

Task Force on Climate-related Financial Disclosures (TCFD) Report

Dow Disclosures - TCFD Disclosure Report

Category Governance: Disclose the organization's governance around climate-related risks and opportunities

Describe the board's oversight of climate-related risks and opportunities

Enterprise risk management (ERM) is a strategic priority within the Company and responsibility for managing risk rests with management while the Committees and the Board provide oversight. The Board oversees, reviews and approves at least annually the enterprise risk management process implemented by management to identify, assess, manage and mitigate risk. Each Committee maintains additional responsibility for oversight of specific risk areas relevant to their respective charters.

The Board is also responsible for overseeing the Company's strategy development and planning process, including annual review of the corporate plan as well as overseeing the environmental, social and governance priorities of the Company, such as climate-related risks and opportunities and its path to net zero, ensuring transparency and accountability. Each Committee is responsible for oversight of specific strategic and environmental, social and governance areas relevant to their respective charters.

Enterprise Risk Management Process

The enterprise risk management process is a company-wide, cross-functional assessment that identifies, assesses, manages and mitigates risks on an annual basis. The enterprise risk management approach and process are conducted by Dow's strategic planning and business analysis function. This function is structurally independent of business lines. This function is led by the senior vice president of Corporate Development, who is responsible for risk management identification, assessment and monitoring of risk management performance on an operational level. This role reports to the CEO. ERM utilizes a broad range of data, both internal and external to Dow, including, but not limited to, strategic alignment; interrelation of risks; macroeconomic, industry, sustainability priorities topics, geopolitical, regulatory and prioritized sustainability trends; operations and safety; financial performance, including investor and rating agency perspectives; regulatory and compliance actions; market dynamics; and, top risks highlighted by external sources such as the World Economic Forum (WEF). Risks are then reviewed and categorized based on the potential impact and likelihood of a significant event occurring within the next five years. The results are reviewed by a diverse, cross-functional leadership team representing each of Dow's businesses, functions and geographic regions. A member of the leadership team is accountable for each identified risk and, if needed, involves internal subject matter experts. Key risks that have specified mitigation actions are reviewed more regularly in leadership team meetings.

Key risks, including short- and intermediate-term risks, and emerging risks are also regularly evaluated at meetings of the Committees and Board, including climate-related risks. In addition, the Board believes that having an independent Lead Director enhances the Board's independent oversight of the Company's risk mitigation efforts by enabling consultation between the Board chair and independent lead director on time-sensitive risks. Risks may be reassessed from time to time based on factors such as changes in the external and macroeconomic environment, concerns identified by management or the Board, or through detection in Dow's internal work processes.

Enterprise risks are evaluated quarterly with the controller's team and disclosure counsel to determine if additional risk factors should be included in the Company's periodic reports such as the annual report on Form [10-K](#) and subsequent quarterly reports on Form [10-Q](#) ("Periodic Reports"). Principal risks that may negatively impact the future results of the Company are reviewed at least quarterly with the Dow Inc. Audit Committee and full Board if necessary and a detailed discussion is included in the section titled "Risk Factors" in the periodic reports. Two risks highlighted in Dow's periodic reports include cybersecurity threats and operational events. For more details, see [WEF Risk and Opportunity Oversight: Integrating Risk and Opportunity Into Business Process](#).



Committee Responsibilities and Oversight of Risk Management

	AUDIT COMMITTEE	COMPENSATION & LEADERSHIP DEVELOPMENT COMMITTEE	CORPORATE GOVERNANCE COMMITTEE	ENVIRONMENT, HEALTH, SAFETY & TECHNOLOGY COMMITTEE
Areas of Responsibility	<ul style="list-style-type: none"> External reporting, risk management, internal controls, compliance with legal and regulatory requirements, and environmental, social and governance reporting frameworks 	<ul style="list-style-type: none"> ID&E, work environment and culture, remuneration and incentives to drive accountability and progress on the Company's financial and environmental, social and governance performance 	<ul style="list-style-type: none"> Corporate governance principles, board composition and performance, governance best practices, compliance with legal and regulatory requirements, and environmental, social and governance reporting frameworks 	<ul style="list-style-type: none"> Environmental performance, health, safety, community, corporate citizenship, social responsibility, public policy, sustainability, climate, science and technology
Areas of Risk Management	<ul style="list-style-type: none"> Risk management approach and process; management and effectiveness of accounting, auditing, external reporting, ethics, compliance and internal controls, and cybersecurity 	<ul style="list-style-type: none"> Executive compensation and benefits policies, practices and disclosures, leadership succession planning and talent management, work environment and culture 	<ul style="list-style-type: none"> Director independence, Board refreshment and succession planning, overall Board effectiveness, potential conflicts of interest and other governance, reporting and compliance matters 	<ul style="list-style-type: none"> Environment, health and safety policies and operations, emerging regulatory developments, sustainability, climate, reporting and compliance matters

Although each Committee is responsible for overseeing the management of certain responsibilities and risks as delegated to such Committees by the full Board, the full Board is updated throughout the year and at every Board meeting by the Committees, management and senior leaders. This enables the Board and the Committees to coordinate oversight and the relationships among the various priorities and risks of the Company, including those related to climate.

