

THE POWER OF COPPER

Intro to Copper Fundamentals

ACC Spring Copper College 2024

Juan Sanchez

FCX
LISTED
NYSE



ICMM
Member

FREEPORT
FOREMOST IN COPPER

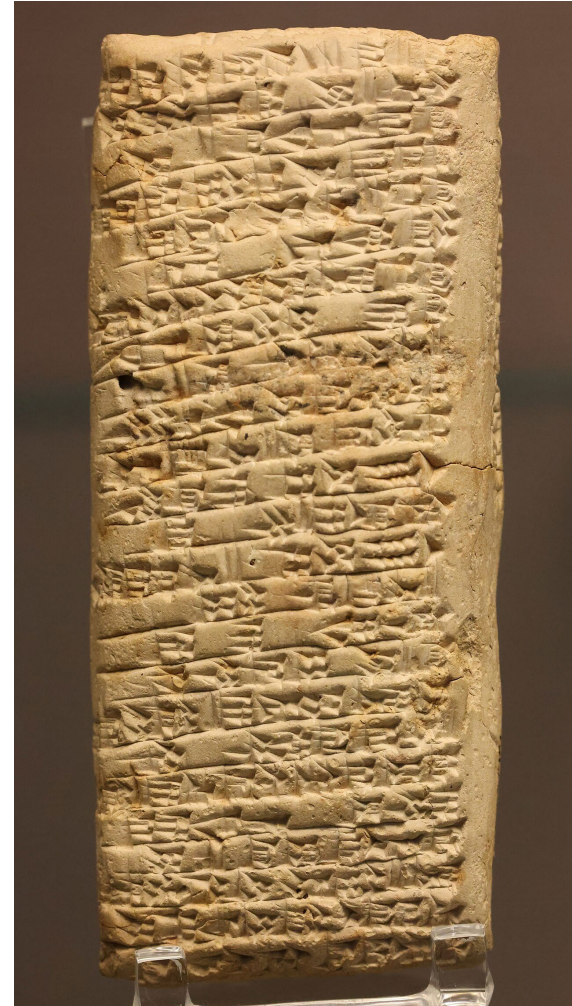
fcx.com

Disclaimer

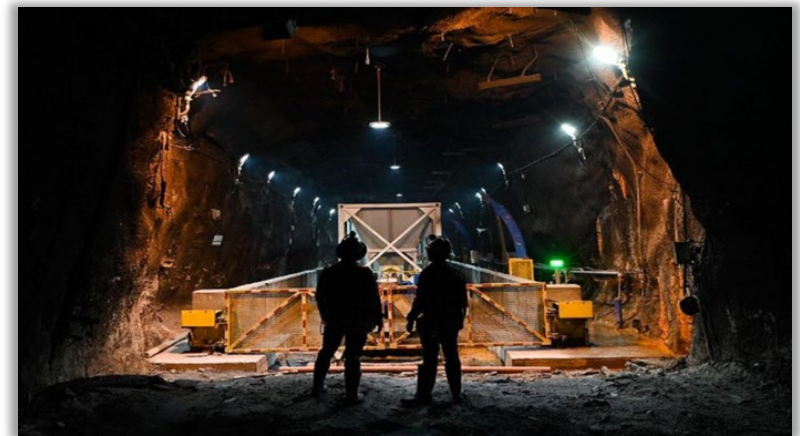
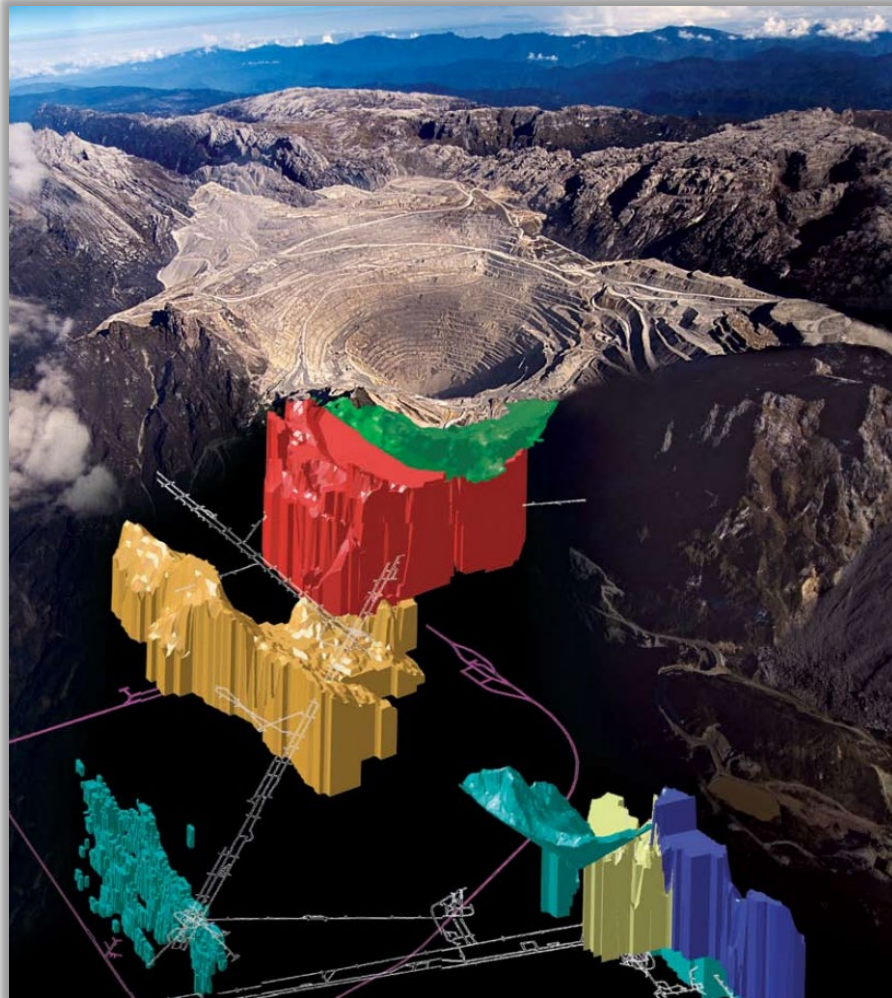
This presentation has been prepared solely for informational purposes. The information included in this presentation has been obtained from and prepared on the basis of publicly available data from different sources. Freeport-McMoRan Inc. does not make any representation or warranty as to the accuracy or completeness of the information included in this presentation. In addition, Freeport-McMoRan Inc. shall not be responsible for any reliance upon any information, opinions or statements contained in this presentation or for any omission or error of fact that may be found in this presentation.

