Innovation

We focus on what matters: safety, accessibility, affordability and profitability. Our innovations around electrification and mobility include electric vehicles (EVs) and charging infrastructure, self-driving ride-hailing services and low-carbon delivery vehicles. This is the future and we are leading the charge.

“"I've seen many changes over my two decades with GM. I've seen the plant transform to manufacture EVs, and what our future looks like with electric truck assembly. Adapting to change, and ultimately innovation, is key to our success.”

Wilfredo Romero
Body Shop Team Member
Advancing Electrification and Autonomy

Our transition to EVs and autonomous vehicles (AVs) is a critical part of our growth strategy. As we continue on this journey, we remain committed to developing the technology and infrastructure for a safer, cleaner tomorrow.

Accelerating Our EV Momentum

As we prepare for an all-electric future, we continue to expand our portfolio across several segments, including affordable and accessible EVs, luxury models and software-defined vehicles, with a focus on building trust and understanding among our customers. This involves:

• Rolling out a comprehensive portfolio of EVs
• Building a robust charging network
• Integrating autonomy, ride-hailing and electrification into a single vehicle
• Creating new electric delivery solutions

In the next three years, GM plans to move aggressively toward EV leadership as EV adoption is expected to approach 20% of U.S. industry sales in 2025. By then, we will have EVs in one-third of vehicle segments, representing nearly 70% of the U.S. industry by volume, and we will continue to grow from there. To achieve this, we are planning to rapidly scale our annual capacity to 1 million EVs for North America and more than 2 million EVs globally in 2025.

Until now, we have focused on building platforms including Ultium and Ultifi. The next phase of our strategy, which we anticipate running until 2025, will see rapid growth in volume on these platforms, which will provide the scale necessary to significantly bring down costs. In the third phase, we expect to see even more volume and margin growth, as well as contributions from our high-margin software businesses.

Leveraging the Ultium Platform

We have more than 100 years of manufacturing expertise and over a decade of advanced lithium-ion battery research and development behind us. Our EV strategy is built on a flexible global platform, which centers on the Ultium propulsion architecture.

Crucially, Ultium is not constrained by any one chemistry or even cell form factor, which will become even more important as we grow our EV lineup. We use energy-dense, NCMA (nickel, cobalt, manganese, aluminum) pouch cells in the United States, which are currently produced by Ultium Cells Holdings LLC, an equally owned joint venture with LG Energy Solution. In China, our Ultium vehicles—using the same packs and modules—are powered by nickel-rich and lithium iron phosphate (LFP) cells that are better suited to the needs of the local market.

By managing the early stages of our supply chain through vertical integration, we are planning to accelerate the production of our technology while reducing costs. Read about our relationships with key suppliers to secure critical materials for our batteries and learn more about how we refurbish, recycle or reuse the batteries returned to us.

Recovering Waste Energy From EV Batteries

In 2022, we announced a patented heat pump that recovers waste energy from EV batteries to power heating and propulsion, while providing up to 10% more range. Ultium’s energy recovery technology reduces the need to power heating and other functions from energy stored in the battery, potentially allowing more power and range than vehicles with similarly sized batteries without such capabilities. With its active heating capabilities, Ultium vehicles can also potentially charge more efficiently by warming up the batteries before charging.

Hydrogen Fuel Cells: The Potential to Electrify Everything

GM’s hydrogen fuel cell technology, HYDROTEC, allows us to extend electrification technologies to more industries and a broader range of applications, from transportation to mobile power generation. Fuel cell-enabled mobile power generation can help users provide fast charging at remote worksites and outdoor events, and can also deliver backup electricity during disruptions.

Our focus on transportation modes includes work to make medium- and heavy-duty trucks more efficient while reducing carbon emissions. We are collaborating with the U.S. Department of Energy on its SuperTruck 3 program, supported by a $26 million grant that we will match over a five-year period.

13 Actual range will vary based on several factors including temperature, terrain, battery age, loading, use and maintenance.
### Going Beyond GM Vehicles

The modular and flexible nature of our Ultium and HYDROTEC technologies means they could pave the way for a range of zero-emission products beyond our own vehicles.

