

Charging Basics

THREE DIFFERENT TYPES OF STATIONS OFFER VARYING LEVELS OF CHARGING SPEED

The level of electrical power a charging station draws and provides determines how fast it will charge an electric vehicle. Levels of power provided by charging stations include:

- Level 1: 120 volts (AC)
- Level 2: 240 volts (AC)
- Fast Charging: 50-350 kW (DC)

As the amount of power a charging station draws and provides increases, charging gets faster (Table 1).

FAST CHARGING STATIONS

Direct current (DC) fast chargers significantly decrease charging time compared to Level 1 or Level 2 charging. Currently about 2,200 fast chargers exist in the US. Fast charger output is available at 50, 150 or 350 kilowatts (kW). The majority are 50 kW chargers, which provide an 80 percent charge in 30 minutes. 150 kW chargers provide the same amount of charge in ten minutes, while 350 kW take seven minutes.

TABLE 1. ELECTRIC VEHICLE CHARGING STATION SPEED COMPARISON

TYPE OF STATION	SPEED OF CHARGE (MILES PER MINUTE)	EST. PER INSTALLED STATION COST (USD)	MINUTES OF CHARGE TO DRIVE 100 MILES
Level 1 120 Volt (AC)	0.1	\$500 - \$1,000	1080 (18 hours)
Level 2 240 Volt (AC)	0.4	\$2,000 - \$5,000	240 (4 hours)
50 kW (DC)	2.9	\$60,000 to \$100,000	35
150 kW (DC)	8.7	\$100,000 to \$150,000	12
350 kW (DC)	20.4*	\$150,000 and up	5