Letter from Bill Ford and Jim Farley

For all of us at Ford, the truest mark of success is whether we leave the world a better place for the next generation. From our earliest days to the present day, Ford has followed that north star.

We invented the moving assembly line and the $5 workday, scaled the Model T, forged the Arsenal of Democracy, and converted our plants to make ventilators and masks during the pandemic. Each generation faces different challenges, but our purpose has always been the same: to help build a better world, where every person is free to move and pursue their dreams.

Today, our industry and our world are going through a period of immense change. We believe it gives us the opportunity to create the most value for the company and our customers since Henry Ford scaled the Model T. But the change in our industry makes it even more important to stay true to the values that have defined our company. We publish this report to hold ourselves accountable and determine if we are truly moving the needle on the issues that matter.

Climate change, for example, is among the biggest challenges of our generation. We all share the responsibility to address the threat it poses our economy, our health, and our way of life. Just like the Model T revolutionized mobility, we believe electrification can do the same for reducing carbon emissions. So, we have been transforming our business to lead the electric revolution at scale, creating distinct but complementary businesses – Ford Model e, Ford Blue and Ford Pro – that will help us compete and win in the new era of electric and connected vehicles.

We are introducing all-electric versions of our most popular, iconic nameplates – the F-150 Lightning, the Mustang Mach-E, and the E-Transit van – and scaling production to reach a target of producing more than 2 million electric vehicles per year by 2026. We are also leading a new era of sustainable manufacturing, re-thinking not just what we build, but how we build. In Tennessee and Kentucky, we have made the largest one-time U.S. investment by any automotive manufacturer to construct the most sustainable manufacturing facilities in our history. Around the world, we are dedicating more than $50 billion through 2026 to accelerate our zero-emission vehicle plan and create an ultra-efficient manufacturing system for our vehicles and the batteries that power them, helping us achieve our goal of carbon neutrality by 2050. Our aspiration is to achieve a business model that goes beyond net-zero and becomes a net-positive for both the environment and the economy.

Investing in electric vehicles is the right thing to do for our children and grandchildren. It is also the right thing to do for our business. The demand for our first-generation electric vehicles has far exceeded expectations. We believe we can profitably grow as we invest in electric vehicles, connectivity, and modernization. We plan to maximize the potential offered by digital, connected vehicles to make our products more accessible, more inclusive, and safer to drive than ever before. We are proving that you can drive prosperity and protect the planet at the same time, and investors are taking notice.

At Ford, we have always strived to take the long view on the environment, even when it was unpopular. We were one of the first industrial companies to publish our progress towards sustainability, one of the first automakers to support the Paris Agreement, and the only full-line American automaker to partner with California on more stringent emissions standards. Now, we intend to lead the industry in another respect by putting a spotlight on human rights.

Ford is publishing a Human Rights Report – a first for the company and for our industry. It will examine how our materials are sourced, where our products are manufactured, and how our labor standards measure up. Countries around the world are defining access to clean air and water as fundamental human rights. We at Ford agree – and are setting clear targets for reducing the global emissions of our entire supply chain.

Whenever the world faces disruption and uncertainty, Ford has stepped up to shape it for the better. We are at our best when we are creating something larger than ourselves. In this time of profound change, we will answer the call to lead our industry towards a more sustainable future, while giving our customers the very best of Ford.

Bill Ford
Executive Chair

Jim Farley
President and Chief Executive Officer

Bill Ford
Executive Chair

Jim Farley
President and Chief Executive Officer

Building the Future of Mobility

Driving Innovation and Sustainable Growth

“This is a transformative moment where Ford will lead America’s transition to electric vehicles and usher in a new era of clean, carbon-neutral manufacturing. With this investment and a spirit of innovation, we can achieve goals once thought mutually exclusive – protect our planet, build great electric vehicles Americans will love, and contribute to our nation’s prosperity.”

Bill Ford, Executive Chair

Overview

Everything we are doing – investing in electrification, enhancing connectivity, and developing new products and services – is to revolutionize and enrich the customer experience.

Our approach is deeply rooted in customer insights, and we are creating an ecosystem around our products that drives deep loyalty. The foundation is our purpose – delivered through our Ford+ strategy – to help build a better world, in which every person is free to move and pursue their dreams.

We’re investing in environmental and social projects.
Based on our 2021 results, we see the Ford+ strategy is working, generating good progress in our financial, social, and business performance. Through our new Sustainable Financing Framework and our inaugural Green Bond, we’re helping to drive human progress by investing in such key initiatives as Clean Manufacturing to create the future of industry. We also tied our Corporate and Supplemental Revolvers to sustainability-linked KPIs.

We will lead the electrification revolution.
We are bringing electrification from the niche to the mainstream, electrifying our icons, including F-150 Lightning, Mustang Mach-E, E-Transit and Lincoln, and rapidly scaling up production and improving affordability.

We’re investing $50 billion from 2022 through 2026 in electric vehicles (EVs), EV technology and charging infrastructure to remove obstacles and show customers the clear advantages of electric vehicles.

From sustainability to performance to power and digital integration, Ford is creating capacity, capability, and convenience in our vehicles that were never possible before. And by working to close the loop on battery manufacturing, we can reduce emissions and even packaging. Through our focus on battery recycling, we will re-use valuable materials, recover precious metals, and help make electric vehicles more affordable.

We are expanding our capabilities to advance mobility innovations around the world.
Our objective is to power the freedom to move every day, helping to make movement more accessible and seamless in cities while improving the safety and sustainability of the transportation ecosystem.

Sustainable Development Goals
We are contributing to the following UN Sustainable Development Goals (SDGs):

Our Sustainability Aspirations

Access: Drive human progress by providing mobility and accessibility for all

Economic Performance

2021 Financial Highlights

Revenue:
$136.3B
(2020: $127.1B)

Adjusted EBIT margin[17]:
7.3%
(2020: 2.0%)

Net income/(loss):
$17.9B
(2020: $(1.3)B)

Adjusted free cash flow[17]:
$4.6B
(2020: $1.3B)

Adjusted EBIT[17]:
$10.0B
(2020: $2.5B)

Adjusted earnings per share[17]:
$1.59
(2020: $0.36)

> Full-year benefits from strong mix and net pricing, as well as lower warranty costs, more than offset the effects of the production losses and higher commodity costs. As a result, automotive EBIT of $7.4 billion and margin of 5.9% for 2021 were both significantly higher than in 2020."
>
> **John Lawler,**
> **Chief Financial Officer**

A Year of Important Progress on Our Ford+ Plan

Our 2021 results show that our Ford+ Plan is working. We're seeing real traction and making tremendous progress in both our financial performance and the strategic direction of the business. Revenue, net income, and adjusted earnings before interest and taxes were all up, even though we sold nearly 250,000 fewer vehicles than we did in 2020 because of industry-wide semiconductor shortages and supply chain disruptions.

We continued to turn around our automotive operations and ensure Ford is competing to win in our areas of strength. We added exciting products to our lineup including the new Bronco, Bronco Sport, Maverick, and Mustang Mach-E – and announced new vehicles like the E-Transit, F-150 Lightning, and the next generation Ranger.

Our operations outside of North America collectively posted their best results since 2017, largely driven by the success of our Global Redesign efforts. We have drastically de-risked and rationalized our global footprint and product lineup, including restructuring our business in India, and have vastly improved our earnings and cash generation power in the process.

We began to bring our vision of always-on experiences for retail and commercial customers to life, delivering over-the-air updates and fundamentally changing the culture of engineering inside Ford and driving the definition of next generation of connected vehicles.

Our reinstatement of the quarterly dividend underscores our confidence in the improving run-rate of the business, and our ability to fund all future calls on capital.

Accelerating Our Transformation, Unlocking New Growth Opportunities

Our Ford+ growth plan is predicated on delivering a company adjusted EBIT margin of 8% by 2023, and the consistent generation of adjusted free cash flow to invest in accretive high-return opportunities, including electrification, connectivity, and customer-facing technology. At the top end of our 2022 guidance of $11.5 billion to $12.5 billion in company adjusted EBIT, we would achieve that one year earlier than planned.

In March 2022, Ford accelerated our transformation by forming two distinct auto units – Ford Blue and Ford Model e – to enable us to compete and win against both new EV competitors and established automakers. Together with Ford Pro, these strategically interdependent businesses will help unleash the full potential of the Ford+ Plan and give us the confidence to raise our long-term company adjusted EBIT margin target to 10% by 2026.

To achieve this, we are increasing our planned global investment in EVs, including battery production, to $50 billion from 2022 through 2026. This will allow us to rapidly scale production capacity of our popular new electric vehicles to more than 600,000 by the end of 2023 – and grow that to an annual run rate of 2 million by 2026 when BlueOval City in Tennessee comes onstream. By then, electric vehicles will represent one-third of our global volume, growing to half by 2030.

With a focus on disciplined capital allocation, process simplification, and structural cost reduction, Ford Blue will serve as a profit engine for the company for years to come. It will generate the capital we need to fund a very exciting future – one that's both financially healthy and true to our purpose – and continues to create long-term value for shareholders.

Corporate Issuer of the Year 2021

Ford has been awarded the International Financing Review's (IFR) Corporate Issuer of the Year for 2021 for funding a major electric vehicle push, while cutting costs and attracting the "greenest" of capital – the largest ESG facility ever to be completed in the U.S. market. Ford was the first U.S. automotive manufacturer to issue a sustainability-linked loan.

Read more about us delivering Ford+ on p.19

Electrification and Connectivity

> Ford has signed the ambitious RouteZero initiative which aims to reduce carbon associated with road transportation. We join more than 50 businesses, cities, and regions that have pledged to work together toward 100% zero-emission cars and vans globally by 2040, and in leading markets no later than 2035. Electrification represents the most transformative change of our industry in over 100 years."
>
> **Stuart Rowley, President, Ford of Europe**

Leading the Electrification Revolution

We are investing $50 billion in electric vehicles from 2022 through 2026 to electrify our icons, build out EV charging infrastructure, create a digital ecosystem with trusted customer service, and to take our suppliers on this journey with us.

We expect fully electric vehicles to account for 50% of our global sales volume by 2030. The demand for our first wave of EVs – Mustang Mach-E, E-Transit and F-150 Lightning – has exceeded our expectations. By the end of 2023, we will have the global capacity to produce 600,000 EVs annually to meet the demand.

Read more about our iconic vehicles on p.14

Electric vehicle customers are looking for a differentiated experience – more digital with remote services, always-on engagements, and products that get better over time. We are expanding our capabilities to serve these new customers and drive loyalty – and it's working. More than 90% of Mustang Mach-E owners said they would recommend it to others.

We are also mindful that this move to electrification will affect our key stakeholders, including our own employees. This is why we are considering a Just Transition – to accelerate our ability to reskill, upskill, and better develop our employees and people in the communities where we operate. We aspire to further our purpose of building a better world and providing people with tools to help them move forward and upward.

Read more about Just Transition on p.66

Our electrification strategy is a critical component of Ford's goal to achieve carbon neutrality globally no later than 2050. Ford is the only full-line U.S. automaker committed to doing its part to reduce CO_2 emissions in line with the Paris Agreement and working with California for stronger vehicle GHG standards.

As part of this effort, Ford joined RouteZero, a global coalition working towards all sales of new cars and vans being zero emission vehicles by 2040 globally, and no later than 2035 in leading markets – to curb global warming.

In addition to electrifying vehicles in high-volume segments, another key component of our strategy is to ensure access to lower-cost, high-performing battery technology and create a closed loop manufacturing system. Through Ford Pro, we will also help small and large businesses globally transition their fleets to zero emission vehicles by providing a suite of support, including EV consulting, charging, telematics, service, and financing.

And with more than 2,300 EV-certified dealers across all 50 states – and over 650 Commercial Vehicle Centers in the U.S., 90% of which are EV-certified – we stand ready to help customers make the transition to electric vehicle ownership.

50%

of Ford's global vehicle volume to be fully electric by 2030

CASE STUDY

All-Electric Police Vehicle Debut

The Ford Pro all-electric police pilot vehicle, based on the 2021 Mustang Mach-E SUV, became the first all-electric vehicle to pass the rigorous Michigan State Police 2022 model year evaluation. Testing included acceleration, top speed, braking, and high-speed pursuit, as well as emergency response handling characteristics.

