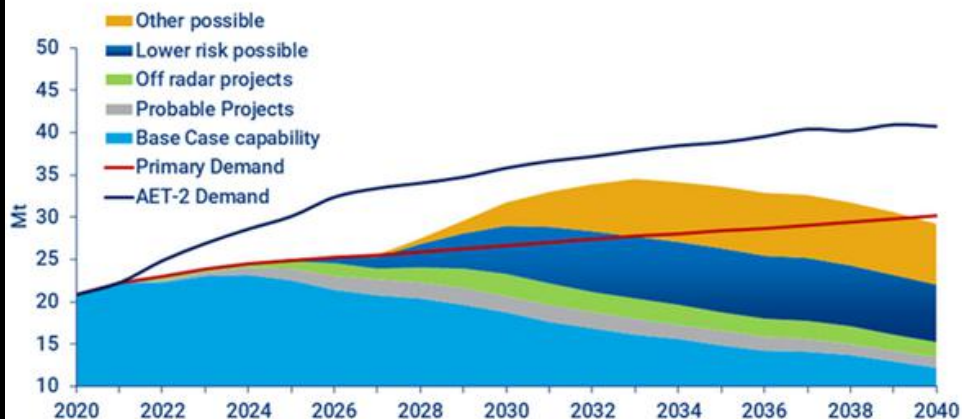
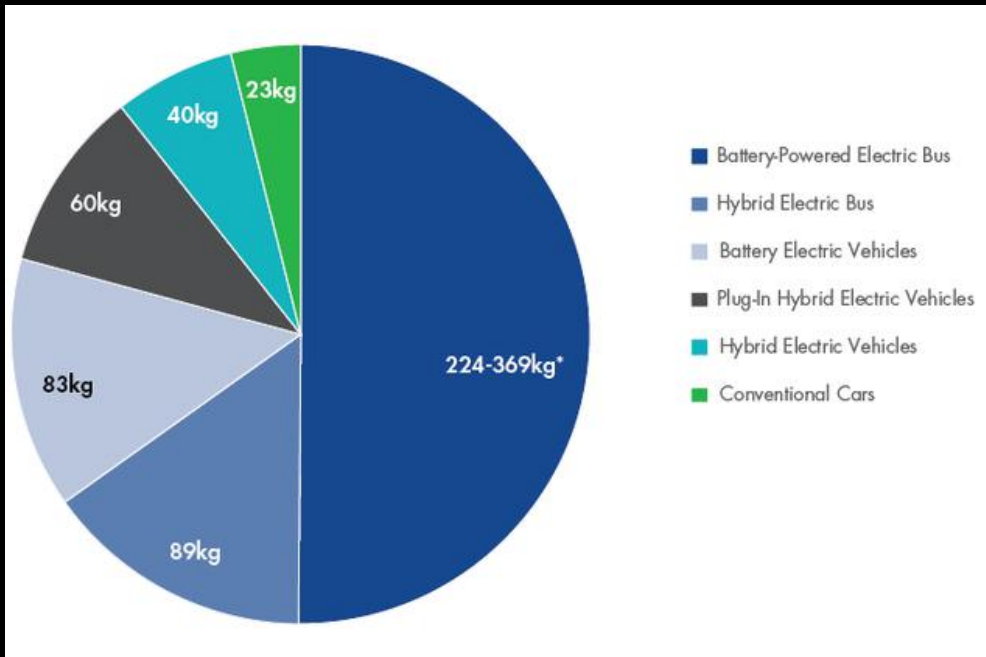