- GM is utilizing its Ultium platform to develop electrification solutions for many non-automotive applications, including airport ground support, personal all-terrain vehicles (ATVs), industrial equipment, delivery vehicles and farm equipment.
- GM and Wabtec Corporation are developing battery technology for Wabtec locomotives for orders from Class 1 and international railroad operators, and are exploring concepts for hydrogen fuel cell-powered locomotives.
- GM and Liebherr Aerospace are exploring how hydrogen fuel cells could provide auxiliary electrical power in commercial aircraft.
- With Lockheed Martin, GM is co-developing a Lunar Mobility Vehicle for exploring the lunar surface.
- We have entered a new joint development agreement with Nel Hydrogen U.S., a subsidiary of Nel ASA, to help accelerate the industrialization of its proton exchange membrane (PEM) electrolyzer platform, to enable more cost-competitive sources of renewable hydrogen.

"My job means moving the world, literally and figuratively, in the direction of zero emissions. I see a world with a bright future, based on the technologies we are commercializing."

Anil Bika
Engineering & Business Operations Manager – Global HYDROTEC, BEV2, Innovation & Defense

### Pure Watercraft

GM acquired a 25% ownership stake in Pure Watercraft, a Seattle-based company that specializes in all-electric boating solutions. The collaboration advances a shared vision to expand zero-emissions mobility and reflects the holistic approach necessary for widespread EV adoption.

The Pure Outboard from Pure Watercraft uses groundbreaking efficiency to benefit a boat’s performance while reducing environmental pollution. It also boasts much lower operating costs and maintenance than traditional marine propulsion systems.

"GM’s stake in Pure Watercraft represents another exciting opportunity to extend zero-emissions transportation beyond automotive applications. Building upon GM’s existing efforts to strategically deploy our technology across the rail, truck and aerospace industries, our combined expertise should result in future zero-emissions marine product offerings, providing consumers with more choice."

Dan Nicholson
Vice President, Strategic Technology Initiatives
GM Defense

With defense and government markets moving toward electric, autonomous and connected fleets, GM Defense LLC—a wholly owned subsidiary of GM—is helping lead this major transformation. GM Defense is leveraging GM’s world-class manufacturing capabilities and global supply chain, to deliver customized solutions for global defense and government customers. The business plans to help the U.S. Department of Defense meet its climate strategy goals and use tactical electrification to enhance its capability.

GM Defense has recently won two contracts that advance the U.S. military’s transition to a more electric future:

• Through the Jumpstart for Advanced Battery Standardization contract, the business is leveraging the Ultium platform to deliver an advanced battery pack prototype. This will help standardize battery technology across U.S. Department of Defense platforms.

• Under a separate contract, the business provided a commercial GMC HUMMER EV for analysis as the U.S. Army seeks to leverage battery electric vehicle (BEV) technology to reduce its reliance on fossil fuels.

GM Defense has been showcasing EV capabilities in light military vehicles with its All-Electric Military Concept Vehicle since May 2021. Soldiers’ feedback on the concept vehicle, developed and built in only 12 weeks, will inform future electric solutions. The vehicle combines attributes of the proven Infantry Squad Vehicle with GM’s commercially available battery electric technology. Understanding the need for a gradual transition to all-electric solutions for defense and government customers, the business is also developing a Tactical Series Hybrid Concept Vehicle for 2023.

Beyond hybrid and all-electric solutions, GM Defense also leverages GM’s experience in fuel cell technology for military applications. The business has been demonstrating how mobile and fixed fuel cell power systems can be used to charge and extend the range of EVs, supply worksites, data centers and flight lines, and provide emergency power during crises.

“As a current Army Reservist, I understand the importance of delivering cutting-edge technology to support our military with first-time safety and quality in mind. I am proud to have been part of GM Defense, disrupting the future of military mobility.”

Jhansi Nalla
Former Assistant Program Manager, GM Defense; Engineering Group Manager—SDV Systems Engineering and Program; Veteran’s ERG DEI & Mentorship Lead
Our Growing EV Portfolio

U.S. EV Models

We are building an entire portfolio of purpose-built EVs designed to serve the widest market at affordable price points, and we plan to offer nine models for sale in 2023 in popular segments across Cadillac, GMC and Chevrolet. The Chevrolet Bolt EV and Bolt EUV (electric utility vehicle) are already among the most affordable EVs on the market.14 Looking ahead, Buick and Cadillac are planning for an all-EV portfolio in North America by the end of the decade.

2022 BrightDrop Zevo 600

This all-electric cargo van, built with safety, efficiency and driver comfort in mind, is designed to deliver goods and services over long ranges.

