

Guide to Purchasing an EV Charging Station

Purchasing an electric vehicle (EV) charging station can be intimidating, given the wide variety of options. With this guide, you'll have the information needed to take steps toward purchasing a station, including common station features to consider, where to buy, and funding opportunities.

COMMON STATION FEATURES

The most basic charging station is a Level 2, or dumb charger, that lacks data tracking, payment collection abilities, and numerous other features, and is less expensive (~\$400; unit only). Smart chargers offer a variety of features and come at an additional cost (~\$600-700 for residential application Level 2; \$1,000-\$2,000 for commercial grade Level 2). The third option is a DC fast charger, which can cost \$40,000 for the unit.

FEATURE	DESCRIPTION	APPLICABILITY		
		Smart Residential Level 2	Commercial Level 2	DC Fast Charger
Advertising Capabilities	Generate additional revenue by using the display screen for third-party ads.		Some	Some
Beacon Light	Increase visibility at the station, especially at night; reduce vandalism.		Some	Some
Access Management	Control use through apps, radio frequency identification, or other hardware and software features.	Some	X	X
App-Based Payments	Accept payment via a network-specific app. Less expensive than installing a credit card swipe but requires a network membership to operate.		X	X
Credit Card Swipe/ Chip Reader	Accept payment via a credit card swipe or chip reader. More expensive to install but does not require a network membership to operate.		X	X
Cloud-Based Software	Manage stations remotely to deliver maximum benefit to the electric grid, reduce on-site electricity costs, and provide energy at a low cost to EV drivers.	X	X	X
Docking Connector	Prevent accidental disconnection during charging; power down the station when not in use or improperly connected to the vehicle.	X	X	X
Basic Kilowatt-Hour Monitoring	Monitor total energy consumption over a given time period on site.	X	X	X
Advanced AC Monitoring	Monitor energy usage remotely via an ethernet connection with the ability to create a historical log.	X	X	X
Powered by Renewable Energy*	Power the station through direct on-site connection (requires smart charger) to solar panels, wind energy, etc. or subscribe to a utility's renewable energy program.	X	X	X
Touchscreen	Create an intuitive customer interface.		Some	
Track Use	Monitor usage patterns at the station to determine how many EVs are driven/charged and how often. Use this data to calculate fuel savings and emissions reductions.	X	X	X
Retractable Cord*	Make it easier for users to operate; reduce vandalism or misuse of the cord if not returned to the holster after use.		X	X

* Not specific to smart chargers.

WORKING WITH UTILITIES

Large-scale charging installations (i.e., DC fast chargers or many Level 2s) will affect the energy consumed at your site, so you should work closely with your utility throughout the process. Be sure to address questions of cost and electrical load with them to ensure that both parties are aware of energy- and money-saving opportunities along with potential complications.

WHERE TO PURCHASE

Conduct research before purchasing. Identify the features you're interested in beforehand to narrow down the choices and remember to ask about network fees, maintenance plans, warranties, and opportunities to reduce operating costs.

Charging station companies

Level 2 and DCFCs:

- ChargePoint (<https://www.chargepoint.com>)
- Greenlots (<https://greenlots.com>)
- Tesla (<https://www.tesla.com/charging>)
- Siemens (<https://new.siemens.com/global/en/products/energy/low-voltage/components/electric-vehicle--ev--charging.html>)
- ZEF Energy (<https://www.zefenergy.com>)

Level 2 only:

- eMotorwerks (<https://evcharging.enelx.com>)

Big box stores (Home Depot, Walmart, Costco, etc.)

Search online inventories for “EV charger” or “electric vehicle charging station.”

State contract

State agencies or local units of government can purchase EV charging equipment at a discount through the Minnesota state contract. General information is available here: <https://mn.gov/admin/government/purchasing-contracting>.

Sourcewell

Sourcewell is a public agency that takes the guesswork out of procuring charging infrastructure by coordinating contracts with manufacturers. Membership is free and offers several purchasing opportunities. More information is available here: <https://www.sourcewell-mn.gov/cooperative-purchasing/how-it-works>.

FUNDING OPPORTUNITIES

Minnesota Volkswagen settlement grants: <https://www.pca.state.mn.us/air/apply-grant>.

Utility rebates: Contact your local utility to see if they provide a rebate for charging stations. They may require you to sign up for special rates, such as time-of-use.

Other grants:

- Clean Energy Resource Teams seed grants: Offered every two years with requests for proposals issued in odd years; limited to supporting costs for installation: <https://www.cleanenergyresourceteams.org/seedgrants#funding>.
- Minnesota Pollution Control Agency grants: <https://www.pca.state.mn.us/about-mpca/contract-grant-and-loan-opportunities>

Federal incentives: Check the Alternative Fuels Data Center website for availability at <https://afdc.energy.gov/laws/fed-summary>.



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This document was developed as part of Cities Charging Ahead!, a peer cohort of 28 cities that worked together across Minnesota to explore electric vehicle readiness. Participating cities received technical assistance focused on actions and best practices, based on the GreenStep Cities program, that can accelerate the adoption of electric vehicles. Cities Charging Ahead! was led by the Great Plains Institute and Clean Energy Resource Teams. Funding was provided through the Carolyn Foundation, Energy Foundation, and in partnership with Xcel Energy, which provided resources and support in line with the company's long-term clean energy plan to electrify transportation. Learn more at driveelectricmn.org/cities-charging-ahead.