For additional information, see the Board Committees section starting on page 19 of the [2024 Proxy Statement](#) and the Committee charters posted on the Company's website at [Corporate Governance | Dow Investor Relations](#).

Describe management's role in assessing and managing climate-related risks and opportunities

To manage the implementation of Dow's Climate Strategy, Dow has established the Climate Steering Team (CST), which sets strategy and oversees the activities related to assessing and managing climate-related risks and opportunities. The CST consists of executive business and functional leaders who report to either the CEO or CFO. The CST is facilitated by the global Climate Transition Director. The CST supervises the Carbon Program Management Office (PMO) and the Water & Nature Program Management Office (PMO), which are tasked to develop and execute actions aligned with Dow's Scope 1, 2 and 3 greenhouse gas (GHG) mitigation efforts and its water and nature objectives, respectively.

The PMOs are composed of business and functional leaders from across the Company. The PMOs have a series of sub-teams responsible for assessing and managing climate-related risks and opportunities, including reducing Scopes 1+2+3 greenhouse gas emissions; developing products, technologies and business models to address customers' carbon-related needs; developing actions to address water usage in water-stressed areas; supporting new technology development to improve GHG emissions and to advance water and nature resource management; improving metric tracking and reporting; and developing and executing actions to deliver committed targets. Each sub-team is sponsored by two or more members of the CST, who are accountable for the team's success.

The CST and PMOs are tasked with setting goals and targets, prioritizing actions, monitoring progress of sub-teams and ensuring alignment of cross-team objectives. Both the CST and Carbon and Water & Nature PMOs meet at least every six weeks and report to the executive leadership team at a minimum of once per quarter. PMO sub-teams meet more frequently as required to drive actions and progress toward project targets.





See also [GRI 2-13 Delegation of responsibility for managing impacts](#), [TCFD Category Strategy](#) and [TCFD Category Risk Management](#) for additional information on management's role in managing climate-related risks and opportunities.

Category Strategy: Disclose the actual and potential impacts of climate-related risks and opportunities on the organization's businesses, strategy and financial planning.

Describe the climate-related risks and opportunities the organization has identified over the short, medium and long term.

Under the ERM process, Dow assesses risks based on the potential impact (magnitude of impact) and likelihood of a significant event occurring within the next five years (time horizon).

When assessing whether a climate-related risk or opportunity is substantive, Dow evaluates impacts related to factors such as the cost of raw materials; impact on operating cost (e.g., energy costs, costs of complying with regulation); cost of investment in new technology to reduce emissions or water use; impact to the price at which products can be sold; impact as a result of potential lost sales; or in the case of opportunities; market share gained, etc. In addition, there could be impacts that need to be considered that are not yet able to be quantified in a concrete manner (for example, reputational impact of certain risks is more difficult to quantify) but could still be important for discussion due to a variety of factors. Whether or not a risk or opportunity is determined to be substantive is also dependent on other factors, such as where in the value chain the impact may be felt and the duration of impact.

The table on the next page provides some of Dow's climate-related risks and opportunities, examples of potential impacts, value chain stage, time horizon and magnitude of impact that each risk or opportunity could have on the Company.