## Copper demand growth puts supply elasticity under stress in an accelerated energy transition (AET-2) scenario

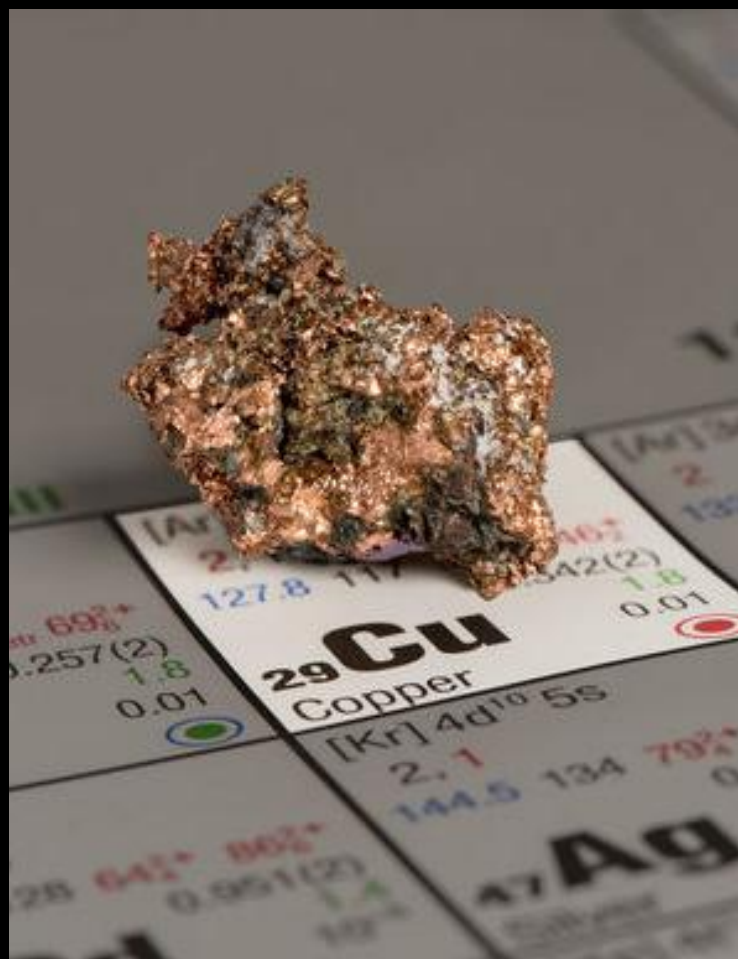
Primary copper demand scenarios versus mine supply potential



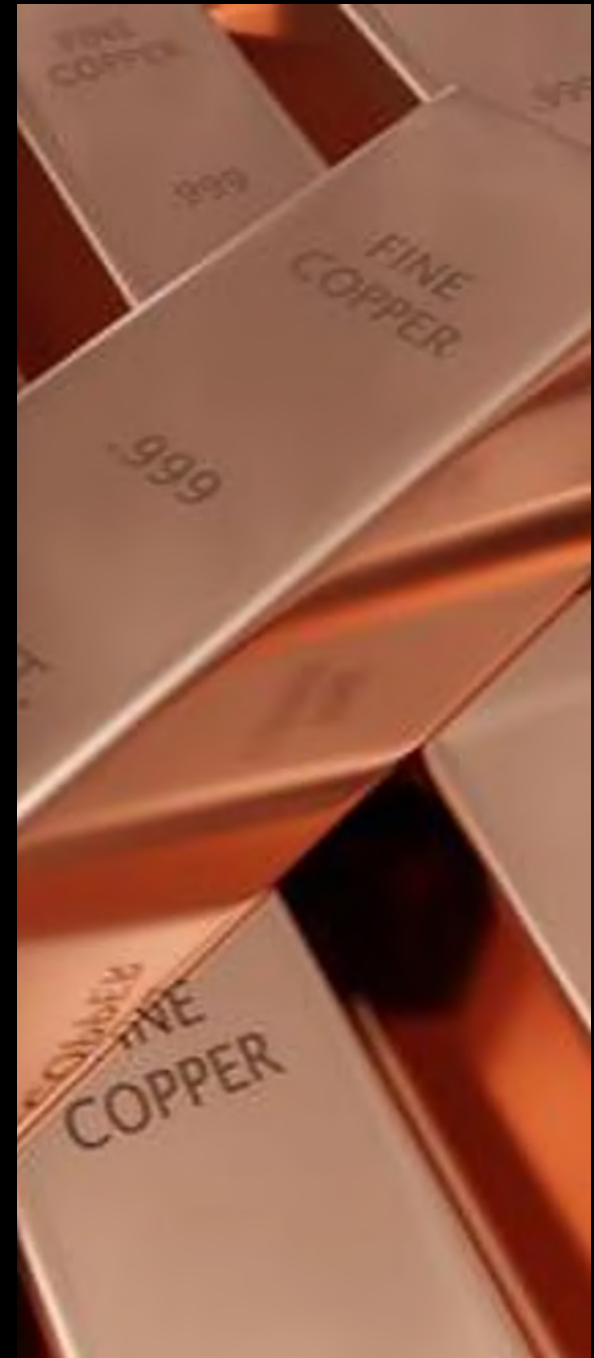
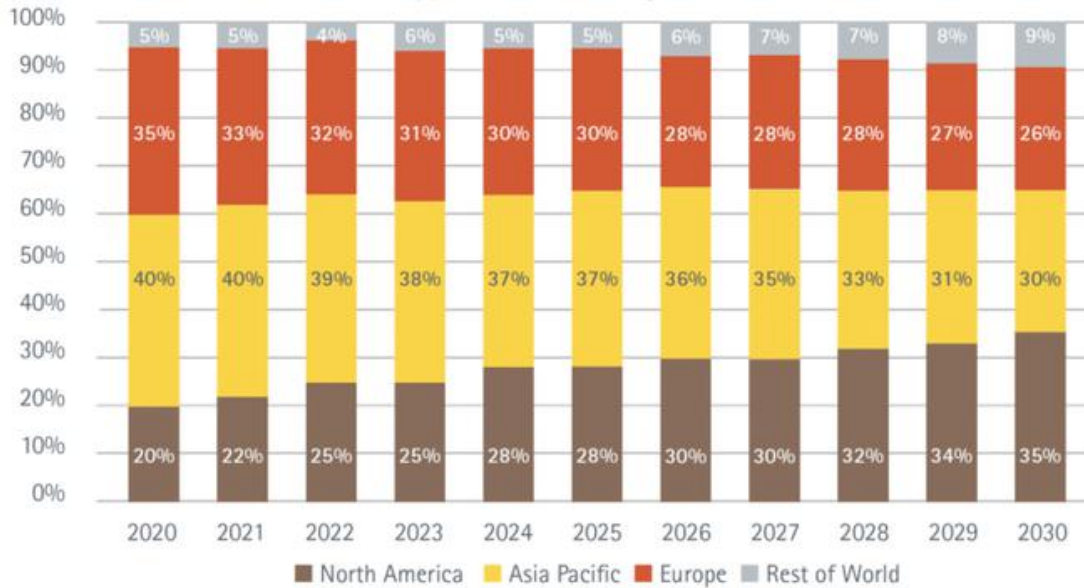
Source: Wood Mackenzie



