

CATERPILLAR®



2022
Task Force on
Climate-related Financial
Disclosures (TCFD) Report

April 28, 2023



CEO MESSAGE

With nearly a century of sustainable innovation, Caterpillar has a legacy of providing products and services that continually improve quality of life and the environment by helping our customers fulfill society’s need for infrastructure in a sustainable way. Caterpillar supports efforts to mitigate climate change and is contributing to a lower-carbon future. We are making significant progress to reduce greenhouse gas (GHG) emissions from our operations and are continuing to invest in new products, technologies and services to help our customers achieve their climate-related objectives. We also remain committed to serving our customers and executing our strategy for long-term profitable growth for the benefit of our shareholders.

We are pleased to share our first-ever Task Force on Climate-related Financial Disclosures (TCFD) report, which describes how climate-related risks and opportunities may impact our business and how we are positioned to respond. This report also represents a further enhancement of our climate and sustainability disclosures to demonstrate shareholder responsiveness.

At Caterpillar, we believe the energy transition creates significant opportunities for profitable growth in a variety of ways, which we have described in this TCFD report. We are working with our customers to identify their challenges, understand their requirements and deliver solutions to help them build a better, more sustainable world.

Jim Umpleby
Chairman & CEO

Cover Photo: Caterpillar’s first battery electric 793 large mining truck prototype

Navigating Our First TCFD Report

Caterpillar is pleased to present this inaugural Task Force on Climate-related Financial Disclosures (TCFD) report, which aligns with the 11 disclosure recommendations of the TCFD and summarizes how we govern our strategy to address climate-related risks and opportunities and support customers in the energy transition. Please also find a TCFD index in the Appendix that maps this report against TCFD’s recommended disclosures to further assist readers in identifying the most relevant information.

Contents

 Introduction	2	 Risk Management	14
 Governance	3	 Metrics and Targets	15
 Strategy	6	 Appendix	16



Introduction

With 2022 sales and revenues of \$59.4 billion, Caterpillar Inc. (the company) is the world's leading manufacturer of construction and mining equipment, off-highway diesel and natural gas engines, industrial gas turbines and diesel-electric locomotives. In 2022, we updated our enterprise strategy to include sustainability as a strategic focus area given the opportunities presented by the energy transition. We also performed a climate opportunity and risk assessment including scenario analysis to enhance our understanding of the potential impacts and uncertainties of climate change on Caterpillar's business strategy. The results of our analysis detailed in this report demonstrate that our enterprise sustainability strategy is resilient under a variety of assumptions for how the energy transition may unfold under possible future scenarios.



The energy transition can expand opportunities for profitable growth in a variety of ways. For example, our mining customers use Caterpillar products to produce the commodities required for electrification, including the growing demand for electric vehicles. Global energy demand is also rising, with growth in both renewables and many traditional forms of energy. The energy transition will require significant global infrastructure investment, which is expected to expand

opportunities for Caterpillar. The combination of the energy transition and growing global energy demand is increasing Caterpillar's total addressable market. This results in opportunities to grow original equipment manufacturing and services in Resource Industries, Construction Industries, and Energy and Transportation, whether in lower-carbon construction or mining machines, or fuel-flexible engines integrating new technologies and solutions.

CATERPILLAR'S SEGMENTS AND ENERGY TRANSITION SOLUTIONS

Construction Industries

The Cat® 980 XE wheel loader features Caterpillar's continuous variable transmission (CVT), which helps customers lower emissions and improves fuel efficiency.



Resource Industries

Caterpillar's first battery electric 793 large mining truck prototype is part of our growing portfolio of innovative electrified solutions to reduce and eliminate greenhouse gases.



Energy & Transportation

We offer reciprocating generator sets capable of operating on hydrogen blends, and the Cat G3516H gas generator set can be configured to use 100% hydrogen.





Governance

At Caterpillar, we believe a robust governance framework creates long-term value for our shareholders, strengthens board and management accountability, and builds trust in the company and our brand. We also believe that enduring success always begins with strong governance and Caterpillar has a diverse, experienced and highly engaged Board of Directors. Caterpillar's Board of Directors (the board) is committed to sound enterprise governance policies and practices that, together with Caterpillar's Code of Conduct and Our Values in Action, provides the framework to operate our business responsibly with integrity and to deliver long-term shareholder value. At the time of this report, our board is comprised of 12 directors with a diverse range of experiences across a wide range of industries, including manufacturing, utilities, energy, transportation, automotive and agriculture, as well as notable experience and expertise in environmental, social and governance (ESG) issues, including sustainability, climate and the energy transition.

Board Oversight

The board is responsible for alignment of our strategic priorities, including the integration of ESG principles and objectives throughout the enterprise. The full board has direct oversight of climate and sustainability efforts. The board also has oversight of the risks and opportunities associated with climate change and is informed of, and oversees, climate-related risks and opportunities through four committees, each with its own responsibilities: the Sustainability and other Public Policy Committee,

the Compensation and Human Resources Committee, the Audit Committee and the Nominating and Governance Committee. These committees discuss and inform the board about, among other matters, climate-related strategies, priorities, goals and performance, which the board considers when making decisions pertaining to Caterpillar's business strategy, risk management, financial planning and performance.



