Truffle Asset Management

# Are we heading towards a copper supply cliff?

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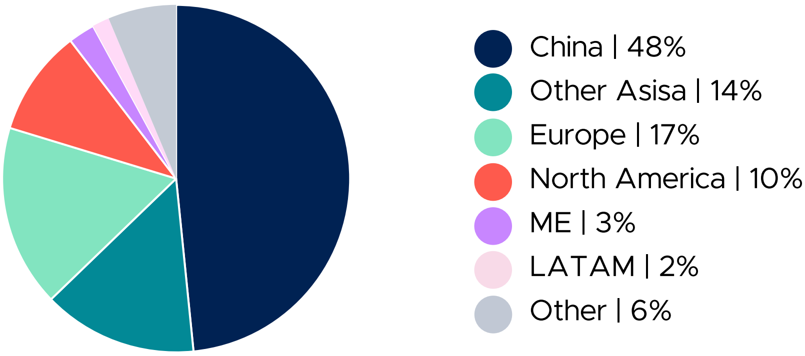
Copper has long been referred to as Dr Copper as the price of this conductive, versatile metal provides a good barometer of the health of the global economy given its myriad of end use applications.

Copper's importance in the future green economy and all things related to energy transition ensures that there are some very long structural tailwinds to support worldwide copper demand for at least the next two decades.

## The need for copper

As with most things' commodity related, China has an outsized influence on demand, and copper is no exception with the Chinese market consuming 50% of the world's total demand for this metal in 2023.

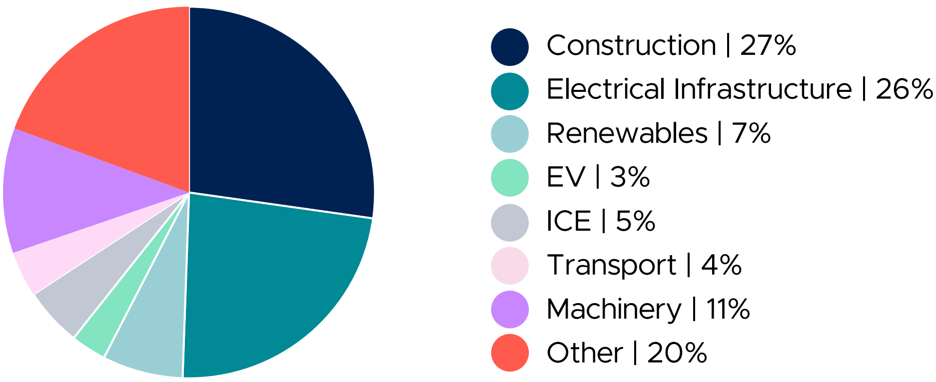
**Chart 1**: World copper demand by region - 2023




*Source: WoordMac, UBS.*

The metal's future trajectory is dependent on China's growth prospects, and it would be remiss to not to consider how we expect China's supply and demand dynamics to play out.

