

3E ENTERPRISES GROUP (3eEnterprisesgroup.com) – EV Charger Type & Performance Analysis (12-2021)

CHARGER TYPE	VOLTAGE	AMPS	CHARGING LOADS	MILES OF RANGE per HOUR of CHARGE	WHERE TO CHARGE	ESTIMATED INSTALLED COST RANGE*
AC Level 1	120V, 1-Phase AC	12-16A (20A breaker)	1.4 – 1.9kW	4-6 miles/hour	At home or remote	\$ 0 - \$450
AC Level 2	208V or 240V, 1-Phase AC	12-80A (Typically 32A with 40A breaker)	3.3kW (low) @ 20A	8-12 miles/hour (2-3m/15min)	At home, workplace, private or public charging station	\$400 - \$4,500
			7.6kW (med) @ 40A <i>(Typical)</i>	16-24 miles/hour (4-6m/15min)		
			9.6kW (high) @ 50A	32-48 miles/hour (8-12m/15min)		
			19.2kW (highest) @ 100A	> 60 miles/hour (15m/15min)		
DC Fast Charge I 50kW DC	208 or 480V, 3-Phase AC	< 125A (Typically, 100A)	50kW	170 miles/hour** (42m/15min)	At workplace, private or public charging stations	\$ 45,000 - \$100,000
DC Fast Charge II 150kW		500A	150kW	500 miles/hour** (125m/15min)		\$100,000 - \$150,000
DC Fast Charge III 300kW		500A	350kW	1200 miles/hour** (300m/15min)		\$150,000- \$225,000

* Note, installed costs depends on the current grid supply and electrical panel design. The application may require updated or additional electrical panel work which may require additional costs.

** DC Fast Chargers (DCFC) have been designed to recharge an EV battery in the expected 15 minute “refueling” time, duplicating the timeframe to refuel and internal combustion engine (ICE) vehicle to reach up to 300 miles of range in 15 minutes. Note, many vehicles are not designed to accept this high a recharge rate at this time and may decrease the cycle life of the EV battery. The vehicles onboard software may slow down the charge rate to maintain battery temperature and life, and you may experience lower charging rates.