CATERPILLAR





The Sustainability and other Public Policy Committee (SPPC)

The SPPC oversees environmental, climate change and sustainability matters relevant to Caterpillar’s operations and performance. Caterpillar established the SPPC in June 2022, acknowledging the increasing complexity and importance of climate-related issues to our stakeholders and business. The SPPC has explicit oversight over sustainability, social and public policy matters, including those related to environment, climate change, human rights and lobbying. The SPPC recommends policies, programs and strategies related to sustainability issues. The committee also reviews the development and implementation of Caterpillar’s sustainability goals, including the framework and initiatives that underpin improvement targets, and it monitors the company’s performance progress against these goals. The committee also reviews shareholder proposals related to sustainability, climate risk and climate resilience and other public policy issues and recommends responses to the board. Members of management, including the Chief Sustainability Officer and Enterprise Sustainability team leadership

meet with the SPPC and discuss these matters at least every other month at every regularly scheduled committee meeting. Before the SPPC’s establishment, the board’s Public Policy and Governance Committee (PPGC) had oversight of sustainability and climate-related issues.



The Compensation and Human Resources Committee (CHRC)

The CHRC oversees the company’s compensation and benefits plans, including compensation for executive officers, and recommends the CEO’s compensation to the board. The CHRC is kept informed of climate-related issues through periodic reports from management and regular updates from the Chair of the SPPC on ESG issues, which inform the CHRC’s design of incentive compensation for executives. Executive compensation is based on the company’s strategic objectives, including climate-related issues. The board, based on the recommendation of the CHRC, incorporated ESG and climate considerations into the 2022 incentive plan for executive officers. More information on this is available

Sustainability Governance

Caterpillar Board of Directors

- Sustainability and other Public Policy Committee
- Compensation and Human Resources Committee
- Audit Committee
- Nominating and Governance Committee

Chief Executive Officer

Executive Office including Chief Sustainability Officer

in our proxy statement. The CHRC also annually reviews incentive compensation arrangements to ensure that incentive pay does not encourage unnecessary risk-taking and reviews and discusses the relationship between risk management policies and practices, enterprise strategy and executive compensation.

with the same priority and rigor as other risks across the enterprise. The AC assists the board in overseeing the ERM program including risk assessment and management policies and procedures covering risks related to the company’s financial reporting requirements, system of internal controls, the internal audit program, the independent auditor, the compliance program and the information security program. Every year, the AC discusses with management the company’s risk assessment and management framework and reviews top enterprise-wide risks from ERM, including climate-related risks. Additionally, the AC is also responsible for oversight of internal audits regarding the accuracy of the facts and data used in the company’s ESG-related public reporting.



The Audit Committee (AC)

The AC reviews Caterpillar’s Enterprise Risk Management (ERM) processes and outputs. Caterpillar’s ERM program considers risks across many categories, including strategy, operational, financial and legal compliance risks. Risks related to ESG, such as risks relating to climate change, are embedded into each risk category. These risks are treated



More information about board oversight and governance, including board committees and corporate governance can be found on our website or Caterpillar’s annual proxy statement.



The Nominating and Governance Committee (NGC)

The NGC oversees matters related to corporate governance to ensure and maintain appropriate board governance, structure and composition necessary for the board to provide oversight of all relevant risks managed by the company, including those related to sustainability and ESG. The NGC oversees the structure of the board and its committees by ensuring the appropriate division of responsibilities, adequate structures and ensuring that the board devotes a suitable amount of time to each issue. The NGC also oversees director qualifications and ensures that directors possess correct skill sets to effectively advise the company on all relevant risks, including those related to climate and ESG. This responsibility also includes identifying and evaluating skill sets of proposed director candidates and making recommendations regarding selection of candidates to serve. The NGC also leads the annual self-evaluation of the board and its committees whereby the board assesses its performance and whether the board, its committees and individual directors are functioning effectively. This robust evaluation process helps the board identify and implement any necessary improvements to address any real or perceived shortcomings. The NGC also has oversight over all governance processes and ensures that the company has implemented effective governance processes, effectively overseen by the board and its relevant committees, for all relevant risk areas faced by the company.

Management’s Role

In addition to the board’s sustainability governance and oversight responsibility, Caterpillar management’s sustainability governance includes our Chief Executive Officer (CEO) and all executive officers who report directly to the CEO (Executive Office), including the Chief Sustainability Officer (CSO). Representing a key element of our company’s commitment to sustainability and to further strengthen management’s role in assessing and managing climate-related risks and opportunities, Caterpillar created the position of CSO, who also reports directly to our company’s Chairman and CEO. The CSO leads Caterpillar’s climate and sustainability initiatives and works together with the company’s Executive Office to further integrate climate and sustainability considerations in

our core business strategies. As previously discussed, the CSO also provides climate and sustainability updates at every regularly scheduled meeting of the SPPC.