		Risk/ Opportunity Type	Description/Driver	Examples of Potential Impacts	Value Chain Stage(s) Covered	Time Horizon (term)	Magnitude of Impact
Risks	Physical	Acute	Increasing frequency of severe weather events	Reduced revenue from production interruptions	<ul style="list-style-type: none"> • Upstream • Direct operations 	• Short Term	Medium
		Chronic	Long-term changes in precipitation patterns leading to water scarcity	Increased capital cost to mitigate potential scarcity events (e.g., increased reservoir capacity)	<ul style="list-style-type: none"> • Direct operations 	<ul style="list-style-type: none"> • Medium Term • Long Term 	Medium
	Transitional	Technology	Affordability of lower-emissions technology	Increased operating costs for emissions reduction technologies, such as carbon capture and sequestration, compared with baseline	<ul style="list-style-type: none"> • Upstream • Direct operations 	<ul style="list-style-type: none"> • Short Term • Medium Term • Long Term 	Medium
		Regulatory	Carbon pricing mechanisms	Increase operating cost to comply with regulation	<ul style="list-style-type: none"> • Direct operations 	<ul style="list-style-type: none"> • Short Term • Medium Term • Long Term 	Medium
	Emerging	Policy	Increased concerns regarding plastic waste in the environment	Reduction in demand for plastics produced from non-renewable feedstocks	<ul style="list-style-type: none"> • Downstream • Direct operations 	<ul style="list-style-type: none"> • Short Term • Medium Term 	Low
Opportunities	Technology	Ability to access clean tech grants and subsidies	Reduced capital and/or operating cost of new technologies	<ul style="list-style-type: none"> • Direct operations 	<ul style="list-style-type: none"> • Short Term • Medium Term • Long Term 	High	
	Resource Efficiency	Use of more efficient product and distribution processes	Reduced operating cost as a result of efficiency gains	<ul style="list-style-type: none"> • Direct operations 	<ul style="list-style-type: none"> • Short Term • Medium Term 	Medium	
	Products & Services	Dow products can enable the transition to a low-emissions economy	Increased revenues through access to new and emerging markets	<ul style="list-style-type: none"> • Downstream 	<ul style="list-style-type: none"> • Short Term • Medium Term • Long Term 	High	
		Development of circular materials and technologies	Increased revenue from circular and renewable product offerings	<ul style="list-style-type: none"> • Downstream • Direct operations 	<ul style="list-style-type: none"> • Short Term • Medium Term 	High	
						Short (0-5 years) Medium (5-10 years) Long (>10 years)	Risk of a material financial impact over 10 or more years



Describe the impact of climate-related risks and opportunities on the organization's businesses, strategy and financial planning.

Evaluation of climate-related risks and opportunities continues to be a catalyst for the development of Dow's Decarbonize & Grow strategy (its climate transition plan) and broad water stewardship efforts. Dow's science-based strategy includes a phased approach to decarbonize while meeting the growing demand for Dow's products and contributing to a low-emissions future through continued investment in new products, technologies and processes. Dow's Decarbonize & Grow strategy involves specific actions to mitigate identified climate-related physical and transition risks, while also advancing opportunities in several key areas. These include:

- **Optimizing manufacturing facilities and processes for sustainability:** Dow's Board of Directors approved the final investment decision (FID) for the Fort Saskatchewan Path2Zero investment to build the world's first net-zero Scope 1 and 2 emissions integrated ethylene cracker and derivatives facility in Alberta, Canada, which will decarbonize ~20% of Dow's ethylene production capacity when completed. It will eliminate one million metric tons per annum of CO₂e by converting hydrogen from cracker off-gas as a clean fuel as well as through CO₂ capture and storage. Dow has committed to invest approximately \$1 billion in annual capital across the economic cycle to decarbonize assets in a phased approach, while growing capacity. In addition, Dow has advanced emissions reduction plans for the largest manufacturing sites.
- **Increasing use of clean energy and steam:** Dow continues to invest in cost-efficient clean energy, including wind, solar, biomass and hydropower, across its operations with approximately 1,000 megawatts of renewable power.
- **Investing in transformative, next-generation manufacturing technology:** Dow continued to progress its previously announced advanced small modular reactor (SMR) nuclear project, making site selection for Seadrift, Texas, in 2023. Dow is partnering with X-energy, a nuclear energy innovation company, to develop and deploy X-energy's advanced SMR technology. This project is receiving additional support under the Department of Energy's Advanced Reactor Demonstration Program.
- **Developing low-emissions products, technologies and services:** Dow products are essential to a low-emissions future, and the Company wants the world's best brands to look to Dow to help them achieve their goals and make their products more sustainable. Dow is helping its customers achieve their climate goals by providing products that facilitate energy efficiency, lightweighting, fuel transition, circularity, increased operational efficiency, resource reductions and reduced emissions. For example, Dow's MobilityScience™ platform is enabling the growth of electric vehicles today and also developing cutting-edge material innovations that will enable the next generation of electric and autonomous vehicles to achieve longer range, greater comfort and enhanced safety.
- **Collaborating with the supply chain to tackle "upstream" greenhouse gas emissions:** Approximately two-thirds of Dow's emissions footprint falls into the Scope 3 categories and more than half of those come from the raw materials, transportation and other services purchased by the Company. Dow has significantly advanced its Scope 3 strategy by improving emissions accounting, advancing transparency along the value chain, and working closely with key suppliers to set and meet emissions reduction targets. In addition, Dow is embedding sustainability performance as a metric in supplier selection, contracting and relationship management, placing topics like greenhouse gas emissions as a key element of its supply chain management strategy. Dow recognizes the significant opportunity it has to collaborate with suppliers to reduce those emissions, just as Dow's customers are looking to the Company to reduce emissions for the Dow products they buy.
- **Effective watershed management:** As co-founder and signatory of the [Water Resilience Pledge](#)[↗], Dow is committed to advancing water stewardship within its own operations as well as enhancing water management at the watershed level. Dow's collaboration with Louisiana State University River Studies program advances the science of Mississippi River delta restoration. Additionally, Texas Governor Greg Abbott has appointed Dow's Sharon Hulgán to the Gulf Coast Protection District (GCPD) Board of Directors, an organization created to oversee the implementation of an integrated and comprehensive coastal resilience strategy for the upper Texas coast.
- **Developing products that aid in water conservation:** Innovative new products such as ACUSOL™ Prime 1, which is Dow's first high-performing biodegradable auto dish dispersant that enables up to 50% less water use. In addition, Dow's easy-rinse silicones in laundry soap reduce foam, also enabling up to 50% less water use. Dow's EVOWASH™ detergents and antifoams help deliver high-quality recycled plastic while maximizing the reuse of process water. [CONTINUUM™ Bimodal Polyethylene Resins](#)[↗] offer a durable water pipe solution that stands strong against corrosion, cracking and leakage. In the agriculture sector, Dow's longer-lasting, more cost-effective FINGERPRINT™ Polyethylene Resins microirrigation systems withstand extreme conditions and enable microirrigation to deliver water and nutrients directly to plant root systems - reducing water use by up to 50%.
- **Sustainable materials:** Dow received International Sustainability and Carbon Certification (ISCC) PLUS certification at its PO/PG and polyols manufacturing site in Freeport, Texas, for decoupling fossil feedstocks by using waste-sourced feedstocks.
- **Transform the waste:** By 2030, Dow will transform plastic waste and other forms of alternative feedstock to commercialize three million metric tons of circular and renewable solutions annually. To do this, Dow will expand its efforts to stop the waste by building industrial ecosystems to collect, reuse or recycle waste and expand its portfolio to meet rapidly growing demand. In 2023, Dow furthered its partnership with Mura Technology to construct multiple world-scale advanced recycling facilities in the United States and Europe, which will collectively add as much as 600 kilotons of annual advanced recycling capacity. Mura commenced commissioning in 2023 of a 20 kilotons per annum (KTA) advanced recycling facility in the U.K. Another of Dow's partners, Valoregen, achieved mechanical completion of a 15 KTA mechanical recycling facility in France in fourth quarter of 2023.



