

Copper is a ‘cornerstone of the EV revolution’ but a lack of new mines means a supply crunch is coming

Mining

August 15, 2019 | Reuben Adams

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EVs need up to 350 per cent more copper than an internal combustion passenger car and, like lithium to a lithium-ion battery, there are no viable substitutes.

By 2040, Wood Mackenzie predicts that passenger EVs will consume more than 3.7 million tonnes of the red metal every year.

“Copper is a cornerstone of the EV revolution,” says Wood Mackenzie research analyst Henry Salisbury.

“If we look at cumulative demand, between now and 2040 passenger EVs will consume 35.4 million tonnes of copper – around 5 million tonnes more than is required to meet current passenger ICE demand.”

But it’s not just about the EV itself, he says.

The need for copper is even more significant when it comes to charging stations and supporting electrical grid infrastructure.

“As it stands, range anxiety – worrying that a battery will run out of power mid-journey – is a key psychological barrier standing in the way of more widespread EV adoption,” Salisbury says.

“One way to address this is to roll out more charging infrastructure. As this happens, more connections to the electrical grid will be required and more copper will be needed as the network expands.”

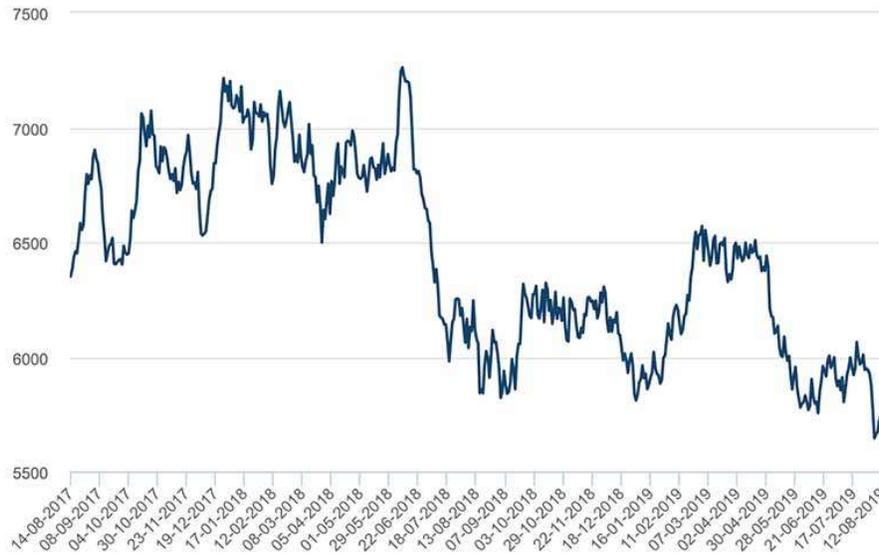
However, in order to meet these lofty targets a mountain of investment in additional supply is needed – and therein lies the problem.

Pundits call it ‘Doctor Copper’ for a reason. The red metal’s performance is a gauge the health of the global economy which, right now, could be one Trump tweet away from palliative care.

Copper prices never recovered from the shock of the US–China trade confrontation in 2018. In fact, things are only getting worse.

London Metal Exchange (LME) copper prices hit a 26-month low of \$US5,640 early on Monday, prompted by the escalating trade war.

LME COPPER HISTORICAL PRICE GRAPH

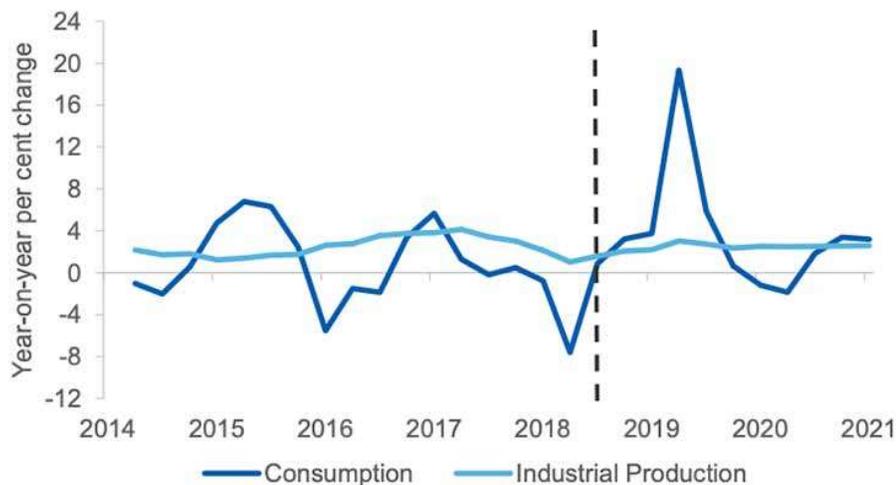


LME copper prices over the past 2 years.

But market fundamentals tell a different story.

Supply and demand remain finely balanced at a present, but in the short to medium term, consumption will growth to outpace production out to 2021 “leading to a steady increase in prices”, according to the latest *Resources and Energy Quarterly*.

Figure 12.4: World copper consumption and industrial production



Source: World Bureau of Metal Statistics (2019); Bloomberg (2019) Netherland CPB; Department of Industry, Innovation and Science (2019)

Wood Mackenzie predicts a ~4million tonne supply gap by 2028, based on forecast annual production of 25 million tonnes.

Global miners like Rio Tinto and BHP (who like to plan in decades, not months) know this, why is why they are prioritising their respective copper portfolios through **successful greenfields exploration** and brownfields development.

Higher copper prices will help incentivise new mining developments, which will be crucial as large-scale mines — which have traditionally done a lot of the heavy lifting — get deeper and lower grade.

If copper really is a “cornerstone in the EV revolution”, then something has to give pretty soon.