Led by the CSO, our Enterprise Sustainability team executes the ongoing cross-functional enterprise assessment and management of climate-related risks and opportunities. The Enterprise Sustainability team also supports the execution of sustainability initiatives across Caterpillar’s global footprint, coordinating efforts to achieve the company’s sustainability targets such as its 2030 sustainability goals. Business unit leaders (with responsibility for local management globally) also consider climate-related issues when setting goals, developing forecasts, identifying relevant risks and assessing market opportunities for

each respective business unit. Sustainability execution is integrated through our matrixed structure across business units and enterprise functions, whether embedding sustainability in the introduction of new products or collaborating with customers to demonstrate lower-carbon solutions in the marketplace.

At Caterpillar, our company’s board and management are committed to the robust governance framework that enables our enterprise strategy execution, including rigorous management of climate-related risks and opportunities, which guides our commitment to developing innovative products, technologies and services to help our customers achieve their climate-related objectives and build a better, more sustainable world.





Strategy

Since our founding in 1925, sustainable innovation has powered our business, inspiring us to develop innovative products, technologies and services to support our customers on their sustainability journey. For nearly 100 years, sustained innovation has been a critical success factor for Caterpillar. Our longstanding commitment to sustainability has inspired us to set and achieve meaningful sustainability goals. Sustainability is one of Caterpillar's Values in Action, guiding us in our daily activities to achieve a balance of environmental stewardship, social responsibility and economic growth. To further demonstrate our commitment to sustainability, Caterpillar updated its enterprise strategy in 2022 to include sustainability as a key strategic focus area together with operational excellence, expanded offerings and services, which represents our work to help customers build a better, more sustainable world.

Climate Scenario Analysis

In 2022, Caterpillar performed a climate opportunity and risk assessment including scenario analysis to enhance our understanding of the potential impacts of climate change on Caterpillar's business and further prepare for the energy transition. This assessment was performed with support from a third-party consultant, leveraging TCFD guidance, industry insights, climate-related expertise, and included Caterpillar's leaders and subject matter experts. The goal of the analysis was to identify, assess and prioritize climate-related risks and opportunities to Caterpillar's industry and operating model. We performed scenario

analysis to identify potential implications to Caterpillar's business over the short, medium and long term, and across three climate scenarios. The selected scenarios leverage data and qualitative narratives from the Intergovernmental Panel on Climate Change (IPCC) for physical risks and the International Energy Agency's World Energy Outlook (IEA WEO) for transition risks and opportunities. Further descriptions of these scenarios can be found later in this section. Through our analysis, we identified the climate-related risks and opportunities that follow.





CLIMATE-RELATED PHYSICAL ISSUES¹

Caterpillar recognizes that under future climate scenarios identified by the Intergovernmental Panel on Climate Change (IPCC), the leading scientific authority on the topic, climate change may generate physical impacts to physical infrastructure and natural habitats. Relying on IPCC findings, our climate scenario analysis evaluated potential impacts of possible acute and chronic physical risks at the facilities where Caterpillar operates, through assessment of underlying climate hazards such as extreme heat, wildfires and floods. Physical climate scenario analysis leveraged scientific consensus on future climate scenarios from the IPCC, projecting potential physical climate impacts on our operations. We estimated the percent of key Caterpillar manufacturing sites and facilities exposed to relevant physical climate hazards under different future scenarios. Applying this methodology, these facilities may experience physical damage, operational disruptions, potentially higher insurance premiums and impacts on our workforce's health and safety.

The table below structures the results of our analysis highlighting specific details recommended by TCFD such as risk type, time horizon and potential impacts. The analysis identified geographies that may be most impacted by physical climate risk principally in Asia and North America. Although for impacted facilities the magnitude of these risks is medium-high, Caterpillar's global manufacturing footprint with sites spread across each continent is an inherent source of resilience to physical climate risks, and facilities also maintain robust contingency plans to cope with natural disasters including how to migrate the facility's operations to another site if required. Furthermore, our primary insurance provider assists in physical risk identification and management by highlighting facilities that have an extreme weather event potential.

PHYSICAL RISKS

Risk: Acute Physical Risk

Risk Type(s): Acute

DESCRIPTION: Relying on IPCC projections, potential increases in the frequency and intensity of acute physical risks, such as extreme heat, flood, extreme precipitation and wildfire, may cause operational and financial impacts, some significant. Such impacts include physical damage, loss or degradation of facilities or equipment, operational disruptions, decreased manufacturing productivity, supply chain disruptions, increased workforce health and safety concerns, and potentially higher insurance premiums or retentions. Under IPCC projections, with its global footprint, Caterpillar operations in some locations are potentially exposed to a wide range of acute physical risks and their associated impacts.

