

## Electric Vehicles

### 1. What is an electric vehicle?

There are two most common types of electric vehicles (EVs): **Battery electric vehicles (BEV)** that run exclusively on electricity, and **plug-in hybrid electric vehicles (PHEV)** that can run on electricity for a limited distance before switching to gas/electric hybrid mode or recharging the batteries.



### 2. What are the benefits of electric vehicles?

EVs use far **less energy** than gasoline-powered cars, generally cost about a third as much to fuel, typically have lower maintenance costs, and, most importantly, BEVs have no tailpipe emissions.

### 3. How many EVs are there in Michigan?

Through May 2017, there were approximately **13,000 EVs** owned in Michigan. The vast majority are clustered in southeast Michigan.

### 4. How do you charge an EV?

EVs are charged by **connecting them to a charger that is hooked up to the electric grid**. Charging can occur via charging stations at home, at work, or in public.



### 5. What are the different type of chargers?

**Level 1** is a 120-volt charger that can charge a plug-in hybrid or extended-range electric vehicle overnight, but would take more than 24 hours to charge an electric-only vehicle. They will usually be built into the vehicle and can be used for "opportunity charging" when another type of charger isn't available.

**Level 2** is a 240-volt charger, which most electric-car owners will purchase to charge their cars overnight at home. A Level 2 charger can charge a pure electric car in 8 to 10 hours.

**Level 3** is known as DC fast charging. These chargers primarily provide direct current at up to 500 volts. Level 3 chargers will be installed in public places and can provide an 80 percent charge to a full electric car in under a half hour.

### 6. How many public charging stations are there in Michigan?

There are **327 publicly available charging sites** in Michigan. There is a public charging station at the Michigan Public Service Commission office, **7109 W. Saginaw Hwy., Lansing**.



### 7. What is range anxiety? What can be done to address it?

**Range anxiety is the fear that an electric vehicle will run out of battery power before it reaches its destination.** The main strategies to alleviate range anxiety are the increased deployment of charging infrastructure, battery research and development, consumer education, and use of optimizing navigation software.

## 8. Who is responsible for building charging stations?

The answer is unclear and debatable. **No one party has the responsibility.** However, automakers, power companies, third-party charging companies, and federal, state and local governments all have a vested interest in electric-vehicle infrastructure.

## 9. Who pays for the construction of charging stations?

There is not national consensus on who pays for the construction of charging station infrastructure. There are many different financing options. **A workable business model for charging stations is still developing.** Stations are being built by automakers, government, private businesses and utilities.

## 10. Why is the Michigan Public Service Commission (MPSC) examining this issue?

EV regulation is an emerging policy issue and involves a number of different state agencies. The Agency for Energy, the Department of Environmental Quality, the Department of Licensing and Regulatory Affairs, the Secretary of State, and the Department of Transportation will all have input on EV matters.

EVs draw their energy from the electric grid, and present many opportunities and challenges for the electric system. **The MPSC is the primary state agency for regulation of electric utilities.** In Consumers Energy's last electric rate case before the MPSC, the company requested to use ratepayer money to build charging stations. Ultimately, the company withdrew the request, but the Commission recognized that the issue would come up in subsequent rate cases and decided to examine the issue in depth.

## 11. What steps has the MPSC taken so far?

In August 2017, the MPSC held a **technical conference on electric vehicles.** Panelists discussed the current state of EV technology and infrastructure, the opportunities for and barriers to EVs in the marketplace, and the role of regulation and government in creating effective public policy. After the conference, staff further examined EV issues. The MPSC issued an [order](#) on October 25, 2017 seeking additional information about potential EV pilot programs. Comments were submitted by various stakeholders.

## 12. What are the next steps?

In an order issued December 20, 2017, the MPSC indicated it will host a **second collaborative EV technical conference** and is soliciting stakeholder comments and proposals for pilots. The Center for Automotive Research in Ann Arbor will moderate the public event at the MPSC's Lansing offices in February 2018. The technical conference will focus on the presentation and discussion of four to five selected, fully-developed targeted EV pilot programs for regulated utilities.

**The MPSC is also looking for comments** to address one or more of the following subjects: customer education, rate design and smart charging, grid impact, and deployment of PEV infrastructure. All comments are due by January 13, 2018.

For more information, visit:

[www.michigan.gov/mpsc](http://www.michigan.gov/mpsc)

Case No. [U-18368](#) - Plug-in Electric Vehicles

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