Dow supports the Paris Agreement and its goal to keep global temperature rise to well below 2°C and to pursue efforts to limit the increase to 1.5°C. Dow was an active member of the SBTi Expert Advisory Group (EAG), and while the Company provided its input to the development of sector-specific guidance, Dow does not believe that the published draft accurately and scientifically reflects the realities of the chemical sector. For this reason, committing to SBTi would not be aligned with Dow's shareholders' interests. Dow will continue to evaluate its decarbonization strategy against the emerging SBTi guidance. Dow continues to make progress on its commitments to decarbonize, aligned to the Company's Decarbonize & Grow strategy. Dow's decarbonization pathway is transparent, grounded in science and the physical realities of the chemical sector, and it is consistent with the IEA decarbonization pathway for the chemical sector.

Capital Spending

Dow considers sustainability in all capital project decisions, ensuring projects align with the Company's long-term sustainability strategy, which focuses on decarbonization and growth, circularity advancement, safety of products and operations, and improved reliability of operations. Dow has also committed to allocate an average of \$1 billion in annual capital over the economic cycle to decarbonize its assets, in a phased approach, while growing capacity.

- The Company's capital expenditures include projects that support decarbonization and climate change adaptation and mitigation efforts as part of Dow's climate transition plan. In 2023, Dow's capital expenditures were \$2,356 million. Approximately \$908 million (38.5%) of the Company's capital expenditures were aligned to projects with direct environmental sustainability drivers and approximately \$848 million (36%) were climate-aligned capital spending that includes:
 - Investments related to the Company's first net-zero Scope 1 and 2 GHG emissions manufacturing facility in Fort Saskatchewan, Alberta, Canada. Replacement of the Company's obsolete steam and power assets in Louisiana, resulting in lower Scope 1 GHG emissions. Flare gas recovery projects at multiple U.S. Gulf Coast facilities, allowing recovered flare gas to be recycled or used as an alternative fuel, resulting in lower Scope 1 and Scope 2 GHG emissions.
 - The Company expects that projects with environmental sustainability drivers will continue to increase and are anticipated to reach more than 60% of the Company's annual capital spending by 2025, driven primarily by the Company's Decarbonize & Grow projects. In early 2024, Dow announced the completion of Dow's inaugural green bond offering, which raised more than \$1.25 billion to support the Company's Decarbonize & Grow and Transform the Waste strategies, including expenditures and investments related to Dow's Path2Zero project in Fort Saskatchewan, Alberta, Canada. Learn more at [Dow announces completion of inaugural green bond offering](#).