Complaint Tablet to Ea-nāšir

- Clay tablet to a merchant from a customer for copper ingots in ancient city state Ur (Iraq)
- Ingots were sub-standard and not accepted.
- Tablet was sent to the merchant in c 1750 BCE
- On display at British Museum
- Recognized by the Guinness World Records as the Oldest Customer Complaint

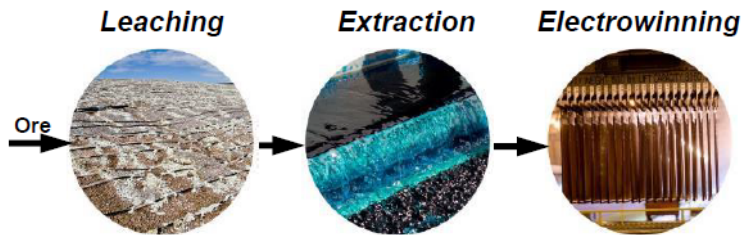


Mining 101 – Open Pit vs. Underground



Copper Processing Technologies

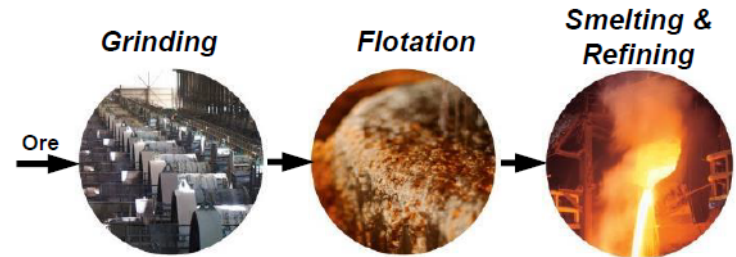
Leaching & SX/EW



Process used to recover Cu from oxide & secondary sulfide ores

- **Leaching.** Acid placed on ore stockpiles to dissolve Cu; Cu solution comes out of the bottom of the stockpile
- **Extraction.** Cu solution is mixed with a diluent & extraction solution to extract the Cu & then mixed with electrolyte
- **Electrowinning.** Electrolyte is sent to tankhouse where electrical current plates Cu out of electrolyte into cathode

Concentrating



Process used to recover Cu from sulfide ores

- **Grinding.** Ore crushed & mixed with water to form a slurry with small Cu particles broken out of the rock
- **Flotation.** Slurry mixed with reagents so Cu attaches to bubbles & separated from worthless rock; Cu slurry dried to form concentrate
- **Smelting & Refining.** Concentrate smelted to produce molten Cu & form anodes; anodes refined in tankhouse to produce cathodes

