# U.S. light-duty vehicle charging infrastructure deployment through 2024

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## OVERVIEW

Approximately 204,000 public chargers and publicly accessible workplace chargers for light-duty vehicles had been deployed across the United States as of the end of 2024. From 2019 to 2024, the deployment rate of this non-home charging infrastructure for light-duty electric vehicles (EVs) grew about 25% annually. This is roughly equivalent to estimates of the growth rate needed in annual charging deployment to support continued expansion of the EV market. Charging deployment has not been uniform across the United States, and more chargers have been deployed in states with the most EV sales. Publicly announced investments in charging infrastructure from retailers, automakers, and charging providers sum up to 164,000 new DC fast chargers and 1.5 million new Level 2 chargers in the years ahead. These investments cover a substantial share of the chargers that we estimate will be needed by 2030.

## NON-HOME CHARGER DEPLOYMENT

About 6.3 million light-duty EVs had been sold and 204,000 non-home chargers deployed across the United States by the end of 2024 (Figure 1). In 2024, new EV sales surpassed 1.5 million, representing about 10% of all new light-duty vehicles sold in the United States. In 2024, more than 40,000 new non-home chargers were deployed, which was more than any other year. From 2019 to 2024, the rate of charging infrastructure deployment grew about 25% annually, which is roughly equivalent to estimates of the annual charging deployment growth rate needed to support continued EV market growth to 55 million electric vehicles on U.S. roads in 2032.

Total non-home charging deployment increased from 151,000 in June 2023 to 204,000 in 2024, a 35% increase. In that time span, the number of Level 2 chargers went from about 118,000 to 153,000, a 29% increase, and DC fast chargers increased from about 33,000 to 51,000, a 56% increase.

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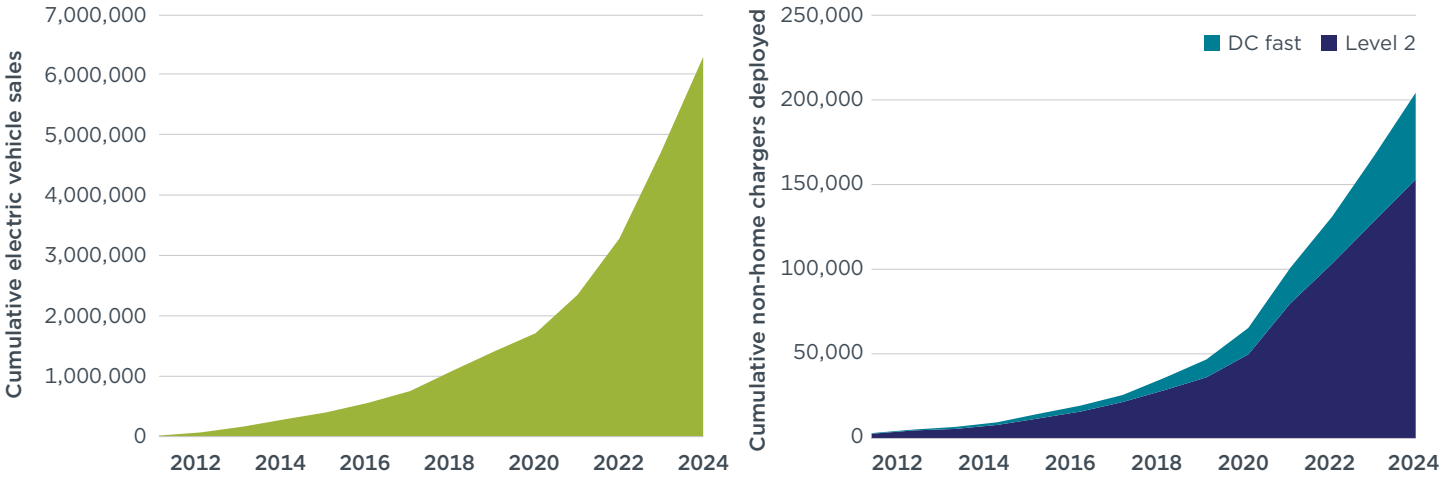
**Figure 1**

**Cumulative U.S. sales of light-duty electric vehicles and deployment of non-home chargers, 2011 through 2024**

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## CHARGER DEPLOYMENT BY STATE AND THE DISTRICT OF COLUMBIA

Charging deployment has not been uniform across the United States, and a larger number of chargers have been deployed in the states with the most EV sales (Figure 2.1). The ratio of non-home chargers per million residents ranges from 164 (Louisiana) to 1,738 (Vermont). The top 10 states in per capita charging deployment are Vermont, the District of Columbia, California, Massachusetts, Colorado, Connecticut, Washington, Maine, Oregon, and Maryland. Vermont, the District of Columbia, California, Colorado, Washington, Oregon, and Maryland are also in the top 10 in terms of EV market share.