CASE STUDY

Lincoln Celebrates 100 years and Announces All-Electric Portfolio by 2030

As the Lincoln brand celebrates its 100th anniversary in 2022, plans are underway for its exciting, electric future. Over the last 100 years, Lincoln has pioneered such innovations as center-opening coach doors, electric gauges, keyless entry, and symphonic chimes, while pushing the boundaries of elegant automotive design and introducing products and services that have come to define the iconic American luxury brand it has become. The anniversary comes at a pivotal time, as the brand looks to advance its commitment to electrification and make its entire vehicle portfolio electric by 2030. Lincoln also plans to expand effortless, personalized experiences by delivering an enhanced suite of connected services through the Lincoln Way app.

Expanding EV and Battery Manufacturing

Ford has electric vehicle manufacturing footprints across the world, including four plants in North America, as well as locations in Germany, Turkey, and China.

In 2021, we announced plans to bring electric vehicles at scale to American customers with two new massive, environmentally and technologically advanced campuses in Tennessee and Kentucky that will produce the next generation of electric F-Series trucks and the batteries to power future electric Ford and Lincoln vehicles.

To build these campuses, we are making the largest single U.S. investment in electric vehicles at one time by any automotive manufacturer. Along with our partner, SK Innovation, we plan to invest $11.4 billion and create nearly 11,000 new jobs at the Tennessee and Kentucky mega-sites.

The all-new mega campus in Stanton, Tennessee, called BlueOval City, will be among the largest auto manufacturing sites in U.S. history, encompassing vehicle assembly, battery production, recycling, training and technical education programs, and a supplier park. The vertically integrated system will deliver cost efficiency while minimizing the carbon footprint of the manufacturing process, including the potential to use local renewable energy sources such as wind, solar power, nuclear, geothermal, biomass, energy storage, and hydro. The assembly plant will be designed to be carbon neutral with zero waste to landfill once fully operational.

CASE STUDY

The New Ford F-150 Takes Power Capability to New Levels

Beyond its payload and towing capabilities, the F-150 hybrid and electric models both feature optional Pro-Power Onboard, a power back-up system that transforms the vehicle into a generator that can supply enough juice to run tools at your workplace or appliances on the go. The F-150 Lightning also has Intelligent BackUp Power, the ability to power your home in an outage for 3-10 days.[18]

Electrification and Connectivity – continued

In central Kentucky, we will build a dedicated battery manufacturing complex called the BlueOval SK Battery Park with SK On, a wholly owned subsidiary of partner SK Innovation focused on the battery business. Twin battery plants on the site, as well as one in Tennessee, are intended to supply Ford's North American assembly plants with locally assembled batteries for powering next generation electric Ford and Lincoln vehicles. Three plants will be capable of producing up to 129 gigawatt hours annually, which will be expanded by mid-decade to 141 gigawatt hours, enough to build more than one million electric vehicles.

Our investment in BlueOval City in Tennessee and the BlueOval SK Battery Park in Kentucky sets a new standard for scale, sustainability, advanced manufacturing, and training for the next generation of technology leaders.

After investing $7 billion in Michigan since 2016, and committing $700 million for the Rouge Electric Vehicle Center a year ago, we are investing an additional $250 million across the Rouge Electric Vehicle Center, Van Dyke Electric Powertrain Center, and Rawsonville Components Plant to help increase production capacity of the F-150 Lightning to 150,000 trucks a year.

We are also collaborating with Redwood Materials, a leading battery materials company, to make electric vehicles more sustainable and affordable for Americans by localizing the supply chain network, creating recycling options for scrap and end-of-life batteries, and ramping up lithium-ion recycling. We believe battery recycling is essential for the success of an electrified future and has the potential to offer significant economic benefits.

$11.4B

Planned joint investment in Tennessee and Kentucky mega-sites

11,000

new jobs to be created

> **BlueOval City's assembly plant will harness Ford's global manufacturing expertise and cutting-edge technologies to deliver cost efficiencies and the quality that our customers expect. This will enable Ford to lead in the race to bring dependable, affordable, and advanced electric vehicles to even more Americans."**
>
> **Kumar Galhotra, President of Ford Blue**

Meanwhile, we are working with other automakers in markets where we don't have scale but see opportunities. As part of our global alliance with Volkswagen, Ford will build a new electric vehicle for Europe based on its Modular Electric Drive, or MEB, architecture beginning in 2023. The arrangement, focused on small to mid-size electric vehicles, will lead to a highly differentiated experience for our European customers and expand Ford's zero-emission capabilities in the region.

And to transform America's auto technician industry, we have made a $525 million investment across the U.S. during the next five years. The investment will go toward job training and career readiness initiatives to develop highly skilled technicians that can support our growing portfolio of connected electric vehicles.

Electrification and Connectivity – continued

Expanding Global Electrification Capabilities

Our electrification plans are global, with facilities in Europe gearing up for the industry-changing transition.

100%

of Ford's passenger vehicles in Europe will be zero-emissions capable by 2026 and all-electric by 2030

Germany
Spearheading our advance into an all-electric future is a new $1 billion investment to modernize Ford's vehicle assembly facility in Cologne, one of our largest manufacturing centers in Europe and the home of Ford of Europe. The investment will transform the existing vehicle assembly operations into the Ford Cologne Electrification Center for the manufacture of electric vehicles, Ford's first such facility in Europe. Ford's new European-built, volume all-electric passenger vehicle will roll off Cologne's production line in 2023.

Romania
We will invest $300 million to build a new light commercial vehicle in 2023 at our Craiova Assembly Plant in Romania, including an all-electric version due to debut in 2024 – the first all-electric Ford volume vehicle to be built in Romania. With this all-electric version, Craiova will become the third Ford facility in Europe to take on an all-electric vehicle production.

Spain
We are also investing in an electrified future for our Valencia, Spain, operations with the new 2.5-liter Duratec hybrid engine that will be built at our engine plant starting in late 2022 with an increased battery pack assembly capacity. Providing a bridge to an all-electric passenger vehicle future for Europe, the Duratec hybrid engine powers the Kuga PHEV as well as the Kuga, Galaxy, and S-MAX Full Hybrid models.

Turkey
All versions of the next generation Transit Custom will be built by Ford Otosan – Ford's joint venture in Turkey – in Kocaeli, the home of the Ford Transit range. In addition, the joint-venture's next generation Volkswagen 1-ton commercial vehicle also will be built in Kocaeli, adding valuable scale and enhancing the customer experience by bringing more technologies to market. Connected services co-developed with commercial vehicle customers will also be designed to enhance the customer experience and advance Ford's continuing commercial vehicle leadership in Europe. Late in 2020, Ford Otosan announced plans to invest more than €2 billion to increase vehicle and battery pack assembly capacity production at Kocaeli.

United Kingdom
We are investing up to £230 million at our Halewood vehicle transmission facility, transforming it to build electric power units for future Ford all-electric passenger and commercial vehicles sold in Europe. This investment indicates the U.K.'s importance for high-quality automotive Power unit production – the complete all-electric assembly that replaces the engine and transmission in conventional gas or diesel engine vehicles. Halewood will be our first electric vehicle component in-house assembly site in Europe with production beginning in 2024.

China
The first Mustang Mach-E manufactured in China officially rolled off the assembly line in October 2021. Manufactured at Changan Ford's manufacturing plant in Chongqing, the locally produced Mustang Mach-E became available for delivery to customers in China by the year's end, providing Chinese customers with the driving pleasure associated with the electric SUV. Ford inaugurated 25 electric vehicle stores in major metropolitan areas by the end of 2021 and expects to expand to 61 stores within 2022.

CASE STUDY

The Mustang Mach-E in China

The award-winning Mustang Mach-E was officially delivered to the first customers in China on December 26, 2021. The locally produced Mustang Mach-E is being sold through a growing network of direct-to-customer Ford Select stores located in major Chinese metropolitan markets. Currently, there are 25 such stores in China dedicated to the sale of Ford electric vehicles.

25

stores in China dedicated to the sale of Ford electric vehicles

Electrification and Connectivity – continued

Accelerating Battery R&D

To accelerate research and development of battery and battery cell technology, we announced the establishment of the Ford Ion Park global battery center in southeast Michigan. Here, state-of-the-art equipment will be used to pilot new manufacturing techniques that will help the company quickly test and scale battery cell designs with novel materials.

We also recently increased our investment in Solid Power, an industry-leading producer of all-solid-state batteries for electric vehicles. Showing great promise, these batteries are designed to power longer-range, lower-cost, and safer electric vehicles using existing lithium-ion battery manufacturing infrastructure.

Research Goal: Recharging EVs as Quickly as Gas Fill-ups

Ford researchers have successfully completed an early step in collaboration with Purdue University: we have invented a new, patent-pending method for charging stations that could one day deliver significantly more power compared to today's leading systems.

Using liquid as an active cooling agent, the concept uniquely changes the liquid to vapor and could combine with in-development vehicle charging technology to lower the average time to recharge electric vehicles. This innovation could one day deliver significantly more power to charge electric vehicles than today's leading systems, making possible faster re-charging times if vehicle charging and other technology enhancements are made in parallel. Ultimately, this could lead to re-charging EVs as quickly as conventional gas station fill-ups.

Expanding our EV Charging Network

Along with a variety of home charging solutions, Ford's BlueOval™ Charge Network is the largest public charging network in North America offered by automotive manufacturing, with more than 20,500 stations (over 70,000 plugs) and growing[6]. Built-in cloud-connected navigation routes customers to nearby charging stations, recommends where to charge on trips and provides easy access and payment via FordPass for a seamless retail customer experience.

Meanwhile, we are teaming up with the nation's leading solar company, Sunrun, to facilitate easy installation of the 80-amp Ford Charge Station Pro and home integration system to generate Ford Intelligent BackUp Power. Customers will also have the opportunity to install solar energy on their home to power their household with clean, affordable energy and charge their F-150 Lightning with the power of the sun.

Additionally, our commercial vehicle arm, Ford Pro, launched Ford Pro Charging for managing commercial EV fleets and charging needs. To transition to electrification, fleet owners will receive software and commercial hardware infrastructure to support charging and energy management.

In Europe, the IONITY high-power charging network will grow 7,000 charging points by 2025, to create a supporting infrastructure as we accelerate the electrification of our vehicles.

Developing Alternative Powertrains and Fuel Options

As we launch electrified versions of our most popular nameplates, we will continue researching and developing alternative powertrains and fuel options across all our vehicles, to provide customers with efficient, low-carbon alternatives. This effort includes the development of hydrogen fuel cell technology, with a primary focus on medium/heavy-duty vehicles to offer payload and uptime advantages that provide total cost-of-ownership benefits. Ford is partnering with the U.S. Department of Energy to develop and demonstrate five hydrogen fuel cell electric Class-5 Super Duty trucks through the DOE SuperTruck 3 program. The project's goals are cost, payload, towing, and refueling times that are equivalent to conventional gasoline trucks.

Since not all commercial vehicle operators will make the move from the conventional internal combustion engine to all-electric vehicles, powertrain technologies, from mild hybrids to plug-in hybrids, give them the power of choice as a significant part of the next generation Transit Custom range.

Alternative fuel vehicles can reduce GHG emissions on a well-to-wheels basis, which includes emissions from both producing and consuming the fuels.

Read more about our Sustainable Financing Framework and our investment in Clean Transportation on p.27

Electrification and Connectivity – continued

Connectivity

In addition to electrification, the transformation of Ford vehicles includes making them "smarter" and connected through cloud-based technology, providing vital information and new capabilities to owners.

Ford, Google Technology Powerhouse

In 2021, Ford and Google announced a unique strategic partnership to accelerate Ford's transformation and reinvent the connected vehicle experience. Ford also named Google Cloud its preferred cloud provider to leverage Google's world-class expertise in data, AI, and machine learning (ML). As part of this new, six-year partnership – and beginning in 2023 – millions of future Ford and Lincoln vehicles at all price points will be powered by Android, with Google apps and services built-in.

To drive ongoing innovation, Ford and Google established a new collaborative group, Team Upshift. Leveraging the talent and assets of both companies, Team Upshift will push the boundaries of Ford's transformation, unlock personalized consumer experiences, and drive disruptive, data-driven opportunities. This may include projects ranging from developing new retail experiences when buying a vehicle to creating new ownership offers based on data, and more.