2024 Copper Flow

Cu in Millions of Short Tons



Concentrate – Smelt Sulfides: 21.8



SxEw – Leach Oxides: 3.9



Scrap/Blister: 11.2

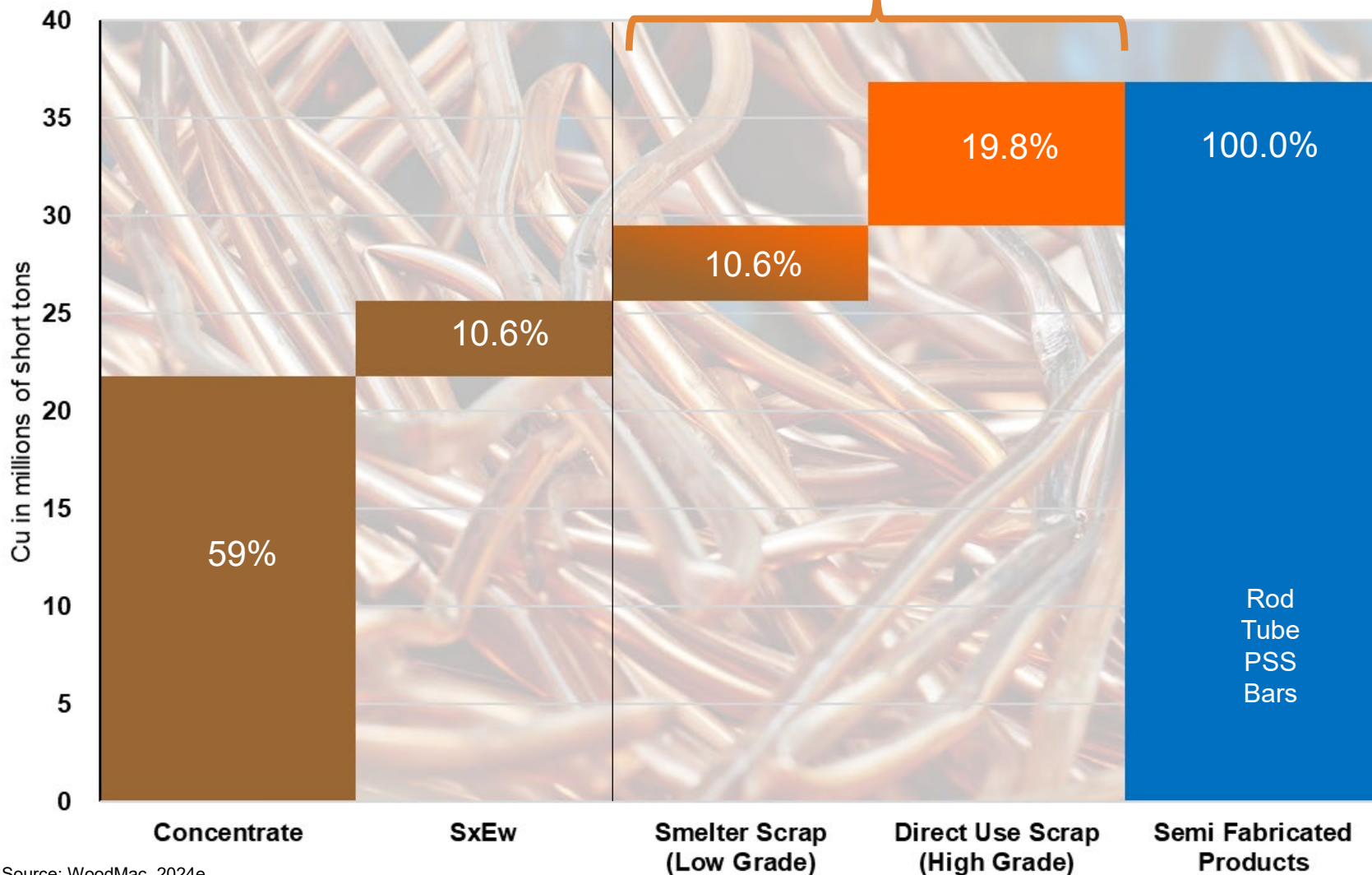