2023 Cadillac LYRIQ

The all-electric LYRIQ is a fully electric high-performance luxury SUV with an Environmental Protection Agency (EPA)-estimated, rear-wheel drive model range of 312 miles1 on a full charge. It will also offer Super Cruise, the first true hands-free driver assistance technology.

2023 Chevrolet Bolt EV and EUV

The Bolt is the most affordable EV in America.14 2023 Bolt EV and EUV have an EPA-estimated range of 259 miles15 and 247 miles15 respectively on a full charge.

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2024 Chevrolet Blazer EV

The Blazer EV has the capability of sports car and will be available as an all-electric SUV in summer 2023.

2024 Cadillac CELESTIQ

The CELESTIQ is an ultra-luxury, custom commissioned EV that will be personalized to every owner and hand built in limited volume. This luxury sedan offers all-wheel drive, four-wheel steering and a Smart Glass roof that allows each occupant to set their own experience. The vehicle’s interior also incorporates socially conscious contemporary materials.

2024 Chevrolet Equinox EV

With fast-charging capability and a GM-estimated range of up to 400 miles16 on a full charge, the all-electric Sierra EV Denali Edition I electric truck comes with Super Cruise driver assistance technology. Available early 2024.

2024 Chevrolet Blazer EV

The Blazer EV has the capability of sports car and will be available as an all-electric SUV in summer 2023.

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14 Based on comparison of starting-at manufacturer's suggested retail price (MSRP) of the 2023 Chevrolet Bolt EV LT and EUV LT with that of competing EVs.
15 GM-estimated. Actual range will vary based on several factors, including temperature, terrain, battery age, loading, use and maintenance.
16 GM-estimated. Actual range will vary based on several factors, including temperature, terrain, battery age, loading, use and maintenance. For the GMC Hummer EV 2023 Pickup, available on EV3X based on a full charge. For the GMC Hummer EV 2024 SUV, standard on Edition I (not equipped with Extreme Off-Road Package), EV3X, and EV2x, and available on EV2 based on a full charge.
17 GM-estimated range is based on current capability of analytical projection consistent with SAE J1634 revision 2017-MCT. GM-estimated range is based on a vehicle with a full charge. Actual range will vary based on several factors, including temperature, terrain, battery age, loading, use and maintenance. Performance targets, estimates and capability specifications based on computer-aided analysis and simulation using virtual engineering tools. EPA estimates not yet available.
18 First-edition Silverado EV RST GM-estimated range on a full charge based on current capability of analytical projection consistent with SAE J1634 revision 2017–MCT. Actual range may vary based on several factors, including temperature, terrain, battery age, loading, use and maintenance. EPA estimates not yet available.
19 GM-estimated range on a full charge based on current capability of analytical projection consistent with SAE J1634 revision 2017–MCT. Actual range may vary based on several factors, including temperature, terrain, battery age, loading, use and maintenance.
China EV Models

Leveraging our strong global expertise and growing local capabilities, we will provide a diverse EV portfolio in China to support a zero-emissions future. Beginning with the Cadillac LYRIQ, more than 15 Ultium-based models across Cadillac, Chevrolet and Buick are planned for rollout in China by 2025.

Meanwhile, SAIC-GM-Wuling’s Global Small Electric Vehicle (GSEV) platform has become complementary to Ultium, enabling GM to build an EV for a range of price points and lifestyles in the world’s most dynamic vehicle market.

Chevrolet Menlo

The sporty-looking Menlo sedan is Chevrolet’s first all-electric vehicle in China. The 2022 Menlo EV has an extended NEDC-estimated range of up to 518 kilometers on a single charge.

Chevrolet Menlo

Buick VELITE 6 EV

Tailored for mainstream EV buyers, the VELITE 6 has a range of up to 518 kilometers on a full charge under China Light-Duty Vehicle Test Cycle (CLTC) conditions and delivers a smooth and dynamic driving experience with great energy efficiency.

2023 Buick Electra E5

The large five-seat electric SUV, available in 2023, is the first Buick EV developed on the Ultium platform. It features Buick’s all-new EV design, along with the latest Virtual Cockpit System and Super Cruise driver assistance technology that is designed to provide a safe, reliable and intelligent EV experience.

