

# Electric Cars



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March 7, 2023

# Let's Discuss...

- Driving, performance, and range
- Batteries, charging, and maintenance
- Costs, tax credits, environmental impacts, and the power grid

# Driving and Performance



# Regenerative Braking



# Range



# Battery Charging

## **In your garage**

240V: Overnight. Costs \$.03 to \$.05 per mile (SMUD off-peak rate).

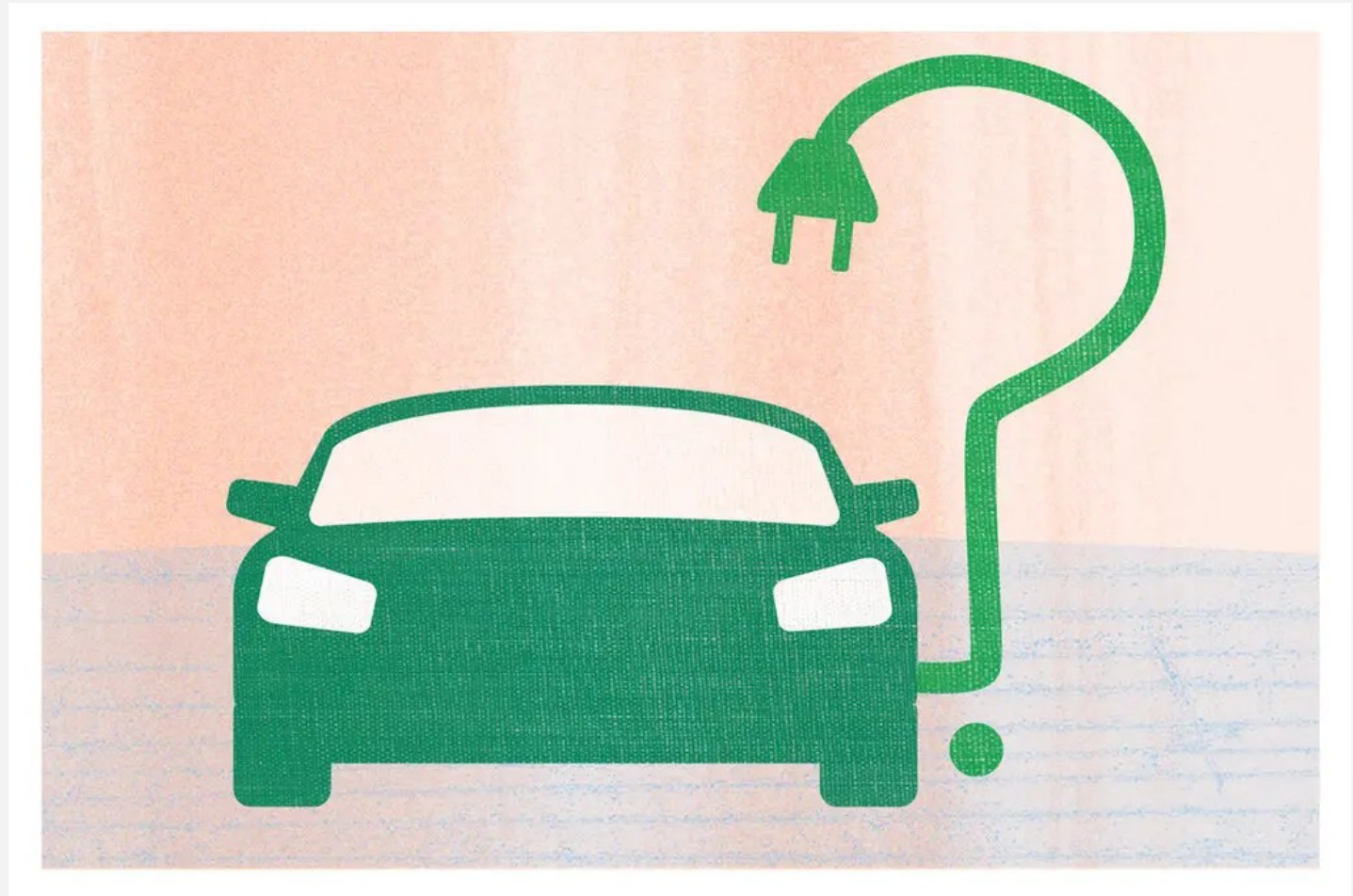
**At a destination charger** (hotel, shopping mall, parking garage)

240V: Free to \$.08 per mile.

## **On the road**

480V Fast DC: Charge in minutes. Costs \$.08 to \$.15 per mile.

