FREE HOMEOWNER GUIDE

Level 1 vs Level 2 EV charging: which do I need at home?

The short version

Most EVs come with a Level 1 cord that plugs into a standard household outlet, and for a lot of drivers the first surprise is how slowly it charges. That is what pushes most homeowners toward Level 2, a dedicated 240-volt circuit that charges several times faster. Whether Level 1 is enough or Level 2 is worth installing comes down to your car's battery size and how many miles you drive.

We install EV chargers across the Portland metro, and the decision almost always lands the same way: light drivers with small batteries can sometimes live on Level 1, while anyone with a larger battery or a normal daily commute is far better served by Level 2.

Level 1 charging (a standard outlet)

Level 1 uses an ordinary 120-volt household outlet and the cord that came with the car. It draws about 12 to 16 amps and adds roughly 3 to 5 miles of range per hour, so an overnight charge typically adds around 30 to 40 miles. Nothing has to be installed, which is its one real advantage.

For a plug-in hybrid, a very light-driving household, or as an occasional backup, that can genuinely be enough. But for a full battery-electric vehicle with a large pack, Level 1 often cannot keep up with daily driving. You can wake up with less charge than you went to bed with if you drive a normal amount.

Level 2 charging (a dedicated 240V circuit)

Level 2 uses a dedicated 240-volt circuit, the same class of circuit as an electric range or dryer, and a charger drawing anywhere from 30 to 60 amps (40 amps is common; 48 amps and up for larger vehicles). That adds roughly 25 to 45 miles of range per hour, enough to refill a typical day's driving in an hour or two and fully recharge most EVs overnight.

For daily drivers, larger batteries, and two-EV households, Level 2 is the practical standard. It turns your home into a reliable overnight charging station instead of something you are always managing around. The exact speed depends on both the charger's amperage and what your car can accept, so a higher-amperage charger only helps up to your vehicle's onboard limit.

Hardwired vs plug-in, and picking an amperage

Level 2 chargers are installed one of two ways: hardwired directly to the circuit, or plugged into a 240-volt outlet (commonly a NEMA 14-50). Hardwiring is typically used for higher-amperage chargers and cleaner

permanent installs; a plug-in setup offers flexibility if you might move the unit. Either way it must be a dedicated circuit sized correctly for the charger.

On amperage, bigger is not automatically better. The charger's draw drives the wire and breaker size. A 48-amp charger needs a 60-amp circuit, a 40-amp charger a 50-amp circuit, so a higher-amperage unit costs more to wire and demands more from your panel. Many drivers are well served by a 32- or 40-amp charger. Our guide on wire size and voltage drop walks through how the amperage choice plays out over the length of the run.

Will your panel handle it?

The most common question we get about Level 2 is whether the home's electrical panel can support it. A 40-amp charger often fits a modern 200-amp panel with room to spare; a 50- or 60-amp charger can exceed the capacity of an older 100-amp service already running other large loads. Sometimes smart load management avoids a service upgrade entirely by throttling the charger when the rest of the house is busy.

The only way to be sure is a load calculation, which we run during every estimate. If it turns out your service is tight, our guide on whether you need a panel upgrade first covers your options, from dialing the charger down to a full panel upgrade. Every Level 2 install includes a dedicated circuit, correct grounding, permitting, and inspection. Have a licensed electrician size and install it rather than fitting a high-amperage charger to a panel that cannot support it.

Frequently asked questions

How much faster is Level 2 than Level 1?

Level 1 uses a standard 120-volt outlet and adds roughly 3 to 5 miles of range per hour, so an overnight charge adds around 30 to 40 miles. Level 2 uses a dedicated 240-volt circuit and adds roughly 25 to 45 miles per hour, several times faster, enough to fully recharge most EVs overnight.

Is Level 1 charging ever enough?

It can be for a plug-in hybrid, a very light-driving household, or as an occasional backup. But for a full battery-electric vehicle with a large battery and normal daily mileage, Level 1 often cannot keep up, and you may lose more range each day than it replaces. Most EV owners end up wanting Level 2.

Should I hardwire my charger or use a plug?

Both are valid. Hardwiring is common for higher-amperage chargers and cleaner permanent installs, while a plug-in setup on a 240-volt outlet offers flexibility if you might relocate the unit. Either way, the charger needs its own dedicated circuit sized correctly for its amperage. An electrician can advise which fits your setup.

Do I need a bigger charger for a bigger battery?

Not necessarily. Charging speed is limited by both the charger's amperage and what your car can accept, so a higher-amperage charger only helps up to your vehicle's onboard limit. A larger battery benefits from Level 2, but many drivers are well served by a 32- or 40-amp charger rather than the largest available.

Sources

1. Electric Vehicle Charging Stations, U.S. Department of Energy, Alternative Fuels Data Center. https://afdc.energy.gov/fuels/electricity-stations
2. Charging Electric Vehicles at Home, U.S. Department of Energy, Alternative Fuels Data Center. https://afdc.energy.gov/fuels/electricity-charging-home

> **Need a licensed electrician in the Portland area?**
> Call Smiley Electric at (503) 484-7556 (Mon–Sat, 7am–5pm) or visit smileyelectric.net/contact. For sparks, smoke, a burning smell or a hot panel, turn off the power if it is safe and call right away.

Reviewed by Joshua Smiley, owner & master electrician, Smiley Electric. Last reviewed November 13, 2026. Online version: smileyelectric.net/help/level-1-vs-level-2-ev-charging/. General information, not a substitute for an on-site inspection.

Cite this page: Smiley Electric. “Level 1 vs Level 2 EV charging: which do I need at home?” smileyelectric.net/help/level-1-vs-level-2-ev-charging/. Last reviewed November 13, 2026. You are welcome to quote, print or share this page with credit to Smiley Electric and a link to smileyelectric.net/help/level-1-vs-level-2-ev-charging/.