## Supply & Demand / Uses of Copper



### Smart City Copper Demand by Region 2020 – 2030



### Copper in *Electric Vehicles*

Electric vehicles rely heavily on copper for the motor coil that drives the engine.

Additionally, the cabling for charging stations of electric vehicles will be another source of copper usage.

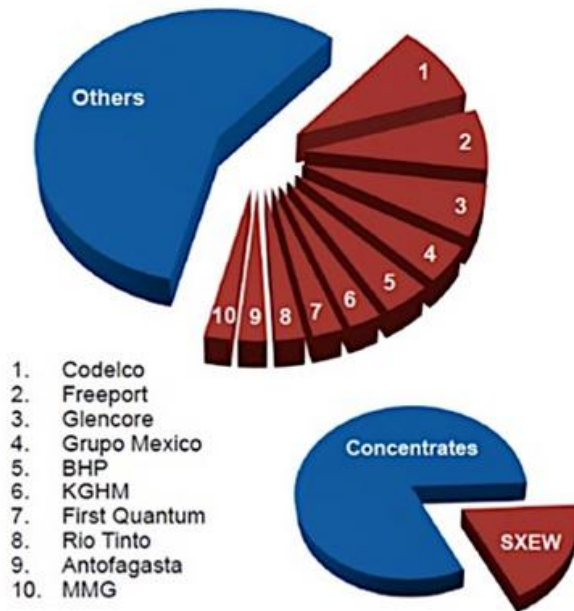
For example, BYD charging ports ranging from 3.3 kW to 200 kW contain between two to 17 pounds of copper. According to iDTechEx, BYD's total sale of chargers in 2016 used more than 295,000 lbs. of copper.



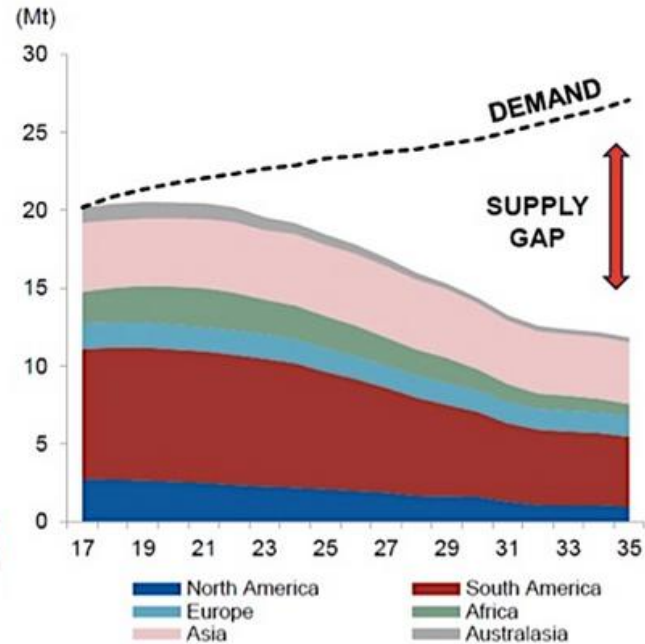


# Without projects supply gap will exceed 15Mt by 2035

## 1. Copper Mine Production 2017: 20.4Mt



## 2. Committed\* Mine Supply Forecast



\* Committed = Existing Operations and Firm Expansions

