

Visualizing Copper's Role in a Low-Carbon Economy

Climate change is top of mind for much of the world's population.

The transition to renewable energy and electrification will require commodities like copper.

Here's a snapshot of copper's role in a low-carbon economy.



Why Copper?

Copper has four key properties that make it ideal for the clean energy transition:

- Conductivity**
Copper has the highest electrical conductivity rating of all non-precious metals.
- Ductility**
Copper can easily be shaped into pipes, wires or sheets.
- Efficiency**
Copper's thermal efficiency is about 60% greater than aluminum, so it can remove heat far more rapidly.
- Recyclability**
Copper is 100% recyclable and can be used repeatedly without any loss in performance.

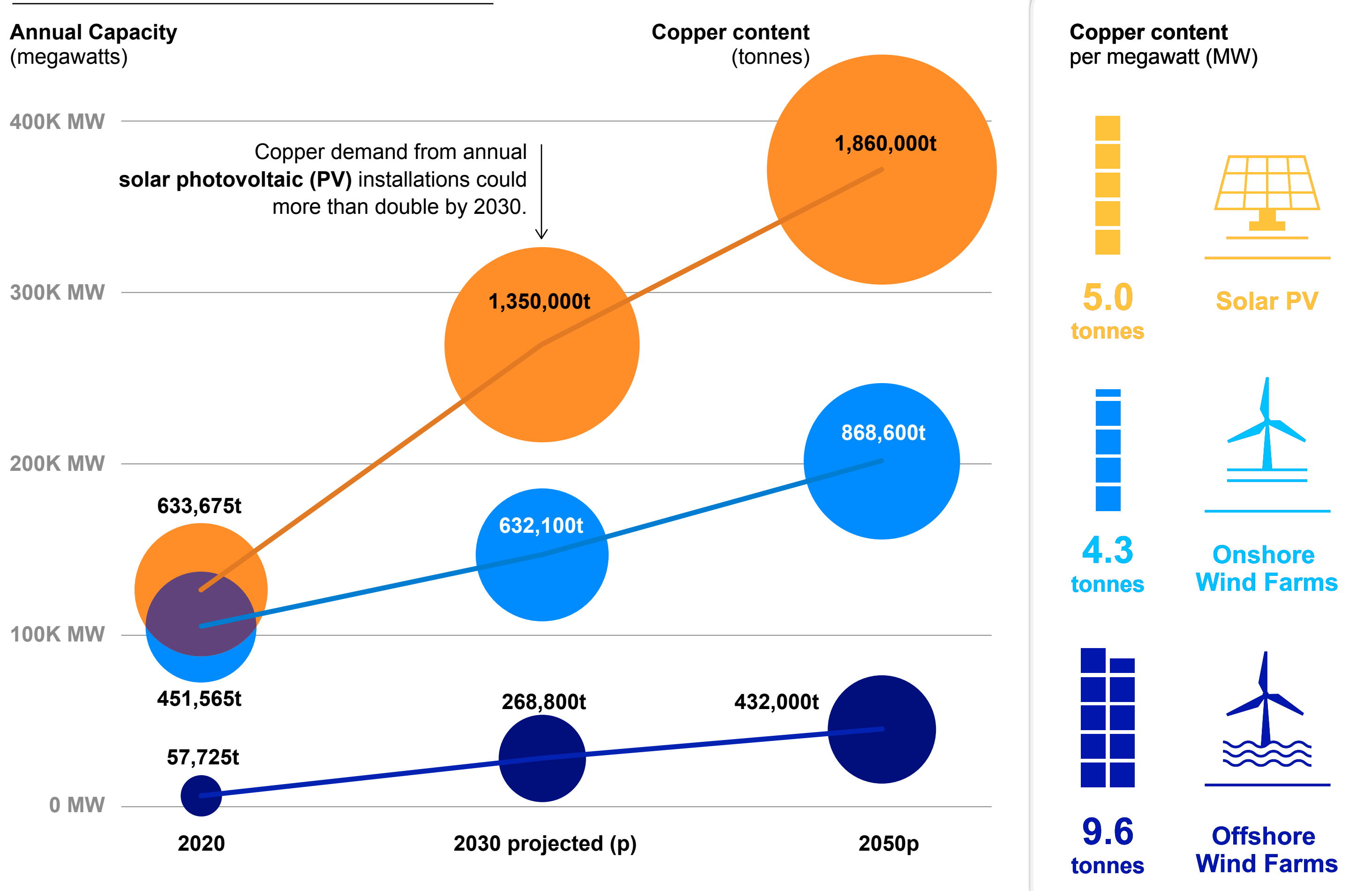


These properties make copper essential for energy storage, electrical propulsion (e.g. electric vehicles), and renewable energy.