Cathode Production: 36.9 M



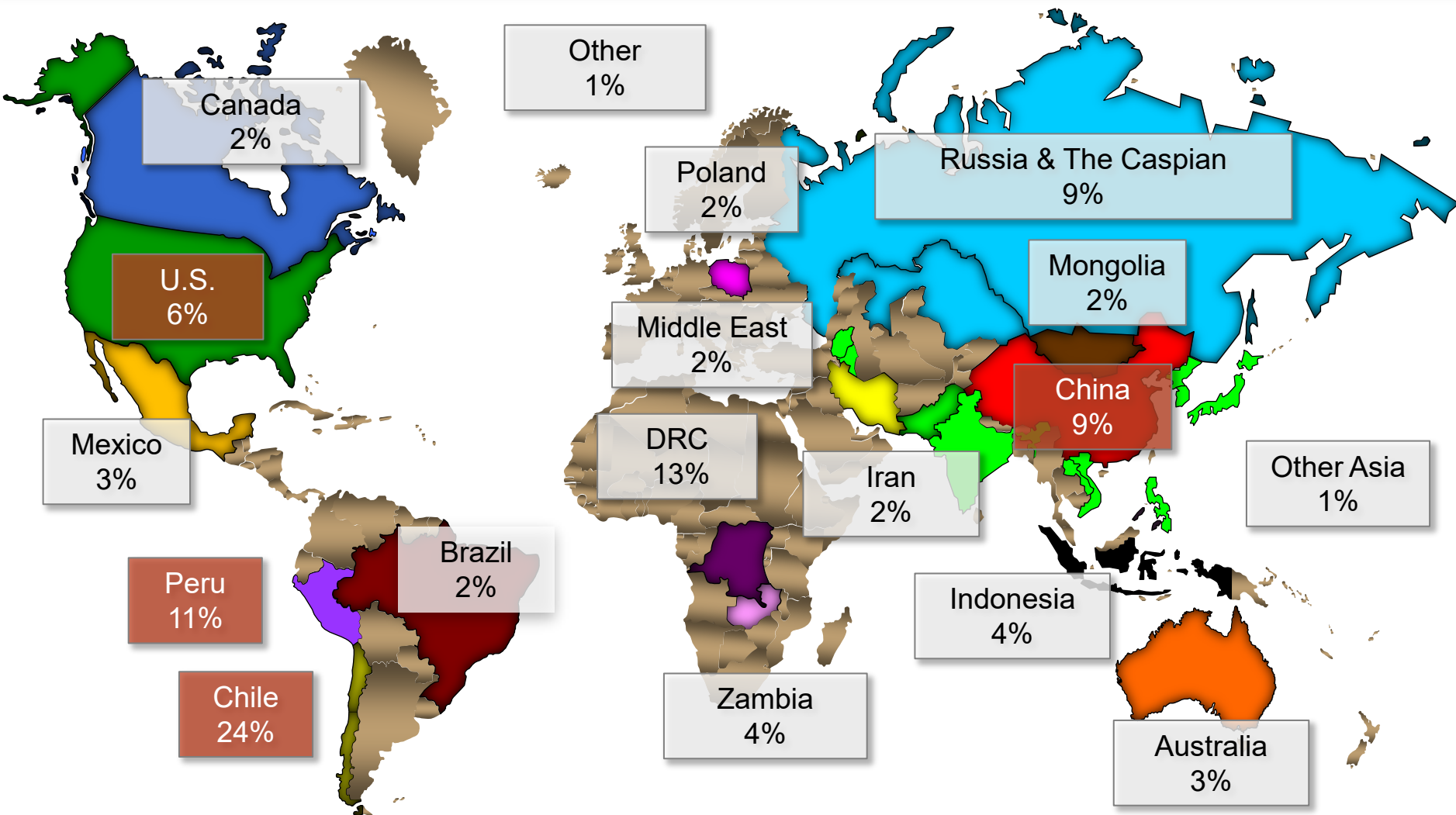
Scrap is Nearly a Third of Supply

Over 10 million tons of scrap



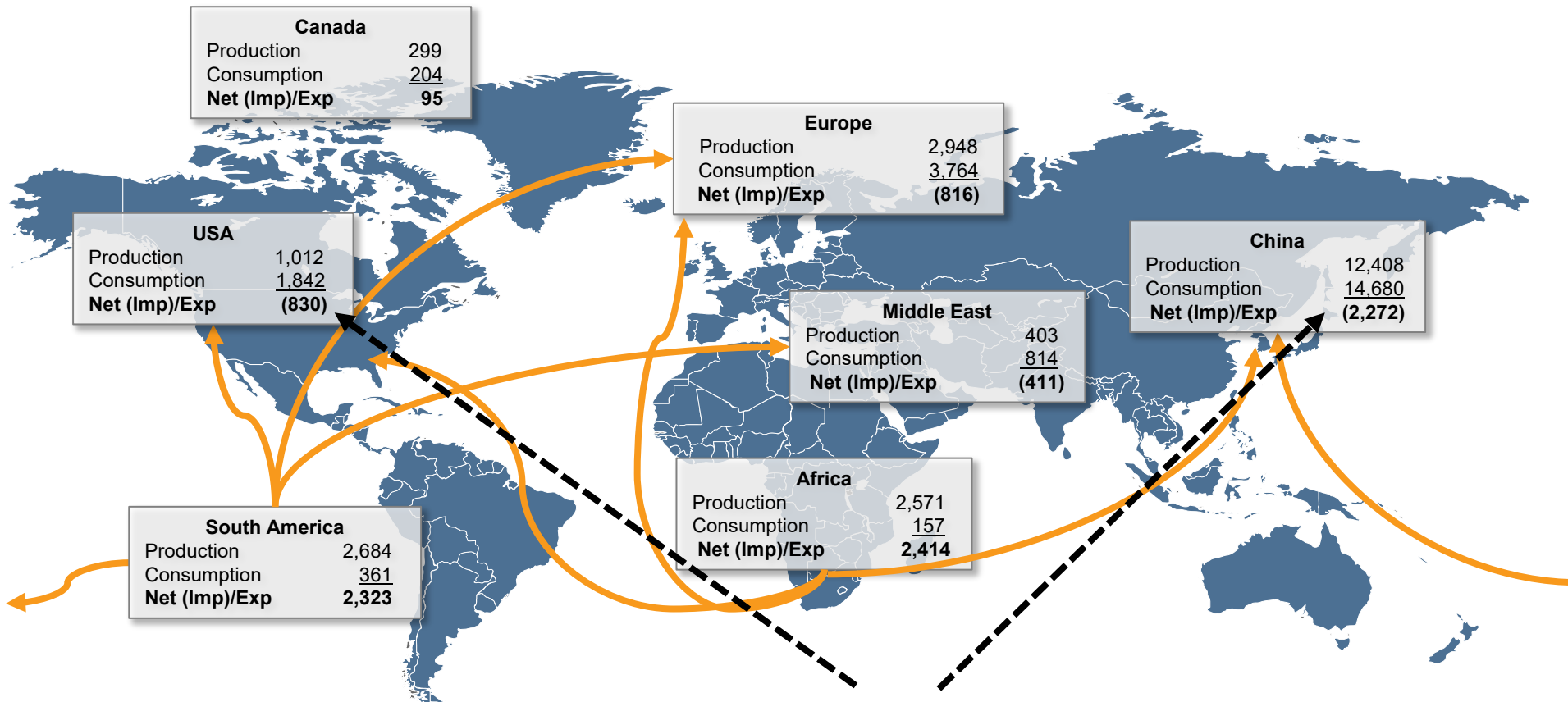
