

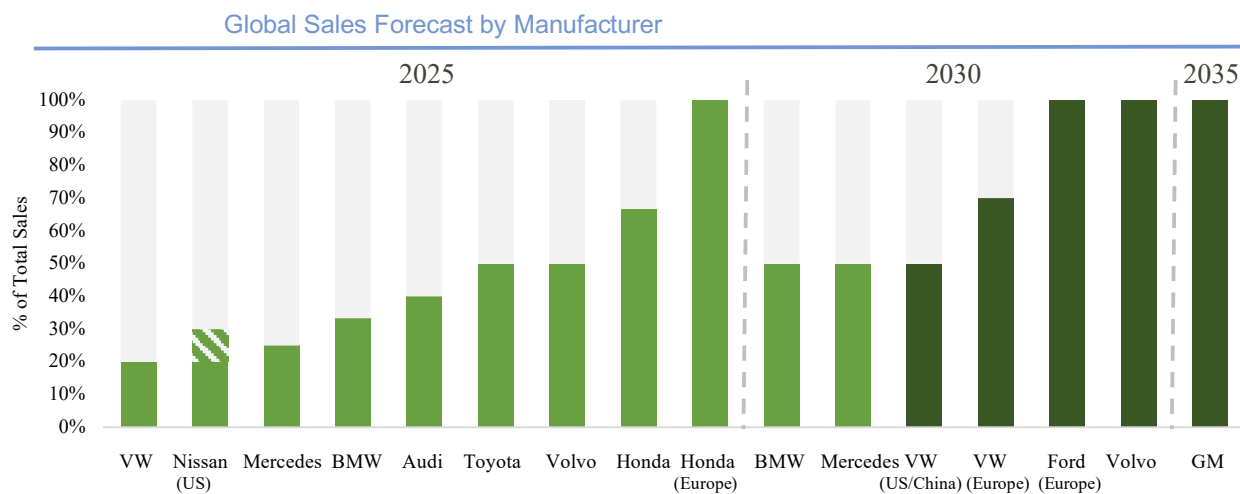
ELECTRIC VEHICLE MARKET STATUS

U.S. AND GLOBAL MARKETS FOR ELECTRIC CARS, FREIGHT TRUCKS AND BUSES GREW LAST YEAR IN SPITE OF THE PANDEMIC – ONE OF MANY SIGNS OF ROBUST ENTHUSIASM FOR ZERO-EMISSION VEHICLES

WHAT'S THE LATEST? President Biden's newly-released American Jobs Plan calls on Congress to invest \$621 billion in transportation infrastructure and resilience, including a \$174 billion investment to "win the EV market."

**M.J. BRADLEY AND ASSOCIATES RELEASED THE FOURTH UPDATE OF ITS
ELECTRIC VEHICLE MARKET STATUS REPORT**

**EV SALES IN
THE U.S.
HAVE
GROWN
4%
WHILE
OVERALL
CAR SALES
DECREASED
15%
OVER THE
PAST YEAR**



**GLOBAL EV SALES HAVE GROWN 46%
OVER THE PAST YEAR, WITH SALES REACHING
2.5–3 MILLION**

NEW MANUFACTURER COMMITMENTS

BETWEEN 2021 AND 2023, THE NUMBER OF BATTERY ELECTRIC (BEV) AND PLUG-IN HYBRID (PHEV) PASSENGER VEHICLE MODELS AVAILABLE TO U.S. CONSUMERS WILL INCREASE FROM 64 TO 81

“OUR COMMITMENT TO AN ALL-ELECTRIC, ZERO EMISSIONS FUTURE IS UNWAIVERING.” **GM**

FORD HAS CREATED TEAM EDISON, A DEDICATED GLOBAL EV ORGANIZATION “FOCUSED ON BRINGING TO MARKET PROFITABLE, EXCITING [EVS] AND OWNERSHIP EXPERIENCES.”

NEW ANNOUNCEMENTS



After announcing it would commit \$22 billion to electrification – nearly twice its previous commitment – and \$7 billion to autonomous vehicles through 2025, Ford said that its entire European passenger vehicle line would be ZEV capable, BEV, or PHEV by mid-2026 moving to all-electric by 2030.

For commercial vehicles, Ford said they would also be ZEV capable, BEV, or PHEV by 2024, and is expecting two-thirds of sales to be BEV or PHEV by 2030.



In announcing plans to achieve carbon neutrality by 2040, GM set a goal aspiring to eliminate tailpipe emissions from new light-duty vehicles by 2035. By the end of 2025, GM plans to offer 30 BEV models globally, and BEVs will make up 40 percent of U.S. models.



Volvo announced it would be a fully electric car company by 2030 by only selling BEVs and phasing out any car in its global portfolio with an internal combustion engine, including hybrids.

On the medium- and heavy-duty side, Volvo Group announced it would be responsible for electrification matters like management of batteries over their life-cycle (i.e., second life) and charging infrastructure.