As Ford continues the most profound transformation in its history with electrification, connectivity, and self-driving, Google and Ford coming together establishes an innovation powerhouse truly able to deliver a superior experience for our customers and modernize our business.

Ford Power-Up Software Updates Strengthen Customer Relationships

With Ford Power-Up software updates, we can deliver regular vehicle enhancements to Ford owners, turning connected vehicle learnings into continuous quality improvements, new features, and capabilities. New Ford Power-Up features and enhancements already have been sent to owners of Bronco, F-150, Mustang Mach-E, and other vehicles as part of Ford's plans to produce 30 million vehicles with advanced software update capability by 2028. These capabilities are designed to strengthen customer relationships with digitally enabled tools like FordPass and Lincoln Way, online ordering, simplified financing and renewal options, vehicle pickup and delivery services, and mobile repairs. Such tools will extend digital support to customers by fully integrating best-in-class technology.

These services are expected to speed the detection and resolution of quality issues using connected data, which will help raise customer satisfaction and lower warranty costs, deploy distinctive connected functions like Ford's BlueCruise hands-free driver-assist technology, seamless Amazon Alexa Built-in hands-free home and vehicle voice commands, new features and upgraded software content, and EV charging to improve the user experience. Such connected services are projected to be a $20 billion market by 2030.

More than

30M

Power-Up-enabled Ford and Lincoln vehicles by 2028

Mobility Solutions and Autonomous Vehicles

The Freedom to Move

To expand real-world experiences, we are investing to help make movement more accessible and seamless while improving the safety, efficiency, and sustainability of the overall transportation ecosystem – especially digital capabilities for developing robust mobility and connected vehicle services that benefit cities and citizens.

Mobility can help give people the freedom to move and pursue their dreams – including access to education, jobs, housing, and healthcare. Our vision for the future of urban mobility is a transportation ecosystem that helps improve how people get from point A to point B more seamlessly, deliveries to get people the goods they need, better parking, and traffic flow, while addressing such challenges as climate change and air pollution. We continue to collaborate directly with cities and other key stakeholders to help them solve their mobility issues and deliver our own mobility products and services to help make lives better.

Path to Autonomous Services Coming to Life: Lyft and Walmart

Ford remains focused on large-scale deployment of autonomous vehicles as a service – ride-hailing to move people and delivery to move goods – across multiple U.S. cities starting in our launch city markets of Austin, Texas, Miami, and Washington, D.C.

While we continue to improve the technology and build a robust self-driving system with our partner Argo AI, we have also made progress over the last year in bringing these services to life through our collaboration with Lyft, one of the largest transportation networks in the U.S., and Walmart, the world's largest retailer.

Together, with Lyft and Argo AI, we announced in 2021 that we are deploying Ford autonomous vehicles, with safety drivers, on the Lyft network in Miami and in Austin, available this year. As vehicles are deployed, Lyft users within defined service areas will be able to select a Ford autonomous vehicle powered by the Argo Autonomy Platform to hail a ride.

This unique collaboration brings together all of the parts necessary to create a viable autonomous ride hailing service, including the autonomous technology, vehicle fleet, and transportation network needed to support a scalable business and exceptional experience for riders. This initial deployment phase will lay the groundwork for scaling operations across multiple markets over the next five years.

For delivery, we are working with Walmart and Argo AI to deploy an autonomous vehicle delivery service in Miami, Austin, Texas, and Washington, D.C. — Walmart's first multi-city autonomous delivery collaboration in the U.S. The delivery service will use Ford autonomous vehicles equipped with the Argo Autonomy Platform to deliver Walmart orders to customers. This multi-city service makes it possible for customers to place orders online for groceries and other popular items, while providing autonomous deliveries directly to their homes.

By testing and developing autonomous technology for urban areas, where customer demand is high, we are demonstrating the potential for autonomous vehicle delivery services at scale.

For Mobility Solutions: The City:One Program

The City:One program uses a community-centered approach to develop innovative mobility solutions that address safety, sustainability, equity, and accessibility to support the ever-changing mobility needs of cities and their residents.

In 2019-2020, we hosted City:One Challenges in four locations: Indianapolis, Michigan Central Station in Detroit, Austin, and Mexico City. In working with those communities, we generated more than 400 proposals and secured nearly $1 million in funding to support tangible and equitable mobility pilots for residents, workers, and visitors. In 2021, multiple Challenge winners began activating their mobility pilots to deliver real-world impact.

For example, in coordination with 20 local Detroit partners and eight high school students from Mercy Education Project, one of three Michigan Central Station City:One Challenge winners, the group launched a mobility hub in Roosevelt Park, Detroit. The young women, with community input, created a space that provided a welcome, safe environment with access to and information about mobility options including bikeshare and bike racks; access to Spin scooters and charges; and real-time updates on transit, as well as extensive lighting, murals developed by local artists and a waiting area with WiFi, charging, and seating. The hub also offered COVID-19 vaccinations and testing through a partnership with Ford and Wayne Health/Wayne State University.

Mobility Solutions and Autonomous Vehicles – continued

Austin City:One Challenge pilot winner Tappy Guide assisted Austinites with disabilities by launching a service to help them move through their mobility journeys by using real-time location information, live video feeds, and call center support. The pilot partnered with multiple organizations to test and launch their services in Austin.

More than 92 Austinites used the app to move throughout the City with the support of 37 volunteers who were engaged in disability, diversity, and accessibility training to offer concierge support for people using the Tappy Guide service.

In 2022, the City:One program is focused on developing additional community-centered projects that integrate residents in the mobility innovation experience.

Incubating Transportation Solutions

During the last three years, Ford has been restoring historic buildings, including the iconic Michigan Central Station, constructing new ones and building out connected spaces in Corktown, Detroit to transform the area into Michigan Central, a mobility innovation district that brings together innovators to incubate and speed development of transportation solutions. While construction is still underway, innovation in the district is already happening. One example is a partnership with Newlab, a New York-based accelerator, that began in 2020. Together, Michigan Central and Newlab have created two innovation studios. One to address mobility issues on a macro scale with an EV track focused on electrifying commercial fleets, as well as an AV track focused on the first and last 50-feet of a journey of moving goods. The second, a civic studio – Accessible Streets – designed to improve transportation and access in the neighborhoods around Michigan Central Station – upholding our commitment to the local communities.

Moving Goods: A Low-Speed Autonomous Shuttle

To improve how people and goods move in the future, we need to explore different mobility applications to understand how they can address real transportation needs in communities. We're doing just that by conducting pilots and testing in and around Michigan Central. In collaboration with a Ford Fund and Gleaners Community Food Bank food delivery program called FREC (Ford Resource and Engagement Center) on the Go, we are operating a pilot through the summer of 2022 to deliver fresh produce to mobility-challenged senior citizens via an autonomous low-speed shuttle. The shuttle will make deliveries each month from the Ford Resource and Engagement Center in Southwest Detroit to the Rio Vista Co-Op Apartments senior living center.

In addition to our work with Argo AI, the Ford Autonomous Vehicle team is collaborating with Saline, Michigan-based Quantum Signal AI LLC, a wholly owned Ford subsidiary, to explore using a low-speed shuttle to operate autonomously on a fixed route with the help of remote operations and smart infrastructure.

While the shuttle will operate autonomously with a safety driver, we are looking at how a remote operator from more than 40 miles away in Saline, could assist the shuttle if an unexpected condition arises, such as a fallen tree branch from a storm in the middle of the road.

We also are building off of our work in Saline and Miami, and have installed multiple Ford-designed smart infrastructure sensor nodes along the shuttle test route, which can relay information to an autonomous vehicle, so it knows what's happening on the ground before it even arrives at an intersection or other piece of roadway. For example, if the vehicle's sensors are blocked by a truck, the node helps the vehicle to see that a pedestrian or vehicle is approaching.

To improve how people and goods move in the future, we need to explore different mobility applications to understand how they can address real transportation needs in communities. We're doing just that by conducting pilots and testing in and around the Michigan Central.

The design of the shuttle from the interior to the exterior was created by our Experience Design (XD) team whose mission is to understand the customer and create value. The team will conduct focus groups to engage with residents about the pilot and to better understand the challenges they face when it comes to transportation and their freedom to move.

As a result of the six-month pilot, more than 20 residents will receive two deliveries per month complete with fresh milk and produce – highly requested items based on feedback – which is expected to provide an expected 10,000 pounds of fresh healthy foods.

We believe this type of autonomous application could be used in the future and could help support more frequent trips and deliveries in our communities. As a step in our journey, we will continue to use the open innovation platform at Michigan Central to build mobility solutions for the future.

Mobility Solutions and Autonomous Vehicles – continued

Collaborating for the Safe Deployment of Autonomous Vehicles

Ford continues to collaborate with others testing autonomous vehicle technologies within several business associations, as well as lawmakers, regulators, and the public to realize the safety and societal benefits of autonomous vehicles. Additionally, Ford participates in various consortiums addressing the safety challenges autonomous vehicles face through the development of industry best practices and standards. Some of Ford's collaborative efforts include:

AMP – Ford has joined with other autonomous vehicle developers in the U.S., to form the Automated Mobility Partnership (AMP), which is geared towards the use of real-world driving data to inform the development of automated driving systems.

AVSC – Ford is a founding member of the Autonomous Vehicle Safety Consortium (AVSC), convened by the SAE International and SAE Industry Technologies Consortia (SAE ITC). This consortium is working together to advance safer testing, development, and deployment of autonomous vehicles through the establishment of industry best practices. The following AVSC best practices have been developed and released to date: Fallback Test Driver, Operational Design Domain, Passenger-Initiated Emergency Trip Interruption, Data Collection, First Responder Interactions, Metrics and Methods for Assessing Safety Performance, Adapting a Safety Management System (SMS) for ADS Testing and Evaluation, and Evaluation of Behavioral Competencies.

PAVE – The Partners for Automated Vehicle Education (PAVE) coalition is dedicated to educating the public about automated vehicles and the increased safety, mobility, and sustainability benefits they can provide.

PEGASUS – Along with other autonomous vehicle developers, Ford has joined the Project for the Establishment of Generally Accepted quality criteria, tools and methods as well as Scenarios and Situations for the release of highly-automated driving functions. This effort is intended to identify areas for international collaboration and harmonization on safety assurance for automated driving systems, and initiate steps to make progress towards collaboration and harmonization.

Among our ongoing autonomous vehicle regulatory and policy efforts are the Alliance for Automotive Innovation and the Autonomous Vehicle Industry Association (formerly Self-Driving Coalition for Safer Streets), where we are working with industry to advocate for the safe and expeditious deployment of AVs while promoting the benefits of the technology. Ford is proactively engaged at the UNECE to shape requirements to allow for the deployment of autonomous vehicles at the national level to engage with authorities to bring these vehicles to market.

In 2021, Ford joined the National Highway Traffic Safety Administration's (NHTSA) AV Test Initiative. Through this voluntary initiative, NHTSA aims to provide an interactive tool that will keep the public up to date on the states and companies using autonomous vehicle technology on public roads, and we will support by sharing details about Ford's autonomous vehicles, testing, and operations.

Improving Accessibility for People with Disabilities

Our customers want choices – to be able to pick a vehicle they like with the features and accessories they need to drive safely and comfortably. This process can be particularly challenging for people with disabilities who want to be as mobile as everyone else. This is why Ford is transforming its design thinking to be more inclusive for customers with diverse abilities.

The Ford Accessibility Program, offering a variety of adaptable vehicles to meet different needs and budgets, makes it easier for persons with disabilities to get on the road. To broaden these capabilities in a high-tech world, we launched a series of internal webinars and events to raise awareness and increase engagement across the company on issues of vehicle accessibility. These learning events have included direct engagement with a group of customers who have one or more disabilities, to advance discussions on inclusive design practices. Ford is also continuing this inquiry as a member of the Autonomous Vehicle Alliance (AVA) and as a sponsor of AVA's most recent research on accessible and barrier-free autonomous vehicles, while actively participating in and helping facilitate informative webinar sessions organized by the AVA, Intelligent Transportation Society of America (ITSA), and other partner organizations.

Building a Healthier Planet

Protecting the Environment

“This generation is the first to feel the impact of climate change, and the last that can do anything about it. Ford is leading the electric revolution and standing for stronger standards to protect both people and the environment as we progress towards a zero-emissions transportation future. We have always been a leader in sustainability and are continuing in our efforts to leave future generations with a cleaner planet.”