Copper Demand for Low-Carbon Technologies

As the adoption of wind and solar technologies grows, so will the need for copper.

Copper Demand for Wind and Solar, 2020-2050

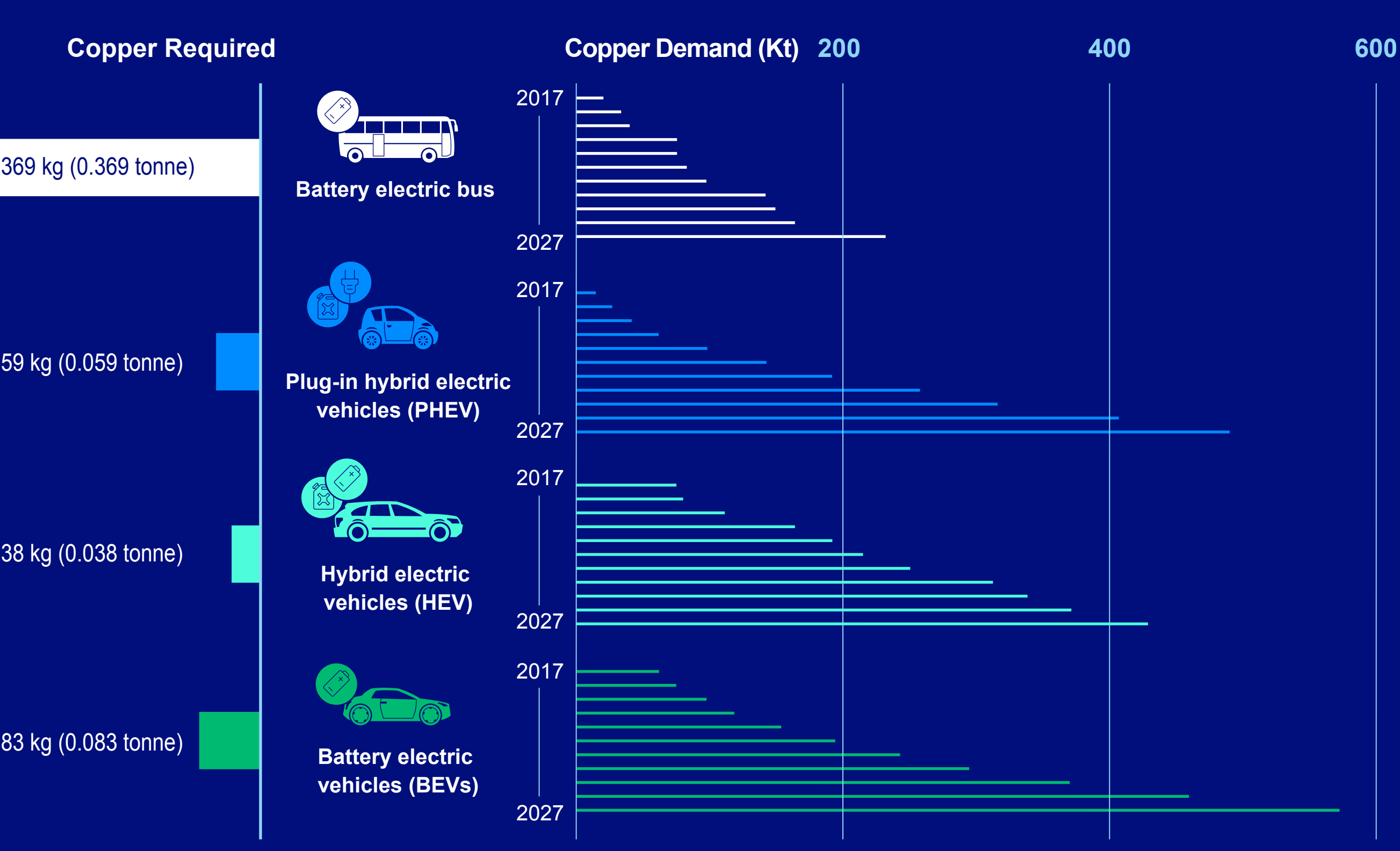


Sources: IRENA, Navigant Research, Copper Alliance

Copper Drives Electric Vehicles

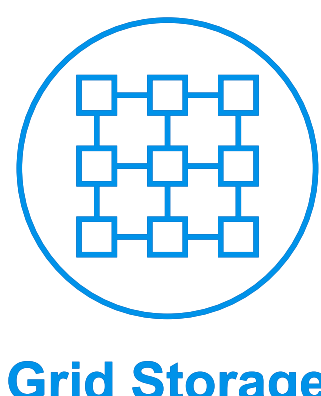
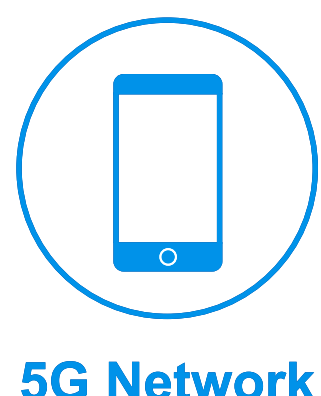
Electric vehicles (EV) can require up to 4 times as much copper as gasoline vehicles.

