

The Future of Energy and Urban Mobility

The growth of electric and autonomous vehicles in cities creates new opportunities for utilities

City travel is rapidly changing

Urban mobility will transform over the next decade as:

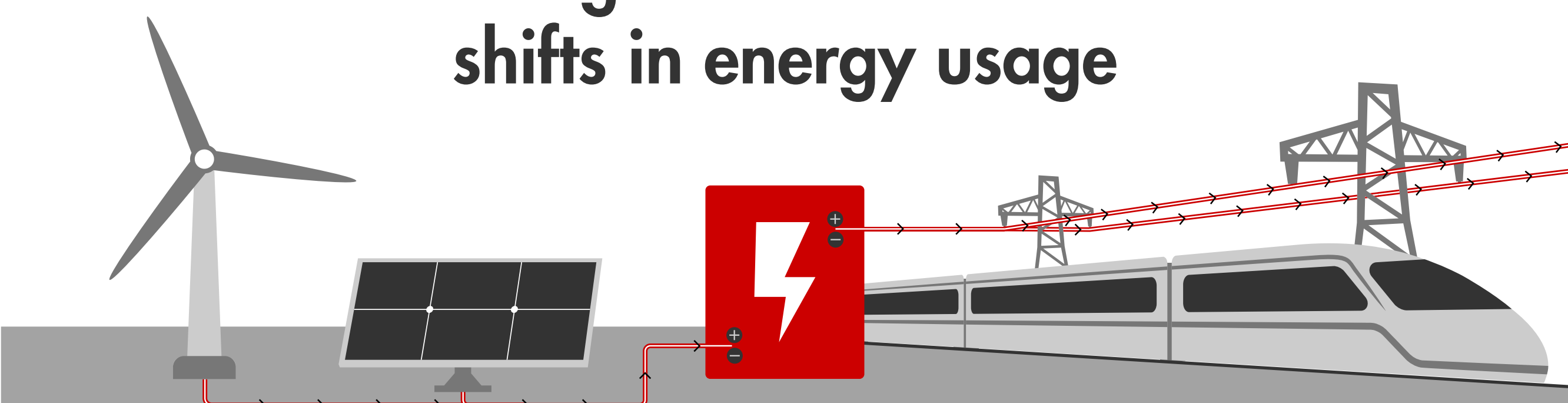
Electric vehicles become more affordable

