

# The Electric Vehicle Market and Copper Demand

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Copper demand will be substantially impacted by the growing market for electric vehicles (EVs) over the next decade, according to new research commissioned by the International Copper Association (ICA). The study, titled Copper Intensity in the Electrification of Transport and the Integration of Energy Storage, was conducted by IDTechEx. It provides new details on the important role copper plays in EV technology.

## Key Findings:

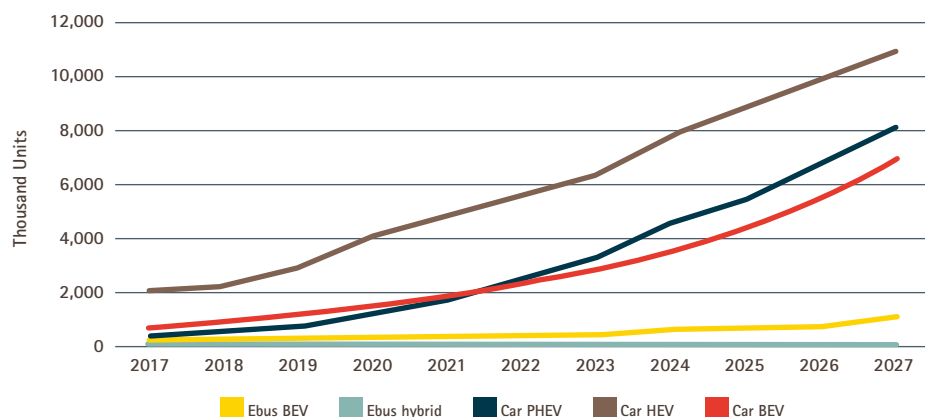
- All types of EV require a substantial amount of copper. It is used in batteries, windings and copper rotors used in electric motors, wiring, busbars and charging infrastructure.
- The demand for electric vehicles is expected to see major growth over the next ten years, driven by technology improvements, increased affordability and the deployment of more electric chargers. This increase will cause a greater demand for copper.
- Copper's use in electro-mobility may become even greater with the emergence of energy independent vehicles (EIV) that use copper-powered solar photovoltaic panels to harness renewable energy.

## Copper Use in Electric Vehicles

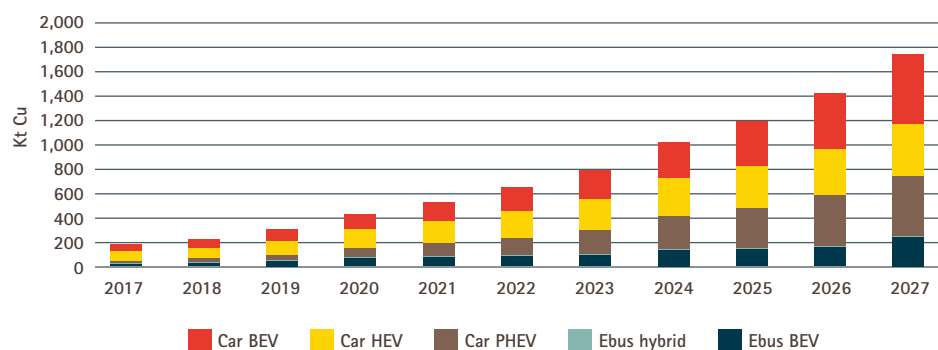
Each type of EV uses considerably more copper than traditional vehicles with internal combustion engines. Copper usage for each vehicle type is listed below:

- Internal combustion engine: 23 kg of copper.
- Hybrid electric vehicle (HEV): 40 kg of copper.
- Plug-in hybrid electric vehicle (PHEV): 60 kg of copper.
- Battery electric vehicle (BEV): 83 kg of copper.
- Hybrid electric bus (Ebus HEV): 89 kg of copper.
- Battery-powered electric bus (Ebus BEV): 224–369 kg of copper (depending on the size of the battery).

## Electric vehicle forecast



## Electric vehicle Cu demand



## The EV Market and Its Impact on Copper

The study predicts that an increase in the demand for electric cars and buses will impact the copper market:

- By 2027, an estimated 27 million electric vehicles (including HEV, PHEV, BEV, Ebus HEV and BEV) will be on the road, up from 3 million in 2017.
- This will raise copper demand in EVs from 185,000 tonnes in 2017 to 1.74 million tonnes in 2027.
- In addition, each EV charger will add 0.7 kg of copper. Fast chargers can add up to 8 kg of copper each.

For more information on copper demand or ICA, visit [www.copperalliance.org](http://www.copperalliance.org). For more information on copper's use in sustainable energy, visit [www.sustainablecopper.org](http://www.sustainablecopper.org).

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