The ratio of EVs to non-home chargers ranges from about 9 to about 47, with an average of 22 (Figure 2.2). Ratios vary significantly by locale and are dependent on various factors including the prevalence of home charging access, charger utilization, and the rated power of chargers.

**Figure 2.1**

**Non-home chargers per million residents by state in 2024**

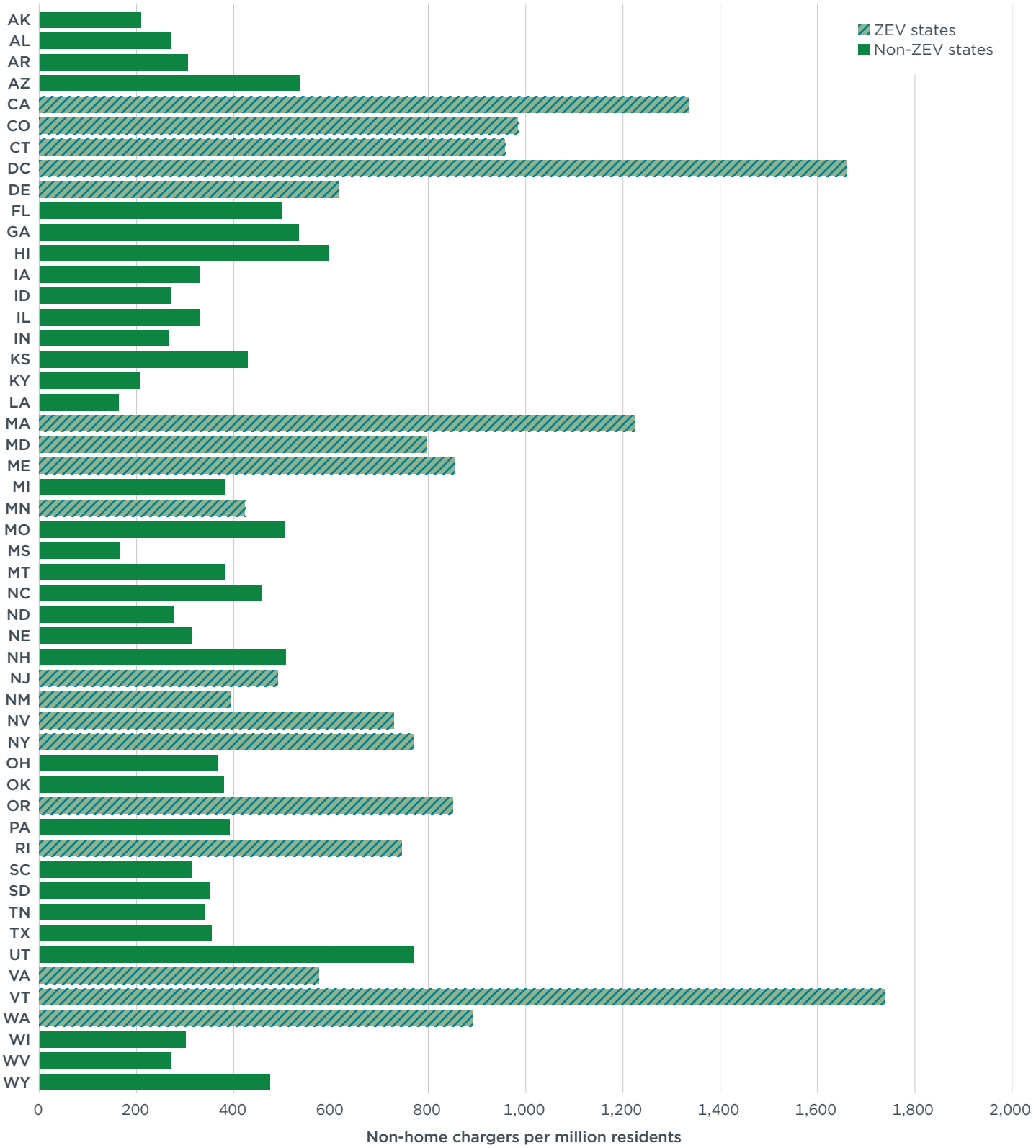


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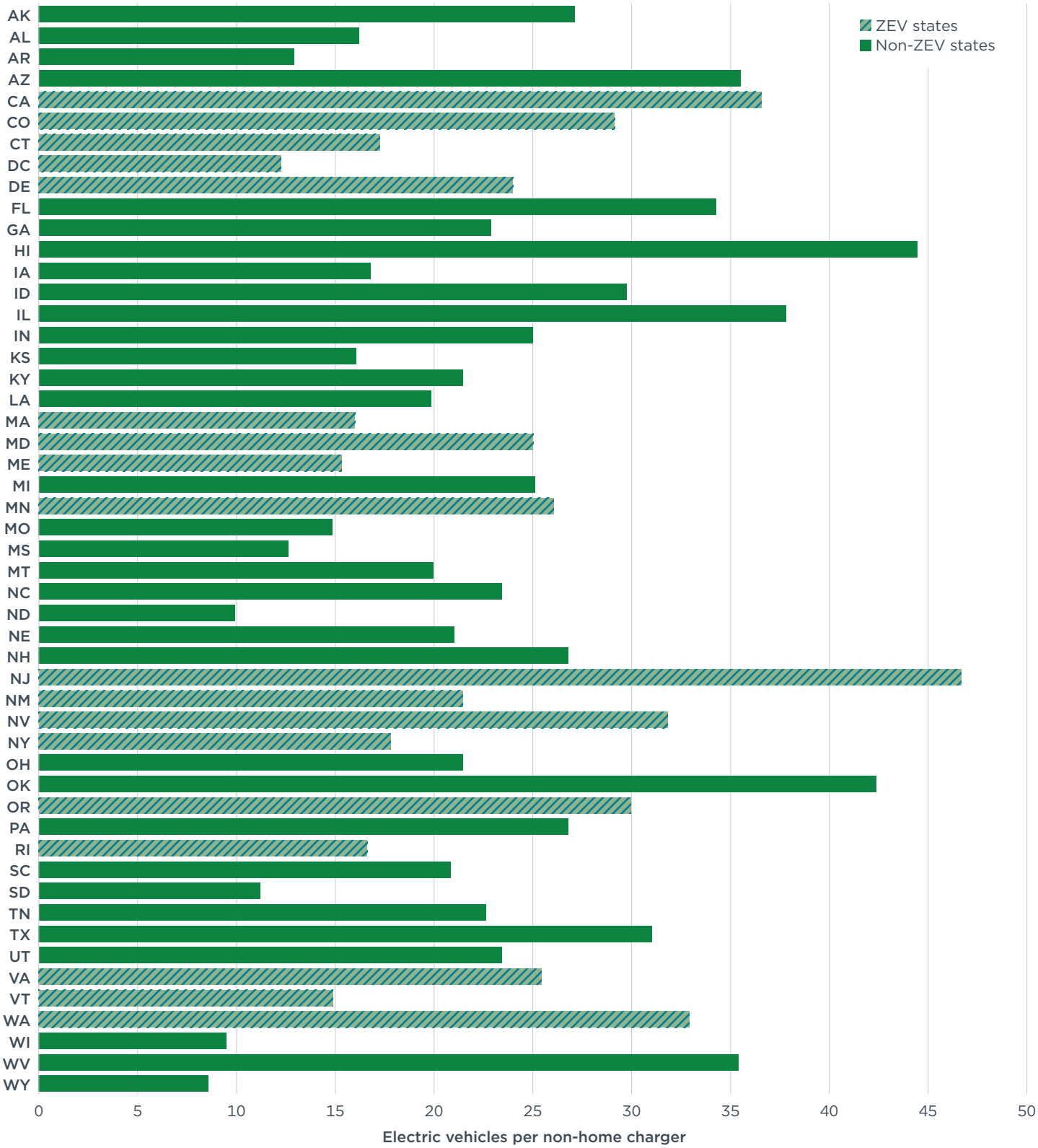
**Figure 2.2**