As noted with these examples, the potential impacts of climate-related risks and opportunities are part of Dow's climate strategy and factored into Dow's business and financial planning. For complete details on Dow's energy and emissions strategies, including its plans to transition to low-emissions technology, see [GRI 3-3 Management Approach – Energy & Emissions Management](#) and [GRI 305-5 Reduction of Greenhouse Gas \(GHG\) emissions](#).

Just Transition

Dow is committed to advancing the United Nations Sustainable Development Goals (SDGs) through actions that address some of the world's most pressing social and environmental challenges. Dow's sustainability strategy, goals and actions are aligned to many of the SDGs. Investors, society and other key stakeholders are utilizing ESG ratings as a method of demanding action and forecasting future financial performance based on societal and environmental impact/expectations. As a result, there is heightened visibility across various goals, frameworks and governance structures aimed at codifying this impact.

Dow recognizes that there are potential social impacts associated with its climate strategy and transition. Consistent with the Paris Agreement on climate change, Dow is committed to ensuring a just transition of the workforce and the creation of decent work and quality jobs as part of this transition.

Dow believes that its technology transition and innovations will create quality jobs consistent with the recent announcement of Dow's net-zero greenhouse gas emissions integrated ethylene cracker and derivatives site in Alberta, Canada, which will triple the site's capacity. In alignment with the principles of just transition, Dow references its actions throughout this report. The following principles are highlighted for reference.



Economic & Social Inclusion

Economic and Social Inclusion are a cornerstone of Dow's core values and a crucial aspect of the effort to improve equitable outcomes for members of underserved communities worldwide, especially for those who have traditionally lived, worked and played near the areas where Dow has operations. Dow is committed to making continued progress by advancing gender equity, reducing inequalities, ensuring decent work and driving economic growth.

Reference	Disclosure
Page 52	Supplier diversity spend
GRI 405-1	Diversity of governance bodies and employees
GRI 405-2	Ratio of basic salary and remuneration of women to men

Environmental & Climate Justice

Dow recognizes the environmental justice (EJ) movement as an opportunity to ensure the Company is appropriately including its communities in Dow's progress toward becoming the most inclusive materials science company in the world. EJ is already embedded into everything Dow does, from the Company's sustainability goals to its core values.

Reference	Disclosure
GRI 2-12	Role of the highest governance body overseeing the management of impacts
GRI 2-24	Embedding policy commitments
GRI 2-25	Processes to remediate negative impacts
GRI 2-27	Compliance with laws and regulations
GRI 2-29	Approach to stakeholder engagement
GRI 305-5	Reduction of GHG emissions
GRI 413-1	Operations with local community engagement, impact assessments and development programs
GRI 413-2	Operations with significant actual and potential negative impacts on local communities
GRI 308-1	New suppliers that were screened using environmental criteria
GRI 308-2	Negative environmental impacts in the supply chain and actions taken

Education & Workforce Development

Dow is committed to building a skills-valued and continuous learning culture that results in a more engaged, agile and future-ready workforce to drive business success. Additionally, Dow has long invested in equitable education through direct partnerships with reputable educational institutions worldwide. As a materials science company, Dow embraces the importance and value of investing in science, technology, engineering and math (STEM) education and diversity. These partnerships are a commitment to uplift Dow's neighboring communities economically and socially.

Reference	Disclosure
GRI 2-30	Collective bargaining agreements
GRI 401-2	Benefits provided to full-time employees that are not provided to temporary or part-time employees
GRI 401-1	Average hours of training per year per employee
GRI 404-2	Programs for upgrading employee skills and transition assistance programs



Describe the resilience of the organization’s strategy, taking into consideration different climate-related scenarios, including a 2°C or lower scenario.

To ensure its processes and plans are resilient, Dow uses climate-related scenarios to assess physical and transition risks. Dow’s periodic climate scenario analysis considers a longer time frame (currently to 2050) for magnitude of impact. Every few years, Dow also utilizes a robust scenario analysis to assess the long-term materiality and impact of climate-related risks and opportunities. Scenario analysis is used to challenge business-as-usual assumptions and strengthen the resiliency of the Company’s Decarbonize & Grow strategy. Scenarios are used to evaluate both physical and transition risk and are particularly useful in evaluating the potential and impact of emerging risks. Dow selected several climate scenarios relevant for physical and transition risks, to cover a range of assumptions regarding policy development and to build resiliency for a variety of outcomes in its strategy.

Transition Risks

Most recently, Dow has utilized two scenarios to assess strategy and exposure to transition risk: one where global ambition aligns with the IEA Net Zero Emissions by 2050 scenario (NZE) for decarbonization, and another with IEA Stated Policies Scenario (STEPS) that reflects the impact of existing policies on energy use, emission and energy security.