“THERE IS NO LONG-TERM FUTURE FOR CARS WITH AN INTERNAL COMBUSTION ENGINE. WE ARE FIRMLY COMMITTED TO BECOMING AN ELECTRIC-ONLY CAR MAKER AND THE TRANSITION SHOULD HAPPEN BY 2030.” **VOLVO**

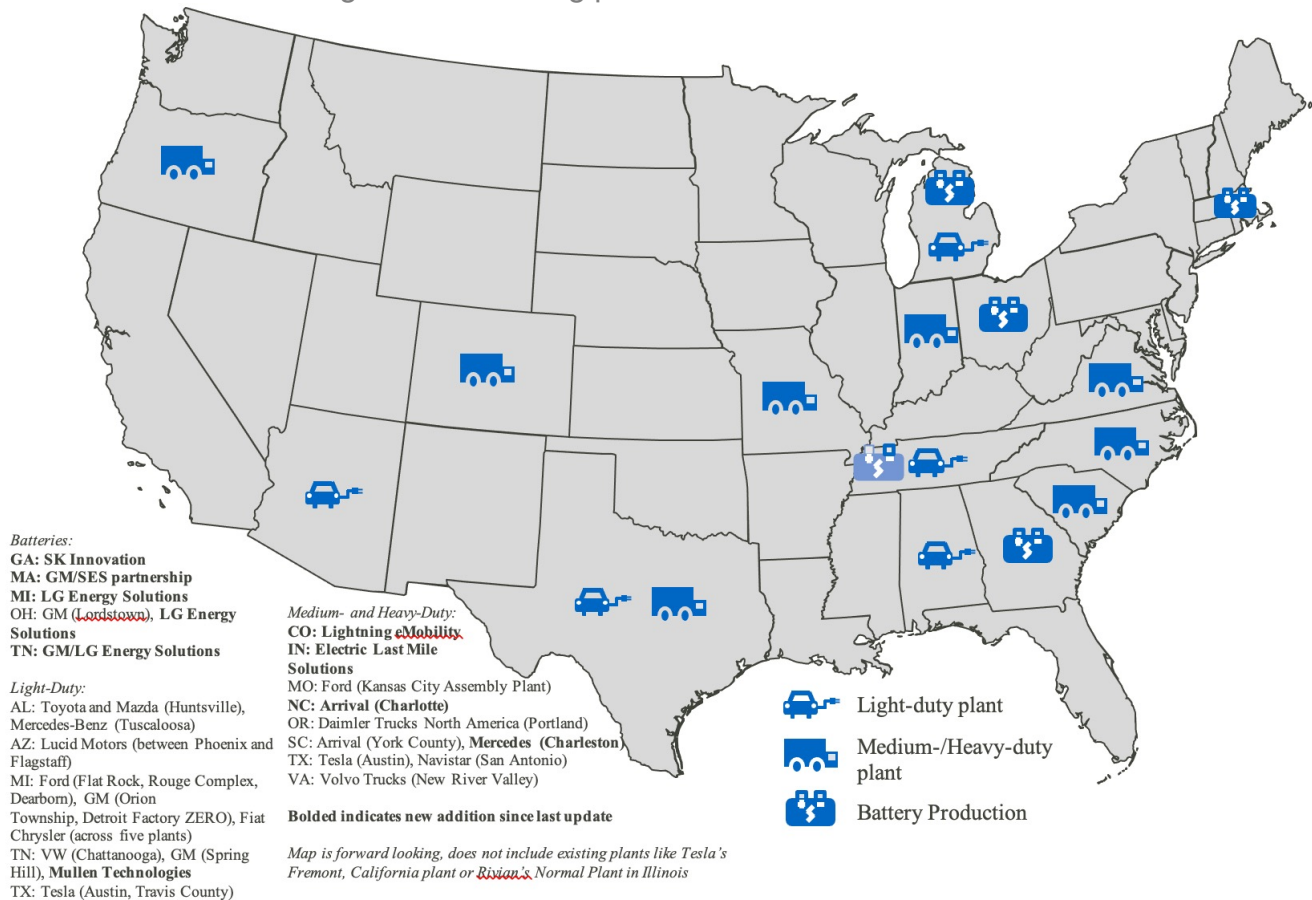
TODAY, IN 2021, THERE ARE 48 MEDIUM-DUTY ELECTRIFIED MODELS, 29 HEAVY-DUTY MODELS, AND 40 BUS MODELS OFFERED ACROSS A RANGE OF VEHICLE VOCATIONS, AND THIS NUMBER WILL CONTINUE TO GROW IN THE COMING YEARS.

FLEET INVESTMENTS

Electrification of medium- and heavy-duty commercial fleet vehicles is gaining traction, in part due to fleet electrification targets by companies. Major electrification commitments include: the **Montgomery County Public Schools** district, one of the largest in the country, commitment to electrify its 1,400 school buses; **Amazon** ordered 100,000 electric delivery vans from Rivian; **FedEx** ordered 500 electric trucks from **BrightDrop** as part of its 2040 goal to have a fully zero-emission electric vehicle parcel delivery fleet globally. **BrightDrop**, launched by **GM**, will release two models in 2021: the EP1 and the EV600. FedEx will be the first customer for the EV600 by **GM**. Also, **Ford** is launching an electrified version of its transit cargo van, E-Transit, in 2022.