IMPACT:

Time horizon: Medium- to long-term

Primary potential financial impact: Increased operating expenses and decreased revenue

Potential magnitude of impact: Medium-High²

Risk: Chronic Physical Risk

Risk Type(s): Chronic

DESCRIPTION: Relying on IPCC projections, potential longer-term, incremental changes to climate patterns, such as projected increases in annual average temperature or changes in total annual precipitation, may impact aspects of Caterpillar's business through disruptions to ongoing operations and productivity, and increases in operating expenses.

IMPACT:

Time horizon: Long-term

Primary potential financial impact: Increased operating expenses and decreased revenue

Potential magnitude of impact: Medium-High

The energy transition represents an opportunity for Caterpillar to help solve complex engineering and technical challenges for the benefit of our customers. This includes supporting society to address physical climate impacts such as extreme weather. Caterpillar will continue to offer solutions and services that support customers who are impacted by acute and chronic physical risks. Our products can support rebuilding efforts after natural disasters such as hurricanes and wildfires. Our strategy positions us to respond to potential physical climate risks and underlying climate hazards while supporting our customers as they respond to the changing climate.

1. Climate-related issues refers collectively to both climate-related risks and opportunities as defined in [TCFD's 2021 Implementation Guidance](#).

2. Medium-High is the rating result of the impact assessment performed by our third-party consultant using their methodology to assess the percent of key Caterpillar manufacturing sites and facilities exposed to relevant physical climate hazards under future climate scenarios.



CLIMATE-RELATED TRANSITION ISSUES

Caterpillar expects customers to adopt energy transition solutions at substantially different rates by segment, application and geography. Adoption rates will likely be impacted by a variety of factors such as customer needs, economic considerations and the regulatory environment. These factors, and the rate of change, will shape any potential impact on our business. Our transition climate scenario analysis involved estimates and analysis from our third-party consultant to inform a qualitative assessment of potential impacts from our internal subject matter experts and leaders familiar with our business, recognizing the relative early-stage maturity of transition scenario analysis.

Energy Transition Changes in Market Demand for Products and Services

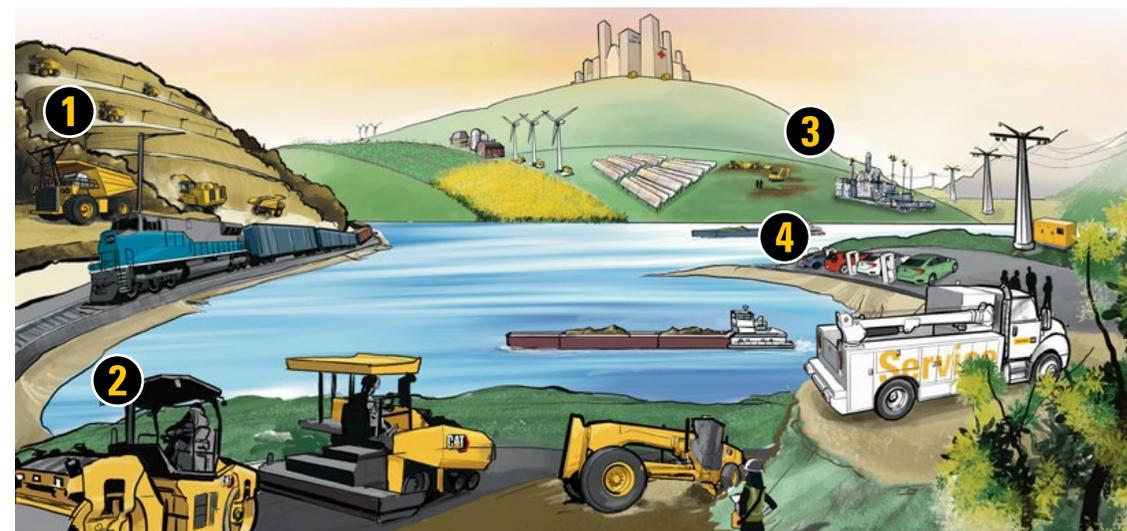
The energy transition may impact market demand for our products and services. This includes the opportunity of increased demand for lower-carbon products and services such as fuel-flexible and electrified machinery, equipment and engines, and related services such as battery replacement, as well as conventional powered products and services due to growing global energy demand. Rising demand for climate-related products and services may increase Caterpillar's incremental revenues from existing and expanded offerings to meet the evolving needs of new or existing customers. This could include construction equipment for physical and energy infrastructure, mining equipment for critical metals and products powered by alternative fuels. Conversely, there also exists the possibility of decreased market demand for products and services due to challenges in

meeting emerging climate-related customer and industry expectations. Caterpillar may see reduced demand for products that consume fossil fuels such as diesel engines if applicable industries increasingly adopt alternative technologies or are impacted by more stringent climate-related regulations. Caterpillar's competitors and new market entrants may enhance their competitive position relative to Caterpillar if they provide lower-carbon equipment and solutions at a faster rate, lower cost or higher quality than Caterpillar. These potential impacts relate to several TCFD categories of climate-related risks and opportunities including Products and Services, Technology and Markets, which could occur over a long-term time horizon. The potential impact is assessed as high and may include increased revenues through access to new and emerging markets or increased demand for new and conventional products and services, or conversely, decreased revenues due to reduced market demand for conventional products and services, or missed opportunities in new and emerging markets.