Source: WoodMac, 2024e

Half of Mine Production in the Americas



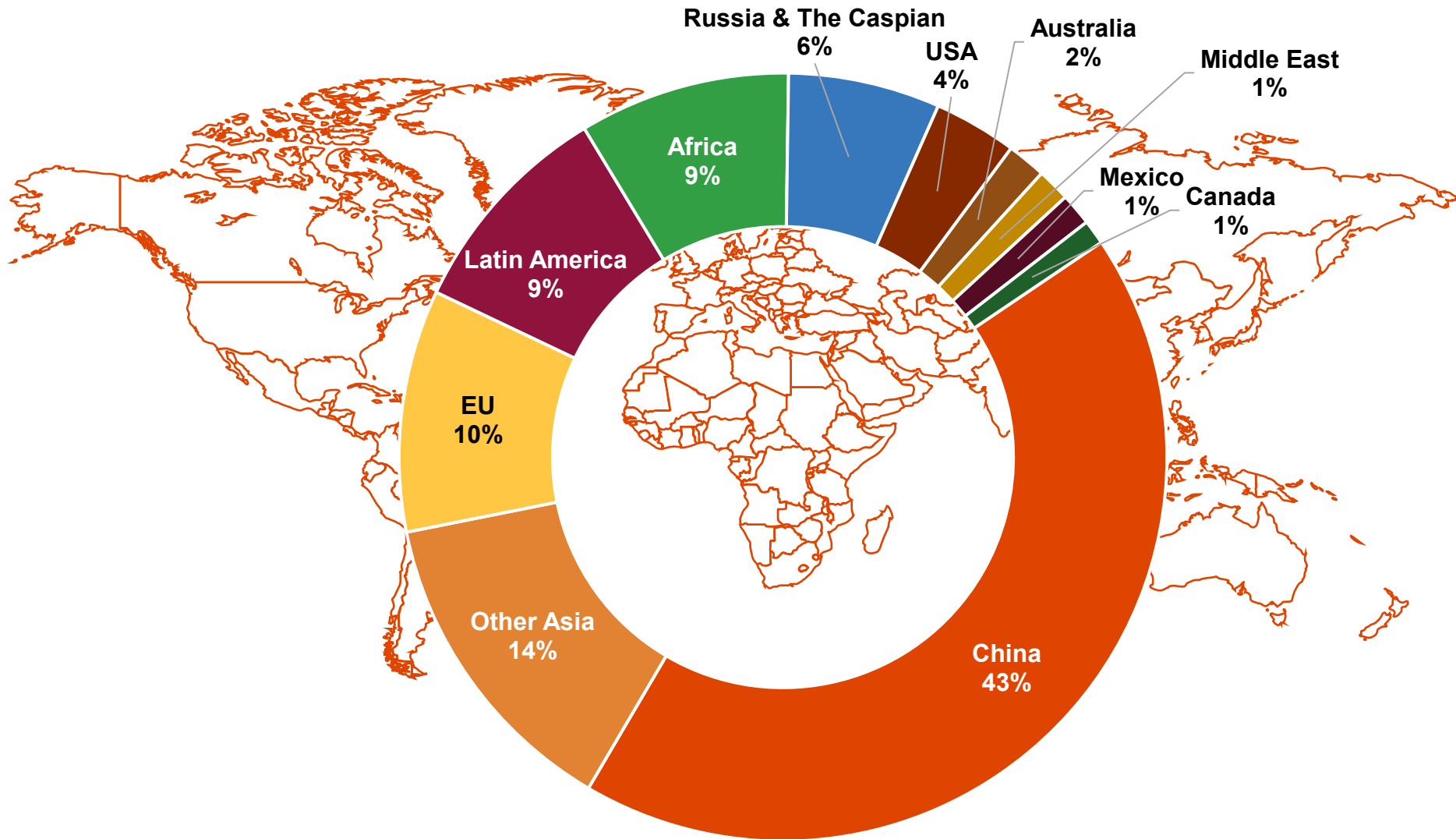
2024 Regional Refined Balances

Cu cathode in thousands of tons