# Questions?

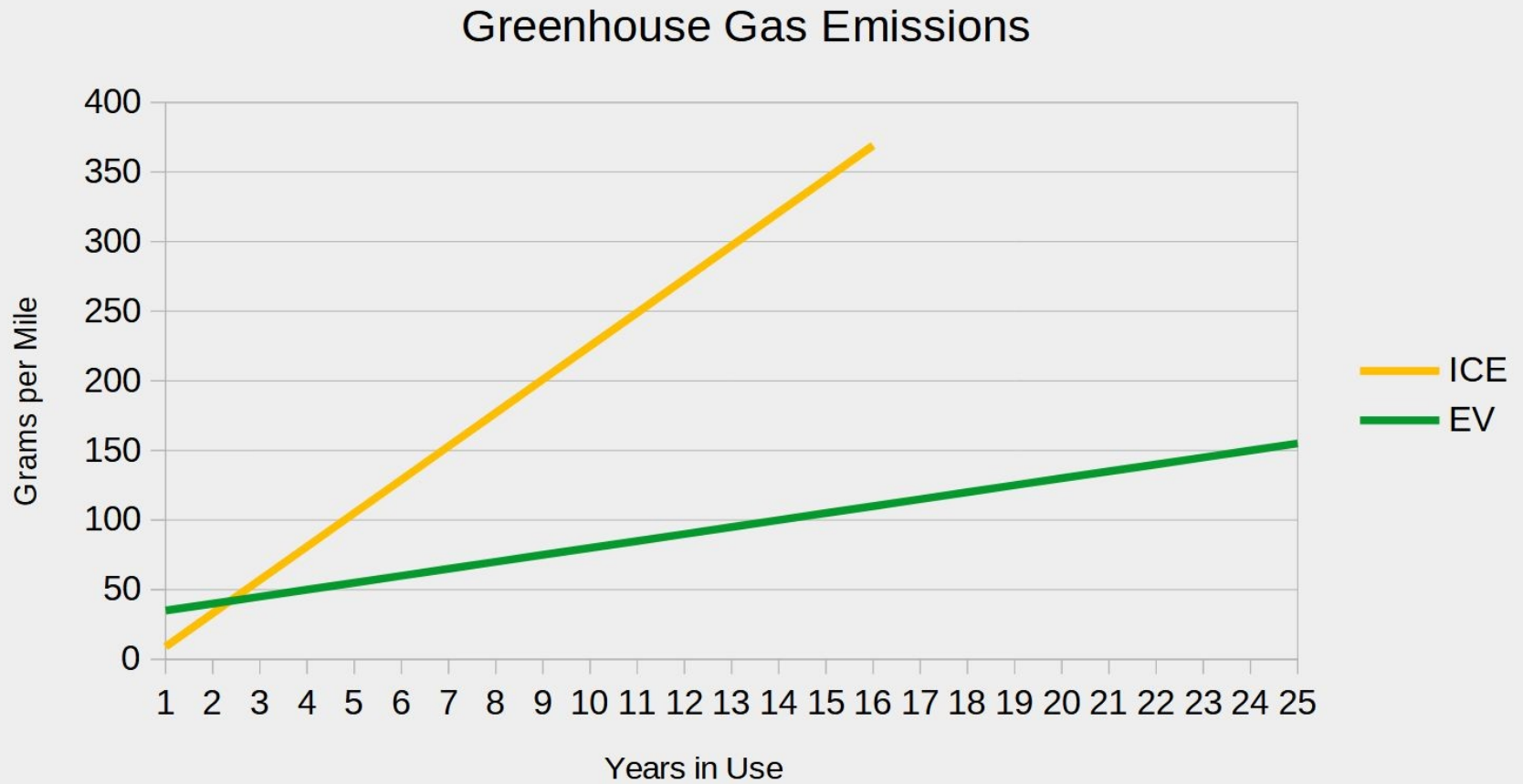


# How long will that battery last?

- On average, gas-engine cars last about **180,000 miles**.
- Electric car batteries are retaining 70% of charge at **300,000 miles**.
- Batteries used in Tesla fleet cars are lasting over **500,000 miles**.



