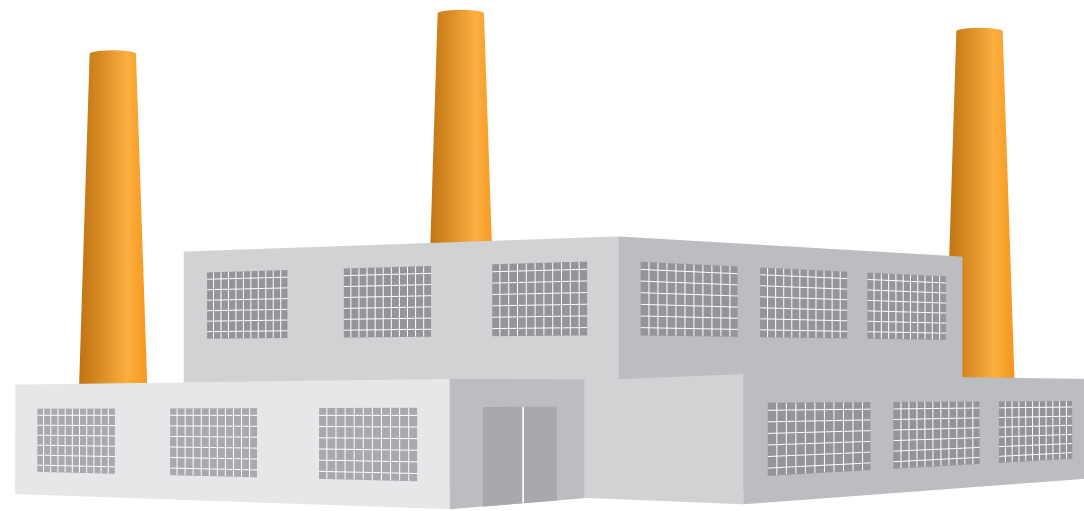


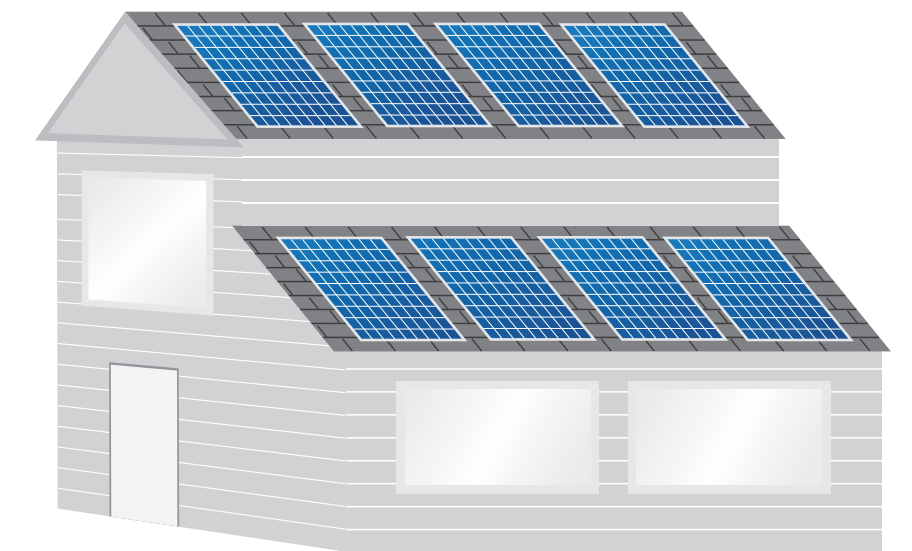
Big Savings from Vehicle-Grid Integration (VGI)

The U.S. electrical grid lacks the ability to store energy. Battery-powered electric cars could store excess energy from the grid, and return it as needed.



