

Myths and Trends: Electric Vehicles (EV)

Resilient and Sustainable Communities League



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Myth: EVs have a limited range

- According to the Department of Energy (DOE), the maximum range for MY 2023 EVs is **516 miles** and median range for MY 2023 EVs is **276 miles**.
- EV range is more than enough for **typical daily use** in the U.S.
- DOE's Vehicle Technology Office (VTO) Batteries, Charging, and EVs program aims to research **new battery chemistry and cell technologies** that can:
 - Decrease charge time to 15 minutes or less.
 - Increase range of PEVs to 300 miles



Sources:

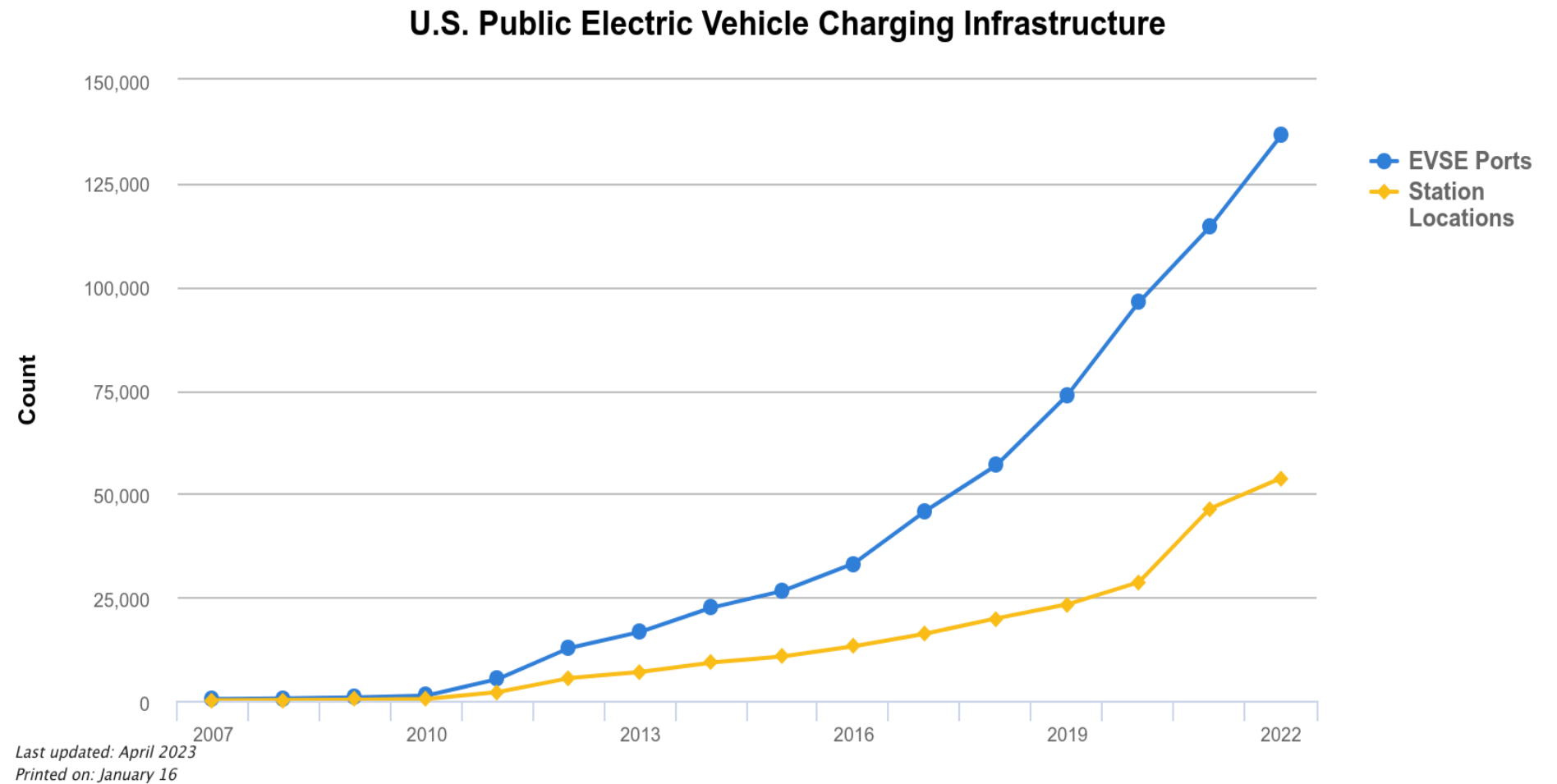
DOE Batteries, Charging, and Electric Vehicles <https://www.energy.gov/eere/vehicles/batteries-charging-and-electric-vehicles>,

