

ELECTRIC VEHICLE CHARGING STATIONS: INSTALLATION BASICS

LEVEL 1 	LEVEL 2 	LEVEL 3 (DCFC) 
120V Outlet	208-240V Outlet	Up to 500V; 3-Phase
2-5 miles per hour charging	20 miles per hour charging	75-500 miles per 30 minutes charging
Standard outlet	Wall- or floor-mounted	Provides 50-400kW charging power
Charging cord included with EV purchase	Cost Per Port \$1,000-\$6,000	Cost Per Port \$25,000-\$50,000
No installation cost if using existing standard outlet	Installation Costs \$2,000-\$10,000	Installation Costs \$50,000-\$100,000

Installation Process

1. Either an electrician or the utility may complete a load analysis to determine if the current electrical supply at a site is suitable for a charging station.

- For multiple Level 2 stations or DCFC stations, new or upgraded electric service may be needed and would be completed by the utility.

- Additionally, upgrades to the electric panel may be needed, which can be done by an electrician or in-house. Each charging port will require its own breaker and dedicated circuit.

2. Check with your utility account manager to learn if installing a charging station will result in your account shifting to demand metering and to discuss billing options.

3. The charging station(s) can be purchased by a contractor or by the municipality directly.

4. A contractor or the municipality can pour a concrete pedestal (as needed) and connect the charging station to the electrical panel.

- There are no special certifications for electricians to install charging stations, but licensed electricians with experience installing charging stations may be able to help complete your installation quickly and on budget.

5. The utility will need to be brought in to turn the power on, if new or upgraded service is required for the charging station.
6. A contractor or the municipality should install charging station protection such as a tire stop or bollards. Mounting the station above bumper level on a wall or behind a curb is also helpful.
7. A contractor or the municipality should add signage, painting, striping, etc. for way-finding and to discourage internal combustion engine vehicles from parking in charging spaces.
8. Add your station to apps like PlugShare so users can find your station!

Charging a Fee to Charge

1. Installing a networked charging station will typically use WiFi or cellular signals to track data and allow charging a fee for using the station. The charging station may be close enough to a building to use existing WiFi, or it may need equipment added to provide dedicated WiFi, which comes with an additional fee for the equipment as well as an annual service fee.

2. Charging station installations in remote locations or in underground garages may have more difficulty acquiring a good cellular connection, but most charging station manufacturers have added equipment that can help. Note: annual networking / software fees are typically about \$175-350, not including additional fees for dedicated WiFi or cellular service, if needed.

3. Municipalities can use the networking capability to charge a fee for using the station. Fees can be hourly, by kWh, flat rate per session, or a combination (networks may add a handling fee for transactions). Some municipalities do not charge a fee and see it as a service provided to residents and visitors. Excessive fees may discourage use of the station. Keep in mind, even if charging a fee to use the station, the municipality may not recoup electricity costs or the cost of networking with low levels of usage.

4. Users typically scan a QR code or barcode via their smart phone which connects to the app being used by that station. Users can then enter their credit card information and pay to use the station through the app.

Level 2 Charging Station Installed by the Town of Hamilton in Madison County

