



# 2022 UNDERSTANDING OUR SCOPE 3 EMISSIONS

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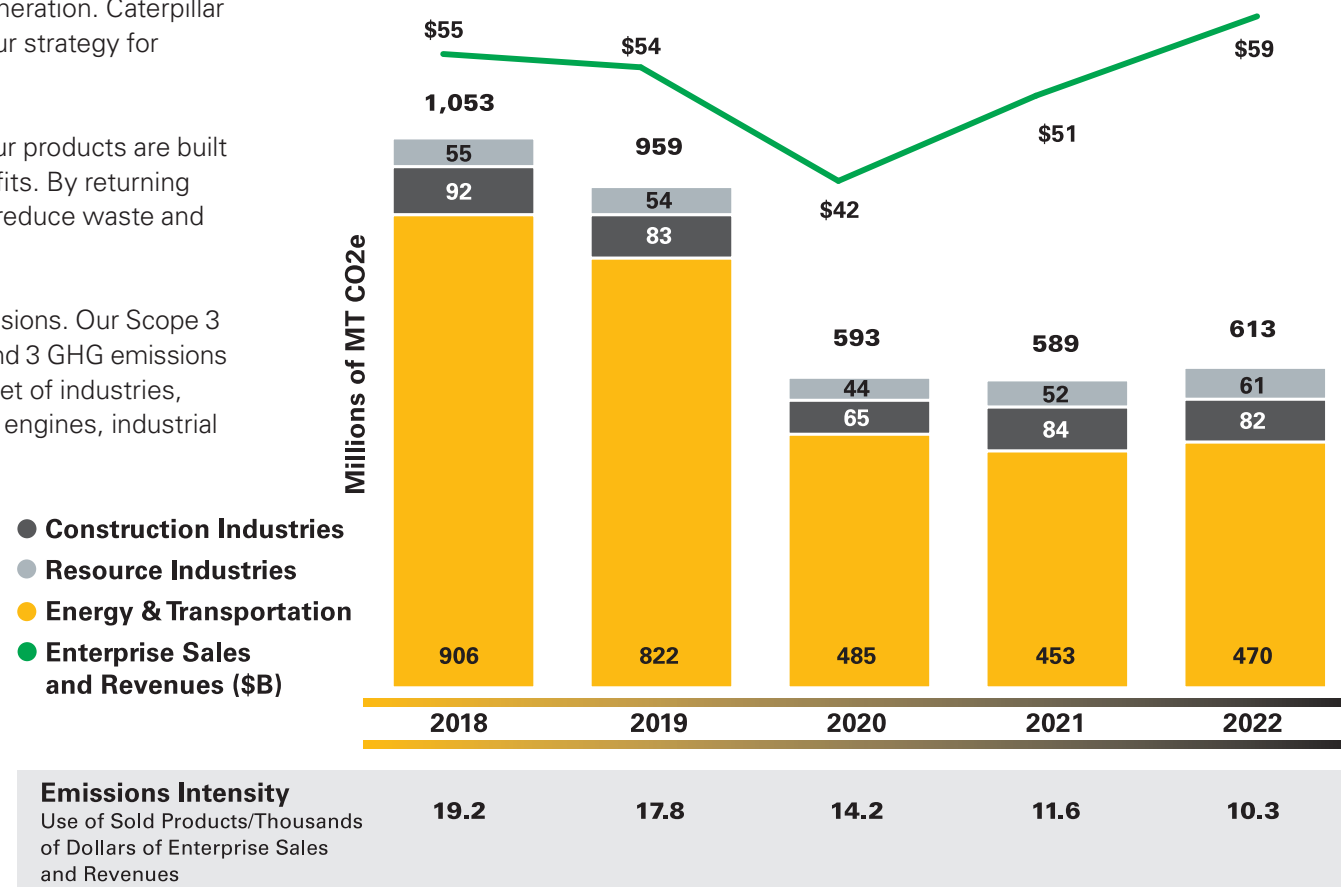
Caterpillar is contributing to a reduced-carbon future by investing in new products, technologies and solutions to help our customers meet their climate-related objectives. We have committed that 100% of our new products through 2030 will be more sustainable than the previous generation. Caterpillar will continue to support our diverse range of global customers while executing our strategy for long-term profitable growth.

Caterpillar is represented by durable, reliable and innovative products. Many of our products are built to be rebuilt and our remanufacturing options deliver multiple sustainability benefits. By returning components at the end of their initial serviceable lives to like-new condition, we reduce waste and minimize the need for the raw material, energy and water to produce new parts.

Caterpillar utilizes guidance from the GHG Protocol to calculate Scope 3 GHG emissions. Our Scope 3 emissions are estimated to be more than 95% of the company's total Scope 1, 2 and 3 GHG emissions inventory.<sup>1</sup> Given the company's large, global customer base covering a diverse set of industries, including construction and mining equipment, off-highway diesel and natural gas engines, industrial gas turbines, diesel-electric locomotives, and others, Category 11 — use of sold products — is our largest Scope 3 category. The remaining fourteen categories of estimated Scope 3 emissions are either not relevant or are immaterial, representing collectively less than 5% of our total Scope 3 emissions.