Caterpillar recognizes uncertainty in the pace of customer adoption and regulatory changes for lower-carbon solutions that may lead to changes in market demand for our products and services. However, our company will continue to offer a diverse range of solutions available to serve our customers for their sustainability and business objectives. Our legacy of innovation and our enterprise strategy position us to capture climate-related growth opportunities while managing the potential risks of changing customer demands. The energy transition and

growing global energy demand are expected to expand Caterpillar's total addressable market. Regardless of the speed of the energy transition, Caterpillar is well positioned to contribute to a reduced-carbon future while profitably growing our company and helping our customers achieve their climate-related objectives.

OUR ROLE IN THE ENERGY TRANSITION



- 1 Building Infrastructure**
 Our construction equipment helps build the infrastructure for the energy transition. Our mining equipment supports the increased demand in critical materials, such as copper, lithium, nickel and cobalt, required for electric vehicles, battery storage, wind and solar power, and grid modernization and stability.
- 2 Optimizing Natural Gas**
 Natural gas is expected to play an important role in the transition to renewable energy. Our reciprocating engines and gas turbines are widely used across the globe in upstream natural gas production and transmission.
- 3 Enhancing Energy Reliability**
 Increasing renewable power in electric grids creates opportunities for distributed power generation. Customers utilize our reciprocating engine generator sets and gas turbines to support electric grid stability.
- 4 Increasing Alternative Fuels**
 We offer machines and engines that are capable of operating on alternative fuels such as hydrogen, biogas, hydrotreated vegetable oil (HVO) and biodiesel, while continuing to develop technologies for the future.



Positioning Our Product Portfolio for the Energy Transition

Our sustainability journey inspires us to help our customers build a better, more sustainable world through products and services that help fulfill society's need for infrastructure including shelter, clean water and reliable energy — in a sustainable way. Sustainability is a focus area of our strategy for long-term profitable growth, and now more than ever, our customers rely on us to provide diverse products, services and technology that help lower GHG emissions, improve efficiency and productivity, and deliver energy flexibility.

Product Efficiency

Caterpillar offers modern engines equipped with the latest technologies that improve fuel efficiency, reduce emissions and translate into cost savings for our customers. For example, the Cat 980 XE and 982 XE wheel loader models feature the Caterpillar designed and manufactured continuous variable transmission (CVT). Introduced in mid-2021, these medium wheel loaders include an expanded technology platform helping customers lower emissions with improved fuel efficiency and reduced maintenance costs. Deep system integration of the CVT, engine, and hydraulic and cooling systems significantly improves fuel efficiency up to 35%. Prolonged service intervals plus efficiencies gained through the CVT powertrain result in even lower maintenance requirements further reducing costs to the customer.

Fuel Flexibility

Caterpillar has been a technology leader for nearly a century. We have significant experience developing innovative technologies through consistent R&D investments, which should help us maintain our leadership. For example, Solar's gas turbine generator sets have had the capability to operate on hydrogen blends since 1985. Today, all gas turbines offered by Caterpillar can operate on hydrogen blends, and some of these turbines can operate on 100% hydrogen. We also offer reciprocating generator sets capable of operating on hydrogen blends, and the Cat G3516H gas generator set can be configured to use 100% hydrogen. To

support our customers' climate objectives, we continue to invest in power sources that offer lower emissions without sacrificing performance. Our products can use an increasingly wide range of fuels, including renewable fuels, biodiesels, biogas, hydrogen and hydrogen blends, which helps our customers lower their carbon footprint today in our existing equipment.

Electrification

Caterpillar is committed to delivering robust electrified products and solutions for our customers. We are gaining valuable experience from our initial introductions of battery-powered equipment, and additional

battery-powered machines and chargers under development will help our customers achieve their sustainability objectives. Caterpillar-designed batteries can power a variety of industrial applications. Built on our proven technology, the lithium-ion battery range features a modular design that offers flexible configurations. The batteries are engineered to be scalable to industry and customer performance needs and maximize sustainability throughout their life cycle, including recycling and reuse at the end of life.