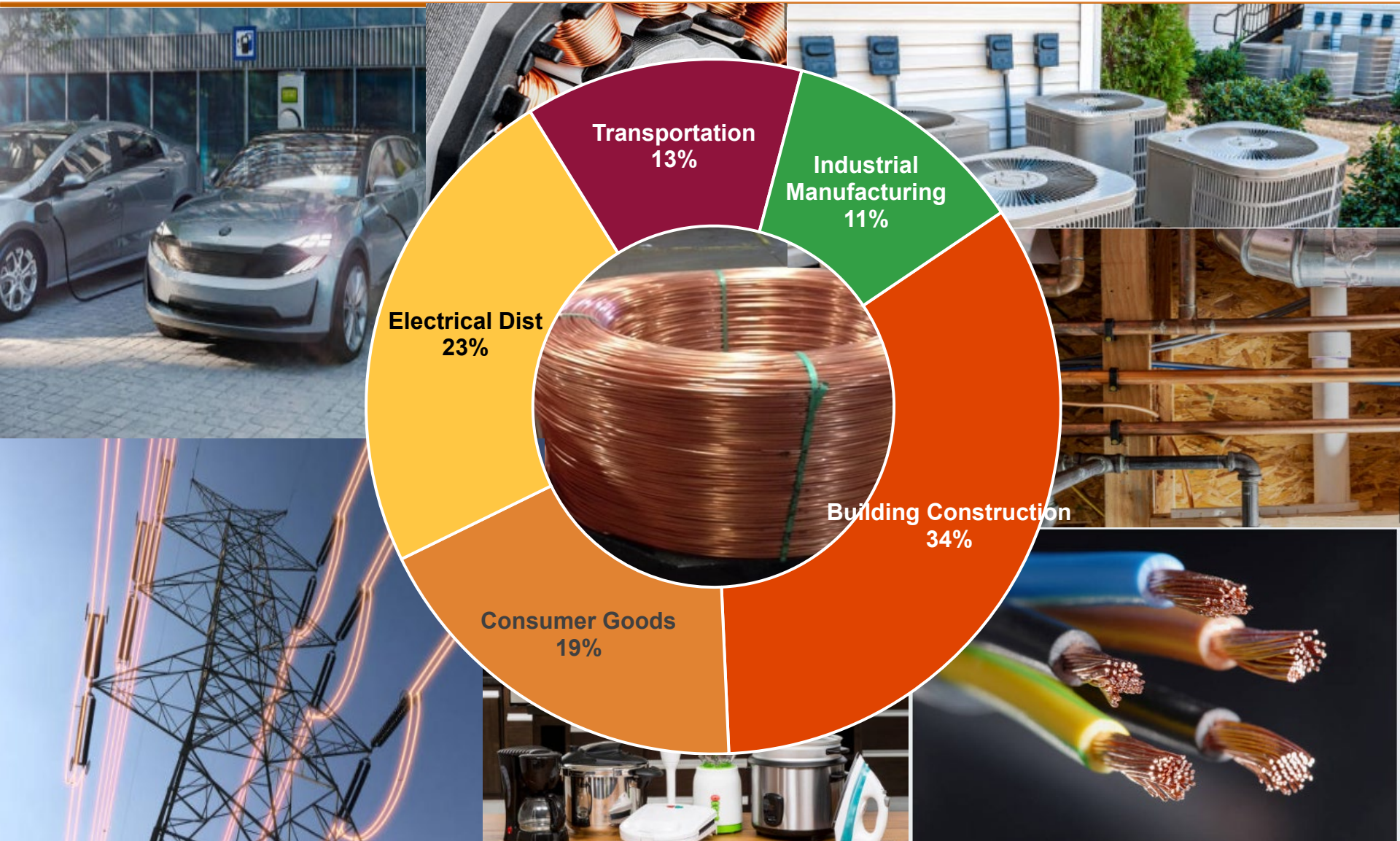


Demand for refined Cu in the US exceeds supply; therefore, the market is a net importer from the global market, competing among other major markets such as China