**Chart 2**: World copper demand by sector - 2023

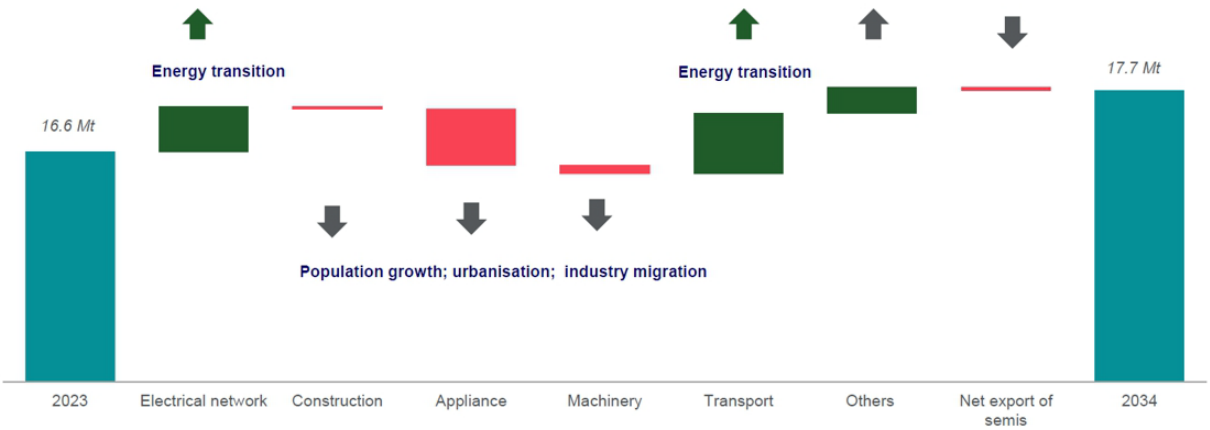



*Source: WoordMac, UBS.*

A significant portion of China's copper demand over the last 20 years has gone into a construction sector which is now re-setting to a lower level. The question is therefore whether China's push into renewable energy production, Electric Vehicle's (EV) and the associated battery and grid infrastructure required, can offset the expected decline in copper consumption from their property sector?

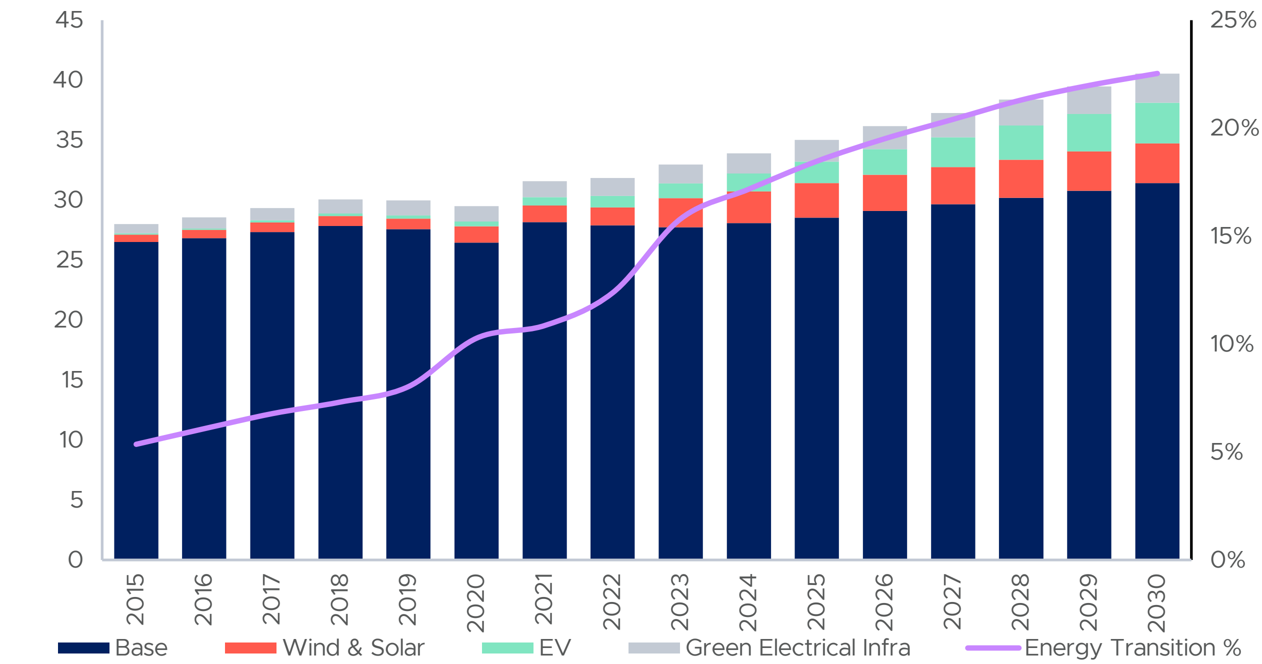
With government stated objectives of doubling wind and solar capacity by 2030, and an EV penetration target of 45% by 2027 as part of China's 2060 carbon neutral target, most research analysts expect that renewables will continue to drive copper demand in China albeit modestly at a rate of around 0.5-1% pa.

**Chart 3**: China's total copper consumption (2023 - 2034F) is being driven by energy transition.




*Source: WoordMac.*

**Chart 4**: Total copper demand (mtpa)




*Source: WoordMac, UBS.*

The Energy Transition theme driving demand for metals such as copper is not limited to China.

As more countries aim to reduce carbon emissions and shift to renewables, global copper demand is expected to grow by around 3% pa till at least 2030.

## Production challenges weigh on supply

The recent uptick in copper prices has surprisingly been driven by the lack of supply and not the secular demand themes for the green metal.