Caterpillar’s Early Learner Program

Caterpillar demonstrated the first battery electric 793 large mining truck prototype in 2022 with support from key mining customers participating in Caterpillar’s Early Learner program. The Early Learner program focuses on accelerating the development and validation of Caterpillar’s battery electric trucks at participating customers’ sites. Participants in the program with definitive electrification agreements in 2022 include BHP, Freeport-McMoRan, Newmont Corporation, Rio Tinto and Teck Resources Limited. This approach supports the individual commitments each Early Learner participant has made to reduce and eliminate greenhouse gas emissions from their operations. A primary objective of the program is for Caterpillar to collaborate more closely with customers as the industry undergoes transformational change through the energy transition.

Caterpillar is proud to add the 793 as its first battery electric large mining truck to a growing portfolio of innovative electrified solutions. We displayed four battery electric construction machine prototypes including excavators and wheel loaders at bauma 2022, the premier global trade show for the construction industry. We unveiled the R1700 XE battery electric underground loader in 2021, a high-productivity, zero-emission loader with the industry’s only onboard battery. This machine produces no engine exhaust and drastically less heat in deep, difficult-to-ventilate underground mines, significantly boosting safety for mining teams. Further examples include additional advanced electric-drive construction machines, battery electric locomotives and battery management solutions.



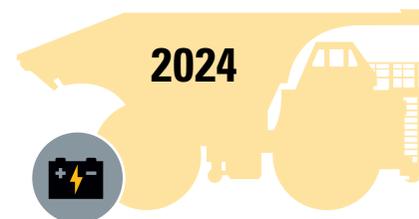
BATTERY ELECTRIC MINING TRUCK ACCELERATED DEVELOPMENT STRATEGY

PROTOTYPE



- Machine technical feasibility
- Validate technical assumptions

EARLY LEARNER



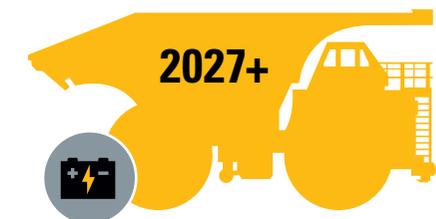
- Product and technology validation
- Refine requirements
- Process development

PILOT



- Fleet optimization
- Validate production intent
- Infrastructure learnings

PRODUCTION



- Full production capabilities
- Site integration



Remanufacturing

Caterpillar products are built to be rebuilt. Caterpillar actively promotes extending the life of our machines through rebuilding and remanufacturing, which offer the opportunity to return equipment to like-new condition. Cat® Reman facilitates an exchange business where customers trade a used part for a remanufactured one at a fraction of the price of a new part. Caterpillar then takes the traded-in (core) part, strips it down to the lowest-level component and puts it through our remanufacturing process.

Because we are in the business of returning end-of-life components to like-new condition, we reduce waste and minimize the need for raw material, energy and water to produce new parts. We recycle millions of pounds of end-of-life iron annually. In 2022, 140 million pounds of material was taken back through Cat Reman. Through remanufacturing, we make a significant contribution to sustainable development — extending the value of the energy and water consumed in a component's original manufacture and keeping high-value nonrenewable resources in circulation for multiple lifetimes.



System Integration

Caterpillar is uniquely positioned to meet the diverse needs of the energy transition given the breadth of our products and the industries we serve. For example, we provide real differentiation to our customers with the ability to integrate the engines we develop, including lower-carbon technologies, into the construction and mining machines we offer. We also have broad capabilities in integrating lower-carbon intensity fuels, batteries, electric and hybrid powertrains, and advanced controls into our equipment and worksite solutions to support customer environmental and business sustainability goals. Our holistic approach maximizes the effectiveness of machines, electrical systems, supporting technologies and services to provide a total job site solution.

Our approach to energy storage reflects the diverse interests of our customers, which is why our batteries are designed to be modular and scalable across stationary and mobile applications. The Cat Energy Storage System, or ESS, is a rapidly deployable electric power solution to help customers integrate multiple power sources on a worksite. Cat ESS can provide grid stabilization, transient assist and renewable energy storage.

We also have experience pairing established power sources with new technologies to meet customer needs. By combining our technology, digital solutions and our deep system integration capabilities, we can seamlessly integrate the established power sources of today with the battery technologies of tomorrow and hybrid formats. These take the form of electric drive and hybrid powertrains for mobile equipment, and microgrids for stationary power that can integrate many kinds of energy, including wind, solar and batteries into sophisticated, smart and efficient power systems.

At the same time, we work with our customers to provide supporting technology, including autonomous systems that boost safety and productivity while enabling more consistent and efficient operations. Caterpillar autonomy leads the industry, and we have the largest installed base of autonomous trucks in the world. Through this autonomous truck fleet, our customers have had no recordable injuries and productivity improvement of up to 30% over staffed fleets.



Energy Transition Changes in Production Costs

The transition to electrification and alternative power sources may require changes in manufacturing, the development of new methods of production, maintenance and storage, and new supply chains for raw materials, which could impact manufacturing costs. Our focus on operational excellence includes a strategic focus on maintaining a competitive and flexible cost structure. We are committed to continuing our lean manufacturing approach by synchronizing across our value chains, reducing lead times, optimizing working capital and increasing availability. We also continually optimize our operations by reducing waste, lowering emissions, reducing energy consumption and minimizing costs. Our strategy positions us well to respond to the potential climate-related risk of increased production costs, while leveraging opportunities to increase efficiencies and reduce costs.