EVs require copper in batteries, windings, wiring, and charging infrastructure.



Source: Copper Development Association

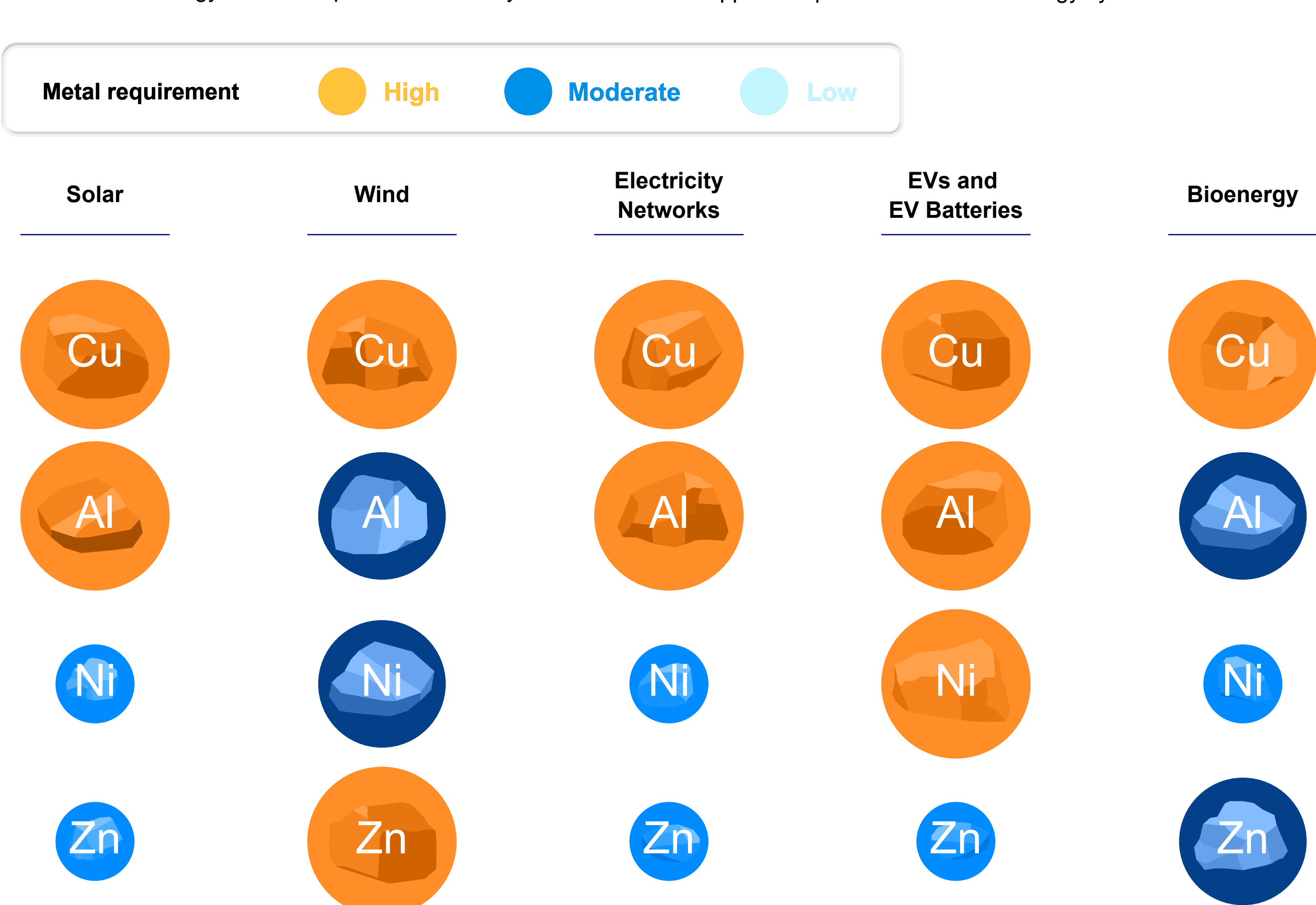
Copper is also necessary for:



Copper is the Most Needed Mineral for Clean Energy Technologies

Copper helps reduce CO₂ emissions and lowers the amount of energy needed to produce electricity.