2023 Cadillac LYRIQ

The available LYRIQ all-wheel-drive model offers an all-new sports exterior package and an additional drive unit for a distinct persona and enhanced driving dynamics. With GM’s state-of-the-art Ultium platform at its core, it delivers an EV range of over 600 kilometers under CLTC conditions.

2023 Baojun Yep

SAIC-GM-Wuling’s first all-electric SUV, the Yep, will be available in the first half of 2023. It offers an electric driving range of 303 km under CLTC conditions. The rear-wheel-drive model will bring a new choice of travel that is more personal and more fun.

Baojun KiWi EV

The KiWi EV is SAIC-GM-Wuling’s one-of-a-kind, all-electric mini under its Baojun brand. It provides two EV range options, with a maximum of 305 kilometers under CLTC conditions. The 2023 KiWi comes standard with DC fast charging, two 10.25-inch screens and supports over-the-air (OTA) updates.

Wuling Hong Guang MINIEV Family

The Wuling Hong Guang MINIEV family includes the special variants of Macaron, Gameboy and Cabrio, China’s first convertible EV. Different EV range options are offered between 120 and 300 kilometers. As of January 2023, it has been the best-selling EV in China for 28 consecutive months since its launch.

2023 Wuling Bin Guo

The Bin Guo EV is SAIC-GM-Wuling’s first five-door, all-electric hatchback. It will be available in the first quarter of 2023, with EV range options of 203 kilometers and 333 kilometers under CLTC conditions.

2023 Wuling Bin Guo

2023 Buick Electra E5

2023 Cadillac LYRIQ

2023 Baojun Yep

Vehicle pictures shown are simulated models. Actual vehicle specifications and features may vary on production models and are subject to further explanation by the manufacturers of respective EV models.

The respective EV range and charging time of China EV models quoted above is based on publicly available information. The manufacturer of respective China EV models retains the right to provide further explanation.

New European Driving Cycle.
Expanding Our Energy Ecosystem

At GM, we are committed to making the transition to EVs easy and convenient. From home and public charging to fleet management, we want every element of the ownership experience to be integrated, seamlessly.

We are helping accelerate EV adoption through customer education and engagement, investing in smart charging products, helping create a comprehensive charging network and pioneering and developing innovative energy solutions to empower every person.

GM Energy

In 2022, we introduced GM Energy LLC in the United States, a new business unit that will provide a holistic ecosystem of energy management solutions for residential, commercial and EV customers.

GM Energy expands our business opportunities beyond our vehicle portfolio. As part of this new energy ecosystem, we are introducing Ultium Home and Ultium Commercial, which, in combination with the existing Ultium Charge 360 holistic charging approach, will provide customers with access to a series of energy management solutions designed for homes, businesses and communities.

Using EVs as Mobile Power Sources

We believe the scale of GM Energy’s solutions will help us address challenges with grid infrastructure, energy storage and energy management through resilient and accessible energy solutions for all customers and the grid.

We are working with several companies to deliver energy solutions to customers, including a vehicle-to-home (V2H) pilot project with Pacific Gas and Electric (PG&E). This aims to evaluate the effectiveness and scalability of using EVs as backup power sources for homes’ necessities in California during short-term power outages.

We plan to demonstrate that innovative bidirectional charging technology and energy management software will allow our bidirectional-enabled vehicles to be used as reliable mobile sources of energy at times of disrupted supply.

Simulated charger shown, subject to change. Show truck shown. Actual production will vary. Model year 2024 Silverado EV available Fall 2023.

Ultium Charge 360

In line with our commitment to a zero-emissions future, we are working to create the largest integrated charging ecosystem. Ultium Charge 360 is our holistic approach to charging in the United States and Canada that provides broad charging access and simplifies the charging experience for EV drivers at home, in the community or on the highway.

Ultium Charge 360 integrates networks, products and services to help bring a unified charging experience to GM EV customers. This involves:

• Working with charge station operators, electric utilities and government agencies to increase access to home, workplace, public and fleet charging points
• Updating the GM vehicle digital experience to help owners find charging stations, initiate charging and make payments
• Offering EV owners tailored charging products and home charging installation services

Our EV Growth Operations (EVGRO) Team leads GM’s efforts to drive the consumer adoption of EVs, combining startup agility with the broad strength of our wider company, as well as an array of external collaborations. EVGRO seeks to leverage cross-functional expertise, minimize complexity and develop a range of projects and solutions designed to address consumer needs and accelerate EV adoption.
Building Momentum

Charging Infrastructure

In addition to expanding our portfolio of intelligent charging products and developing "turnkey" installation services for retail and commercial customers, we are investing nearly $750 million in home, workplace and public charging infrastructure in the United States and Canada.

