

# 4 Ways Voltage Affects TCO

Voltage selection isn't just an engineering detail—it's a strategic driver of **cost**, **efficiency**, and **system performance**.

The choice of system voltage has a significant impact on total cost of ownership (TCO) for electric vehicles and equipment. It influences everything from **performance and battery size to charging infrastructure**. Here are four ways that smarter voltage choices reduce TCO and accelerate project success.

## 1 Improved System Efficiency

Higher voltage systems require less current to deliver the same power. That means less energy lost as heat, better efficiency, and longer runtime or range—all of which boost ROI.



## 2 Reduced Battery Capacity

Designing around the right voltage lets you use a smaller battery for the same performance—lowering system weight, cost, and complexity without sacrificing output.



## 3 Decreased Heat Losses

Since current decreases at higher voltage for the same power, heat losses drop dramatically. This translates to improved inverter efficiency, lessened cooling requirements, and enhanced long-term reliability.



## 4 Reduced Charging Times

Higher voltage means faster charging, enabling greater uptime and improved productivity for commercial fleets and equipment operators.