# Environment Impact



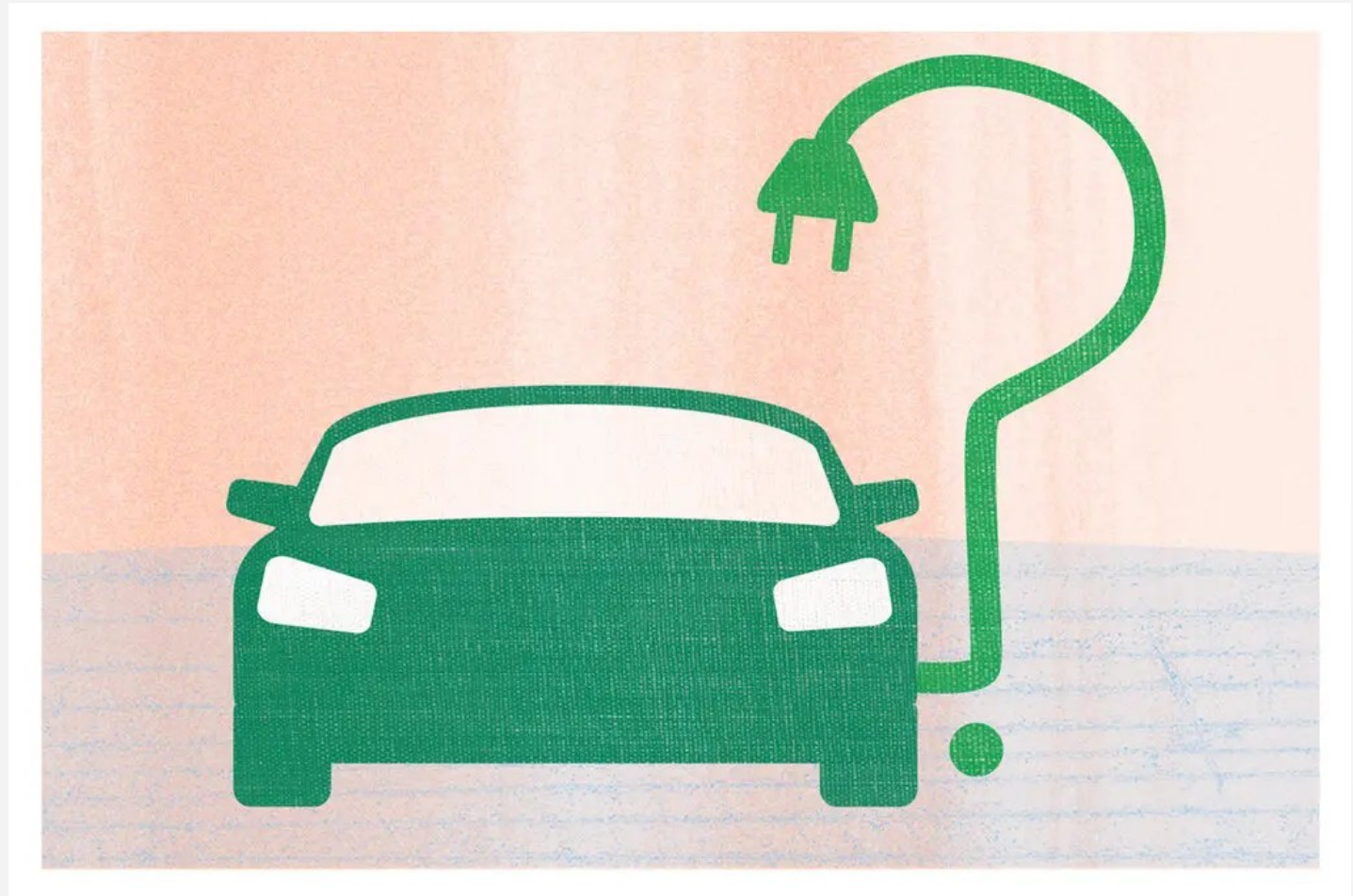
# Power Grid Sustainability

## EV Charging in California during **peak** hours

- In 2022: 0.4% of total usage
- In 2035: 4% of total usage



# Questions?



# Maintenance: Parts I Don't Need

- Pistons
- Cams
- Crankshaft
- Timing belt
- Water pump
- Oil pump
- Oil filter
- Air filter
- Fuel pump
- Fuel injectors
- Transmission
- Differential
- Gas tank
- Radiator
- PCV valve
- EGR valve
- Spark plugs
- Exhaust manifold
- Muffler
- Catalytic converter


# Purchase Costs

- Average **new car** price: \$48,000
- Average **new electric car** price: \$64,000
- Electric cars **under \$40,000**:  
Hyundai Kona, Kia Niro, Mazda MX-30
- Electric cars **under \$30,000**: Nissan Leaf, Chevy Bolt

# Tax Credits

- Maximum tax credit \$7,500 (half battery minerals credit, half battery components credit)
  - Price cap for SUV, van, truck \$80,000
  - Price cap for others \$55,000
  - Income cap for MFJ \$300,000
  - Income cap for HoH \$225,000
  - Income cap for others \$150,000
- <https://www.irs.gov/credits-deductions/manufacturers-and-models-for-new-qualified-clean-vehicles-purchased-in-2023-or-after>
- <https://bit.ly/qualifiedvehicles>

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