Home Charging

We are providing GM EV customers with charging solutions that fit their lifestyles. Our home charging solutions in the United States include:

- Covered standard 240 volt outlet installation or $500 EVgo public charging credits for Chevrolet Bolt EV/EUV owners
- The choice between a $1,500 credit toward EV concierge installation or two years’ public charging with EVgo for Cadillac LYRIQ owners
- A referral to self-pay EV Concierge service for GMC Hummer EV customers and a complimentary Level 2 charger for GMC HUMMER EV Edition 1 customers
- A dedicated curriculum of EV courses, teaching dealership personnel how to navigate customers through the EV ownership experience
- An “EV Ready” dealership, including the training, tools, and service of EVs
- An OnStar subscription is not required. Plug and Charge will eventually extend across all compatible DC fast-charging stations on the Ultium Charge 360 network.

Public Charging

As of March 2023, we have integration relationships with 12 EV charging networks, giving GM EV drivers access to thousands of charging plugs throughout the United States and Canada.

GM and Pilot Company are building a coast-to-coast fast-charging network in collaboration with EVgo. The program is targeting the installation of fast chargers at approximately 50-mile intervals across the United States, enabling long-distance corridor charging. This network of 2,000 charging stations will be open to all EV drivers at up to 500 Pilot Flying J travel centers.

We are also working with EVgo to install 3,250 DC fast-charging stalls in more than 50 U.S. metropolitan markets.

GM’s Dealer Community Charging program, which was launched in December 2022, is expected to add up to 40,000 public Level 2 charging stations in local communities across the United States and Canada.

Through the program, GM and its dealers are working together to expand charging access in communities, including underserved rural and urban areas where EV charging is often limited or nonexistent. These charging stations will be available to all EV drivers, not just GM EV customers.

The first community charging stations for Chevrolet were installed in Wisconsin and Michigan in 2022, while Cadillac and Buick dealers began enrolling in early 2023. More than 1,000 GM dealers in the United States and Canada have already joined the program.

Mobile Apps

Through our vehicle brand apps, Ultium Charge 360 enables access to more than 110,000 charging plugs in the United States and Canada. GM EV drivers can find nearby charging stations, see real-time charger availability, plan routes, start charging sessions and more. Other possible features such as charger reservations, payments and discounts are under development.

To make EV charging as simple, efficient and accessible as possible, we are adding a new Plug and Charge service that comes with the vehicle at no cost.

Education and Engagement

Our strategy to accelerate the transition to an all-electric future involves demystifying EV ownership by addressing the barriers to adoption and creating a network of highly trained EV experts at our dealerships. The initiatives and tools we have in place to support education and engagement include:

- EV Live, our interactive and immersive experience
- Explore EV, which offers our vehicle brand app users additional information about the benefits of EV ownership
- A new Electric Vehicle Experience (EVX) program that designates EV specialists for Chevrolet and GMC dealers, while Cadillac dealers promote learning and training through their own dedicated dealer program, Pinnacle
- A dedicated curriculum of EV courses, teaching dealership personnel how to navigate customers through the EV ownership experience
- A new gamified micro-learning app
- A collection of dedicated EV literature to support retail readiness
- EV Showroom, a purpose-built online tool for dealers to guide customer conversations and amplify EV learning, covering topics such as fuel savings and charging calculators
- An “EV Ready” dealership, including the training, tools, requirements and special equipment to support the sale and service of EVs
- Transparency in GM’s advertised pricing to improve the shopping experience

23 See brand and model websites for current offers and additional information. Terms and conditions apply.
24 Available on select Apple and Android devices. Service availability, features and functionality vary by vehicle, device and the plan you are enrolled in. User terms apply.
25 GM EV drivers with an EVgo account, active OnStar connected services and the GM brand app for their vehicle must perform a one-time activation of Plug and Charge within the app. The customer’s payment information within the app will be linked upon activation, so that the customer simply needs to plug in to pay for charging. An OnStar subscription is not required. Plug and Charge will eventually extend across all compatible DC fast-charging stations on the Ultium Charge 360 network.
26 Availability of these initiatives and tools may vary across the regions/countries that GM operates in.
**EV Live: Optimizing the Ownership Experience**

As part of our mission to make EV ownership accessible to all, we launched **EV Live** in the United States. This immersive, virtual experience allows anyone—GM employees, dealers, retail, fleet and commercial customers, utilities and third-party collaborators—to connect with an EV Specialist from any internet-connected mobile or desktop device.