Renewable energy systems can require up to 12x more copper compared to traditional energy systems.

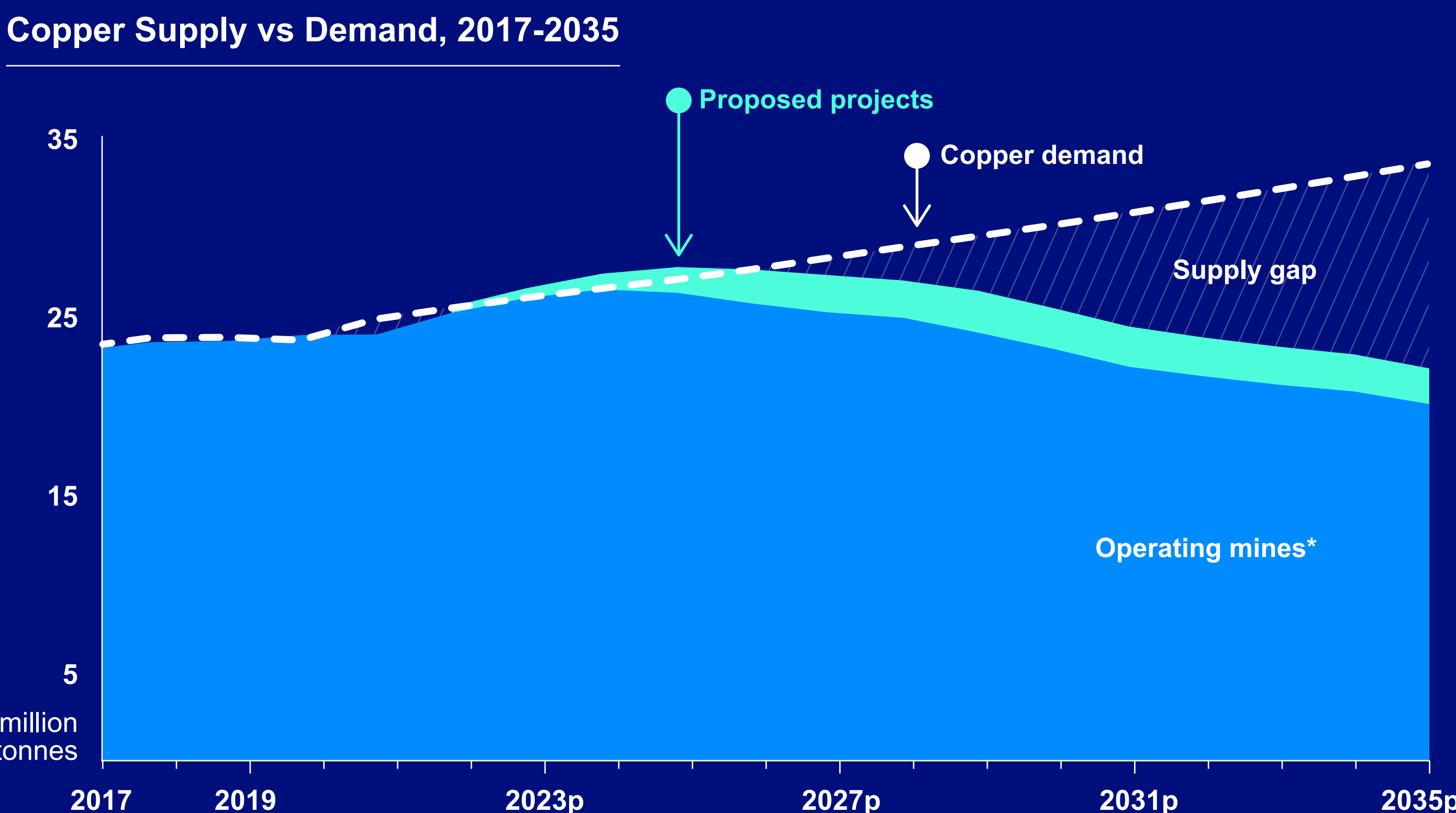


Source: International Energy Agency

The Race for Copper

Operating mines and proposed projects are not meeting projected demand and the supply scenario looks quite constrained over the medium term.

Copper Supply vs Demand, 2017-2035



*includes scrap

Source: CRU, Wood Mackenzie

As the world moves towards renewable energy technologies, copper will remain the most widely used metal.

Presented by



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