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## Electric Vehicle (EV) Obstacles

These obstacles could slow the adoption and rise of EVs. Advancements are in progress in several areas to open up new possibilities.

01



### Unacceptable driving ranges

Most driving ranges fall short of consumer's expectations of 245-300 miles, or even on shorter trips using electronics, before battery needs charging.

02



### Lightweighting EVs

Design-to-cost strategies need to be implemented by increasing design efficiency and reducing manufacturing costs.

03



### Recharging times

Could take 30 minutes to 12 hours at a charging station. Charging times depend on battery pack sizes, vehicle acceptance rate, and charging stations max output rate.

04



### Powertrain optimization

Motor efficiency, power supply, energy consumption, and power electronics all affect performance, efficiency, and cost of EVs.

05



### Battery performance

Technology is slow to advance due to problems with materials, storage capacity, thermal properties, safety, environmental concerns, and producing batteries at scale.

06



### Consumer appeal has dropped

Higher EV pricing, low gas prices, loss of consumer interest in fuel efficiency, and end of tax credits has limited the appeal to switching to EVs.

07



### Vehicle connectivity

Challenges exist in accountability for generating energy and tracking production and usage.

08



### Need more education on EVs

Many consumers don't understand the difference between an EV and a hybrid, the advantages of EVs, and what car manufacturers really offer.

#### SOURCES

Summary of Gartner Report: What a CIO Needs to Know About the Rise of Electric Vehicles  
<https://www.gartner.com/doc/3895006/cio-needs-know-rise-electric>

EIA Energy Conference

[https://www.eia.gov/conference/2017/pdf/presentations/alexander\\_edwards.pdf](https://www.eia.gov/conference/2017/pdf/presentations/alexander_edwards.pdf)

[https://www.eia.gov/conference/2017/pdf/presentations/rebecca\\_lindland.pdf](https://www.eia.gov/conference/2017/pdf/presentations/rebecca_lindland.pdf)

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