Bob Holycross, Vice President, Chief Sustainability, Environment and Safety Officer

Overview

We’re doing our part to address the urgency of climate change and accelerating our progress to carbon neutrality no later than 2050

We’re reimagining how EVs – and the batteries that power them – are designed, manufactured, and recycled, creating an all-new electric vehicle ecosystem. And creating good jobs and a growing business that delivers value for everyone who relies on Ford.

We’re aiming to achieve carbon neutrality no later than 2050.
Ford is committed to being fully carbon neutral worldwide across our vehicles, facilities, and suppliers no later than 2050.

We’re accelerating the electrification revolution.
We’re acting now to ramp up production of our zero-emissions vehicles. We’ve pledged to work towards sales of all new cars and vans being zero-emission globally by 2040 and are on track to have 50% of our global vehicle mix fully electric by 2030.

Read more about our road to Carbon neutrality on p.84

We’re matching our ambition with action.
Ford is the only full-line U.S. automaker to align with the Paris Agreement and to stand with the California Air Resources Board in support of stronger GHG standards from vehicles.

We’re changing how our products are made.
We’re reducing the effects of our operations and supply chains through world-class facilities, including our commitment to sourcing 100 percent carbon-free electricity for our global operations by 2035. By using recycled and renewable materials in our vehicles’ design, we’re reducing landfill waste and using fewer natural resources.

Read more about our Sustainable Financing Framework on p.27

Sustainable Development Goals

We are contributing to the following UN Sustainable Development Goals (SDGs):

Our Sustainability Aspirations

- **Climate Change:** Achieve carbon neutrality no later than 2050
- **Air:** Attain zero emissions from our vehicles and facilities
- **Water:** Make zero water withdrawals for manufacturing processes
  Use freshwater only for human consumption
- **Energy:** Use 100 percent carbon-free electricity in all manufacturing by 2035
- **Materials:** Utilize only recycled or renewable content in vehicle plastics
- **Waste:** Reach true zero waste to landfill across our operations
  Eliminate single-use plastics from our operations by 2030

Climate Change

Climate Change: Achieve carbon neutrality no later than 2050

Read more about this Salient Human Rights issue in our Human Rights Report

Achieving Carbon Neutrality

Our climate is changing faster than the world can keep up. Rising sea levels, droughts and forest fires indicate the urgency of the situation. A comprehensive effort is needed to meet the goals of the Paris Agreement.

In fact, Ford is working to minimize its impact on climate change aligned with the United Nations Framework Convention on Climate Change (Paris Agreement). We are committed to doing our part – it's a strategic priority, one of our salient human rights issues, and integral to our purpose of helping make a better world. And it's driving our transition to electrification and our goal of achieving carbon neutrality no later than 2050.

Our Long-Term Aspirations and Near-Term Commitments

To achieve our carbon neutrality goal, we are focusing on three areas that account for approximately 95% of our CO_2 emissions – our vehicles, our operations, and our supply chain. The steps we're taking are:

- Electrifying our iconic vehicles beginning with the Mustang Mach-E, the F-150 Lightning, and the E-Transit. By 2026, we expect annual production of more than 2 million EVs. By 2030, we expect EVs to represent half of global volume. In Europe, we expect 100% of our cars to be fully electric by 2030. Two-thirds of commercial vehicle sales in Europe will be all-electric or plug-in hybrid by 2030 and all commercial vehicles in Europe will be zero emission by 2035.
- Investing in EV technology and charging infrastructure to remove obstacles to electrification. We're investing $50 billion in electric vehicles and battery production from 2022 through 2026.
- Investing in sustainable manufacturing to create an utlra-efficient, carbon-neutral manufacturing ecosystem. Our new mega-sites in Tennessee and Kentucky are ushering in an era of sustainable electric vehicle manufacturing.
- Working with our suppliers to reduce their emissions and develop science-based emissions reduction targets in line with the Paris Agreement.

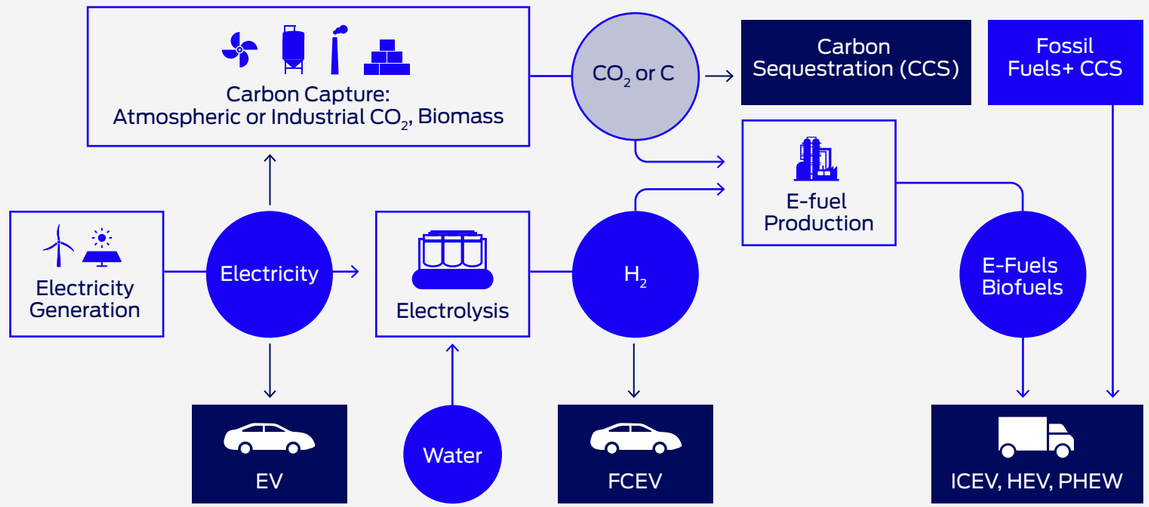
Achieving our long-term carbon neutrality goal is ambitious and complex. To ensure near-term progress, we have developed science-based interim targets and joined global coalitions working towards our common goal.

For example, Ford joined RouteZero, a global coalition working towards all sales of new cars and vans being zero-emissions globally by 2040, and no later than 2035 in leading markets.

This builds on our previous commitments to President Biden's agenda to reduce GHG emissions in the United States by 50-52% by 2030, have 50% of our global sales volume being EVs by 2030, the UN's Business Ambition Pledge for 1.5ºC, and to the New Deal for Europe initiative to devise a comprehensive Sustainable Europe 2030 Strategy. We've also joined the U.S. Department of Energy's Better Climate Challenge to reduce GHG emissions from our facilities by at least half in the same timeframe.

The above pledges are backed by interim targets approved by the Science Based Targets initiative (SBTi). Our emissions targets call for a 76% reduction in Scope 1 and 2 GHG emissions by 2035 from a 2017 base year, and a 50% reduction in Scope 3 GHG emission per vehicle kilometer from use of sold products by 2035 from a 2019 base year.

Future Carbon-Neutral Transportation



EV: Electric vehicle; **CCS:** carbon capture and storage; **FCEV:** fuel cell electric vehicle; **HEV:** hybrid electric vehicle; **ICEV:** internal combustion engine vehicle; **PHEV:** plug-in hybrid electric vehicle

This goes beyond tailpipe emissions, and includes reducing vehicle emissions from a fuel-cycle perspective (well-to-wheels) which include the production and consumption of fuel during vehicle use. Our Scope 1 and 2 operations target is aligned with the SBTi 1.5ºC path, while our use of sold products (vehicle) target is consistent with the well-below 2ºC target. These targets do not include offsets and are strictly GHG reduction targets.

Addressing climate change is a global issue that no company, industry, country, or organization can achieve on its own. It will require collaboration to drive progress.

76%

target emissions reduction in Scope 1 and 2 GHG emissions by 2035 from a 2017 base year

50%

reduction in Scope 3 GHG emission per vehicle kilometer from use of sold products by 2035 from a 2019 base year

Climate Change – continued

The Road To Carbon Neutrality

NEAR

- **70k+** Charging Network
- Launch F-150 Lightning, All-Electric E-Transit
- Dearborn truck plant, Michigan assembly plant and several new buildings on our Research and Engineering and Corktown campuses powered by **100%** renewable electricity
- Suppliers submit GHG reduction targets
- In 2 years have **600,000** EV capacity

2025

- BlueOval City building electric F-Series and battery packs with SK Innovation
- All Michigan manufacturing facilities sourced with **100%** carbon-free electricity
- North American and EU new programs launched with **20%** recycled and renewable content in plastics (programs from China and Turkey with 10%)

2026

- Invested **$50B** in EVs
- **100%** passenger vehicle range in Europe will be zero-emissions capable, all-electric or plug-in hybrid

2030

- EV Commitments
  - Globally: **50%**
  - U.S.: **50%**
  - EU: **100%** of passenger cars, 2/3 of commercial vehicles sales
  - Lincoln: **100%**
- Reduce GHG emissions from U.S. manufacturing facilities 50% (Better Climate Initiative)
- Eliminate single-use plastics from our operations

2035

- Meet SBTi Commitments (**76%** reduction in facilities, **50%** reduction in vehicle use emissions)
- Work towards **100%** zero-emission cars and vans in leading markets (RouteZero pledge)
- **100%** carbon-free electricity for our global operations
- **100%** of commercial vehicle sales in Europe will be zero-emission

2040

- Work towards **100%** zero-emission cars and vans globally (RouteZero pledge)

2050

Carbon Neutrality

CASE STUDY

Ford Joins Global Climate Change Pledge

Ford is proud to work with RouteZero, a global coalition working towards 100% fully electric vehicles globally by 2040, and in leading markets no later than 2035.

At COP26, the UN Climate Summit in November 2021, Ford joined with more than 50 businesses, cities and regions committed to rapidly accelerating the transition to zero-emission vehicles to achieve the goals of the Paris Agreement.

Signatories also committed to “supporting a global, equitable, and Just Transition.”

> It is fundamental to our company values that we continue to lead the way in reducing the impact our plants have on the environment. We are committed to long-term sustainability and delivering environmental initiatives that are good for people, good for the planet, and good for Ford.”
>
> **Andrea Cavallaro, Operations Director, International Markets Group and South America**

Climate Change – continued

We will continue to work with partners in the public and private sector including the Climate Leadership Council and the Center for Climate and Energy Solutions Business and Environmental Leadership Council. Our goal is to show our leadership and advocate for stronger GHG standards, climate resiliency, and infrastructure that help remove obstacles and build the market for electric vehicles.

Ford's Approach and Progress Toward Our Aspirations

Our current climate strategy, built on our long history of using science-based GHG pathways, is focused on the deep decarbonization of our value chain and aims to integrate consumer wants and needs, the possibilities of technology, and the requirements for business success. Our carbon-neutral approach analyzes information on the environment, customers, technology, legislation, energy, competitive approaches, and life cycle assessments (LCAs). As climate science and technology develops, we will further refine and adjust our science-based GHG targets to accelerate our progress.

Here are some key highlights on Ford's progress and approach. More detailed information can be found in the Reducing our Vehicle CO_2 section below.

Vehicles

Electrification is a key strategy to address the urgency of climate change. However, for the transition to electrification to be successful, we must make the electric vehicles that our customers want and demand. We are responding by taking our most iconic, popular vehicles electric – the Mustang Mach-E, F-150 Lightning, and E-Transit.

Currently we are on track to achieve 50% fully electric vehicle sales globally by 2030, and 100% fully electric passenger vehicle sales in Europe. Two-thirds of commercial vehicle sales in Europe will be all-electric or plug-in hybrid by 2030 and all commercial vehicles in Europe will be zero emission by 2035.

Operations

Our operational goals include both Scope 1 and 2 emissions for manufacturing and non-manufacturing locations. To achieve these goals, we are focusing on improving efficiency and increasing our use of carbon-free electricity.

In addition to our 2035 SBTi target, we have committed to reduce our global manufacturing Scope 1 and 2 GHG emissions by 18% by 2023 from a 2017 base year.

As an example, our new BlueOval City assembly plant in Tennessee is designed to be carbon neutral, send zero waste to landfill, and use freshwater only for human consumption at the start of production in 2025.