Different scenarios yield a range of outcomes; for instance, in the Net Zero Emissions by 2050 Scenario, Dow’s cost of regulatory compliance is higher than in the Stated Policies scenario, but so are its opportunities for the development of low-emissions goods and services and low-emissions technologies.

Scenario Description, 2050 Snapshot	IEA Net Zero Emissions by 2050	IEA Stated Policies
Description	Coordinated path to decarbonization	Conservative benchmark for the future
Market trends	Increased demand for solutions that mitigate climate change	Slower, regionally driven demand for solutions that mitigate climate change
Temperature rise (by 2100)	1.4°C	2.4 °C
Carbon price (USD per ton of CO₂)	250 (USD per metric ton of CO ₂) for advanced economies with net zero emissions pledges	135 (USD per metric ton of CO ₂) for European Union
Renewable energy (% of total primary energy)	71 %	31 %

Dow’s strategy is resilient to a range of potential outcomes. Dow’s phased approach to decarbonizing its assets while growing its business will enable the Company to reduce Scope 1 and 2 GHG emissions in line with a well-below 2°C world, while mitigating the affordability risk that presents itself should there be a slower global adoption of the regulatory frameworks needed to address climate change, as is the potential under the Stated Policies scenario. Dow expects to invest an average of \$1 billion per year across the economic cycle to decarbonize manufacturing assets. Dow has a roadmap outlined that enables the Company to decarbonize its manufacturing footprint while growing. This roadmap includes replacing end-of-life assets with high-efficiency, low-emissions assets. This phased approach allows Dow to adjust its investment timing based on affordability, regulatory drivers and market demand.

Dow’s downstream businesses view all scenarios as opportunities to develop solutions related to climate change. These include increased demand for solutions that aid customers in achieving their climate goals, whether it involves mitigation of climate change or products that address climate adaptation. This extends to packaging products that reduce food waste and improve resource efficiency, mobility solutions that reinforce the transportation industry’s electrification initiatives, and applications for building envelopes that enable more energy-efficient buildings.

Physical Risks

To evaluate physical risks, Dow partnered with S&P Global Trucost (Trucost) to assess the Company’s exposure to physical risks based on the geographic location of its manufacturing operations. The risks assessed included water stress, flood, heat waves, cold waves, hurricanes, wildfires and sea level rise. The analysis included an assessment of the physical risks using a baseline year of 2020 with time periods for medium (year 2030) and long term (year 2050) using the Intergovernmental Panel on Climate Change (IPCC) representative concentration pathways (RCP): RCP 2.6, RCP 4.5 and RCP 8.5. These pathways represent varying degrees of global atmospheric GHG concentrations (low, medium



and high, respectively), and thus different expectations on global temperature rise. Results will be incorporated into Dow's long-term assessments of Dow's manufacturing sites, which is a key input into Dow's capital approval process.

Water stress is identified to be the largest contributor of the climate-related physical risks. Dow's water-related risk assessment identified six of its manufacturing sites as key water-stressed sites. These sites are designated based on several factors: their location in a water-stressed watershed; water quality; competition among users of the same watershed; local experience at the site; long-term projections; and importance of the site to Dow's production capabilities. Water-related risks are incorporated into Dow's long-term assessments of its manufacturing sites, which are a key input into Dow's capital approval process. Also see [GRI 3-3 Management approach – Water Stewardship](#) and [GRI 303: Water and Effluents](#) for identification, assessment and risk management approach for water. For additional information on climate risk resilience, see [GRI 3-3 Management Approach – Climate & Operational Resilience](#).

Category Risk Management: Disclose the processes used by the organization to identify, assess and manage climate-related risks

Describe the organization's processes for identifying and assessing climate-related risks

Climate-related risks, including both physical and transition risks, are assessed with input from internal and external sources including corporate, business, function and geographic leaders; subject matter experts; investors; and other stakeholders. The evaluation of climate-related risks and opportunities is integrated into an annual company-wide risk management process known as enterprise risk management (ERM). ERM identifies significant or major risks to the Company and develops action plans to modify or mitigate risks. For more information, see Enterprise Risk Management Process within the [TCFD Governance Describe the board's oversight of climate-related risks and opportunities](#) section.

For information about Dow's use of scenario analysis, see [TCFD Strategy Describe the resilience of the organization's strategy, taking into consideration different climate-related scenarios, including a 2°C or lower scenario](#).