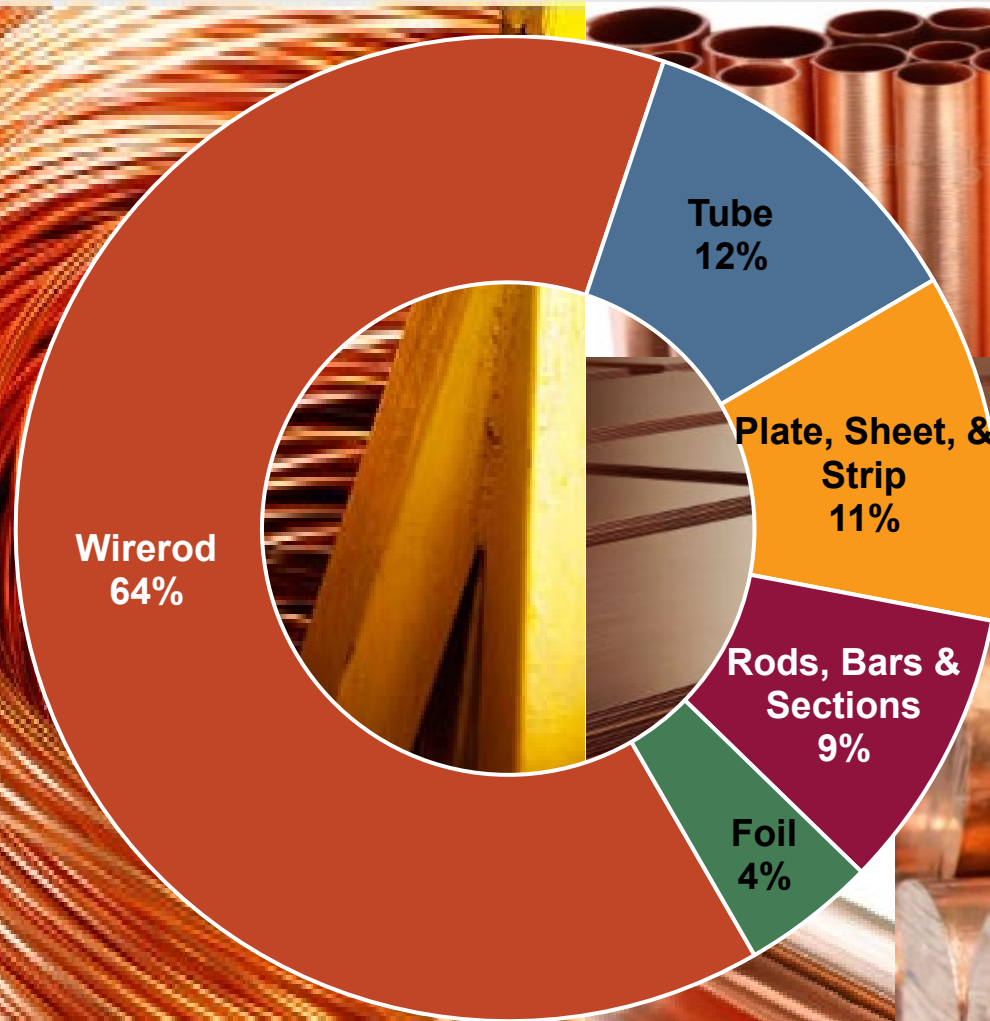
2024 Global Cathode Production



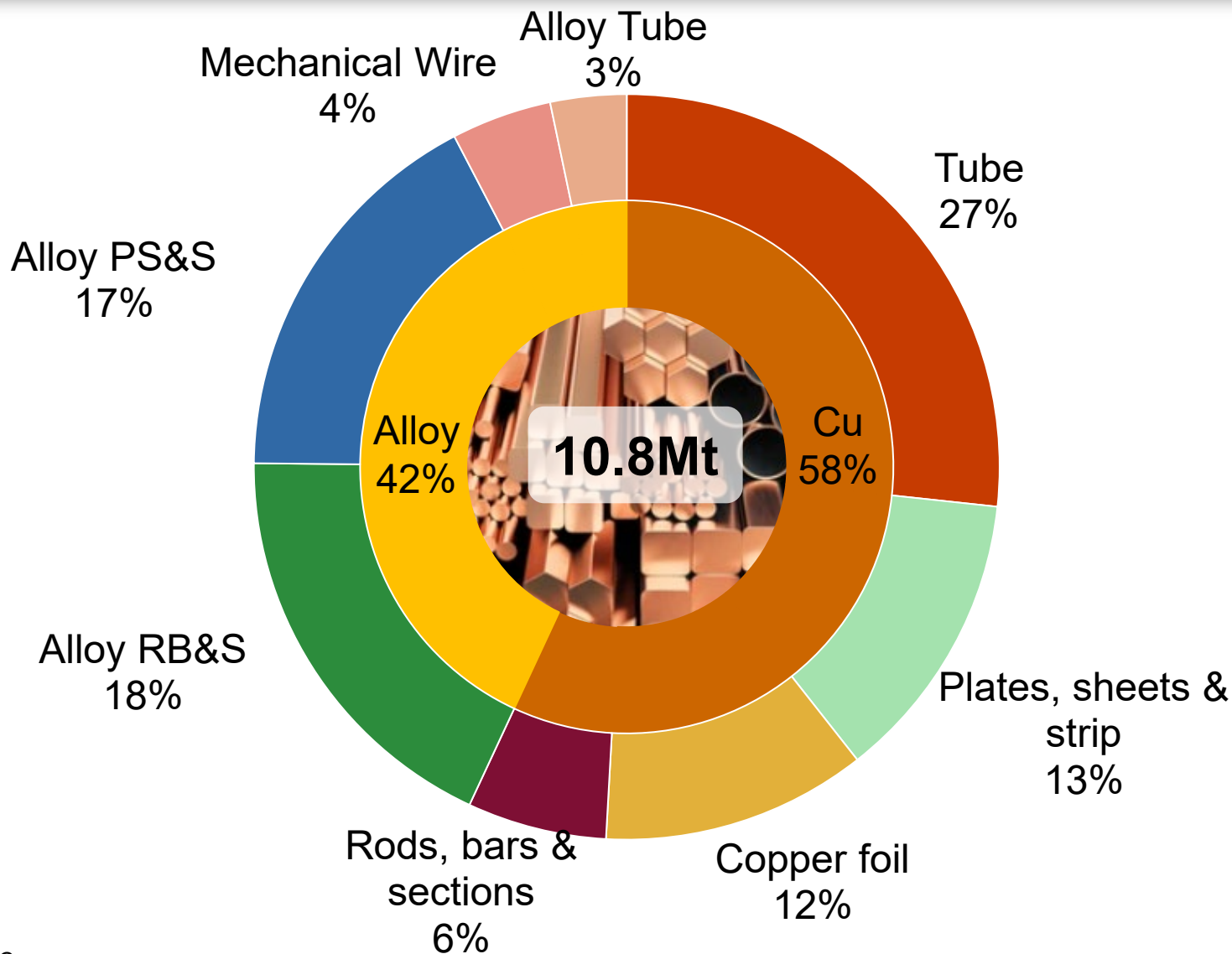
2024 Semi-Fabricated Market End Segments World



