Xcel Energy Electric Vehicle Frequently Asked Questions

Vehicles

Charging

1. **How does Xcel Energy support electric vehicles?**
   Xcel Energy is pleased to provide electric vehicle drivers with access to safe, clean, reliable energy services at a competitive price for homes, businesses, and now for electric vehicles. More specifically, Xcel Energy is planning for the increased adoption of electric vehicles when it comes to customer solutions, market policies, and managing the electric system. Xcel Energy EV experts are happy to answer most of your electric vehicle questions at RepoweringTransportation@XcelEnergy.com. Additionally, to help support the development of the market members of the Xcel Energy Repowering Transportation team are actively involved with local collaborative organizations like Drive Electric Minnesota and Colorado Electric Vehicle Coalition. When it comes to continuing Xcel Energy's operational excellence with reliable and affordable energy, studies have suggested that for the foreseeable future there is no need to build more power plants to meet the needs of electric vehicles. Still the Company is continuously researching and trialing new technologies to make the most of the opportunities from electric transportation.

   For even more information, you might be interested in the Electric Vehicle Charging Pilot (2014), Assessment of leading electric vehicle promotion activities in United States cities (2015), Drive Electric Minnesota, and Refuel Colorado.

2. **How does a plug-in electric vehicle work?**
   A plug-in electric vehicle is a vehicle that can be plugged into an electrical outlet or charging device to recharge its battery. There are two types: battery electric vehicles, which run only on electricity, and plug-in hybrids, which run mainly or solely on electricity until the batteries are depleted and then are powered by an internal combustion engine.

3. **How does paying for kilowatt-hours compare to buying gasoline?**
   The U.S. Energy Department has created a website to determine an eGallon, or the cost of fueling a vehicle with electricity compared to a similar vehicle that runs on gasoline. In Xcel Energy territories the standard cost of electricity for driving is about $1 per gasoline gallon equivalent, but vehicles charged on Xcel Energy's off-peak rates can be refueled for less than $0.75 per gallon equivalent.

   EVs are nearly three times as energy efficient as gasoline vehicles. According to the Environmental Protection Agency, EVs will travel roughly three miles per kilowatt-hour. This means driving an EV is like getting $0.75/gal gasoline in a 25 MPG vehicle.

   Xcel Energy's Rate Advisor can help narrow down your rate options for your home and electric vehicle.

4. **How much electricity does an electric vehicle use?**
Like a conventional vehicle, MPG and total gasoline use varies with the vehicle and driving habits. However, generally speaking, an electric vehicle efficiently drives about 3 miles on 1 kWh. A "typical" EV driver that travels about 10,800 miles a year would use about 300 kWh per month.

5. **How do I charge an EV?**
Charging and fueling electric vehicles is different than using gasoline, but it is still easy and achievable.
   - Almost all EV drivers get a mobile charging adapter that plugs in to a common 120 V outlet. Others may choose to install fixed charging equipment at their home or work.
   - Most electric vehicle drivers are charged at home; convenience is a key advantage to electric vehicles. The workplace is the second most popular place to charge.

   Most EV drivers purchase a mobile cord-set that stays with the car to plug in anywhere (but mostly at home). With the cord-set, EVs can be charged with a conventional household outlet which can work nicely for people with a roundtrip commute of less than 50 miles per day. A faster charge can be obtained by upgrading your home to a 240 V Level 2 charging station. Talk to your car dealer for details regarding charging needs for your specific vehicle. Consult with a qualified electrician regarding any upgrades to your electric equipment. Contact Xcel Energy if you are seeking to install any chargers with electric demand of more than 5 kW.

6. **How long does it take to charge?**
The true answer is: It depends. But, this table provides a general summary of charging options.

Charging Type	**Level I & Mobile Adapters**	**Level II**	**Fast Charging**
Charging Time	6–16 hours	4–8 hours	.5–4 hours
Charging Rate	2–5 miles of range per hour	10–20 miles of range per hour	50–200 miles of range per hour
Installation	120 V Outlet (Common outlet for most use)	240 V Outlet (Like an electric clothes dryer)	Dedicated wiring and breaker is required
Power Demand	Up to 3.3 kW	Up to 7.2 kW	20 kW to 175 kW

7. **What is the difference between Level 1 and Level 2 charging?**
Level 1 charging would be accomplished by simply plugging the 120 V cord-set that comes with most new plug-in vehicles directly into the outlet in your garage. Provided that you don't have another appliance plugged into this circuit (like a refrigerator), this can be a very effective and economical way to keep your vehicle charged. Level 1 charging can add approximately five miles of range per hour of charge – or roughly 60 miles of recharge each night. No separate charging station is required and it avoids the expense of a dedicated 240 V circuit.