These specialists will answer EV-related questions in real time and give virtual tours of the EV Live studio. This houses real vehicles and dynamic displays of home charging, public charging, battery technology, sustainability, commercial applications and apps. EV Specialists can also guide participants through the home charging installation process and refer them to certified installers.

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**Super Cruise and Ultra Cruise: Advanced Driver Assistance Systems**

At GM, we are focused on safely deploying our advanced driver assistance systems (ADAS), like Super Cruise\(^27\) and soon, Ultra Cruise.\(^28\) These hands-free technologies are an important step in our journey toward our vision of a world with zero crashes and zero congestion.

- Super Cruise is the industry’s first true hands-free advanced driver assistance technology. In 2022, we announced a doubling of the Super Cruise road network to more than 400,000 miles of compatible highways in the United States and Canada on select vehicles.

- Ultra Cruise will offer a destination-to-destination hands-free driving experience, designed to enable hands-free driving in 95% of all driving scenarios.

At the end of 2022, GM customers had driven more than 50 million miles with Super Cruise engaged and the feature will be available on 22 GM vehicles globally by the end of 2023. Ultra Cruise will later be available on certain premium entries. Together, these technologies will bring ADAS to more customers on more vehicles, in more regions at more price points, playing an important role in GM’s comprehensive path to autonomous mobility.

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**Cruise: Autonomous Vehicle Commercialization and Rapid Scaling**

With Cruise, our majority-owned autonomous vehicle (AV) technology startup, we are unlocking the full potential of self-driving technology. Cruise has been developing automated driving system (ADS) technology with safety front of mind since the company was founded in 2013. After its 2016 acquisition by GM, Cruise has continued developing and commercializing its self-driving ride hail and associated delivery services with zero tailpipe emissions.

Over the past four years, Cruise has been operating a fleet of fully integrated AVs in the complex driving environment of San Francisco. Initially, they all operated with a human backup driver before advancing to fully driverless operations with passengers onboard. Cruise became the first company to operate a commercial, driverless ride hail service in a major U.S. city in June 2022, and has since completed thousands of paid driverless rides. Cruise has continued to expand the service’s area of coverage and hours of operation in San Francisco and in late 2022 also launched in Austin, Texas, and Phoenix, Arizona.

Cruise is also expanding its collaboration with Walmart by building upon its initial grocery delivery pilot first launched in Scottsdale, Arizona. Local Walmart customers can now opt-in to autonomous deliveries and track their orders through a Cruise web app.\(^29\) This pilot completed more than 22,000 autonomous deliveries through the end of 2022, and is now being expanded to eight stores in the Phoenix area.

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\(^{27}\) Always pay attention while driving and when using Super Cruise. Do not use a handheld device. Requires active Super Cruise plan or trial. Terms apply. Automatic Lane Change and Lane Change on Demand are not available while trailering.

\(^{28}\) Ultra Cruise advanced driver assistance technology functionality is currently in preproduction and subject to change. Capability will evolve over time by way of over-the-air updates once functionality becomes available. More details about Ultra Cruise will be available closer to launch. Terms and conditions will apply.

\(^{29}\) Available on select Apple devices. Service availability, features and functionality vary by vehicle, device and the plan you are enrolled in. User terms apply.
In addition to deliveries with Walmart, Cruise has delivered more than 2.3 million meals to San Francisco residents in need as part of its Cruise for Good social impact program. Cruise began this work at the height of the pandemic, in response to the needs of local partners at San Francisco-Marin Food Bank and SF New Deal. It has pledged to dedicate at least 1% of its all-electric fleet to help meet local community needs, everywhere it operates.

**Cruise Origin**

Encouraging passengers to ride together in shared electric vehicles has the potential to reduce urban congestion and pollution, serve more people and reduce fares. That’s why GM has developed the Cruise Origin in a collaboration with Cruise and Honda. This self-driving vehicle operates without a steering wheel, brake or accelerator pedals, allowing more space for passengers, luggage or goods. With a focus on accessibility and sustainability, some of the benefits of Cruise’s fleet and operations include being all-electric and designed to not only reduce congestion but also increase access to transportation for those facing barriers to mobility.