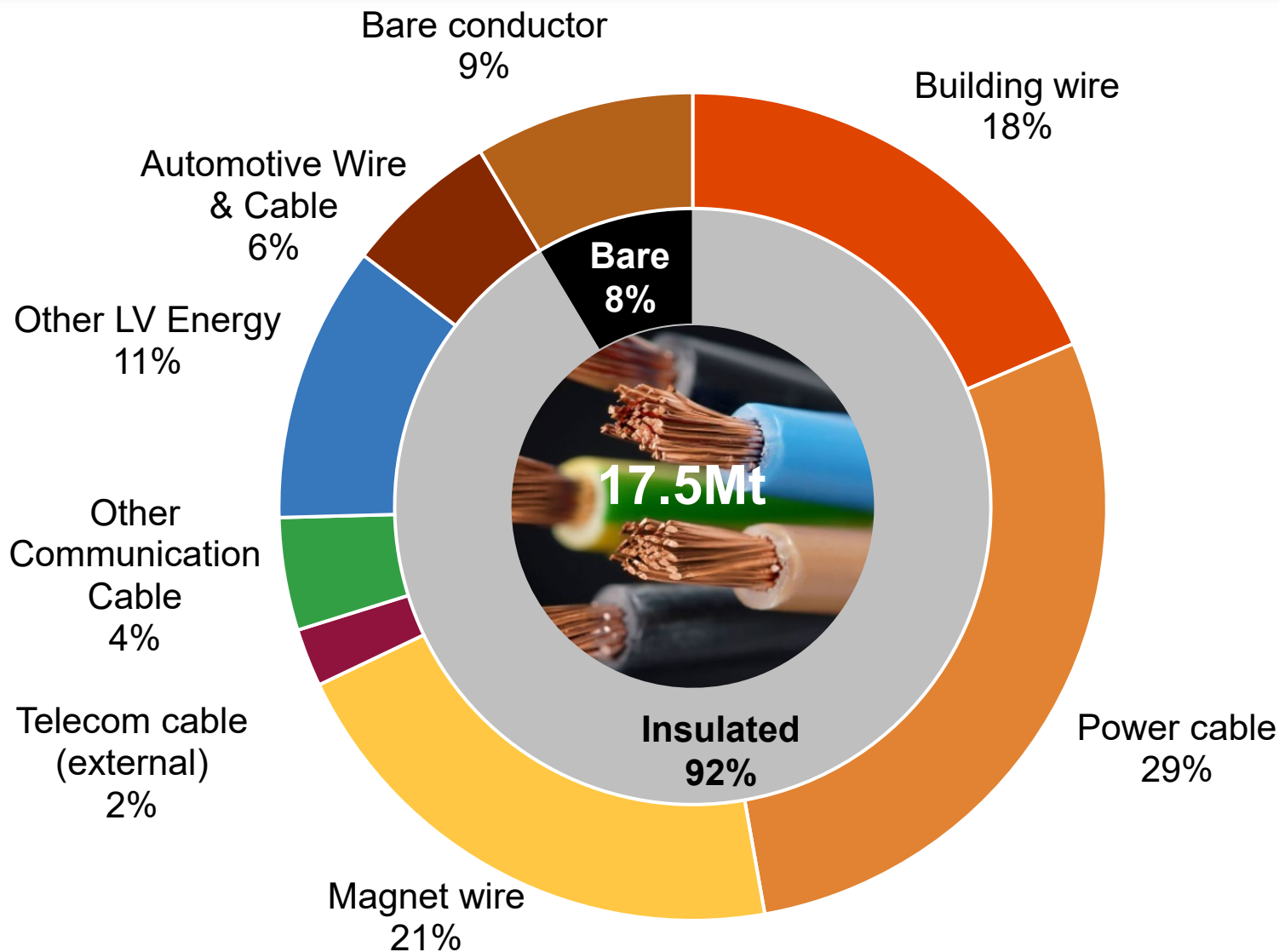
2024 Semi-Fabricated Product Segments



2022 Global Semi Production (ex rod)



2024 Global Wire Production



Intensity of Use is Increasing with Decarbonization



More than 70% of the world's copper is used in applications that deliver electricity. ⁽¹⁾

Electric vehicles use up to four times more copper than internal combustion engines. ⁽¹⁾

Renewable energy technologies use four to five times more copper than fossil fuel power generation. ⁽¹⁾

Copper consumption associated with electric vehicles and renewable energy technologies is expected to grow rapidly over the next several years.

⁽¹⁾ International Copper Association

Questions or Complaints?

F R E E P O R T



FOREMOST IN COPPER

THE POWER OF
COPPER

FREEMPORT
FOREMOST IN COPPER