Copper's Role in Meeting Sustainable Development Challenges

Study: Copper Opportunities in Low Carbon Megatrends

Research Conducted by: Wood Mackenzie

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The low carbon megatrends driving today's global agenda will impact material demand worldwide. To examine how these trends will impact copper, the International Copper Association (ICA) commissioned research firm Wood Mackenzie to examine the link between copper demand and three key sectors: alternative energy, electric mobility and energy-efficient equipment.

Key Findings

- Copper usage in the three key sectors is expected to increase material demand.
- Wind power installations are expected to consume, on average, 548 kilotonnes per annum (ktpa) of copper up to the year 2020.
- Electric vehicles (EVs) are expected to account for 34% of global sales by 2035.
  - Over 50% of the electric vehicles sold are expected to be hybrid electric vehicles.
- The energy efficient equipment sector shows a combined growth of 4.1% per annum resulting in 9.7 million tonnes of copper demand by 2035.

Alternative Energy

- The report shows that wind and solar power currently constitute 12% of the global fuel mix.
  - Among that group, Europe dominates with nearly 25% of its power generated by wind and solar.
- Combined, wind and solar power will account for over one terawatt of capacity by 2035.
- Solar power is expected to consume 30 ktpa through 2020.

Electromobility

Electric vehicles contain more copper than conventional internal combustion engine (ICE) vehicles due to additional wiring, the electric motor and the battery. The charging infrastructure needed for EVs also results in increased copper usage.

- EV charging types use varying amounts of copper, but Direct Current public chargers require nearly 20 kilograms of copper per unit.
- Growth of EVs will continue to come from Europe, the United States and the developed Asian markets.
- Copper demand from passenger car EVs is forecast to overtake ICE vehicles after 2033.
  - It will account for nearly 1.9 million tonnes of copper per annum by 2035.

Energy Efficiency Equipment

The study analyzed energy efficient equipment including distribution transformers, electric motors, and air conditioners. These applications are among the largest electricity consumers and are also significant consumers of copper.

- The applications in the study will account for an estimated 4.7 million tonnes of copper in 2017 (approximately 17% of all copper usage).
- Historical growth in these three sectors has exceeded the copper market average.
- The intensity of copper use is predicted to increase as each incremental unit of efficiency becomes more difficult to attain.

[Footnote: All information sourced from 'Copper Opportunities in Low Carbon Megatrends' by Wood Mackenzie, as presented at the ICA/IWCC Trends and Innovations Workshop, London, 27 October 2017.]

For more information on copper demand or ICA, visit www.copperalliance.org.

For more information on copper's use in sustainable energy, visit www.sustainablecopper.org.

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