Helping Our Dealers to Reduce Carbon Footprint
In Germany, we support our dealers with energy consulting services to reduce their carbon footprint, resulting in 5,000 tons of CO_2 reduction for 200 dealers.

Suppliers

Our new Supplier Code of Conduct mandates that all Tier 1 production suppliers minimize their impact on climate change aligned with the United Nations Framework Convention on Climate Change (Paris Agreement), striving towards carbon neutrality. It also requires that our suppliers enforce a similar code of practice and require that their subcontractors do the same. The Supplier Code of Conduct requires suppliers to:

- Report their Scope 1, 2, and 3 emissions and water usage data to Ford if requested.
- Establish science-based GHG reduction targets, action plans, and transparent reporting mechanisms.

This year we conducted a supplier survey to identify each supplier's GHG reduction targets. If they did not yet have one, they are required to submit their targets by the end of 2022. Then we can develop a joint roadmap with our suppliers on our journey towards carbon neutrality.

We have also established internal targets for increasing engagement with our supply chain partners, including building on our successful CDP Supply Chain reporting program and our Partnership for A Cleaner Environment (PACE) programs.

Supporting Our Customers

Ford is building the future of zero-emissions vehicles and breaking constraints to lead the electric revolution, investing $50 billion from 2022 through 2026 in electric vehicles and the batteries that power them. We're not only electrifying our signature nameplates in areas where millions of customers already rely on Ford vehicles, we're showing our customers the clear advantages of electric vehicles – from sustainability to performance, power, and digital integration, Ford is creating capacity, capability, and convenience in our vehicles that were never possible before.

F-150 Lightning Charges into the Future
Electrification amplifies the attributes our customers love, such as performance, capability and convenience. For example, F-Series, America's best-selling truck for 45 years, charges into the future with the F-150 Lightning – a powerhouse that delivers a targeted 563 horsepower and 775 lb.-ft. of torque[6] – the most torque of any F-150 ever – a smooth, quiet, and exhilarating drive, a high-tech front trunk, and the ability to power your home for at least three days, if needed.

Within our new line-up, disruptive technology allows us to enrich the customer experience and make the transition to electric vehicles simple.

Ford Europe
Ford of Europe's clear vision to be "All in on EVs" is central to us achieving our sustainability objectives. Not only does it address the largest portion of our CO_2 emissions as a region, it provides a sustainable foundation and catalyst for further change, as we drive forward our carbon neutrality plans for our facilities, supply chain and transportation network.

We are well on the way to achieving our objective of 76% reduction in scope 1 and 2 emissions and 100% carbon-free electricity in our manufacturing operations by 2035. We are now focused on developing plans to address one our biggest challenges, how to transition our extensive, global supply base to carbon neutrality.

100%
carbon-free electricity in our manufacturing operations by 2035

Climate Change – continued

> At Ford, we understand the urgency of climate change, and we have a role to play. We are delivering exciting electric vehicles for the many rather than the few. As we take leadership of the electric vehicle revolution, our goal is to not only build high-quality vehicles at scale, but to do so in a way that creates a positive impact on people and the environment."
>
> **Cynthia Williams, Global Director Sustainability, Homologation and Compliance**

Built-in charging solutions route customers to nearby charging stations, recommend where to charge on trips and provide easy access and payment via FordPass[2] for a seamless customer experience.

For public consumption, the BlueOval Charging network has over 250,000 charge points in Europe – and it's growing — helping give customers confidence that they can get where they want to go. In Europe, Ford is a founding member and shareholder in the IONITY consortium – delivering high-power charging stations along motorway routes and at key European locations. The number of IONITY high-power charging points will more than quadruple to around 7,000 by 2025.

→ Read more in our TCFD Report
→ Read more in our U.S. Political Engagement report
→ Read more in our We Are Committed to Protecting Human Rights and the Environment policy

Reducing Our Vehicle Carbon Footprint

Life Cycle Assessment of Our Vehicles

Cutting GHG emissions associated with the use of our vehicles is central to our goal of carbon neutrality by 2050. We use a range of analytical tools to identify and measure the potential environmental and cost impacts of our vehicles or services over their life cycle, from the acquisition of raw materials, through vehicle production, distribution and use, to end-of-life disposal or recycling. Understanding these impacts helps us reduce our environmental footprint.

In terms of GHG impact, vehicle use is the main source of emissions. Use-phase CO_2 emissions depend on many factors, including the energy source and the way the vehicles are driven. Using the GHG Protocol methodology and preliminary data to estimate emissions from vehicle on-road use, we calculate that our vehicles sold in 2021 will produce approximately 250 million metric tons of CO_2e from fuel production and combustion over a 150,000 mile lifetime, on a well-to-wheels basis.

A Portfolio Approach

Vehicles	Fuel	Customers

Accessible lower-carbon options:
• Advanced propulsion options
  • Electrified vehicles
  • Fuel cell vehicles
  • New engine/transmission technologies
• Aerodynamic improvements
• Weight reductions
	Developing vehicles that use lower-carbon fuels:
	• Electricity
	• Biofuels
	• Compressed natural gas (CNG)
	• Liquefied petroleum gas (LPG)
	• Hydrogen
	• Carbon-neutral e-fuels
		Providing options for different vehicles and fuels, and how those vehicles will be maintained
		
		Promoting "eco-driving" through training, information, and in-vehicle technology

CASE STUDY

Supply Chain Responsibility

Supply chain responsibility is best addressed in partnership with other manufacturers and suppliers. Thus, the German Association of the Automotive Industry (VDA) founded the Responsible Supply Chain Initiative (RSCI) with 14 founding members from the automotive industry. We are working with the VDA and others to improve our understanding of supply chain risks and to help the suppliers with a consistent approach. As a result, RSCI is developing a standardized test procedure for evaluating the sustainability performance of automotive suppliers. RSCI is launching initial pilot assessments in 2022. The RSCI audit platform will facilitate suppliers' sharing of audit results and avoiding any duplication of efforts.

Minimizing our Supply Chain Impacts

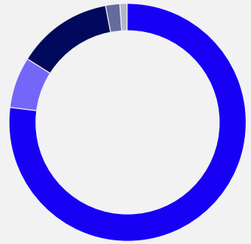
We rely on thousands of suppliers to provide materials, components, and services for our vehicles. By sharing what has worked well at Ford, we can help them cut costs, improve quality, and become more sustainable. We engage with our supply chain to understand our collective environmental footprint and work with selected suppliers through target setting and cascading best practices to reduce their carbon emissions, energy consumption, water use, and waste.

By sharing successful initiatives with nearly 80 key suppliers through our Partnership for a Cleaner Environment (PACE) program, we are cascading best practices through our supply chain. So far, our suppliers have implemented projects in at least 13 countries: United States, Argentina, Brazil, Canada, China, Czech Republic, Germany, India, Mexico, Poland, Serbia, South Africa, and Thailand. Around 182 million gallons of water savings are expected between 2020 and 2030 through PACE suppliers. FastPACE, a streamlined version of PACE, is helping reduce the impact of key partners in China, India, Thailand, and South Africa. Supplier participation has increased from 2020 to 2021 by over 60%. As a result, FastPACE suppliers are on track to save an estimated 4,909 metric tons of CO_2 and 24 million gallons of water over the next three years.

Climate Change – continued

> “Electrification represents the most transformative change of our industry in over 100 years and at Ford of Europe, we are leading the way in our ambition to create a sustainably profitable all-electric future. We’re doing this with both passenger vehicles and commercial vehicles, providing customer choice while delivering CO_2 performance.”
>
> **Stuart Rowley, President**
> **Ford of Europe**

CDP Carbon: Ford 2021 Reported Emissions



Well to Wheel (WTW) = Well to Tank (WTT) + Tank to Wheel (TTW)

95%+

of our emissions are from vehicle use, facilities and suppliers. Now reporting WTW vs. TTW vehicle emissions In keeping with our recently approved science based targets

Although we focus on improving tailpipe or tank-to-wheels (TTW) emissions, we also continue to study well-to-wheels (WTW) impacts in keeping with our carbon-neutrality aspiration. These include the production (well-to-tank, or WTT) and consumption (TTW) of fuel and electricity during vehicle use. WTW emissions vary between vehicle, engine type, and energy source. Our Scope 3 SBTi vehicle CO_2 target is based on WTW emissions.

We acknowledge the fact that WTT emissions are part of the total vehicle life cycle; however, these emissions are beyond our direct control. We, therefore, look to address these impacts in collaboration with a range of partners, including fuel and electricity producers, infrastructure developers, and governments.

Advances in Engine and Transmission Technologies

Gasoline Engines

As we develop our electric vehicles, we are ensuring that our internal combustion engine (ICE) powertrains continue to provide a desirable balance of performance, fuel economy, and durability while meeting increasingly stringent criteria emissions requirements. Our EcoBoost engines are deployed across nearly 100% of the portfolio, and combine engine downsizing, turbocharging, direct fuel injection, and twin-independent variable cam timing to improve fuel economy without compromising performance.

We’ve recently coupled our 3.5L EcoBoost engine with hybrid technology in the PowerBoost™ Full Hybrid F150, offering significant fuel savings along with enhanced capability, such as providing exportable power. Additionally, we’ve incorporated advanced full and plug-in hybrid systems in multiple vehicles globally, including our new Maverick hybrid truck, achieving EPA-estimated 42 miles per gallon in the city* for under $20,000 in the U.S. In Europe, the Kuga is number 1 in its segment for all plug-in hybrid electric vehicles (PHEVs).

*2.5L Hybrid powertrain. Actual mileage will vary.

Diesel Engines

Modern diesel engines offer reduced CO_2 emissions and fuel consumption, especially in commercial applications requiring heavy load and towing capability. Thanks to advanced diesel engine technology, they can achieve 20–30% better fuel economy than comparable gasoline engines in specific markets and segments, such as light

Climate Change – continued

commercial vehicles and heavy-duty vehicles. We continue to optimize these benefits in our EcoBlue and Powerstroke offerings.

In Europe, the 2.0-liter Ford EcoBlue diesel combines the refinement and performance traditionally associated with Ford diesel, with emission control solutions capable of addressing the challenge of Real Driving Emissions (RDE). The Kuga, Transit, and Transit Custom offer a mild hybrid version of the 2.0-liter EcoBlue, completing the lineup of efficient powertrains and adding an electrified option, with further improved fuel economy and Auto Start/Stop.

Advanced Transmissions and Drivelines

We continue to optimize our transmissions by upgrading electronic controls to improve fuel economy and emissions. We have introduced a 7-speed automatic transmission for Ford Fiesta and Puma (including mild-hybrid variants), while most Ford vehicles will continue to use the 8-speed automatic transmissions for front-wheel-drive vehicles, and a 10-speed automatics for rear-wheel-drive vehicles. Our transmission team is now shifting focus to develop innovative technology for electrified vehicles.

Alternative Fuels and Powertrains

Alternative fuel vehicles enable our customers to reduce their CO_2 footprint during the transition to electrification. Depending on infrastructure, technology development, policy, and customer acceptance, our path toward a long-term carbon-neutral portfolio will be powered by some combination of electricity, hydrogen, and hydrocarbon fuels from sustainable sources. Examples of hydrocarbon fuels are sustainable biofuels and fuels synthesized from electricity, water, and carbon. Synthetic fuels made from electricity are often called “e-fuels.” We anticipate that different regions will adopt different solutions and different mixes of electricity, hydrogen, and hydrocarbon fuels.

Alternative fuel vehicles can reduce GHGs on a well-to-wheels basis, which includes emissions from both producing and consuming the fuels. Compared to conventional gasoline (E10) vehicles, GHG emissions are about 15 % lower for diesel and compressed natural gas (CNG) vehicles, 25% lower for B20 (20% biodiesel blend) and 30% lower for E85 (85% ethanol from corn). Even more reduction is possible with FCVs (50% lower GHGs using hydrogen from steam methane reforming) and EVs (60% lower when charged with U.S. average grid electricity). When hydrogen and electricity are produced using carbon-free energy, the in-use GHG reduction is up to 100% on a well-to-wheels basis.

We offer our customers many vehicles that are capable of using these reduced-GHG fuels. All our diesel vehicles are compatible with low-level biodiesel blends (B20 in U.S., B7 in Europe). Also in Europe, our Transit, Transit Custom, Transit Courier, Transit Connect, and Ranger are compatible with paraffinic diesel (EN 15940) such as HVO/E-diesel. Paraffinic diesel can be blended with standard fossil diesel fuel resulting in up to 33% renewable content.