EPA Electric Vehicle Myths [Electric Vehicle Myths | US EPA](https://www.epa.gov/electric-vehicle-myths)

DOE 2023 Fuel Economy Guide <https://fuel economy.gov/feg/pdfs/guides/FEG2023.pdf>

Myth: EVs take too long to charge and there is nowhere to charge

- Many people can meet their driving needs by **plugging in only at home**.
- Direct current fast charging (DCFC) is the fastest type of charging available and can **charge an EV at a rate of 60 to 80 miles of range per 20 minutes** of charging
- EV **infrastructure availability continues to grow**, and consumers can access available stations on the [Alternative Fuels Data Center Station Locator](https://afdc.energy.gov/stations/states)



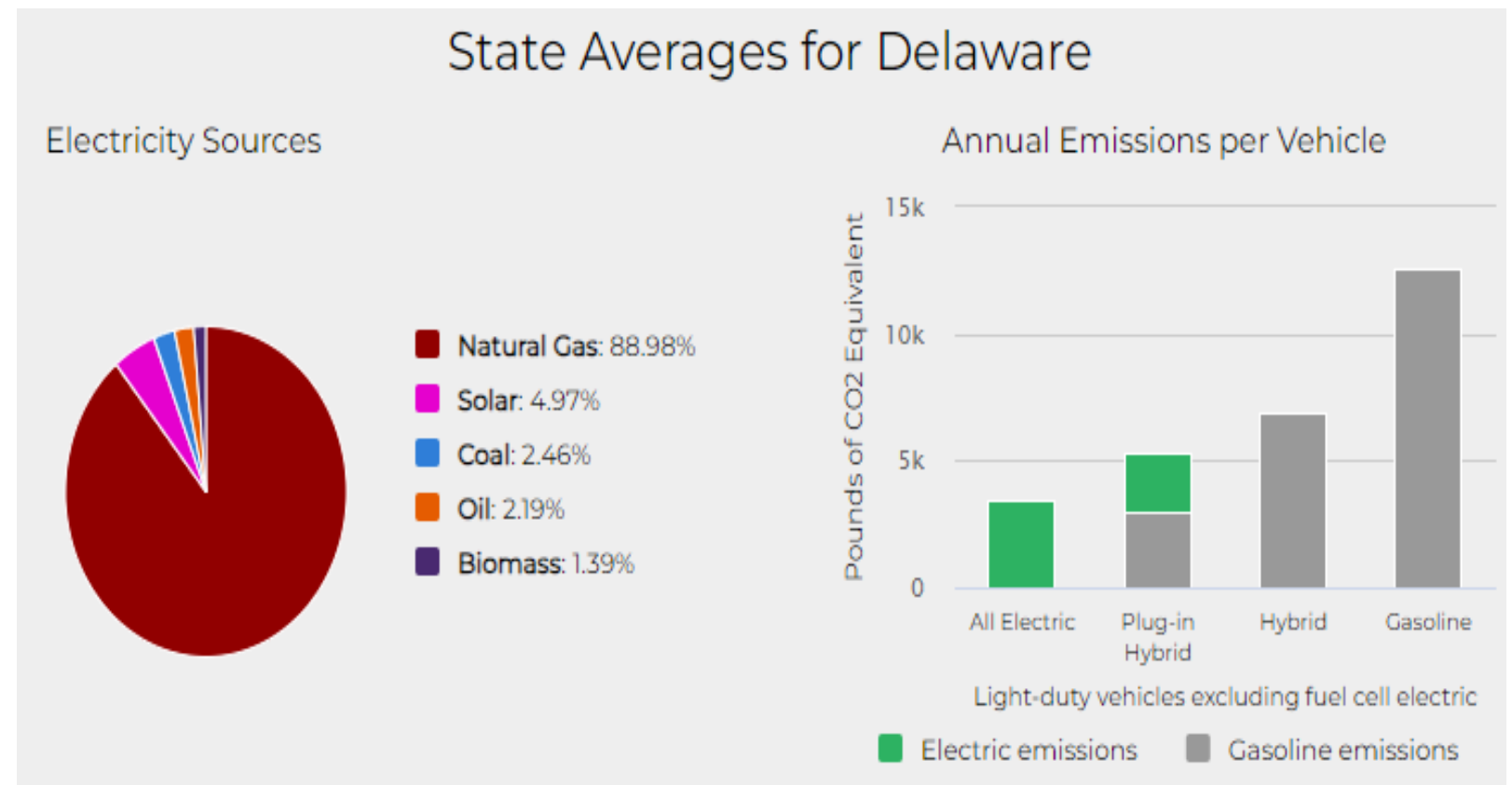
Sources:

