

March 27, 2023

## Copper Supply Is A Serious Problem And Everyone Involved In Clean Energy Needs To Listen

By Mark Le Dain

Whenever I see copper inventory charts, or supply and demand charts, I assume I'm not understanding them correctly. The future copper deficit has expanded but since no one else is sounding the alarm I assume that maybe I'm simply confused. This is perhaps like the bystander effect, where people become less likely to do something or call for help, the more people are present. Everyone should have been shouting about copper months ago, especially those involved in clean energy policy, but warnings have been few and far between. This started to change this past week as both Trafigura and Goldman Sachs started to sound the alarm on global copper supplies.

Copper is critical to the clean energy transition. An electric vehicle ("EV") requires 3½ times as much copper as an internal combustion engine vehicle, according to estimates from Wood Mackenzie. If you start looking at buses, they require approximately 11 times as much. As we transition to EVs, it is clear that this will increase copper demand. Required in parallel is the power transmission to support those electric vehicles. Grid infrastructure necessary to support the expected number of charging stations in 2030 is expected to consume 250 percent more copper than the decade prior. This copper will be required regardless of what power source wins, making this trend a very safe bet.

The above items paint a clear picture of increasing demand. Normally this would be met with a supply response, but new development is restricted. Key projects are getting blocked in major jurisdictions due to ESG concerns, with projects by Rio Tinto and Twin Metals both blocked in the US in the past twelve months. Environmental concerns around new mines are important, but at some point, copper is required for the future people want. There are also just fewer people that understand commodities these days, as it was a difficult place to spend a career this past decade. Fewer people working on something means fewer solutions.

Accelerated demand driven by clean energy, combined with declining supply, means a fairly predictable gap is starting to emerge. There is also a high likelihood these trends increase. Goldman recently predicted that clean subsidies in the Inflation Reduction act will cost much more than expected, close to \$1.2 trillion. Almost every one of those dollars is associated with more demand for copper, starting with the EV tax credits. Even if the subsidies are higher than originally communicated it is unlikely they will disappear; Democrats support the programs and Republicans are unlikely to make change that increases taxes, which reversing this spending

would be equivalent to. This gap, where demand outstrips supply, is increasing while inventories fall.

Jeff Currie, the global head of commodities flagged this again for the market just recently. “On copper, the forward outlook is extraordinarily positive. We’ll be at the lowest observable inventories that have ever been recorded at 125,000 tonnes. We have a peak supply occurring in 2024...Near term, we put (the copper price) at \$10,500 and longer-term our price target is \$15,000 a tonne.” This type of warning would have historically helped make the case for further investment, but with few people building new mines, and those that are being blocked, it may not result in anything.