



# 800 volt charging at home

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800-volt battery packs can charge more quickly than 400-volt packs, meaning that drivers can get back on the road faster after stopping to recharge. In addition, 800-volt systems produce less heat than 400-volt systems, meaning that they are more efficient and therefore use less energy.

**New 800-Volt Fast Charging Systems.** 800-volt electrical systems will let new electric vehicles charge faster than ever before, and make EVs a convenient choice for even more drivers. In this blog, we explain what's interesting about this technology - and what vehicles and charging networks have them now.

**Level 3/DC Fast-Charger:** Uses 400- or 800-volt DC electricity to charge with output ranging from 50 to 350 kilowatts. Can charge an EV's battery from 10 to 90 percent in as little as a...

As electric vehicles become more prevalent, and more drivers use their vehicles for longer trips, it's possible that the country's public charging infrastructure will become strained. While most electric vehicles will be charged overnight on a level 2 charger for day-to-day use, an increasing number of EVs on the road, and taking road trips, could create lines at public charging stations. It's an issue that's particularly acute for EVs, as charging times still are longer than the average fill-up at a gas pump.

During holidays, we're used to seeing lines for gas at freeway rest stops, but they move quickly because a fill-up takes a couple of minutes - but we've all seen the stories about long waits at Tesla superchargers on Thanksgiving weekend. Clearly, public charging speed is still an issue - and will be an impediment to the future growth of the EV market.

One significant development that can help significantly improve charging time is the introduction of 800-volt electrical systems, which will supplant and may eventually replace the more common 400- and 450-volt systems used in most EVs. 800-volt systems bring with them a wide variety of benefits, including lower weight, higher thermal efficiency, and potentially greater range - but their biggest benefit is arguably significantly faster public charging.

800-volt systems bring many additional benefits to electric vehicles. Not needing as much copper throughout the vehicle to deliver the same performance reduces weight, which positively impacts both performance and range; higher voltage kicks off a virtuous cycle that makes EVs faster and more efficient.

The move to 800 volts requires not just the cars to be enabled, it needs charging equipment that can take advantage of that architecture. Most level 3 chargers run on 400-volt systems and can deliver from 50 to 150 kW; 800-volt chargers can deliver up to 350 kW but are still not very common. Ionity, Tritium, and Electrify America are the biggest players, with most offering at least one 350-kW charger alongside multiple 150-kW chargers in convenient locations.

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As with any other technology, the roll-out of 800-volt systems and the charging infrastructure to support them, will happen rapidly. While currently a "premium" technology, it's already spreading to more mainstream car brands, and the increased convenience that super-fast charging offers will be irresistible to the EV owners of the future.

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