Alternative Fuel Data Center, EV Infrastructure https://afdc.energy.gov/fuels/electricity_infrastructure.html

Alternative Fuel Data Center, Stations by State <https://afdc.energy.gov/stations/states>

Myth: EVs are just as bad for environment as gas-powered vehicles

- Based on Delaware's electricity sources **annual emissions for HEVs, PHEV, and EVs are lower than gasoline vehicles**:
 - Gasoline vehicles: 12,594 pounds of CO2 equivalent
 - HEV: 6,898 pounds of CO2 equivalent
 - PHEV: 5,266 pounds of CO2 equivalent
 - EV: 3,479 pounds of CO2 equivalent
- The **greenhouse gas emissions** associated with an EV over its lifetime are **typically lower** than those from an average gasoline-powered vehicle, even when accounting for manufacturing
- EVs typically have a **smaller carbon footprint than gasoline cars**, even when accounting for the electricity used for charging



Sources:

Alternative Fuel Data Center https://afdc.energy.gov/vehicles/electric_emissions.html

EPA Electric Vehicle Myths <https://www.epa.gov/greenvehicles/electric-vehicle-myths>

Myth: The electric grid cannot handle the increased demand created by EVs

- Managed charging strategies can **prevent overloading the grid** and may support grid reliability
- EV charging that takes place at home can be completed overnight **when other peak demand is low**
- **Vehicle-to-grid technologies** make it possible for EVs to act as grid back up during weather events
- ENERGY STAR certified EV chargers use **40% less energy in standby mode** than standard equipment