**BrightDrop: Decarbonizing Last-Mile Deliveries**

With the rapid growth in e-commerce putting more delivery vehicles on the road, logistics companies are looking for ways to meet consumer demand while reducing carbon emissions and congestion. At GM, electrifying our last-mile delivery fleet offerings is an important part of our carbon neutral ambition.

Our solution is BrightDrop, a wholly owned subsidiary currently operating in the United States and Canada that primarily serves two markets: last-mile package deliveries and online grocery deliveries. Both grew quickly during the pandemic and are expected to maintain double-digit growth rates throughout the decade. BrightDrop aims to help businesses lower costs, maximize productivity, improve employee safety and increase freight security with a portfolio of electric delivery vans and smart, purpose-built electrically propelled carts, as well as the BrightDrop Core software platform.

In 2021, BrightDrop launched the BrightDrop Zevo 600 all-electric light commercial vehicle (eLCV) and the BrightDrop Trace eCart, which helps couriers take goods the last step to the customer. The smaller BrightDrop Zevo 400 was also announced.

In 2022, we launched the BrightDrop Trace Grocery, an eCart designed to help streamline order fulfillment and pickup for online grocery purchases. The BrightDrop Trace Grocery eCart is expected to be fully available in 2024.

Our CAMI Assembly plant in Ontario, Canada, commenced full production of the BrightDrop Zevo 600 in 2023, and will scale up total Zevo production to a projected 50,000 units a year by 2025. With the speed to market and the levels of customer demand (see right), BrightDrop is on track to generate approximately $1 billion in revenue in 2023.

BrightDrop Customers

- **FedEx Express**
  - Reserved priority production for at least 2,000 electric delivery vans over the next few years, adding to an initial reservation of 500 BrightDrop EVs announced in 2021
- **DHL Express Canada**
  - Plans to add BrightDrop Zevo electric delivery vans to its fleet in 2023, and is currently piloting BrightDrop Trace eCarts and software platform
- **Hertz**
  - Plans to order up to 175,000 EVs, including BrightDrop vehicles, over the next five years
- **Merchants Fleet**
  - Reserved 18,000 units (BrightDrop Zevo 600 and BrightDrop Zevo 400)
- **Walmart**
  - Reserved 5,000 (BrightDrop Zevo 600 and BrightDrop Zevo 400) electric delivery vans to support the retail giant’s growing last-mile delivery network and goal of operating a zero-emissions logistics fleet by 2040
- **Kroger**
  - Scheduled to add the BrightDrop Trace Grocery to its e-commerce operations

"We are developing relationships with those that can help us expand our ecosystem of last-mile delivery solutions. For example, one such collaboration with Nauto offers an event-based safety system enabling better fleet management for our customers."

Robert Tiderington
Head of Strategic Partnerships, BrightDrop

The BrightDrop Zevo 600 received an honorable mention in Fast Company’s 2022 Innovation by Design Awards

Driving the BrightDrop Zevo 600, BrightDrop's Stephen Marlin set the Guinness World Record for the longest distance traveled by an electric van on a single charge (nearly 260 miles from Manhattan to Washington D.C.) in April 2022
Putting Customers First

Customers are at the center of GM’s growth strategy. We deliver on that by producing high-quality, easy-to-use products, while offering an excellent customer experience.

A Relentless Focus on Customer Experience

The people who drive our vehicles are an extension of the GM family. Every day, we aim to understand their expectations and retain their trust by delivering positive experiences as well as vehicles, features and services they cannot live without.

Through every interaction, we try to simplify the customer journey, making their lives easier and more enjoyable. We are committed to designing new and innovative solutions, including software-enabled services and features that allow us to continue enhancing the total vehicle ownership experience over time.

Additionally, we continue to listen to the needs of our customers and have redesigned the in-app "help" experience. This new functionality will include live chat, links to web support content and quick-start guides, which will make learning about and owning a new GM vehicle even easier.

By delivering excellence in every interaction, even in everyday moments, we can keep customers returning to GM.

Listening to Our Customers

One of the best ways to deliver exceptional experiences is to listen to customers. GM’s Voice of Customer platform pulls in millions of comments from across all our communication channels, including phone calls, emails, social media posts and dealership surveys. Once aggregated and anonymized, we use these insights to proactively support customers, focus our efforts where we can have the biggest impact and inform the development of future products, features and services.