In motorsports, the M-Sport Ford World Rally Team is combining both alternative fuels and electrification. All FIA WRC Rally competitors will use a fossil-free fuel in the 2022 season, blending synthetic e-fuel and biofuel elements to produce a fuel that is 100% sustainable. The new M-Sport Ford Puma Hybrid Rally is Ford’s first electrified competition car.

Reducing Emissions in Our Operations

Improved energy efficiency and conservation in our facilities and manufacturing processes have resulted in a 35% reduction in our GHG footprint since 2017. Using energy more efficiently, procuring power from carbon-free sources, reducing GHG emissions from our operations, and making our transportation and

Vehicles Powered by Alternative Fuels

	Renewable Biofuel Vehicles	CNG and LPG Vehicles	Hydrogen Fuel Cell Vehicles (FCVs)
Fuel	**Ethanol,** made from fermented corn sugars or sugar cane, is usually blended with gasoline (e.g., E10, E15, E22 or E85); ethanol from non-food feedstocks is technically feasible **Renewable diesel and biodiesel** can be made from soy, canola, rapeseed, corn or palm oil, or animal fats, and mixed with fossil diesel **Biodiesel** via transesterification (FAME) typically has lower blends (B5,B7, B20) **Paraffinic renewable diesel** produced via hydrotreating (HVO) or the Fischer-Tropsch process can be blended at higher concentrations (R33 up to R100)	Compressed natural gas (CNG) Liquefied petroleum gas (LPG) DME under investigation	**Hydrogen** made from natural gas or electrolysis of water Hydrogen fuel cell system converts stored hydrogen to electricity
Benefits	**Biofuels** made from renewable resources may reduce CO_2 emissions **Next-generation biofuels** made from plant cellulose use stems and leaves, reducing competition for food crops	Lower well-to-wheels CO_2 emissions than gasoline or diesel vehicles Lower non-CO_2 emissions	Zero-emission electric vehicles (tailpipe) with only water and low-temperature heat as by-products Upstream hydrogen production emissions become zero with a renewable electric grid
Models	E85 FFV (U.S.): F-150, F-250, F-350, F-450 Super Duty, Police Interceptor Utility, Transit, Transit Connect, Transit Cutaway/Chassis Cab, E-350, E-450 Cutaway and Stripped Chassis E85 FFV (Europe/in France and Sweden only): Kuga, Fiesta, Puma, Focus, Transit Connect B20 (U.S.): F-250, F-350, F-450, F-550, F-600, F-600, Super Duty Pickups and Chassis Cabs; F-650 and F-750 Medium Duty Chassis Cab R33 (Europe EN 590): All diesel models are compatible R100 (Europe EN 15940): Transit, Transit Custom, Transit Courier, Transit Connect, Ranger	Wide range of U.S. commercial vehicles with CNG/Propane prep kits: F-250, F-350, F-450, F-550, F-600, F-650, F-750, Transit Connect, E-Series Cutaway, F-59, F-53 RV Stripped Chassis Fiesta LPG in Spain	

Climate Change – continued

CASE STUDY

Creating a Sustainable Manufacturing Ecosystem – BlueOval City

The creation of our new BlueOval City plant in Tennessee is crucial to our long-term vision to lead America's transition to electric vehicles and introduce more sustainable, carbon-neutral manufacturing. BlueOval City is designed to achieve carbon neutrality, send zero waste to landfill, and use freshwater only for human consumption once fully operational. The $7 billion investment supports our goal of creating a sustainable American manufacturing ecosystem as it creates jobs for the local communities and builds on Ford's position as America's leading employer of hourly autoworkers.

logistics more sustainable and efficient all play a role in reaching our carbon neutrality goal. We are also mindful of opportunities to have a positive impact in the local community and surrounding ecosystem. This work is guided by our global manufacturing carbon reduction strategy.

Our energy-efficiency and conservation efforts over the past decade have focused on improvements to lighting, compressed air, rotating equipment (fans, pumps and motors), and heating systems. We've also improved processes and consolidated and/or closed plants to improve utilization of operations. The net effect of these efforts is a 35% absolute reduction in our global manufacturing GHG footprint since 2017. In fact, we achieved our previous manufacturing GHG emissions target in 2017, eight years early, through initiatives such as installing LED lights and updating our painting operations.

Our present manufacturing target is an 18% absolute reduction in GHG by 2023. To achieve this, we are focused on securing a renewable and reliable energy supply for our manufacturing plants, making these facilities even more efficient, and leveraging data to drive decisions.

We report our Scope 1 and 2 GHG emissions, participate in emissions trading schemes such as the EU European Trading Scheme (EU ETS) and adhere to a number of carbon reduction initiatives in the United States, Europe, Mexico, Canada, and other countries.

Looking to the future, we are focused on driving energy efficiency throughout the manufacturing processes. We're incorporating energy-efficient best practices as we build new offices. Our Research and Engineering and Corktown campuses will achieve an Energy Utilization Intensity that is 50% better than historical Ford office spaces. And in Dearborn, the new Research and Engineering Center under construction is designed to be carbon neutral when it is occupied in 2025. These and other efforts make progress toward achieving our 2035 SBTi target of 76% GHG reduction in combined manufacturing and non-manufacturing locations.

We'll be measuring our progress. Sustainability linked performance metrics align our financing actions with our commitment to operate a safe, sustainable and successful business – elements that are fundamental to the Ford+ Plan for growth and value creation.

Read more about our Sustainable Financing Framework on p.27

Meeting Customer Preferences

Our global fuels migration path and our technology migration plan are based on delivering high-quality vehicles that consumers desire while responding to the risks associated with climate change.

Given the urgency of the climate crisis, we are focusing on electrification, prioritizing all-electric versions of our most iconic models, the Mustang Mach-E, the Ford-150 Lightning, and the E-Transit commercial van. Our strategy is to make the electric vehicles the most capable vehicles we have embracing a clean-sheet approach to designing, launching and scaling breakthrough, high-volume electric and connected products and services for retail, commercial, and shared mobility.

Electrification of these nameplates is delighting existing customers and bringing new customers to Ford. 70% of our Mustang Mach-E customers are new to Ford. More than 75% of F-150 Lightning reservation holders are new to the Ford brand.[8]

However, we understand that not all of our customers are ready to make the switch to EVs. So we're offering a full range of efficient engine types with plug-in hybrids and "traditional" hybrids filling the spectrum from internal combustion engines to the all-electric Mustang Mach-E. Providing our customers with efficient, low-carbon alternatives during the transition to carbon neutrality is critical as we research and develop alternative powertrains and fuel options for our vehicles.

CASE STUDY

Modernizing Manufacturing in Thailand

We are modernizing our Thailand manufacturing operations with a $900 million (THB 28 billion) investment in new technologies and systems, the company's largest-ever single investment in Thailand. Part of the Ford+ Plan for growth and value creation, the investment supports production of the next-gen Ranger pickup truck and Everest SUV.

Ford Thailand Manufacturing and AutoAlliance Thailand are making significant efforts to support environmentally friendly initiatives, including using renewable energy, reducing CO_2 emissions, and practicing zero waste to landfill.

The overall investment brings Ford's manufacturing facilities in Thailand in line with the latest global efficiency, flexibility, and quality processes, through extensive upgrades and new state-of-the-art manufacturing technologies and accompanying training for Ford employees and suppliers.

Climate Change – continued

On the commercial side, our goal is to provide our customers with greater value and higher productivity through the industry's most comprehensive and flexible range of electric and internal combustion commercial vehicles. With Ford Pro, we're incorporating digital and physical services that can help optimize and maintain customer fleets and offering public, depot, and employee home charging of EVs for the next day's work.

We will continue to improve fuel economy and reduce CO_2 emissions across our global vehicle portfolio to minimize the environmental impact associated with their use, while rapidly increasing the sales rate of our electrified vehicles.

Climate Change Reporting

We are committed to transparently reporting our climate change strategies and their resilience. We have received the 2020 CDP ratings and received A ratings for both Water and Climate (our 3rd year in a row as "A" for climate and 7th for water) and have issued climate change scenario reports since 2019. This year we have produced a consolidated report that combines our Climate Change Scenario Report and the Task Force on Climate-related Financial Disclosures (TCFD) Index. The report outlines our strategies, World Energy Outlook 2021 Scenarios, the resiliency of our strategies to those scenarios, and how we will monitor and review the impacts of climate change on our strategies.

Read more in our TCFD Report

Read more in Electrification and Connectivity section on p.45

Carbon-Free Electricity and Energy Future

Energy: Use 100 percent carbon-free electricity in all manufacturing by 2035

Our goal of achieving 100 percent carbon-free electricity in all manufacturing by 2035 will be bolstered by the potential dedicated investments in wind, solar, geothermal, hydropower, and biomass.

We are committed to reducing the effects of our operations and supply chains. In addition to developing world-class facilities, sourcing 100 percent carbon-free electricity for our global operations by 2035 is a key strategy to help us achieve this goal.

Securing Carbon-Free Electricity

To replace fossil-based generation, we'll be procuring a mix of wind, solar power, nuclear, geothermal, biomass, energy storage, and hydro. One strategy is to secure carbon-free electricity through relationships with local utilities, power producers, and independent project developers. And we're already making progress.

All manufacturing facilities in Ohio, New York, and Mexico will be sourced with 100% carbon-free electricity by 2022 year end. All manufacturing and large commercial facilities in Michigan are expected to be sourced with 100% carbon-free electricity by 2025. Not only does this reduce our emissions, but it also improves the local environment and adds resiliency to the local grid.

Sustainability-linked performance metrics include increasing the percentage of renewable electricity consumed in Ford's global manufacturing plants.

Rooftop Solar Array

Also in Michigan, DTE Energy, the state's largest producer of renewable energy has commissioned a new rooftop solar array at a parking garage at Ford Research & Engineering Center in Dearborn, Michigan. The 2,159-panel array includes an integrated battery storage system and will be used to power newly installed electric vehicle (EV) chargers. The solar array can generate 1.127 million kWh of clean energy, avoiding 880 tons of CO_2, which has the environmental benefit equal to the carbon sequestered by nearly 980 acres of U.S. forests in one year.

The new solar array is just one of several steps both companies are taking to reduce carbon emissions. In 2019, Ford became the first corporate customer to enroll in DTE's MIGreenPower voluntary renewable energy program. Through the program, Ford is purchasing 525,000 megawatt hours annually of Michigan wind energy from DTE's Isabella and Fairbanks wind parks.

Modernizing Plants for Energy Efficiency

We're modernizing plants in South Africa and Thailand with an eye towards energy efficiency. We're also ensuring our new plants are energy efficient. Ford has been in talks with utilities to procure carbon-free energy and hopes to harness geothermal energy to provide both heating and cooling for the facilities.

In Europe, Ford is already using 100 percent carbon-free electricity to power: Dunton and Daventry in the U.K., the Craiova plant in Romania, and all facilities in Cologne, Germany including the vehicle assembly and engine plants, as well as the Research Center in Merkenich. We expect that Europe will be among the first global regions to become carbon neutral.

Jiangling and Changan Ford Hangzhou Plants, China

Ford Joint Venture Jiangling Automobile production plant is currently planning the installation and use of solar panels. The planned 300,000 solar photovoltaic panels are expected to generate 60 million kWh of solar power and reduce carbon emissions by more than 50,000 tons annually.

The Jiangling Plant will join the Changan Ford Hangzhou Plant, which completed the installation of solar photovoltaic panels in 2019. In 2020, the Hangzhou Branch's annual solar power supply reached 13 million kWh, accounting for 25% of the total power consumption of the plant and reducing nearly 10,000 tons of carbon emissions.

Silverton Plant, South Africa

New advanced technologies and systems are being developed at the Ford Silverton Assembly Plant in Pretoria, to support expanded production of the all-new Ranger pickup truck, starting in 2022. Silverton is moving towards energy self-sufficiency and carbon neutrality, while increasing annual installed capacity to 200,000 vehicles for domestic sales and export to 100+ global markets. The first phase of Project BlueOval already is underway with the construction of solar carports for 4,200 vehicles at the Silverton Plant.