Describe the organization's processes for managing climate-related risks

Management of climate risk is assigned to Dow's Climate Steering Team (CST), which is accountable for developing and implementing plans to mitigate risk and for tracking actions and progress against those plans. With oversight and accountability by the CST, specific carbon-related risks are managed by Dow's Carbon Program Management Office (PMO). Water and nature risks are managed by the Water and Nature PMO, which is also accountable to the CST. The PMOs partner with subject matter experts to develop and implement strategies to mitigate or eliminate climate-related risks. The team develops specific action plans and ensures owners are assigned to drive forward progress in order to reduce Dow's risk exposure. Risk mitigation status updates are provided to executive leaders on a regular basis and discussions include risk time horizons or magnitude of impact to confirm that the strategy remains solid.

For information about how Dow manages risk as part of the ERM process, see [TCFD Strategy Describe the climate-related risks and opportunities the organization has identified over the short-, medium- and long-term](#).

Describe how processes for identifying, assessing and managing climate-related risks are integrated into the organization's overall risk management

The potential impacts of climate-related risks and opportunities are part of Dow's climate strategy and factored into Dow's business and financial planning. For complete details on Dow's energy and emissions strategies, including its plans to transition to low-emissions technology, see [GRI 3-3 Management Approach – Energy & Emissions Management](#) and [GRI 305-5 Reduction of Greenhouse Gas \(GHG\) emissions](#).

For information about how Dow identifies, assesses and manages risk as part of the ERM process, see [TCFD Strategy Describe the climate-related risks and opportunities the organization has identified over the short, medium and long term](#).

For additional detail of the teams involved in climate risk management, see [TCFD Governance Management's role in climate risk management](#).



Category Metrics: Disclose the metrics and targets used to assess and manage relevant climate-related risks and opportunities

Dow employs multiple metrics to monitor its performance and progress toward managing climate and sustainability risks and opportunities. These metrics involve disclosing Scope 1, 2 and 3 GHG emissions, along with supplementary metrics related to energy intensity, renewable power and energy, freshwater intake intensity and the alignment of Dow's innovation and product portfolios to its sustainability objectives. Where appropriate, Dow reports on its progress in meeting established targets for these metrics.

Scope 1, 2, and 3 GHG Emissions

Description (millions of metric tons CO ₂ e)	Baseline year	Baseline value	2023	2022	2021	Target year
Scope 1 ¹	2020	28.76	26.48	27.29	28.39	2030 ²
Scope 2 - Market	2020	6.22	3.20	4.19	5.80	2030 ²
Scope 3 ³	N/A ⁴	N/A ⁴	79.64	82.67	87.77	N/A ⁴

¹ Historical value for 2020 baseline year updated to reflect identified data error correction, which is immaterial to the Intersections Report as a whole.

² Reduce net annual carbon emissions by 5 million metric tons versus Dow's 2020 baseline (Scopes 1 and 2).

³ For comparability, historical values for 2020, 2021 and 2022 for have been updated to reflect significant advancements in Dow's Scope 3 accounting techniques and data management and to reflect an identified data error correction. See Scope 3 Greenhouse Gas Protocol and GRI 305-3 Other (Scope 3) for detailed information.

⁴ Dow is actively working to set a Scope 3 target/baseline while also working to enhance its processes and value chain engagement to ensure transparent reporting and identification of emissions reduction opportunities.

Overall, Scope 1 emissions decreased in 2023 compared with 2022 primarily due to reduced operating rates as a result of macroeconomic conditions and major facility planned outages. In addition, reductions were also supported by energy reduction projects. Dow's Scope 2 emissions were also reduced in 2023 as a result of Dow's efforts to source cleaner sources of energy to support its sites. For more information, see [GRI 302-4 Reduction of energy consumption](#) and [GRI 305-5 Reduction of GHG emissions](#).

Scope 3 emissions decreased in 2023 compared with 2022 due to changes in the types and quantities of purchased and sold products, variations in the carbon intensity of activities by supplier or region, and changes to underlying data and methods. Over 60% of Dow's Scope 3 emissions stem from upstream processes, primarily from the production and distribution of purchased feedstocks, raw materials and fuels. Downstream emissions constitute 39% of Dow's Scope 3 emissions and are linked to emissions from use and the end of life of Dow's sold products. Dow's purchased logistics and joint ventures also contribute to its Scope 3 emissions.

For more information on Dow's GHG emissions calculation methodologies and use of standards, see [GRI 305-1 Direct \(Scope 1\) GHG emissions](#), [GRI 305-2 Energy indirect \(Scope 2\) GHG emissions](#), [GRI 305-3 Other \(Scope 3\) GHG emissions](#) and the [GHG Protocol Disclosure Report](#).

Energy Intensity

Energy intensity is calculated using total energy consumption divided by production volume, which includes by-products and co-products. In 2023, Dow took disciplined action to adjust production rates and reduce cost due to the deterioration of economic conditions in the second half of the year, particularly in Europe. This caused an increase in energy intensity compared with 2022 because production units are designed to operate most efficiently at higher asset utilization rates.