Copper production guidance across most of the major miners in the latest company updates has disappointed, with Anglo, Glencore, BHP and RIO Tinto all pulling back copper guidance to varying degrees over their respective forecast periods. In addition to this we've seen significant production disappointments in recent years from Chilean state-owned copper company Codelco (the world's 2nd largest copper producer).

While most of these production cuts are due to short term operational challenges, a combination of water shortages in Chile, more challenging geology and natural grade decline has resulted in these supply misses becoming more entrenched and tightening a market that is now expected to be in deficit in 2024.
Furthermore, most of the world's current copper production and major forecast projects are in geographies with potential sustained operational challenges. Peru, Chile, and the DRC account for 23%, 12% and 12% respectively of global supply. A combination of labour strikes, increased royalties as governments extract more rent and added environmental regulation has not only increased the cost of copper production, but also increased the margin of safety required by miners before deploying new capital into projects.

A good example is the Cobre Panama mine which had its operating license suspended by the Panamanian government in November 2023, after a 6-year build, which cost $7bn.

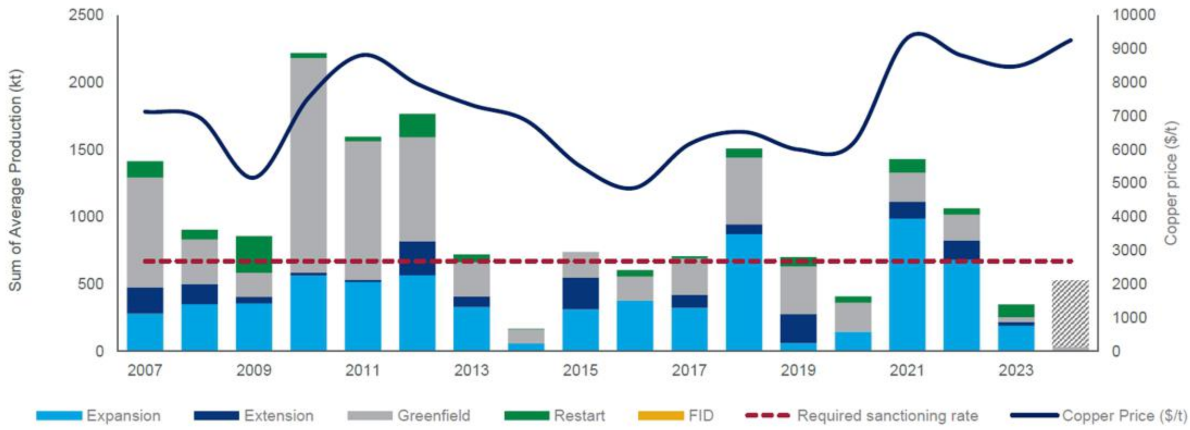
## Bringing it all together

Global demand is currently estimated at 33mt* and expected to grow by approximately 1mt pa over the next decade largely driven by the world's transition to greener energy sources.

This estimated demand of 33mt is currently being supplied by total refined production of 26.5mt, and primary scrap of approximately 7mt used directly by fabricators for end-use applications. Primary scrap supply is expected to grow by 6% p.a. or roughly 400kt p.a., resulting in a 600kt per annum shortfall that that would need to be filled by increased mine supply.

However, project approvals across mines since 2019 have been significantly below this medium-term required run rate. Projects coming online from the previous expansion cycle are set to add around 2mt over the next 4 years or 500kt pa.

**Chart 5**: Mine project supply additions




*Source: WoordMac*

The result of the slower than expected supply side response will result in deficits in the copper market over the foreseeable future. Estimates vary as would be expected but what is certain is the direction of travel with 2026 deficits in the range of 350kt – 900kt and growing from that point.

## Scarcity drives price

While the short-term investment case for copper is a little unclear given the relatively small deficits forecast over 2024 and 2025, the medium-term picture becomes more compelling as deficits grow and supply from the current project pipeline is replaced by new projects with more difficult geology, in more difficult operating environments.

Truffle's in-depth research and analysis is a key element of our investment process and in our view, copper is a preferred commodity in the current cycle. Copper has an asymmetric risk profile over the medium term with limited fundamental downside risk given the secular energy transition trends that will drive future demand, and limited risk of a significant supply side response.

Copper's demand: supply dynamics and outlook are currently supportive of a sustained higher copper price. Truffle's research process means we continue to monitor and debate market shifts that could impact these dynamics and the implications for various sectors and businesses including copper producers.

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