Pacheco Plant, Argentina

Our Pacheco plant in Argentina is making strides on environmental responsibility on a variety of fronts. In 2021, it achieved more than 40% of renewable electrical energy consumption and recycled 93% of total waste generated as of November 2021. It is reducing kWh usage in compressed air generation from 36% to 25% and completing energy meter installation in all manufacturing facilities. Lastly, it is creating a native forest comprised of 120 local species to capture carbon emissions.

Read more about our Sustainable Financing Framework on p.27

Air Quality

Air: Attain zero emissions from our vehicles and facilities

We believe that everyone is entitled to breathe clean air. Reducing air pollution is vital to protecting people and the environment — and our efforts to avoid the worst impacts of climate change.

Read more about this Salient Human Rights issue in our Human Rights Report

Through our research and vehicle development, we are working to reduce emissions of hydrocarbons, carbon monoxide, nitrogen oxides, and particulate matter that pollute the air, in accordance with increasingly stringent standards around the world.

Standards Continue to Tighten

Internal combustion engine vehicles (ICEVs) emit hydrocarbons, carbon monoxide, nitrogen oxides, and particulate matter. These pollutants can affect air quality, particularly in urban areas, and potentially impact human health.

Ford is proud to comply with all global criteria emission standards as they are introduced. The enforcement of such standards has led to lower vehicle emissions and, along with actions in sectors beyond transportation (residential, commercial, and industrial), have led to major improvements in air quality in many cities in recent decades. In communities where air pollution and climate change are disproportionate burdens today, access to electric vehicles can help provide health, economic, and

mobility benefits. Ford's electrification strategy not only reduces GHG emissions, but also improves local air quality.

Several countries and states are announcing plans to ban ICEVs or implement 100% zero-emission vehicle (ZEV) sales targets to further improve air quality.

Our Progress in China

All Ford manufacturing facilities in China have taken various measures to significantly reduce emissions. From 2020 to 2021, plants reduced VOC emissions by 19% (3.7g/m^2), equivalent to an annual reduction of more than 250 metric tons of VOC emissions through various management and engineering investment measures, contributing to cleaner air.

Regional Emissions Standards

	United States	Europe	China	Other Regions
Already Compliant or Surpassing	• Environmental Protection Agency (EPA) Tier 2 regulations • California's Low Emission Vehicle II (LEV II) program	• Euro 6d Real Driving Emissions (RDE) standards	• National stage-6a (China-6a) LDV and HDV emissions standards nationwide • National stage-6b (China-6b) LDV emission standards in five cities and provinces	• **India:** Bharat Stage VI • **Brazil and Argentina**: PROCONVE L-6 and standards based on Euro 5 • **Middle East:** Standards based on Euro 2, Euro 3, Euro 4 and Euro 5 • **S. Korea Gasoline vehicle:** California LEV III • **S. Korea Diesel Vehicle:** Euro 6d RDE • **Thailand, Philippines:** Euro 4 • **Vietnam:** Euro 5 • **Cambodia:** Euro 4 • **Australia:** Euro 5
Becoming Compliant as Phased In	• EPA Tier 3 standards • California's LEV III standards, closely aligned with the EPA's Tier 3 program		• National stage-6b (China-6b) LDV and HDV emissions standards nationwide (July 2023)	• **Brazil:** PROCONVE L7 and L8 • **Chile:** Euro 6b or U.S. Tier 3 Bin 125, Euro 6c or U.S. Tier 3 BIN 70 • **Peru:** Euro 6b, Tier 3 Bin 125 • **Colombia:** Standards based on Euro 6 (diesel) • **Uruguay:** Euro 5 • **Middle East:** standards based from Euro 2 through to Euro 6 • **Indonesia:** Euro 4 Diesel • **Malaysia:** Euro 4 Diesel • **Singapore:** Euro 6d • **Thailand:** Euro 5 • **Cambodia:** Euro 5 • **Australia:** Euro 6d

Water Use and Stewardship

Water: Make zero water withdrawals for manufacturing processes

Use freshwater only for human consumption

Water is fundamental to human existence – and vital to so many aspects of our operations. We have a responsibility to use and manage water sources efficiently and sustainably.

Read more about this Salient Human Rights issue in our Human Rights Report

Our Water Strategy

Our long-term approach reflects the need to understand water challenges in their local context, with extraction policies and practices designed to make sure our operations do not adversely affect other users' access to water.

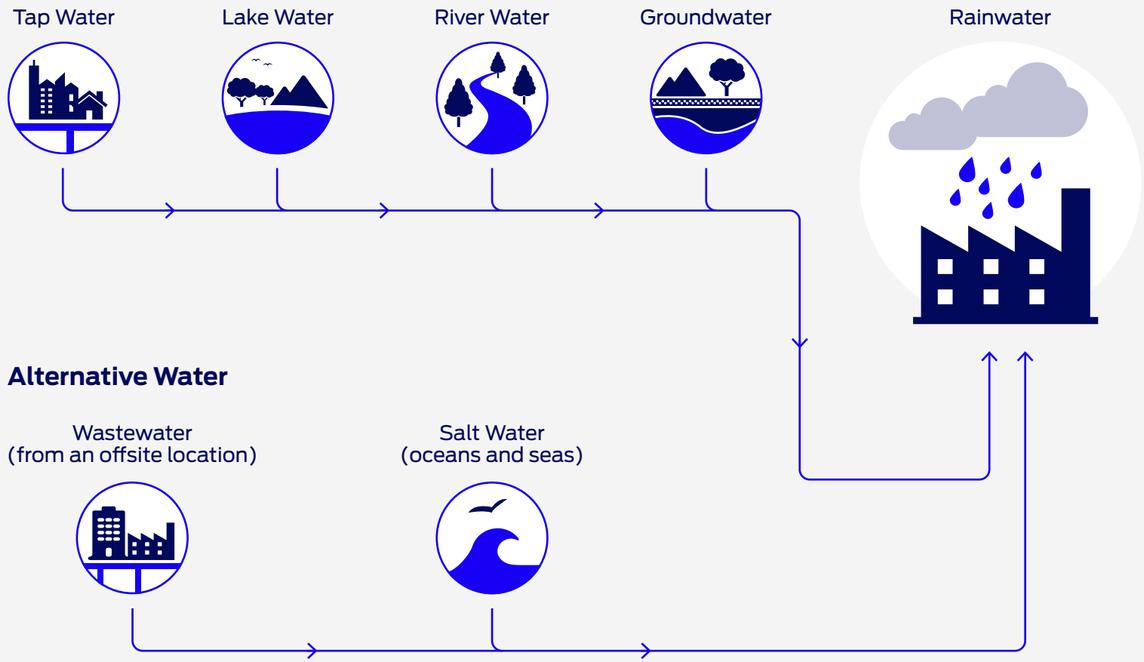
Our 2025 Global Manufacturing Water Strategy, the third iteration of our water strategy, aims to continue Ford's position as a leader in water reduction in manufacturing processes and secure optimal freshwater availability in local communities. It targets a 15% reduction in absolute freshwater usage. Ford has already reduced its annual freshwater consumption by over 78% since 2000; that's over 12.5 billion gallons of water saved compared to 2000 usage. Our global water conservation actions are equal to providing a year's worth of water to 1.4 million homes.

We will continue to work towards our existing aspirational goals of freshwater for human consumption only and zero water withdrawals for manufacturing. This includes establishing local ecosystem performance goals and improving water discharge quality, with a focus on direct discharge plants. We are examining how water cycling impacts communities and how to better emulate the natural system.

Our new plant in Tennessee aspires to make zero freshwater withdrawals for assembly processes by incorporating water reuse and recycling systems. Stakeholders responded positively to our goal of preserving water and striving for full water recycling.

Water Use at Our Facilities

Freshwater



What Is Freshwater?

Freshwater, the main source of drinking water around the world, is recognized as essential for human life and wellbeing in Global Reporting Initiative (GRI) Standard 303. The GRI defines freshwater as surface water, but our definition is broader, including both surface water and groundwater.

We are applying freshwater reduction methods as well as improving our water quality discharges at our sites that mimic the behavior and performance of the local ecosystem.

We have made progress toward our aspiration of using freshwater only for human consumption in our facilities that are in water-scarce regions, such as Mexico, China, and South Africa. In 2021, our use of alternative water exceeded 7% in these regions. Additionally Chennai Engine and Assembly have joined our Chihuahua Engine facility in achieving this goal by using zero freshwater for its manufacturing processes.

Water Use and Stewardship – continued

Reducing Operational Water Use

Water use and recycling are occurring at Ford plants around the world. We continue to integrate more water-efficient processes and technologies as we work to further decrease our water consumption.

Absolute water was down nearly 9% from the year prior and down 27% from the 2019 strategy baseline – an almost 78% reduction from the initial 2000 water strategy.*

*Data updated May 23, 2022.

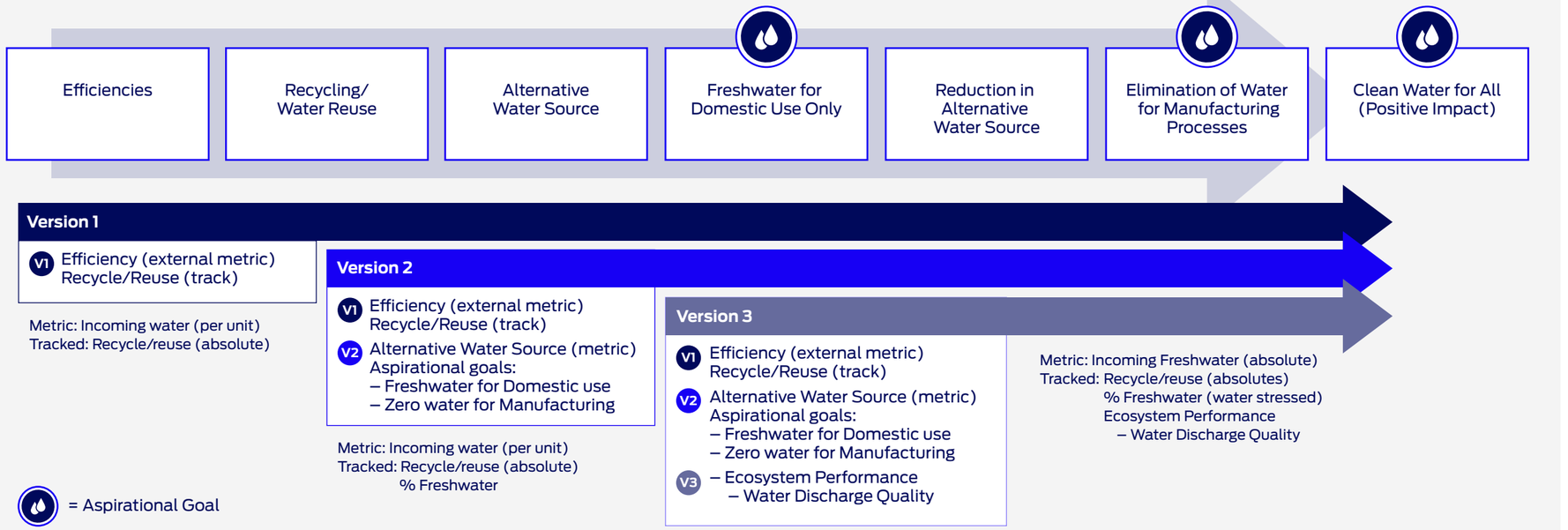
However, these reductions were largely attributed to vehicle manufacturing down time associated with the global microchip shortage.

Our South Africa Silverton Plant has the aspirational goal of being net zero and carbon neutral as well as full water recycling.

Our CDP A List achievements

Ford earned a place on the CDP "A List" for protecting water security again in 2021. We have received an A score rating from CDP for water reduction for seven years in a row and are one of only 119 companies globally to earn such an award for water security. We were also on CDP's Climate Change "A list" for the third straight year. We are one of the two North American OEM to obtain double A List status.

Water Strategy Progression



CASE STUDY

Ford India's Drive for Zero Water Consumption

At Ford's Chennai Vehicle Assembly and Engine Plant, freshwater consumption is down to an incredible 1.17 m^3 per vehicle – from 7.3 m^3 per vehicle only a decade ago. Having identified an alternate source of water to treat, for use in non-production activities, the smart water efficiency processes are used to recycle almost 100% of industrial wastewater for use in manufacturing.