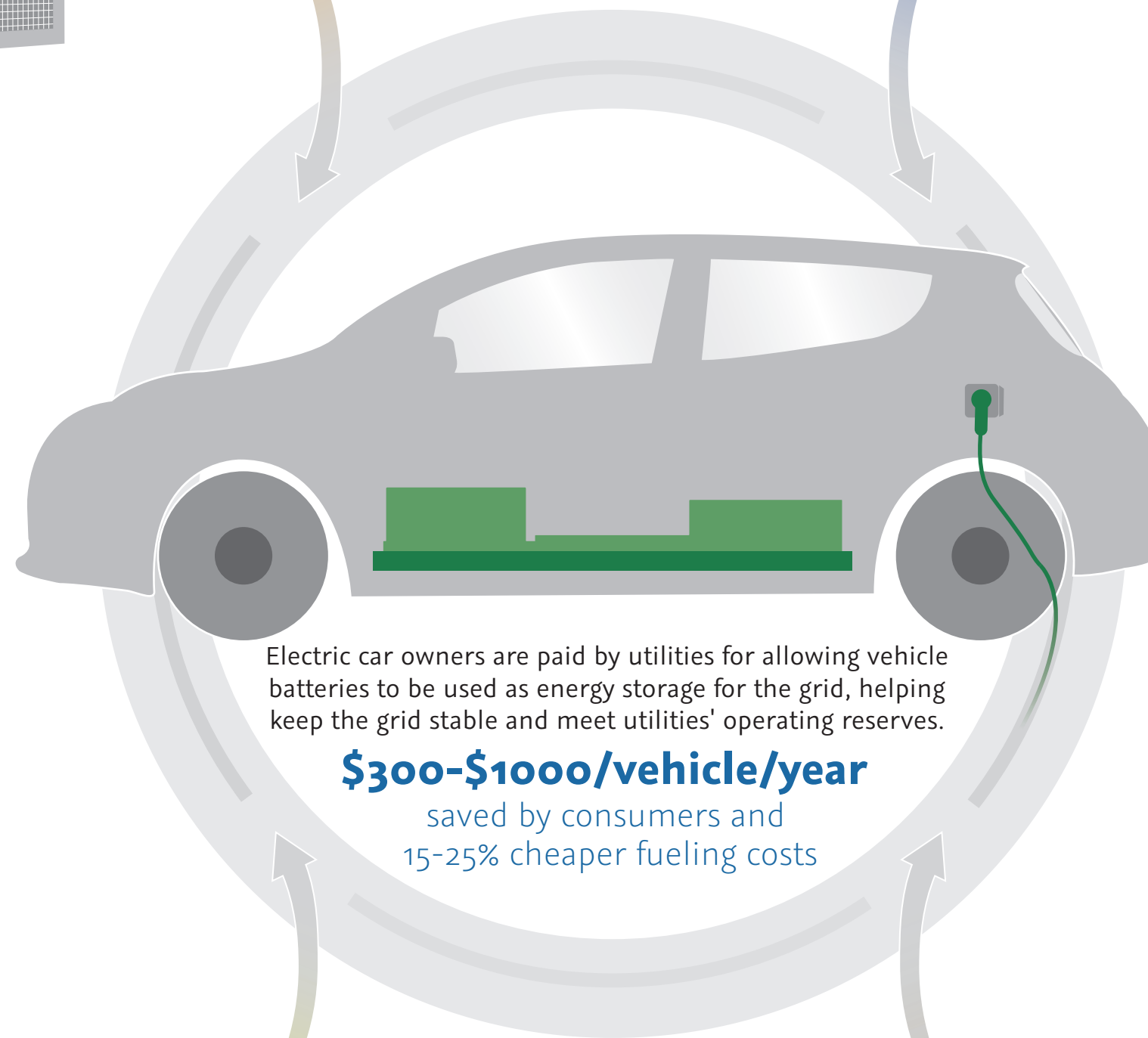
Grid operators can use EV batteries to smooth "peak" highs and "valley" lows in energy demand and avoid use of expensive polluting peaker plants.

\$150 million per year in avoided emissions costs for California alone and up to **\$3 billion** in emissions savings nationwide



Energy from rooftop solar can be stored in EV batteries, instead of being fed into the grid. EV owners can use this "free" fuel for driving or as a supply of home energy.

Up to **\$1000/vehicle/year** saved by consumers



Electric car owners are paid by utilities for allowing vehicle batteries to be used as energy storage for the grid, helping keep the grid stable and meet utilities' operating reserves.

\$300-\$1000/vehicle/year saved by consumers and 15-25% cheaper fueling costs



EV battery storage can buffer peak demand and reduce energy losses, preventing damage or excessive wear of expensive transformers and wires. Fewer transformers are needed, even as demand grows.

\$300 million to **\$1.6 billion** in annual grid system value



EV owners can schedule charging to occur when renewable energy is most plentiful. This helps the grid stay balanced, green, and safe.

Up to **\$4 billion** in annual benefits for renewable energy