

ELECTRIC VEHICLE

MYTH BUSTERS

Some common myths about electric vehicles (EVs), busted.

MYTH

EVs are more expensive than gas-powered vehicles.

FACT

Over their lifetime, EVs cost less to own and operate than comparable gas cars.

- The upfront cost is dropping for all EVs and state and federal incentives exist to offset purchase costs.
- Oregon residents and businesses are eligible for a rebate of \$2,500 - \$7,500 for the purchase or lease of a new EV through the DEQ's Clean Vehicle Rebate Program.
- Federal incentives of up to \$7,500 are available for most battery and plug-in hybrid EVs.
- EVs cost less to operate due to lower fuel and maintenance costs. One federal study found that EV drivers save between \$700 and \$1,600 a year in fuel and 46% in annual maintenance costs compared to gas powered cars.

Sources:

- [Energy.gov](https://www.energy.gov)
- [Union of Concerned Scientists 2017 Report, "Going from Pump to Plug: Adding up the Savings from Electric Vehicles"](#)

MYTH

EVs are worse for the environment than gas-powered vehicles.

FACT

EVs have a smaller lifetime carbon footprint than gasoline cars, even when accounting for the electricity used for charging and battery manufacturing.

- EVs have no tailpipe emissions, but generating the electricity used to charge EVs does create greenhouse gas (GHG) emissions, the amount of which varies based on how electricity is generated.
- Oregon utilities, on average, generate electricity through majority renewable resources (e.g., hydroelectric and wind) and are adding more renewables to the grid each year.
- In addition, electric motors are more than three times as efficient as combustion engines, so they use less fuel to do the same amount of work.
- These two factors combined – a high percentage of renewables supplying the electric grid and more efficient motors – mean that no matter where you charge an electric vehicle in Oregon, the overall GHG emissions are lower than a gasoline vehicle.
- Some studies have shown that manufacturing a typical EV can create more GHG emissions than manufacturing a gas car, largely due to battery manufacturing.
- However, after about one year of use – depending on the car and make up of the electric grid – the GHG emissions of a gas-powered car outpace those extra emissions associated with an EV battery.
- Recycling batteries can reduce lifecycle GHG emissions by reducing the need for new battery materials.

Sources:

- Oregon Department of Energy's [2021 Biennial Zero Emission Vehicle Report](#)
- The [International Council on Clean Transportation \(ICCT\)'s July 2021 Study, "A Global Comparison of the Lifecycle Greenhouse Gas Emissions of Combustion Engine and Electric Passenger Cars"](#)

MYTH

The electrical grid cannot handle the increased demand created by EVs.

FACT

The U.S. can add millions of EVs to the power grid without having to build new power plants.

- The shift to EVs is happening gradually, over many years. Electric utilities will evolve to incorporate changes to how electricity is generated, stored and used, including by adoption of EVs and integration of renewables.
- The increased demand from EVs is comparable to the rates of historic annualized load growth, both when it comes to peak demand and total energy consumption. The electric industry has successfully managed this growth for many decades.
- Oregon utilities are planning for new load from EVs and upgrading local distribution systems to manage it. In support, ODOT works with ODOE to share data on EVs to help utilities with their distribution planning.
- Most EVs will charge during off-peak hours (like overnight) when power demand is low.
- EVs can help balance loads and improve the resiliency of our nation's electricity infrastructure.

Sources:

- U.S. DOE's [National Renewable Energy Lab](#)
- [Synapse Energy's 2019 Report, "Electric Vehicles are Driving Rates Down"](#)

MYTH:

Public EV chargers are sparse, and those that do exist are unreliable and inconvenient.

FACT:

There are nearly 100,000 public charging ports available in the U.S., and 1,759 available in Oregon, with more coming every year.

- Most people can meet their driving needs by charging their EVs at home or at work.
- For ODOT staff, fleet vehicle charging will typically happen overnight at an ODOT facility.
- ODOT has 27 charging stations at 7 locations throughout the state to manage the charging of fleet vehicles.
- Eighteen additional stations are planned in the coming year, including at ODOT facilities in eastern Oregon.
- EV drivers can find public charging along highways, at retail locations or public parking facilities, with a growing number available every year.
- Mobile apps like Plugshare provide locations for public charging stations in all 50 states.
- In Oregon, ODOT has committed more than \$100 million over the next five years to increase public charging along major roads and in Oregon communities.

Sources:

- [Alternative Fuel Data Center Station Locator Map](#)
- Oregon's Five-Year EV Charging Infrastructure Roadmap: <https://www.oregon.gov/odot/climate/Pages/NEVI.aspx>

MYTH

EV batteries only last a few years and eventually end up in landfills.

FACT:

Most EV manufacturers offer battery warranties for at least 8 years, or 100,000 miles, but many expect they will last longer or even outlive the car itself.

- EVs have effective power management systems that guard the long-term health of their batteries.
- Recent data from Tesla drivers showed <10% degradation of the energy capacity after >160,000 miles driven.
- EV battery technology is still evolving and as the technology develops, battery lifespans will increase.
- Once depleted, EV batteries can be recycled or given a second life in non-vehicle applications, such as an energy storage unit for homes or businesses.
- Battery recycling infrastructure for modern EV batteries is advancing rapidly, and just got an infusion of funding from the federal government.
- Today, 99% of the lead-acid batteries in gas-powered cars are recycled. Experts expect EV batteries, which contain metals that are far more valuable and recyclable, will be recycled at a similar rate.

Sources:

- The Atlantic, ["When Does the Clean Energy Infinity Loop Start?"](#)
- National Grid, ["What Happens to Old Electric Car Batteries?"](#)

MYTH:

EVs can run out of power when you are stuck in traffic.

FACT:

EVs use very little power when they are not moving and their energy will last longer than a gas-powered car.

- The electric motor in an EV does not consume power when the car is stationary. Rather, only the car electronics and climate settings are drawing from the battery. Both amounts are small.
- A typical EV with a full battery could likely run its climate settings and electronics for at least a day.

Sources:

- Greencars.com, ["Common EV Myths and Misconceptions"](#)

MYTH:

EVs do not have enough range to handle daily travel demands.

FACT:

EV range is more than enough for typical daily use in the U.S.

- A typical U.S. household's average daily travel is 50 miles per day.
- For ODOT vehicles, the daily average of miles driven is 29 miles per day.
- Many new EV models go above 200 miles on a fully-charged battery, and nearly all new models can travel more than 100 miles on a single charge.
- Long-range EVs will be increasingly available as technology continues to improve over the next several years.

Source:

- U.S. DOT FHWA's [2017 National Household Travel Survey](#)

Contact

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