

# How EVs Impact the Grid

Adoption of electric vehicles is increasing rapidly in the U.S., a trend that presents opportunities like adding load—particularly at night—and integrating renewables, while challenging traditional system planning and historical grid equipment performance patterns.

## System wear and tear

With more EVs on the grid, system planners will need to consider the impact of charging on grid hardware. Moving EV charging to off-peak hours is one way to mitigate some negative impacts.



## Level 1

Level 1 charging uses a standard 120V outlet. Impact on the grid is minimal, and at roughly 3 to 5 miles of range per hour of charge, it's plenty for a daily commute under 40 miles.



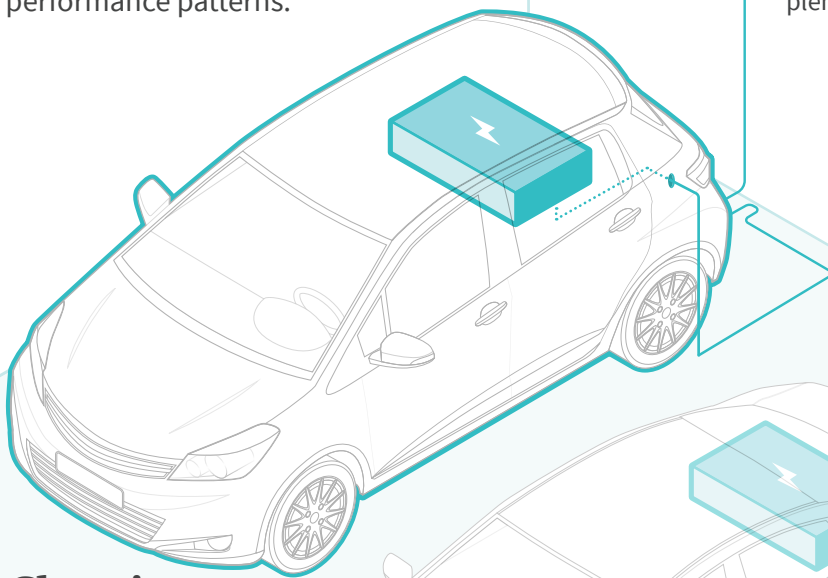
## Level 2

Level 2 uses a 240V circuit and provides 10 to 20 miles of range per hour. As use of L2 units increases, utilities should consider a managed charging program to move use to off-peak hours to reduce impacts.



## Charging impact

The addition of an EV with L2 charger can more than double a home's electricity use, drawing up to 19kW during use. By comparison, a large clothes dryer pulls about 5kW.



## Multiple vehicles

As car manufacturers continue to focus on electrification and charging infrastructure becomes more prevalent, co-ops can expect homes and neighborhoods with multiple EVs to increase.

## Two-way flow

New charging technologies may make it possible to draw power from an EV and directly supply a home or business or dispatch the electricity to the grid.