MANUFACTURING INVESTMENTS

Manufacturers have announced investments in light-duty factories in Tennessee; medium- and heavy-duty factories in Colorado, Indiana, and North Carolina; and battery factories in Georgia, Massachusetts, Michigan, Ohio, and Tennessee, including LG Energy Solutions' announcement that by the end of 2025, the company will invest more than \$4.5 billion in its U.S. business to further expand its battery production capacity, potentially adding 10,000 additional jobs. Additionally, LG Chem and SK Innovation, two of the world's largest battery manufacturers, reached a trade deal that will allow the construction of SK Innovation's \$2.6 billion Georgia manufacturing plant to move forward.



In Michigan **GM** will invest \$2.2 billion at Factory ZERO in Detroit to produce vehicles like the all-electric Silverado pickup and \$300 million in its Orion Township plant, amounting to 2,200 and 400 new jobs, respectively. GM also received a \$35 million job training assistance grant from Tennessee to retain and train 2,000 employees.

Ford plans to invest more than \$1.45 billion in Michigan production, which could result in approximately 3,000 new jobs. This includes 900 jobs through a \$900 million expansion at its Flat Rock plant as well as those created by a \$700 million investment at the Rouge Complex for production of the electric F-150.

In November 2019, **VW** started the expansion of its Chattanooga, Tennessee, assembly plant, which aims to add 1,000 jobs that will support its new EV line-up.

Tesla is building a \$1 billion EV manufacturing plant in Travis County, Texas, that could support 5,000 direct jobs and more than 4,000 indirect jobs due to secondary effects. According to a May 2018 IHS Markit report, Tesla's operations have supported over 51,000 jobs in California (20,189 directly, 31,424 indirectly through local supply).

BATTERY INNOVATION

GM is committing to two \$2.3 billion investments through a joint venture with LG Energy Solutions to produce its Ultium battery at plants in northeastern Ohio and Tennessee – a partnership that could bring over 1,100 and 1,300 jobs to each state, respectively. **GM** is also partnering with SES to build a manufacturing line in Massachusetts. **LG Energy Solution** announced that by the end of 2025, the company will invest more than \$4.5 billion in its U.S. business to further expand its battery production capacity, potentially adding 10,000 additional jobs in Ohio and Michigan. **SK Innovation** plans to build a \$2.6 billion factory outside of Atlanta, Georgia, that it expects will create at least 2,600 full time employees.

COST PARITY WITH INTERNAL COMBUSTION ENGINE (ICE) VEHICLES WILL OCCUR IN 2025 OR EARLIER DUE TO FALLING BATTERY PRICES

JOB CREATION

The EV industry employed nearly 131,575 individuals across the U.S. in 2020—defying overall energy sector job loss patterns caused by the COVID-19 pandemic with employment growing more than six percent, the biggest increase of any clean energy category according to E2's *Clean Jobs America Report*—with jobs surpassing 273,000 when also including jobs associated with hybrid, natural gas, hydrogen, and fuel cell vehicles. California, Michigan, and Texas are the top three states supplying these clean vehicle jobs, in order.

IN A RECENT LETTER TO THE BIDEN ADMINISTRATION GOVERNORS REQUESTED SETTING STANDARDS TO ENSURE THAT ALL NEW PASSENGER CARS AND LIGHT-DUTY TRUCKS SOLD ARE ZERO-EMISSION NO LATER THAN 2035 (AND MEDIUM- AND HEAVY-DUTY VEHICLES NO LATER THAN 2045) WITH SIGNIFICANT MILESTONES ALONG THE WAY TO MONITOR PROGRESS.

PUBLIC POLICY

Government policy has played a critical role in accelerating the transition to electric vehicles. 15 countries have commitments to eliminate tailpipe motor vehicle pollution, and in the U.S., **California** has played a leading role. California Governor Gavin Newsom issued an executive order that set a goal that 100 percent of in-state sales of new passenger cars and trucks be zero-emission by 2035, and CARB is holding a workshop in May 2021 to move forward with protective next generation standards. Other states, like **Colorado** and **Virginia**, have recently adopted California's existing zero emitting vehicle regulations, and others, like **New Mexico**, **Nevada**, and **Minnesota** are considering doing so. **California** has also played a leading role in reducing emissions from medium- and heavy-duty, through the Advanced Clean Truck Rule and NOx Omnibus Rule and the 15 jurisdiction Medium- and Heavy-Duty ZEV MOU has likewise played an important role in driving progress.

The Environmental Protection Agency has an important opportunity to adopt transformative, next generation standards, building from this dynamic marketplace and existing policy leadership, that **eliminate tailpipe pollution from new cars and trucks by 2035** and from **Medium- and Heavy-duty vehicles by 2040, including action in urban and community applications by 2035**.