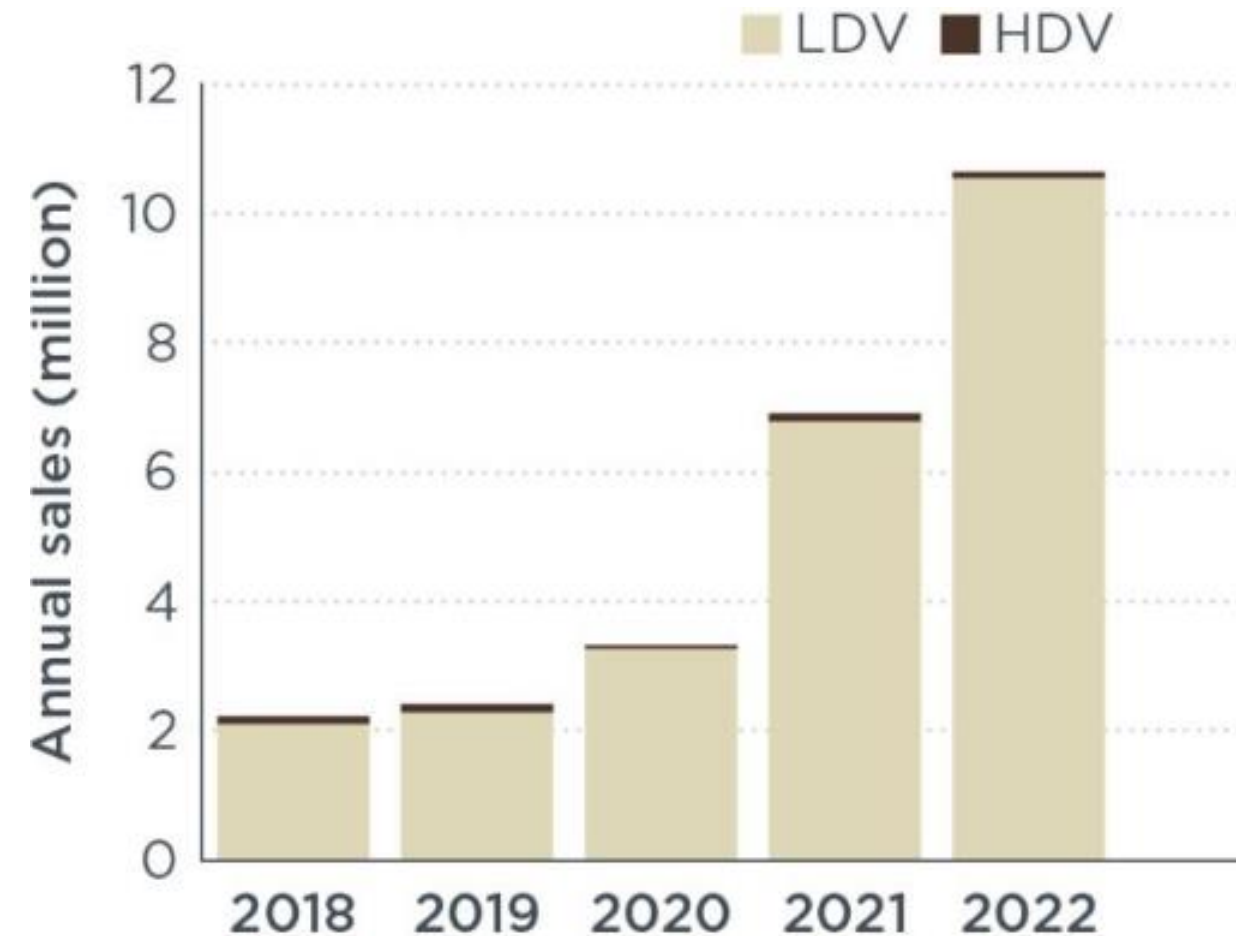
Sources:

EPA Electric Vehicle Myths <https://www.epa.gov/greenvehicles/electric-vehicle-myths>

EPA ENERGY STAR https://www.energystar.gov/products/ev_chargers

Trends and Looking Ahead

- Increased federal spending across the board:
 - 7.5 million in Bipartisan Infrastructure Law for network of national EV charging stations-500k ports
 - Federal tax credits for commercial and private EVs
 - Research and development for battery technologies
- Potential increases in battery range from the development of solid state batteries (SSB)
- Consistent growth in offerings from vehicle manufacturers
- Investment in U.S. manufacturing of EV products due to Build America, Buy America
- Annual increase in EV sales globally
- Emergence of EV medium- and heavy-duty market



Source: Annual Update on the Global Transition to Electric Vehicles: 2022, International Council on Clean Transportation, June 2023 (<https://theicct.org/publication/global-transition-electric-vehicles-update-jun23/>)

Thank you!

Feel free to follow-up for data and information from today with the Technical Response Service at technicalresponse@icf.com