Ride sharing continues to grow

Autonomous vehicles enter the market

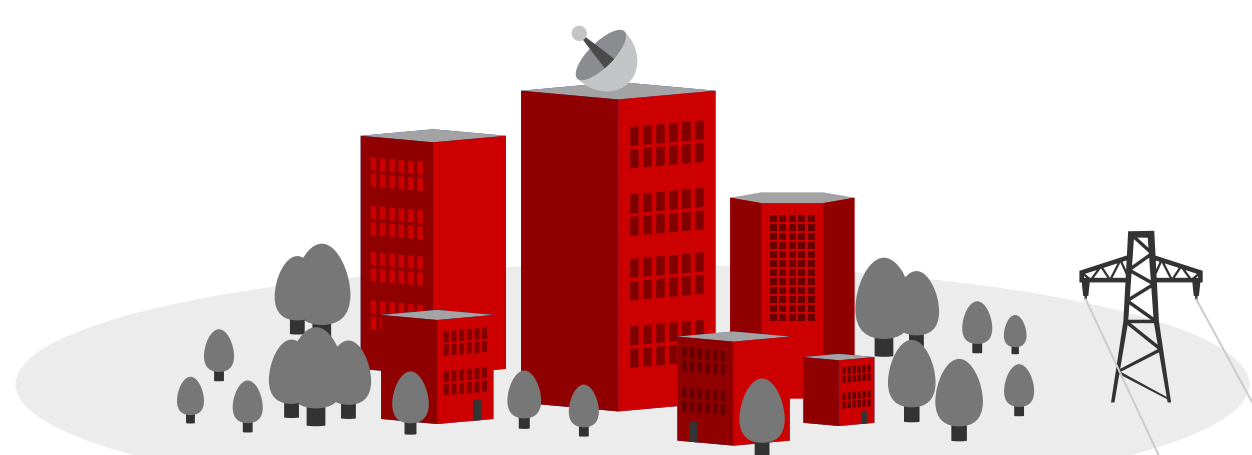


These changes come amid broader shifts in energy usage



Cleaner, more **decentralized** and **digitalized** energy systems

Cities see three major benefits in these trends

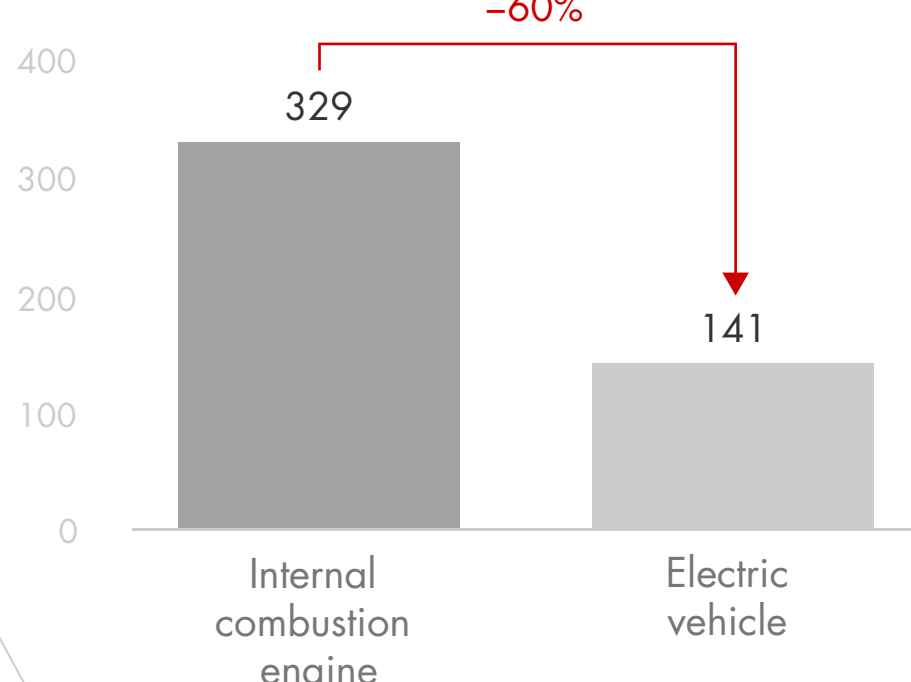