   Level 2 charging requires a dedicated 240 V circuit and Level 2 Electric Vehicle Supply Equipment (EVSE). Charging at Level 2 can add roughly 12 to 25 miles of range per hour (or higher depending on the car). While the faster recharge time may be more desirable, in some instances, a panel upgrade (from a local electrician) and service upgrade (from Xcel Energy) may be required. Please consult a licensed electrician to determine if your existing panel can accommodate Level 2 EVSE.

8. **Who do I contact to set up a charging station for my car?**
Work with your electrical contractor to evaluate your home's wiring, electrical outlets and other hardware that can

support the charging requirements of your new electric vehicle. Contact Xcel Energy if you have any questions about fast charging, metering, and rate options.

Please Note: Xcel Energy can only perform work outside the home at your meter/electrical panel location to enable the necessary utility service to the house.

9. **What does it cost to get plug-in ready?**
Total cost varies depending on current electrical design, local code requirements, the rate and charging options you choose and other factors. Potential costs include the following:

Charging equipment installation: This cost can be provided by your licensed electrical contractor.

Second electrical meter installation: You'll need to budget for the installation of a second electrical meter and service panel if you decide to switch to Xcel Energy's EV pricing plan. This allows your home's electric load to be measured on the existing meter while a second meter and dedicated breaker is used to measure your electric vehicle's energy usage. There is no up-front cost for the meter. But there is likely a cost for an electrician to install the equipment to house the meter.

Electrical panel upgrade: This applies to customers who choose the faster charging Level 2 option, which uses 208 to 240 volts. This adds significant load to your electrical panel, resulting in an electrical panel upgrade. The upgrade cost can be provided by a licensed electrical contractor.

Utility service upgrade: A service upgrade may be required for residential chargers above 5 kW. Furthermore, your home may require utility electrical system upgrades in order to charge the vehicle and/or accommodate a second meter. This cost can be determined by Xcel Energy after an assessment.

Rocky Mountain Institute's Pulling Back the Veil on EV Charging Station Costs provides more information about charging costs at different locations

10. **How do I charge my electric vehicle when I'm not at home? Where else can I charge it?**
If your vehicle is capable of charging at 120 volts, you will be able to plug your vehicle into any standard outlet for charging while away from home (assuming you can get permission to plug your vehicle from the outlet owner).

Plug-in hybrid electric vehicles have gasoline engines, so you can always buy gasoline as you ordinarily do to extend the range of your vehicle.

With battery electric vehicles, to avoid inconveniences you will want to fully charge your vehicle before you leave home, especially if the round trip you are taking is close to the range of the vehicle. If the trip is longer than the range of the vehicle you will need to plan where you will be able to recharge your vehicle. PlugShare has a free, interactive map of public charging stations across the country.

11. **Are electric vehicles going to cause grid stability issues?**
It is not anticipated that electric vehicles will cause a need for new generation in the foreseeable future. Similarly, there aren't likely to be regional issues due to electric vehicles. But, there may be issues at the local level if a handful of neighbors all charge their electric vehicles during distribution peak times with high demand chargers. Xcel Energy is evaluating these situations in order to continue to provide safe, reliable service.

12. **What rate options do I have for charging my electric vehicle?**
In some states, customers have the option of charging their electric vehicle on the Flat Rate, the Time of Use Rate or the EV Rate. On the Flat Rate, your energy usage is billed at the standard price offered to all Xcel Energy customers, which is a good option if you prefer to charge your EV mid-day. On the Time of Use Rate, your entire home's energy usage, including your EV, pays less during off-peak hours and more during on-peak hours, a good

option if you are able to shift your home usage to off-peak times. The EV Rate applies only to your electric vehicle, and offers a low off-peak rate for electric vehicle charging only. To see what rate options are available for you, visit our Rate Advisor Tool or call Xcel Energy at 1-800-895-4999. We can help you confirm which rate plans are available, and which will work best for you.

13. **What is the DOE Work Place Charging Challenge?**
    The U.S. Department of Energy's Workplace Charging Challenge began in early 2013 and according to the DOE, has about 150 (businesses/universities/organizations) partners. They're working within their communities to accelerate the development of worksite PEV charging infrastructure, while supporting cleaner, more convenient transportation options.

    Please view the DOE's Progress Update and Xcel Energy's partner page for more information.