The energy transition may involve changes to production costs including the opportunity for improved efficiency in manufacturing or remanufacturing due to technological advances in the methods of production driven by the energy transition. Advancements in machine and product efficiency can also further improve quality in addition to cost savings. Conversely, advancements in electrification and alternative power sources may increase production costs due to new technology requirements to meet evolving climate-related customer and regulatory expectations. Cost increases may also be driven by production delays due to availability of raw materials and essential manufacturing components. These potential impacts relate to several TCFD categories of climate-related risks and opportunities including Resource Efficiency, Energy Source and Resilience, which could occur over the medium- or long-term time horizon. The potential impact is assessed as medium and may include reduced direct costs, indirect operating expenses or capital expenditures, or conversely, increased direct costs, indirect operating expenses or capital expenditures.





RESILIENCE OF OUR STRATEGY

The results of our climate scenario analysis provided insights into the resiliency of our enterprise sustainability strategy. Three climate scenarios were leveraged to assess resiliency to climate change risks and opportunities:

- The **current climate action scenario** leverages IPCC SSP5-8.5 and the IEA Stated Policies Scenario (STEPS). In this scenario, GHG emissions are curbed based on existing policies, commitments and Nationally Determined Contributions (NDCs), but fall short of meeting the Paris Agreement targets. This scenario projects continued use of fossil fuels and energy intensive activities. Climate-related physical risks are present and require significant investments in adaptation measures to protect assets, infrastructure and communities.
- The **moderate climate action scenario** leverages IPCC SSP2-4.5 and IEA Announced Pledges Scenario (APS). In this scenario, GHG emissions reductions are achieved by all governments meeting climate targets, including NDCs. Moderate decarbonization is achieved economy-wide, with moderate climate-related transition and physical risks present. This scenario also assumes universal access to sustainable, affordable and modern energy by 2030.
- The **aggressive climate action scenario** leverages IPCC SSP1-2.6 and the IEA Net Zero Emissions by 2050 (NZE2050) scenario. In this scenario, there are aggressive emission reductions to meet the Paris Agreement marked by global collaboration

by governments, society and industry to lead steep decarbonization, which may result in net zero emissions by 2050. Transition risks and opportunities are highly present in this scenario, with an accelerated transition to renewables and electrification. This scenario also features aggressive regulations limiting extraction and use of fossil fuels in many sectors and economies.

Caterpillar's enterprise sustainability strategy shows resilience under different climate scenarios and is well positioned to capture opportunities and mitigate risks from the energy transition.

Over the past 20 years, we've invested over \$30 billion in R&D to deliver best-in-class innovation. We've also continued to consistently invest in autonomy, alternative fuels, connectivity and digital, and electrification (AACE) over the past several years. Going forward, we'll continue to invest in these areas as we work with our customers to help them achieve their sustainability objectives. We've also made strategic acquisitions, such as CarbonPoint Solutions, which helps customers with carbon-capture technology, and Tangent Energy Solutions, offering a solution that monitors patterns from the grid that utilizes our power generation products to maximize returns and provide reliable power. We anticipate there will be a wide range of solutions needed throughout the energy transition, and we are confident the investments we continue to make in technology will help meet the needs of diverse customers.



Our strategy is also supported by data and insight using Caterpillar's Operating and Execution model, or O&E model. Our O&E model promotes a disciplined investment framework in support of our strategy to enhance future profitable growth. By using this model, all our investments, capital, R&D, M&A or other cash investments are measured through a consistent lens. This enables us to prioritize and allocate resources to the highest opportunities for profitable growth.

The energy transition and growing global energy demand are expanding Caterpillar's total addressable market, and we are well

positioned to contribute to a reduced-carbon future while profitably growing our company and helping our customers achieve their climate-related objectives.

As described in this report, working together with a third-party consultant, Caterpillar recently completed climate scenario analysis for the first time. We are continuing to further understand the impacts of relevant climate-related risks and opportunities on our business strategy, including how best to integrate these considerations into strategic planning and decision-making.

Risk Management

Climate-related risks are integrated into our Enterprise Risk Management (ERM) framework and are managed with the same priority and rigor as other enterprise risks. The ERM, Compliance and Internal Audit teams collaborate across the business to identify, prioritize and manage risks to Caterpillar. Climate-related risks are identified and assessed through these programs and are integrated into our existing risk taxonomy.

To better inform decision-making, Caterpillar identifies and assesses risks at all levels of the company including business units and the total enterprise. ERM at Caterpillar is founded on three core fundamental principles that are regularly discussed with the Audit Committee of the board.