Greener cities

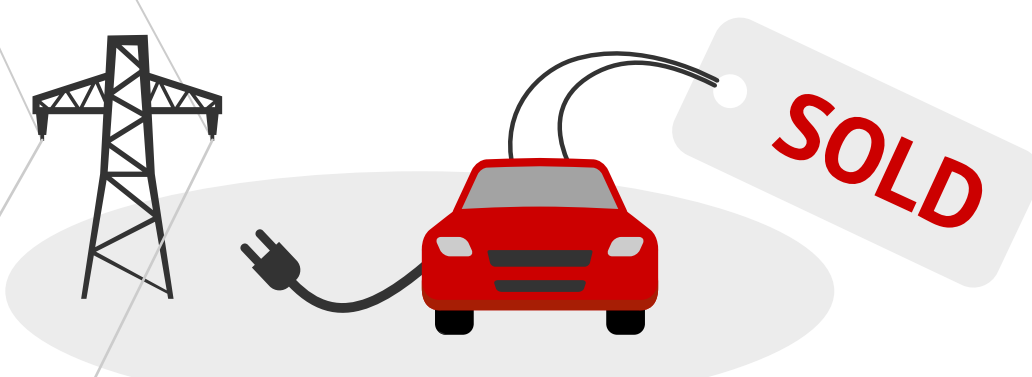
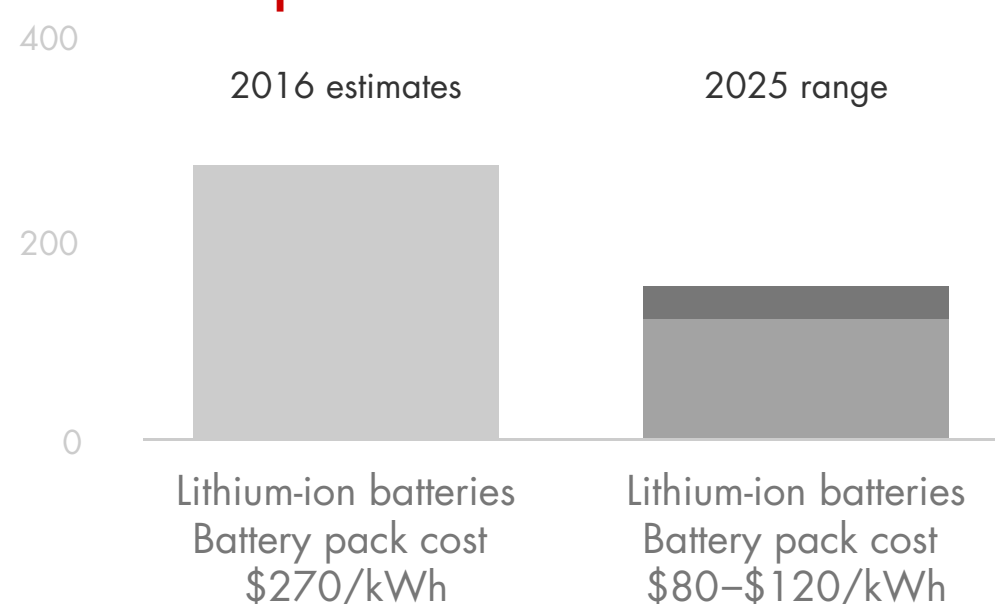
In the US, **more than 20%** of emissions come from light-duty vehicles. EVs can reduce CO₂ emissions by 60%.

Electric vehicles emit 60% lower CO₂ than vehicles with internal combustion engines

(g CO₂/mile, US, 2016)

