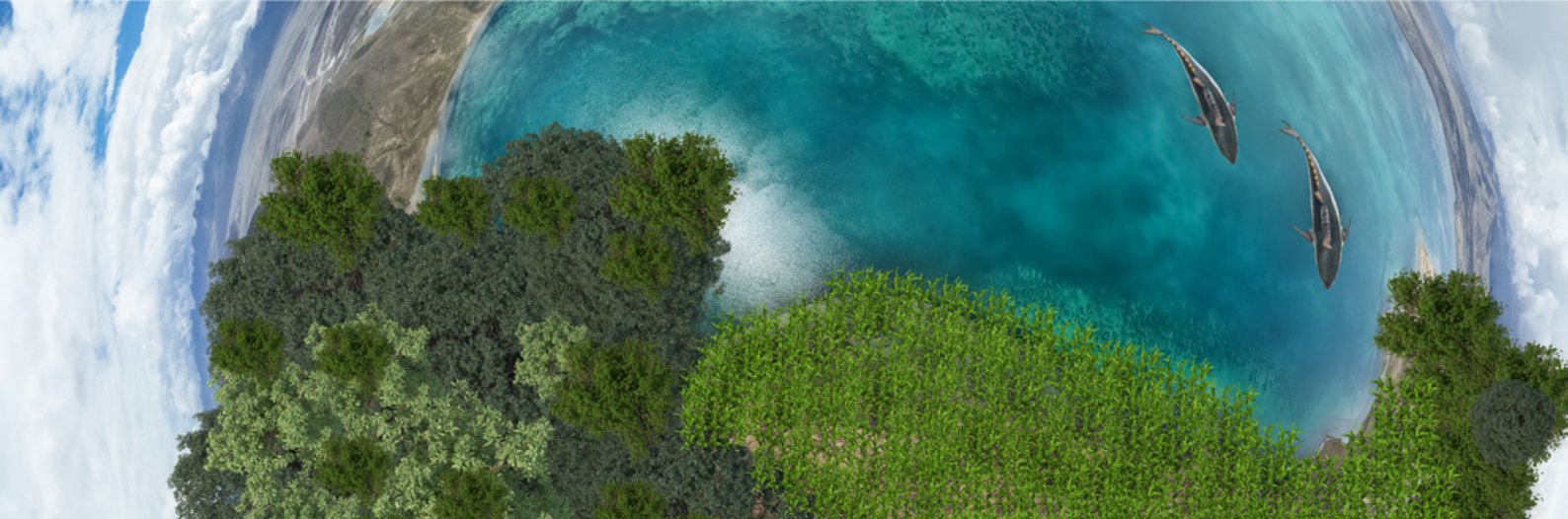
All Climate Transition Analyses undertaken by Planet Tracker are sent to the company for comment before publication, allowing management to respond. Dow representatives provided feedback on the 15th of Oct. 2024 which has been included in this report.

²⁴ Based on the data accessed by Planet Tracker until September 2024.

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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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