1. Caterpillar leaders take responsibility to raise, understand and mitigate risk in every strategic, financial, operational, compliance and safety decision they make.
2. Risk management is not separate from our work, but rather the way we work. Recognizing, understanding and mitigating risk is part of the way we work, think, act and communicate.
3. ERM complements business unit risk management. Business unit risk and compliance work led by full-time leaders happens all the time; ERM complements it.

The ERM program focuses on internal and external factors such as current and emerging regulations, global economic developments and market trends that could impact Caterpillar's strategic position. The ERM team has developed a comprehensive universe of risk categories covering strategic, operational, financial, compliance and macro risks. This risk universe is updated every year by engaging with business unit leaders to understand the risks most relevant to their businesses. Climate

considerations are embedded into this process. ERM also performs external analysis to ensure the risk universe captures key emerging risks. An annual ERM survey gathers risk perspectives from the senior-most leaders of the enterprise; these perspectives are integrated with external data and discussed with senior business leaders. These discussions with senior business leaders and the executive leadership of the company are intended to understand the nature of a risk, whether and how it is changing over time and the relevant mitigation actions. The Audit Committee of the board annually reviews ERM processes and outputs, including an annual list of enterprise-wide risks. Climate-related risks are integrated into this process.

As discussed previously (in the [Strategy](#) section) climate scenario analysis identified potential climate-related risks and opportunities across three climate scenarios and time horizons. The analysis also assessed each risk and opportunity's potential size, scope, likelihood and impact. We have begun to integrate the results within our existing risk management processes to mitigate these risks across our business. Our Emissions Regulatory Compliance team stays apprised of existing and upcoming environmental regulations and policies impacting our products. ERM, Emissions Regulatory Compliance, Environmental, Health & Safety and Enterprise Sustainability collectively support the management of climate-related risks across the business.



Metrics and Targets

Caterpillar supports the goals of the Paris Agreement to limit global temperature rise, and we are committed and contributing to a reduced-carbon future. In 2021, we set seven sustainability goals to be achieved by 2030. To assess and monitor environmental and climate-related performance, we measure and disclose metrics across GHG emissions, energy, waste, water, sustainable products and remanufacturing. These metrics, along with our publicly stated climate-related goals and associated information (e.g., historical data, absolute vs. intensity targets, time frames, base year and progress indicators), are included in our [annual Sustainability Report](#). During 2022, the board also incorporated ESG and climate considerations into the 2022 incentive plan for executive officers.

Among the company's seven goals, Caterpillar established a target to reduce absolute Scope 1 and 2 GHG emissions from operations by 30% between 2018 and 2030. Through 2022, we have reduced our emissions by 33% from our 2018 baseline. The table below contains our Scope 1 and Scope 2 GHG emissions.



GHG Emissions³

METRIC	FY2022	FY2021	FY2018 (BASE YEAR)
Scope 1 GHG Emissions Million metric tons CO ₂ e	0.74	0.74	0.94
Scope 2 GHG Emissions (market-based) Million metric tons CO ₂ e	0.74	0.77	1.28
Scope 2 GHG Emissions (location-based) Million metric tons CO ₂ e	0.80	0.85	1.32
Absolute Scope 1 and 2 GHG Emissions⁴ Million metric tons CO ₂ e	1.49	1.51	2.22
Scope 1 and 2 GHG Intensity⁴ Metric tons CO ₂ e / million dollars of sales and revenues	25.07	29.62	40.57

Caterpillar disclosed our inaugural Scope 3 emissions in our [2022 Sustainability Report](#). Caterpillar's Scope 1, 2, and 3 GHG emissions inventory was calculated in alignment with the GHG Protocol and received limited assurance from [ERM Certification and Verification Services, Inc.](#)

3. Data represents information as of December 31, 2022.

4. Includes market-based Scope 2 GHG emissions in the aggregated Scope 1 and Scope 2 GHG emissions total; components may not sum to total due to rounding.



Appendix



TCFD RECOMMENDED DISCLOSURES INDEX

PAGE REFERENCE

Governance

Disclose the organization's governance around climate-related risks and opportunities.

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

3

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

5

Strategy

Disclose the actual and potential impacts of climate-related risks and opportunities on the organization's businesses, strategy, and financial planning where such information is material.

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

7

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

8

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

13

Risk Management

Disclose how the organization identifies, assesses, and manages climate-related risks.

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

14

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

14

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

14

Metrics and Targets

Disclose the metrics and targets used to assess and manage relevant climate-related risks and opportunities where such information is material.

a) Disclose the metrics used by the organization to assess climate-related risks and opportunities in line with its strategy and risk management process.

15

b) Disclose Scope 1, Scope 2, and, if appropriate, Scope 3 greenhouse gas (GHG) emissions, and the related risks.

15

c) Describe the targets used by the organization to manage climate-related risks and opportunities and performance against targets.

15

CATERPILLAR®



Visit caterpillar.com/sustainability to learn more about how we're helping our customers build a better, more sustainable world.