Description (GJ/metric ton of production)	2023	2022	2021
Energy Intensity (Scope 1 & Scope 2)	11.65	11.43	10.85

See also [GRI 302-1 Energy consumption within the organization](#) and [GRI 302-3 Energy intensity](#).



Water Intensity

The freshwater intake intensity at six key water-stressed sites (KWSS) is aligned with the physical risk of climate change and changing weather patterns. The changing patterns in supply of water, caused by events such as extended droughts, have led to low river levels. These pose a challenge for some manufacturing sites (i.e., lower water quality in a river requires additional water treatment). Dow has developed a methodology to evaluate water risk at Dow sites. Dow has also developed optimization tools to understand the relationship between water and its climate adaptation strategy. This metric was adopted in recognition of the criticality of fresh water as a shared resource and to ensure that water does not become a constraint on community prosperity.

Refer to the [GRI 3-3 Management approach – Water Stewardship](#) for a list of KWSS and more information on Dow’s water risk management. The freshwater intake intensity metric is calculated for six key water-stressed sites by taking the sum of fresh water withdrawn directly from the environment and dividing it by the sum of the production volume. Dow has set a target to reduce freshwater intake intensity at KWSS by 20% from its 2015 baseline before the end of 2025.

Description (lb. of water per lb. of production)	Baseline year	Baseline value	2023	2022	2021	Target year	Target Value
Water Intensity for KWSS	2015	6.6	6.6	6.1	3.7	2025	5.3

Dow's freshwater intake intensity increased in 2023 as a result of two main factors. First, three of Dow’s KWSS experienced drought conditions in 2023. These sites were Freeport, Texas; Seadrift, Texas; and Terneuzen, the Netherlands. Low water availability reduces overall water quality; diminished water quality requires additional water treatment and increased volume. Record-high summer temperatures also increased the amount of water required for cooling. Additionally, two of Dow’s KWSS operated at lower production rates as a result of macroeconomic conditions. Although the freshwater intake intensity was higher this year due to several externalities and challenges in measurement, efforts are continuing to develop water resiliency in KWSS. These includes implementing projects to increase water circularity and improve water quality.

Renewable Power and Energy Metrics (%)

A key element of Dow’s climate action plan to reduce Scope 2 emissions is to increase access to renewable power to support its sites. Tracking renewable power as a percentage of power purchased is a metric that can indicate progress against this pillar of Dow’s plan. In 2015, Dow set a target to contract 750 megawatts (MW) of renewable power capacity by 2025. Dow exceeded this target by reaching more than 1,000 megawatts of renewable power in 2023. Though Dow expects variation in this amount year-over-year, it expects achievement of its target to be maintained.

As Dow also operates combined heat and power plants to support its sites, Dow is providing the percentage of renewable power it purchases as a portion of the total power consumed. Lastly, Dow provides the metric on renewable energy (renewable power and steam it purchases) as a percentage of energy consumed, which includes fuel purchases to run its operations and self-generate power and steam, consumption of process off-gas for energy-related activities, purchased electricity and purchased steam.

Description	2023	2022	2021
Percentage of renewable power, of power purchased	53 %	41 %	27 %
Percentage of renewable power, of power consumed	20 %	17 %	15 %
Percentage of renewable energy, of energy consumed	3 %	3 %	2 %



Research & Development Portfolio Alignment to Sustainability

On an annual basis, R&D project leaders, who are subject matter experts and trained in sustainability fundamentals, assess the alignment of their projects to Dow's sustainability goals. Responses are approved by leadership and, for continuing projects, compared with the previous year's response. More mature projects are expected to have more rigorous assessments, which can include formal life cycle assessments (LCAs). Innovation projects are aligned to Dow's sustainability focus areas: Climate Protection, Circular Economy and Safer Materials.

Description	2023	2022	2021
Percentage of R&D portfolio aligned to sustainability	>89 %	>87 %	>85 %

Revenues from Sustainability-Aligned Markets

Dow enables several sustainability-aligned applications by providing the key building blocks for food preservation, health and wellbeing, energy efficiency, renewable energy generation, green buildings, recycling and mobility, among others. Significant growth and value of these applications are enabled by sustainability commitments of brand owners, consumers and governments. Participation in some of these markets may also provide access to significant policy incentives.

Dow's businesses are required to use an external set of definitions from Financial Times Stock Exchange (FTSE) Russell Green Revenues Classification System and the United Nations Sustainable Development Goals (U.N. SDGs) to analyze the markets served. Corresponding revenues from sustainability-aligned markets are included in the aggregated ratio, supplied in the table.

Description	2023	2022	2021
Revenue from products that enable sustainability-driven markets	47 %	47 %	43 %





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