

High-power electric vehicle (EV) chargers are coming to a station near you

The first 350 kW EV chargers are poised to hit the U.S. market



Today's EV owners do most of their charging at home, but imagine a future where charging an EV is as convenient and commonplace as pulling up to a gas station. That's the vision taking shape now as initiatives like Electrify America build national networks of fast-charging stations.

Re-charging your EV may not be as fast as re-fueling your gasoline vehicle—but it will soon be close. Electrify America is rolling out EV charging stations that will feature ABB's Terra HP high-power chargers, the first 350 kW product on the U.S. market, which can re-fresh even the largest electric vehicle battery in under 15 minutes. Charging time for a range of 124 miles (200 km) is just eight minutes.

ABB's Terra HP chargers are compatible with both the CCS and CHAdeMO DC fast charging standards, allowing drivers to buy the EV of their choice with confidence that it will work at all of Electrify America's charging sites.

Electrify America will be deploying hundreds of these non-proprietary electric vehicle chargers within and around 17 metropolitan areas and along multiple nationwide highway corridors in an ambition ten-year plan. The rollout is part of Electrify America \$2-billion-dollar investment in Zero Emission Vehicle (ZEV) infrastructure, education/outreach, and access/exposure. It's the largest investment of its kind to date and will include:

- Electric charging infrastructure in 17 metro areas including Boston, Chicago, Denver, Fresno, Houston, Los Angeles, Miami, New York City, Philadelphia, Portland, Raleigh, Sacramento, San Diego, San Francisco, San Jose, Seattle, and Washington, D.C.
- Charging stations placed at workplaces, retail centers, municipal parking lots, and office centers plus more than 100 Walmart locations across 34 states.
- The establishment of high-traffic highway corridors connecting metropolitan areas to facilitate long-distance EV travel. The charging sites in the corridors will be no more than 120 miles apart and will average 70 miles apart.

Building out the Electrify America charging system has the potential to ease consumer's fears about owning an EV. Although modern EVs have been on U.S. roads for a decade, only about 200,000 were sold in the U.S. in 2017. A major hurdle is that the charging infrastructure hasn't kept the pace required to spur mass adoption of electric transportation. "Range anxiety"—wondering if there will be someplace to re-charge batteries during a road trip—continues to be a deterrent.

Currently, about 15 percent of the 48,472 total public charging stations in the U.S. are DC fast-charging stations, reports EVAAdoption. Tesla's Superchargers run at up to 120 kw, but most publicly available chargers using the CHAdeMO and CCS standards, which operate at 50 kilowatts or less.

This makes sense given that until this past December, no electric vehicles on sale in the U.S. market could handle a faster charging rate. However, this picture is rapidly changing as the market races to catch up to demand. The Hyundai Ioniq Electric can accept charge rates of up to 100 kw, and the Chevrolet Bolt EV can charge at up to 80 kw over a portion of its capacity. And that's just the tip of the iceberg. GM and Honda, for example, just announced a multi-year partnership to next-generation EV batteries to "deliver higher energy density, smaller packaging and faster charging capabilities for both companies' future products, mainly for the North American market."

Bottom line, while electric vehicles may not be posting big sales numbers yet, auto companies are making significant investments in them. Some of the emerging vehicles will offer not only faster-charging capacities but a range of specs and tech features designed to exceed most gas-powered cars. To meet the expected wave of demand for EV, the charging infrastructure is rapidly moving into position.

ABB's product portfolio includes **charging technologies** for electric cars, buses and trucks, as well as solutions for the electrification of ships, railways and cable cars. And with more than 6,500 DC fast charging stations installed in 60 countries, ABB is the global leader in connected DC fast charging technology.

ABB's e-mobility leadership is also demonstrated by its partnership with Formula E, the world's first fully electric international FIA motorsport series. **The ABB FIA Formula E Championship** series provides a platform to test e-mobility electrification and digitalization technologies in the crucible of competitive racing. Together, ABB and Formula E are ideally positioned to push the boundaries of e-mobility.

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Will today's gas stations soon look as antiquated as telephones or old-style televisions?



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