Mobile App

Meeting connected vehicle owners wherever they are on their digital journey is key to delivering an exceptional GM ownership experience. In fact, GM owners who use our vehicle brand mobile apps show a significantly higher recommendation rate than owners who do not. As we continue to adapt to customer expectations and preferences, select OnStar safety and digital services, including remote access enabled in the mobile app, will now be offered on most vehicles in the United States and Canada for three years, with the initial vehicle purchase. We are working to broaden our standard connected features to other markets.

Additionally, we continue to listen to the needs of our customers and have redesigned the in-app "help" experience. This new functionality will include live chat, links to web support content and quick-start guides, which will make learning about and owning a new GM vehicle even easier. Recently, the GM mobile app team was recognized by Michigan’s Association of Customer Experience Professionals for “Customer Feedback & Continuous Improvement” during the Industry Best Practices Award program.

Building for the Future

The future is digital and we are reimagining experiences that can support this future. Our strategy is to create experiences that are both Digitally Human and Deliberately Human: digital experiences that are as easy and intuitive as interacting with a human, while preserving and enhancing interactions with people (dealers or advisors) in moments that have the most impact.

We are determined to lead the future of the automotive customer experience as we create a first-class digital experience and continue to drive innovation to make the customer journey more convenient, simple, seamless and informative.

Quality Assurance

Our quality policies and culture of continuous improvement inform our customers’ product experience.

GM’s Quality Policy states that: “GM will be Quality Leaders in every market and every segment in which we compete through effective execution of all applicable requirements and through continual improvement.”

Globally, we have achieved, and sustained, certification to the International Organization for Standardization (ISO) 9001:2015 standard at all of our manufacturing facilities where required by region or country. As of the end of 2022, 52 operations had completed certification. We intend to maintain ISO compliance by adapting our processes to meet any modifications to the standard.

We have nine component plants that are certified to the International Automotive Task Force (IATF) 16949 standards. Our Global Manufacturing System incorporates all IATF requirements, guiding the quality aspects of our business and, in some cases, driving more rigorous standards than external ones. As a result, GM brands and products regularly perform well in the leading product quality, reliability, vehicle safety and consumer satisfaction studies.

Read more about Vehicle Safety and Quality.
External Recognition

We measure the quality and dependability of our vehicles, as well as customer satisfaction with our vehicles, sales and dealership service, through the following studies run by J.D. Power, a global leader in industry intelligence on customer interactions with brands and products for more than 50 years.

Initial Quality

For 36 years, the J.D. Power U.S. Initial Quality Study (IQS) has measured problems that customers have experienced with their new vehicles within the first three months. In 2022, ongoing disruptions caused by the pandemic—microchip shortages and other supply chain issues, high vehicle prices and workplace dislocation—meant that problems across the industry reached a record high.

Despite the challenges facing the industry, GM was the highest-ranked manufacturer in initial quality for the second time in three years. We received nine model awards, with the Chevrolet Corvette as the highest-ranked model in the industry, while Buick was ranked the leading overall brand. Additionally, our San Luis Potosí facility in Mexico, which produces the Chevrolet Equinox and GMC Terrain, received the Platinum Plant Quality Award. GM’s Ingersoll (CAMI) plant in Canada, which produced the Chevrolet Equinox, and Yantai Dongyue 2 plant in China, which produces the Buick Envision, both received Bronze Plant awards for their region.

Vehicle Satisfaction

The J.D. Power 2022 U.S. Automotive Performance, Execution and Layout (APEAL) Study examines how satisfied customers are with their new vehicles. In the latest study, Cadillac ranked third among premium brands and GMC ranked third among mass-market brands.

Dependability

In the 2022 U.S. Vehicle Dependability Study (VDS), which measures vehicle dependability after three years of ownership, Buick ranked #2 in the industry. GM secured five segment winners: Buick Encore (Small SUV), Buick Envision (Compact SUV), Chevrolet Impala (Large Car), Chevrolet Silverado HD (Large Heavy-Duty Pickup) and Chevrolet Suburban (Large SUV).

Sales Satisfaction

Buick was the highest-ranked mass-market brand in the 2022 U.S. Sales Satisfaction Index (SSI) Study, which measures customer satisfaction with the purchase experience among new-vehicle buyers and rejecters.

Customer Service