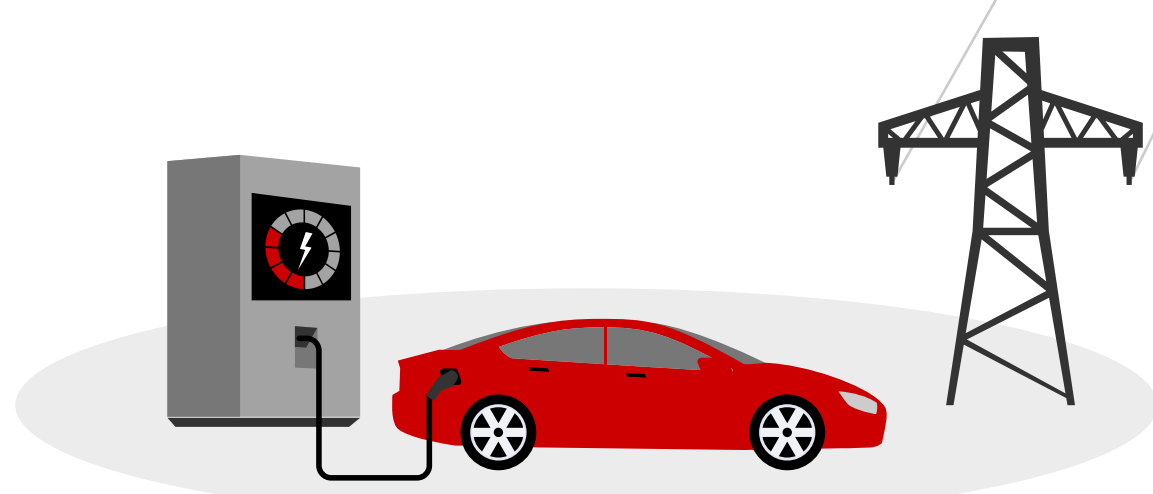


Batteries are becoming cheaper to make, which pushes down the costs of EVs



Cheaper mobility

As battery costs drop, total cost of ownership for EVs should reach parity with internal combustion vehicles within **five years**.



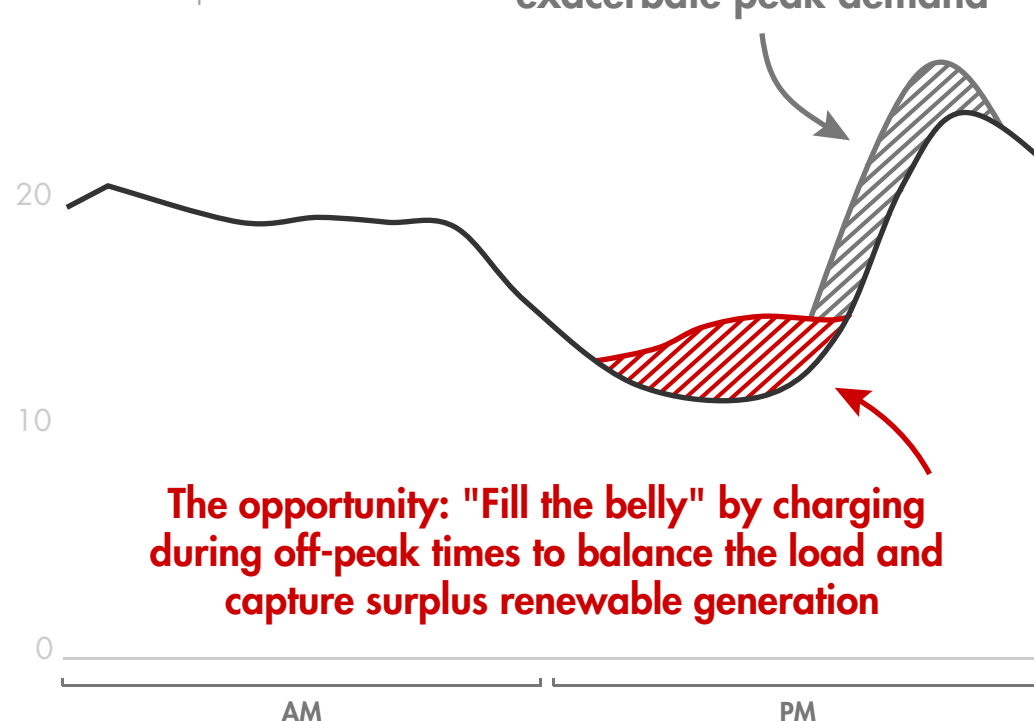
Optimized energy system

"Smart" charging of EVs will help sync electricity supply to demand during peak and off-peak hours.

2020 daily load in CA (GW)

30 — 2020 expected load

The challenge: Too many EVs charging during the evening can exacerbate peak demand



UTILITIES HAVE A SIGNIFICANT ROLE TO PLAY

Three principles will help utilities capture value from this transformation:

1

Begin the build-out today, but anticipate changes

Most EV charging stations today are at homes or businesses. In the future, more will need to be close to fleets.

2

Develop custom local strategies

Each city will need to customize the way it deploys EV infrastructure to meet its needs and opportunities.

3

Identify sources of value, then prioritize investments

Most new value will come from managing demand and charging EVs at optimal times and locations.

Read more:



Electric Cars Could Recharge Growth for Utilities
www.bain.com/urban-mobility