




# Charger Types and Speeds

EVs can be charged using Electric Vehicle Service Equipment (EVSE) operating at different charging speeds.

	Level 1	Level 2	DC Fast Charging
<b>Connector Type</b>	J1772 connector 	J1772 connector 	CCS connector  Tesla connector 
<b>Voltage</b>	120 V AC	208 - 240 V AC	400 V - 1000 V DC
<b>Typical Power Output</b>	1 kW	7 kW	50 - 350 kW
<b>Estimated Charge Time from Empty</b>	40 - 50 hours	4 - 10 hours	20 minutes - 1 hour <sup>6</sup>
<b>Estimated Range per Hour of Charging</b>	2 - 5 miles	10 - 20 miles	180 - 240 miles
<b>Typical Locations</b>	Home	Home, Workplace, and Public	Public

## Level 1

Level 1 equipment provides charging through a common residential 120-volt (120V) AC outlet. Level 1 chargers can take 40-50+ hours to charge a BEV from 80 percent to full.

## Level 2

Level 2 equipment offers higher-rate AC charging through 240V, and is common for home, workplace, and public charging. Level 2 chargers can charge a BEV to from 80 percent to full from empty in 4-10 hours.

### Direct Current Fast Charging (DCFC)

Direct Current Fast Charging (DCFC) often referred to as Level 3, equipment offers rapid charging along heavy-traffic corridors at installed stations. DCFC equipment can charge a BEV to 80 percent in just 20 minutes to 1 hour.



For more information on charging please follow QR code below. Our DOC site has provided updated charger info and how-to videos for plugshare and charger use.



Find chargers nearby or plan your route with Plugshare

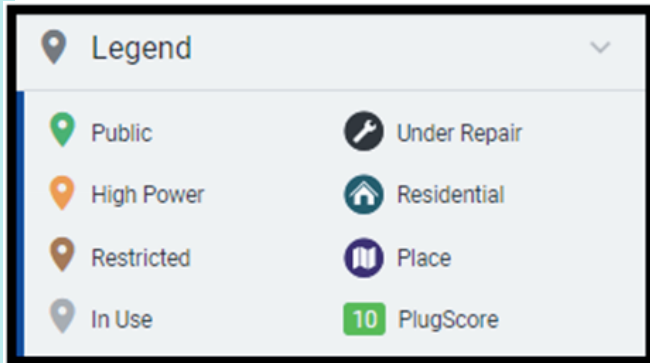


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# UNDERSTANDING EV CHARGERS AND HOW TO USE PLUGSHARE



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### Understanding the Map Icons

- Green Pin - Level 2
- Orange Pin - Level 3 50 kWh +
- Brown Pin - unavailable to public
- Wrench - charger being serviced

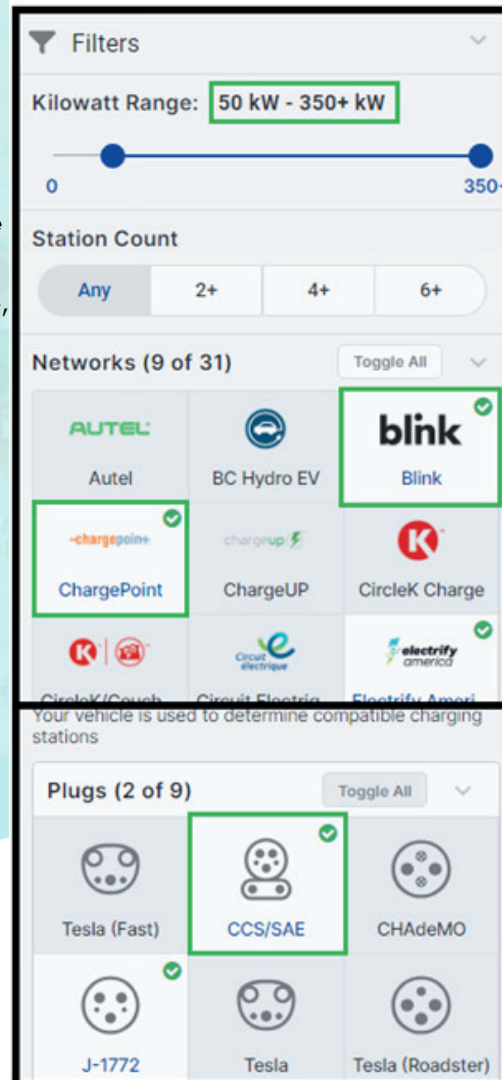
Plugshare is an app approved by IT for DOC phones

### Setting up Plugshare Filters

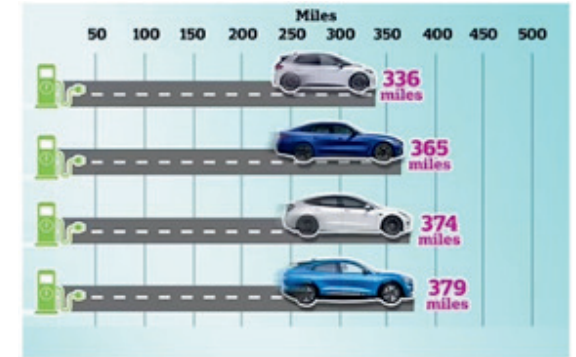
- Kilowatt Range: For longer drives where charging between locations is needed, move the bottom slider point to 50, this will only bring up Level 3 DC chargers. For trips where you will be parked for a while, leave it at zero to see all the level 2 chargers near by.
- Networks: Currently DES provides access to Shell Recharge, EVGo, and ChargePoint. Select these 3 to filter out other chargers.
- Plugs: All of our vehicles will have one of the 3 chargers
  - Tesla (all models) -- Tesla
  - Nissan Leaf -- CHAdeMO
  - Everything else -- J-1772/CCS

### Plugshare Tips

- When possible, preplan your route and find chargers near where you will be working / traveling
- Try to only fill to 80% on the road, the last 20% usually takes longer, which will cause delays in travel
- Click on the map icons, charger use, location, notes and status are in the pop up
- In an emergency, don't let yourself end up stuck. Change Networks to all, and find the nearest charger (do not change your plug type) - DES / DOC will reimburse any out of pocket charging fees



## Tips for maximizing your range while driving



1. Gentle acceleration: If your vehicle has an eco-mode, select it for a more gentle acceleration setting.
2. Watch your speed: The calculations for range on most BEV are done at 60 mph, just like an ICE vehicle, higher speeds will reduce battery range.
3. Use regenerative braking/One-pedal driving: this feature uses the momentum of the vehicle to provide small doses of charge, extending the range, every time you lift your foot off the "gas" pedal.
4. Understand AC/Heater draws: Warm up or cool down the vehicle while charging. Use heated or cooled seats over the AC/Heater system.
5. Plan your route accordingly. Just like ICE vehicles, how and where you drive will affect range. Constant stop and go, large hills, inclement weather, heavier loads - all these will affect the over all range of a BEV.