



## **Electric vehicles and charging: An overview for new EV owners**

Considering purchasing an electric vehicle? It's time plan how you will charge it.

### **Electric Vehicles can charge in several ways:**

**AC Level I** –“Wall plug” charging, equivalent to running a hair dryer (120V)

- Recharges roughly 5 miles of driving for each hour plugged in.

**AC Level II** – Standardized electric car plug, equivalent to a clothes dryer (240V)

- Recharges roughly 25–50 miles recharged for each hour plugged in.

**DC Fast Charging** – Electric car charging unit, uses direct current (DC)

- This option charges rapidly – roughly 100 miles for each hour.
- Use will likely be limited to gas stations, city centers, etc.



**What's the energy cost?** Electricity costs of driving a plug-in hybrid or electric vehicle is roughly \$0.03/mile. 10,000 miles annually uses 3,000 kWh. This costs about \$25/month, or about 75% less than using gasoline.

**How long does it take to fill up each day? It depends!** Electric cars and plug-in hybrid cars are typically charged on a daily basis and therefore often start charging when they are partly full. For example: if you fueled your gasoline car daily, you might need 1 gallon each evening. Similarly, a plug-in car battery may be full in just a few hours from a wall plug. On the other hand, if daily driving results in an empty battery every day you might want to install a Level II charger for faster recharging. A Level II charger refills 50+ miles in just 2 hours!

### **What to expect as you plan to charge your new plug-in vehicle:**

#### **AC LEVEL I CHARGING – 120V 15 amp or 20 amp dedicated circuit - standard wall plug**

- You can charge most electric vehicles and plug-in hybrid vehicles using a standard wall plug.
- You should **ensure that there are no other major appliances plugged in on that same electrical circuit**. For instance, if you have a fridge or freezer and electric garage door opener in your garage, your electric car might cause the circuit breaker to trip without you noticing. Nobody wants to wake up to an empty car battery and melted ice cream!
- **Recommendation: Have an electrician check your home** to find a circuit that will support your electric car. You may need to have an additional wall plug installed.
- **If you live in multi-family housing**, work with the property managers to evaluate feasibility.

#### **AC LEVEL II CHARGING – 240V 40 amp circuit - specialized EV plug – “EVSE”**

- All automakers use the same standardized plug type (SAE 1772 plug)
- Your vehicle manufacturer may offer a Level II charger (example at right).
- Level II chargers refill your all-electric or plug-in hybrid vehicle faster.
- Level II is optional for plug-in hybrid owners who want faster charging.
- If installing a Level II charger, you will need to hire a licensed electrician.
- If your garage does not already have 240V 40A power, there will be a cost associated with adding a circuit to your home to feed the Level II charger.
- After installation, your charger will need an electrical inspection that will be arranged by your electrician.



**ALSO:** Visit the Garfield Clean Energy EV page: <http://www.garfieldcleanenergy.org/trans-EV.html>

Check out the Colorado Clean Cities EV page: <http://www.electricridecolorado.com>

For more information, contact CLEER: [info@cleanenergyeconomy.net](mailto:info@cleanenergyeconomy.net) or call (970) 704-9200