The five-year trend of Caterpillar's estimated Scope 3 use of sold products emissions illustrates annual emissions at the enterprise level and by primary business segment — CI, RI and E&T — as well as the enterprise sales and revenues trend and emissions intensity (MT CO<sub>2</sub>e divided by enterprise sales and revenues). Most of Caterpillar's emissions come from products with high-power output, high fuel consumption, high runtime and long product life. In some cases, product life extends decades through service life extension activities including rebuilds, remanufacturing and overhauls.

### Scope 3 Use of Sold Products GHG Emissions<sup>2</sup>



1. Statement has been assured by ERM CVS, see [data assurance statement](#).

2. The annual estimates for lifetime use of sold products GHG emissions are calculated from the GHG Protocol expression:  $\sum (\text{total lifetime expected uses of product} \times \text{number of products sold in reporting period} \times \text{fuel consumed per use (kWh)} \times \text{emission factor for fuel (kg CO}_2\text{e/kWh)})$ . The inputs to this equation are specific to construction machines, mining machines, off-highway diesel and natural gas engines, industrial gas turbines, and diesel-electric locomotives, applied at the product-level to calculate lifetime emissions then aggregated across the full enterprise portfolio. Included in the calculation are GHG emissions from combustion of fuels in our products until the estimated point of final disposal covering rebuild, remanufacturing and overhaul events that extend the service life of the product. Excluded from this calculation are emissions from upstream production of fuel consumed in Caterpillar products, fuel efficiency and emission factor changes through the life of the product, refrigerant emissions, and others considered insignificant to Caterpillar's enterprise number. The inputs to perform this calculation were integrated from many data sources including but not limited to: Operation and Maintenance Manuals (OMM), product design data, telemetry data, public data sources (U.S. EPA, industry data), and internal engineering, product, marketing, and other subject matter expertise. Our company's total enterprise Scope 3 use of sold products emissions calculation was verified by a third-party assurance firm (ERM CVS); see the [data assurance statement](#).

The impact of macroeconomic conditions on global markets, including the COVID-19 pandemic, had an effect on enterprise emissions due to product mix changes and lower unit volume shipped in 2020 and 2021. Caterpillar's sales and revenues reflect strong growth from 2020 through 2022, however, emissions remained essentially flat during this period, primarily due to product mix and volume changes across our portfolio. The resulting product mix change is dependent on market and customer trends, especially in certain emissions-intensive industries that changed significantly since 2019. As of the date of this report, Scope 3 use of sold products emissions are expected to increase in 2023 based on customer demand, as well as anticipated shifts in product mix and customer and business trends.

Caterpillar has been a technology leader for nearly a century. We have significant experience developing innovative technologies through consistent R&D investments intended to allow us to maintain technology leadership. Caterpillar remains committed to helping our customers achieve their climate-related objectives and providing long-term profitable growth for our shareholders. Today, for example, 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. Our products can use an

increasingly wide range of fuels, including renewable fuels, biodiesels, biogas, hydrogen blends and HVO. We also continue to invest in power sources that offer lower emissions without sacrificing performance. To support our customers' climate-related objectives, Caterpillar offers modern engines and drive trains equipped with the latest technologies that improve fuel efficiency, reduce emissions and translate into cost savings for our customers.



**Cat R1700 XE battery electric, zero-exhaust emissions underground mining Load Haul Dump (LHD) with onboard battery**

Caterpillar is also 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 climate-related objectives. Built on proven technology, the lithium-ion battery range features a modular design that offers flexible configurations across multiple applications. The batteries are engineered to be scalable to industry and customer performance needs and maximize sustainability throughout their lifecycle, including recycle and reuse at the end of life.

Caterpillar demonstrated our first battery electric 793 large mining truck prototype, operated fully loaded at its rated capacity in a live demonstration with key mining customers in November 2022. Our electric Cat R1700 XE LHD offers 100% battery electric propulsion, producing zero-exhaust emissions for underground mining operations. Our CI segment is expanding its product portfolio and displayed four battery-powered electric machines in October 2022. Our E&T segment has initiated numerous sustainability innovations covering a range of technologies through both organic and inorganic growth and development, including the acquisition of CarbonPoint Solutions, which provides customers access to carbon capture solutions. Caterpillar also offers Cat Energy Storage System, or ESS, 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. Learn more about [Caterpillar's sustainability-related product innovations and solutions](#).



**Cat 795 AC mining truck on trolley assist**

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. The opportunities presented by the energy transition and our work to help our customers achieve their climate-related objectives led us to add sustainability as a focus area of Caterpillar's enterprise strategy. We have committed that 100% of our new products through 2030 will be more sustainable than the previous generation. Caterpillar will continue to support our diverse range of global customers while executing our strategy for long-term profitable growth.