Ford's Sanand Vehicle Assembly & Engine Plant in Gujarat has zero water discharge, with a 110,000 m^3 rain water harvesting pond used for pallet washing, irrigation, and in the cooling towers.

Ford's Global Business Technology & Business Center in Chennai (GTBC) can also claim zero discharge, thanks to its 100% reuse of treated wastewater for dual plumbing, horticulture, and cooling tower chiller. Ford GTBC – opened in 2019 – earned its Platinum green building rating at launch; the highest possible certification for sustainable buildings. The globally recognized certificate not only factors in water conservation but also sustainable design, architecture, and building material resources; energy conservation including use of renewable energy resources; indoor environment quality; and innovation and development.

Waste Management

Waste: Reach true zero waste to landfill across our operations

Eliminate single-use plastics from our operations by 2030

Reducing Waste

Reducing waste reduces our impact on the planet – and optimizes efficiency in our resource-intensive industry. We reuse or recycle any waste we do generate wherever possible, avoiding the landfill and providing us with an additional supply of valuable resources.

Meeting Our Waste Targets

The focus of our global waste strategy is to manage and minimize the waste we generate. We strive to reduce costs and keep waste out of landfill. Our waste targets remained largely unchanged despite COVID-19. We made some operational adjustments based on impacts at site level but our initial glide path remains constant.

In 2021, Ford facilities around the world sent approximately 16,300 metric tons of waste to landfill, 7% less than in 2020.

Over five years from a 2017 baseline, we are targeting a 35% reduction in waste sent to landfill, a 15% reduction in waste generation, and a 25% reduction in general trash. We are developing a strategy to achieve our aspiration of eliminating single-use plastics from our global operations by 2030.

Going for Zero

In addition to our focus on reducing waste to landfill at our facilities, we are focused on minimizing the amount of waste we generate. Beginning in the third quarter of 2021, all Ford manufacturing plants in China achieved zero waste to landfill (ZWTL). Waste generated in all factories will either be managed for thermal destruction with or without energy recovery or recycled instead of being sent to landfills for final disposal. All of our European facilities have acquired ZWTL status, which means they send absolutely no waste to landfill. Globally Ford has 89 ZWTL manufacturing and non-manufacturing sites and 74% of global manufacturing sites are true ZWTL.

To ensure that more of our facilities reach ZWTL status, we continue to implement a range of waste reduction initiatives.

These include:

- Implementing new technologies and programs that minimize waste
- Standardizing the tracking and sorting of waste to increase recycling and reuse
- Focusing on the five main sources of waste to landfill at each facility
- Working with suppliers to increase the use of eco-friendly packaging

Reducing the Impact of Packaging

Packaging is crucial for protecting components on their journey to our facilities. Using standardized containers and materials helps to optimize payloads and lower costs. In many locations, we have agreements with packaging providers so that containers are collected, stored, and forwarded to other suppliers.

Before we launch a new vehicle, we work with suppliers to review how components and production parts will be packaged. Our packaging guidelines for North America and Asia Pacific require our suppliers' packaging to have at least a neutral, if not positive, environmental footprint, achieved through the use of 100% recycled, renewable or recyclable materials.

Reducing End-of-Life Impacts

We proactively review non-dimensional materials such as lubricants and paints within our manufacturing operations. Going beyond applicable regulations, we are developing a timeline to further reduce substances of concern in our facilities, including those that are carcinogenic or environmentally persistent.

Read more in our GRI Index in our ESG Data Book

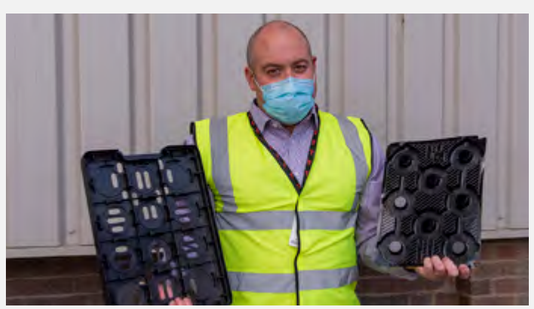
35%

reduction in waste sent to landfill target by 2030

CASE STUDY

Packaging that Avoids the Landfill

Packaging for assembly line components used to end up in landfills. Not any more. The team at the Dagenham Engine Plant in the U.K. have been honored for creating the FrameTray system (FTS), injection-molded trays and lids that can be endlessly recycled. The FTS is saving millions of dollars and offers a 50% increase in packing density. It's a cost-effective innovation that's now positively helping other parts of the supply chain – as well as the planet.



Sustainable Materials

Materials: Utilize only recycled or renewable content in vehicle plastics

Our commitment to using sustainable materials is part of our history, our present – and our future.

Automobiles are among the world's most recycled consumer products. Although many products could be 100% recycled, few are. Over 85%[15] of vehicle parts and materials are actually recycled and reused at their end of life with the vehicle's metallic portion being highly recycled. Rather than focusing on end of life metal recycling which is already a great success, we focus on using recycled and renewable content in plastics and closed loop recycling.

By using recycled and renewable materials in our vehicles' design, we're reducing landfill waste and using fewer natural resources.

Plastic in Vehicles

As the amount of plastic usage in vehicles has grown, we have focused on increasing the sustainability of plastics in our vehicles' design with the goal of using 20% recycled and renewable plastics in new vehicle designs for North America and Europe by 2025 and 10% for China and Turkey. Our aspiration is to utilize only recycled or renewable content in vehicle plastics.

Much of recycled and renewable content comes from waste products generated by other industries. We use the ISO 14021 standard in accounting for this content, and track our progress using the highest volume variant of our nameplates.

Using Recycled Materials for Vehicle Parts

Recycling plastics keeps waste out of landfills and decreases the consumption of natural resources and energy. We transform recycled plastic bottles into carpeting, underbody shields, and wheel liners and use post-consumer nylon and polypropylene carpeting for cylinder head covers, fans and shrouds, cam covers, and carbon canisters.

Teams in the EU are working on our recycled content strategy as well as starting research projects like the Green Factory of Tomorrow, where we are improving operational efficiency and better management of natural resources and waste in our manufacturing process.

Using Renewable Materials for Vehicle Parts

Renewable, plant-based materials also play a role in our sustainability strategy. Ford currently has launched a dozen industry-first, plant-based materials in production vehicles since 2007, establishing a reputation as a leader in this space. These robust materials are often lighter in weight, improving fuel economy. They also sequester carbon during the plants growing phase, reducing global warming impacts, and they require less energy to manufacture. Ford first sustainable materials include soy foam, wheat straw, rice hulls, tree-based cellulose, coconut fiber, and coffee chaff.

For example, soy seat cushions, backs and headrests have been used on every Ford North American built vehicle (over 18.5 million vehicles) for more than a decade. Bio-based foams on Ford vehicles have collectively reduced GHG emissions by over 240 million pounds using over 730 billion soybeans, which also produces extra revenue for U.S. farmers. Soy foam reduces petroleum dependence by over 5 million pounds annually.

Ford was also the first in the industry to launch wheat straw storage bins, rice hull filled electrical wiring covers, and tree-based cellulose composite armrest substrates and console substrates.

Through a partnership with McDonald's USA we have incorporated coffee chaff — the dried skin of the coffee bean – to reinforce headlamp housings.

Our Sustainable and Emerging Materials group continues to pioneer the development of new sustainable plastic materials including algae fiber reinforced plastics and polymer resins made from renewable feed stocks.

We're testing whether the tree-based cellulose composites, that were incorporated into Lincoln Continental consoles, can be used in other applications.

Our partnership with McDonald's and our use of ocean plastics in the Bronco Sport exemplify our approach to the circular economy – deriving value from waste material, or "upcycling." Our goal is to migrate these sustainable materials to other vehicles and applications.

Closing the Loop in Recycling

Ford's approach to the circular economy is not limited to just parts inside the vehicle. Ford is the largest automotive closed-loop aluminum recycler in the world. We worked closely with our aluminum sheet suppliers to create unique alloys just for closed-loop recycling. Our closed-loop system recovers aluminum scrap during parts stamping but keeps the various aluminum alloys separated so they can be recycled back into fresh alloy for new vehicles, which saves 95% of the energy that would be required to create new aluminum from raw ore.

This closed loop recycling system is used to build the F-Series, recovering up to 20 million pounds of high-strength, military-grade, aluminum alloy per month. This is how Ford maximizes aluminum recycling in our plants and minimizes the need for primary metal.

CASE STUDY

Bronco Sport Parts from 100% Ocean-Harvested Plastic is an Industry First

We are adding to our legacy of using sustainable materials in vehicles by being the first automaker to use 100% recycled ocean plastics to produce automotive parts.

Wiring harness clips in Ford Bronco Sport models are made of ocean-harvested plastic from discarded fishing nets. These nets are called "ghost gear" because of the number of marine animals that get trapped in them and the length of time they remain in the ocean wreaking havoc. The strength and durability of the nylon material equals that of previously used petroleum-based parts but at a cost saving, and requires less energy to produce. The ocean plastic is collected by workers in the Indian Ocean and Arabian Sea, promoting healthier marine life and providing jobs.

"This is another example of Ford leading the charge on sustainability," said Jim Buczkowski, vice president of research and Henry Ford technical fellow. "It is a strong example of circular economy, and while these clips are small, they are an important first step in our explorations to use recycled ocean plastics for additional parts in the future."

Always consult the Owner's Manual before off-road driving, know your terrain and trail difficulty, and use appropriate safety gear.

CASE STUDY

HP Collaboration for Circular Economy Strategy

Ford is continuing to drive the future of automotive 3D printing, this time teaming up with HP to innovatively recycle spent 3D printer powders and parts turning them into injection-molded vehicle parts – an industry first.

The recycled materials are being used to manufacture injection-molded fuel-line clips installed first on Super Duty F-250 trucks. The injection molded parts are better for the environment with no compromise in the durability and quality standards Ford and its customers demand.

They have better chemical and moisture resistance than conventional versions, are lighter and cost less. The Ford research team has identified other fuel-line clips that could benefit from this innovative use of material and are migrating it to future models.

“Finding new ways to work with sustainable materials, reducing waste and leading the development of the circular economy are passions at Ford,” said Debbie Mielewski, Ford technical fellow, Sustainability. “Many companies are finding great uses for 3D printing technologies, but, together with HP, we’re the first to find a high-value application for waste powder that likely would have gone to landfill, transforming it into functional and durable auto parts.”

Life Cycle Assessment (LCA) Research

Our LCA-based studies evaluate potential environmental implications of vehicle raw materials and manufacturing; for example, aluminum production and recycling, recycled polymers, cradle-to-gate impacts of lithium-ion batteries, environmental benefits of using second-life EV batteries, and additive manufacturing.

In the EU, we are preparing for expected regulations related to LCAs.

Recycling Batteries with Redwood

Batteries are at the heart of our electrification strategy. We are collaborating with Redwood Materials to integrate battery recycling into our domestic battery strategy. Redwood’s recycling technology can recover, on average, more than 95% of strategic materials such as nickel, cobalt, lithium, and copper.

These materials can be recycled and remanufactured in a closed-loop where Redwood produces anode copper foil and cathode active materials for future battery production. Using domestically produced battery materials from as much recycled content as available, will help ensure valuable materials in products re-enter the supply chain, reducing our reliance on the existing commodities supply chain and overseas component manufacturing that will be quickly overwhelmed by industry demand.

Longer-term, Ford and Redwood plan to work together on the best approach to collect and disassemble end-of-life batteries from Ford’s electric vehicles for recycling and remanufacturing to help reduce the cost associated with battery components and raw materials to manufacture all-new batteries.

Minimizing Substance of Concern

We also work to minimize substances of concern in our products and facilities. We have developed a list of targeted chemicals compiled from international, authoritative sources and engage suppliers to reduce these substances through process efficiencies, product replacements, or reformulation.

Read more in our GRI Index in our ESG Data Book

> Our work with Redwood will, by design, help ensure the infrastructure is in place to cost-effectively recycle end-of-life Ford batteries to create a robust domestic materials stream and drive down the cost of electric vehicles.”
>
> **Lisa Drake, Vice President, EV Industrialization – Ford Model e**

What is a typical vehicle

Around **40,000** parts...

using **1,000** materials...

and **10,000** chemical substances...