**Electric vehicles per non-home charger by state in 2024**

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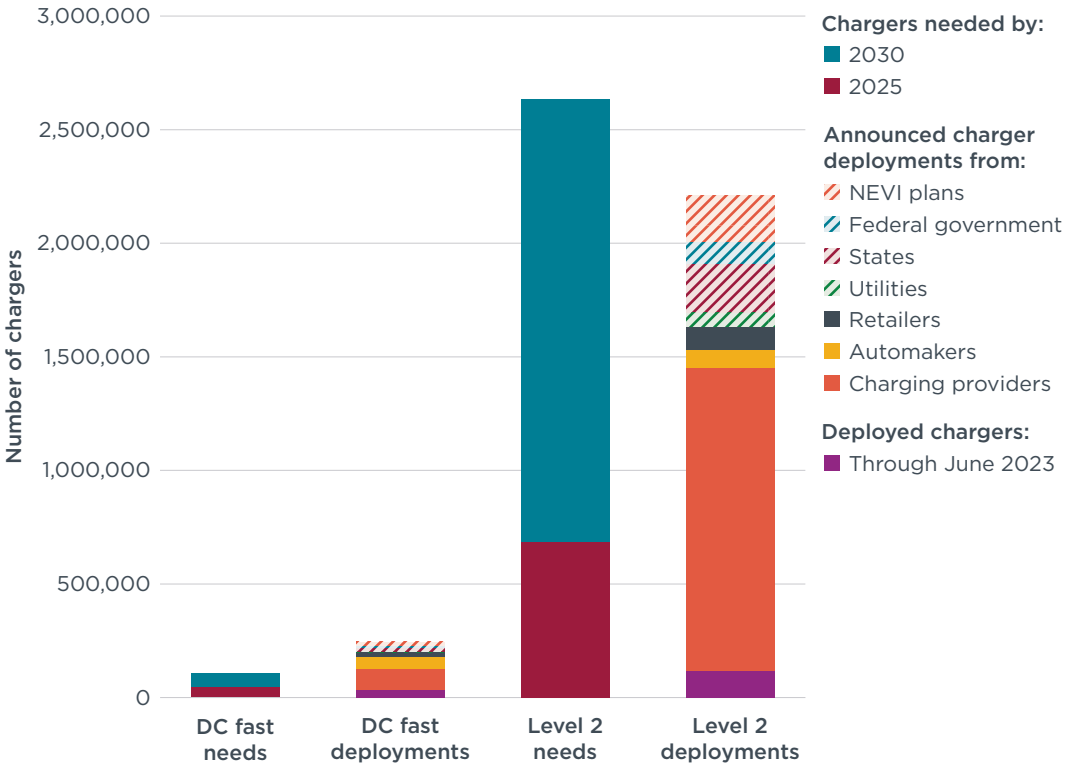
## FUTURE CHARGING INVESTMENT

Publicly available announcements from retailers, automakers, and charging providers sum up to 164,000 new DC fast chargers and 1.5 million new Level 2 chargers for light-duty vehicles in the years ahead. These investments cover a substantial share of the chargers we estimate will be needed by 2030—about 182% of the needed DC fast chargers and about 62% of the needed Level 2 chargers (Figure 3). In terms of total charging capacity, this amount of charging represents 96% of non-home charging capacity needed in 2030. Potential additional charging deployments announced by the federal government, state authorities, or utilities (i.e., the hatched portions of the bar chart) could provide up to 47,000 more DC fast chargers and 579,000 more Level 2 chargers, although it is unclear to what extent these announcements overlap with announcements from private stakeholders. In addition, other non-disclosed future charging investments would further add to the charging infrastructure network.

**Figure 3**
**Non-home EV chargers needed by 2030 compared with announced deployments**



## TERMINOLOGY AND DATA SOURCES

An **electric vehicle** in this spotlight refers to light-duty vehicles with propulsion powered solely or mostly by electric motors.

A **Level 2 charger** is a power supply device that provides alternating current (AC) electricity to electric vehicles at a rated power level between 3 kW and 19 kW.

A **DC fast charger (DCFC)** is a power supply device that provides direct current (DC) electricity to electric vehicles at a rated power level of 50 kW or above.

**NEVI plans** are the deployment plans developed by each state for spending federal funds from the National Electric Vehicle Infrastructure (NEVI) Formula Program to build charging networks in their states.

**ZEV states** are the states that have adopted any part of California's regulations on zero-emission vehicles (ZEVs). These regulations include a suite of policies designed to increase sales of ZEVs and to support their wide-scale adoption and use. This program includes Advanced Clean Cars II, which requires that 100% of new light-duty vehicle sales are zero-emission by 2035. The Clean Air Act allows for other states to adopt California's ZEV regulations. **Non-ZEV states** are those that have not adopted California's ZEV regulations.

Data on electric vehicle sales: Argonne National Laboratory, *Light-Duty Electric Drive Vehicles Monthly Sales Updates – Historical Data*, accessed February 28, 2025, https://www.anl.gov/esia/reference/light-duty-electric-drive-vehicles-monthly-sales-updates-historical-data.

Data on charging infrastructure: U.S. Department of Energy Alternative Fuels Data Center, *Alternative Fueling Station Locator*, accessed February 17, 2025, https://afdc.energy.gov/stations#/find/nearest?country=US.

Data on state-level electric vehicle market shares: Atlas Public Policy's EV Hub, EV Market Dashboard (2025), https://www.atlasevhub.com/market-data/ev-market-dashboard/.

Findings on future charging infrastructure needs compared with announced charging infrastructure deployment and historical charging infrastructure growth: Logan Pierce and Peter Slowik, *Assessment of U.S. electric vehicle charging needs and announced deployments through 2032* (Internation Council on Clean Transportation, 2024), https://theicct.org/publication/assessment-of-us-ev-charging-needs-and-announced-deployment-through-2032-mar24/.

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