



EVALUATING

THE “COPPER FOR CLEAN ENERGY” TALKING POINT.

The urgent need to transition away from fossil fuels is settled science. Minnesota’s need to protect its increasingly scarce and valuable clean air, land, and water is also clear. So do we need to sacrifice one in order to pursue the other, as some are claiming? Given what’s at stake, we must base conversations around these questions in fact and subject claims to real scrutiny.

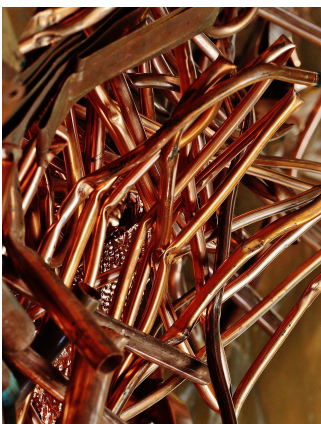
When it comes to copper availability, it’s important to note that the State of Minnesota has not actually studied copper demand or formally evaluated industry generated forecasts. Research from outside of the state, however, provides important context:



Demand: According to the US Geological Survey, current average annual U.S. copper consumption has declined 25% since the 1990s — from 2.5 million tons in 1995 to 1.7 million tons last year. That’s because copper has been replaced in various uses, including with plastic substitutes for copper piping in homes, and fiber optic cable in telecommunications. In 2020, the US exported 390,000 tons of copper ore. If having enough copper were a national concern we would not be sending that much copper overseas.

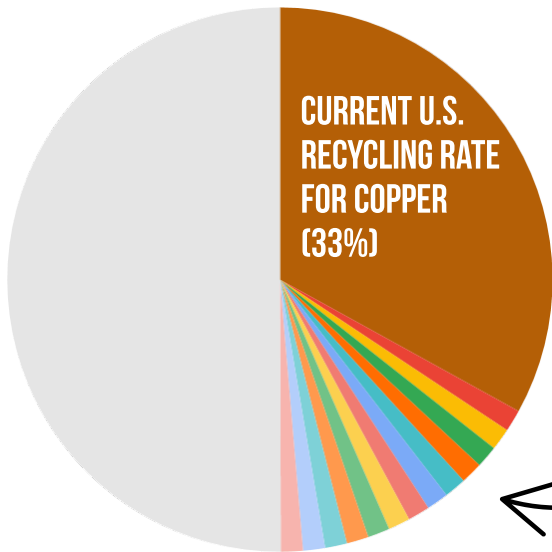


Supply: Existing copper mines are running at 80-85% of worldwide capacity. Glencore alone, PolyMet’s controlling owner, intermittently shuts more copper capacity than PolyMet would produce. A 1% increase in production via existing capacity would significantly exceed what PolyMet would produce. If built, PolyMet would add just 0.16% to current global copper production during operation.



Recovery and Recycling: There are 1.1 trillion pounds of copper above the ground, and copper is infinitely recyclable. The US recycling rate for copper is just 33%, as compared to 60% in Europe. Even small increases in recycling would exceed the production of the mine that PolyMet has proposed. For example, if the amount of the US copper supply that came from recycling was 50% instead of 33%, that difference would be the copper equivalent of 13 PolyMet mines. Recycling copper uses 85% less energy than primary production. Around the world, this saves 40 million tons of CO2 (the equivalent emissions of 16 million cars). Emissions involved in producing new copper, especially in comparison to recovery and recycling, are an oft-overlooked part of the conversation.

INCREASING U.S. COPPER RECYCLING RATE TO 50% WOULD EQUAL OUTPUT OF 13 POLYMET MINES



If the amount of the U.S. copper supply that came from recycling was increased from 33% to 50%, that difference would be the copper equivalent of **13 PolyMet mines.**

VERDICT: COPPER IS WIDELY AVAILABLE WITHOUT MINING LOW-GRADE MINNESOTA ORES.

- Recovering existing copper is a better, cleaner, less destructive means of producing the copper we need, and one that doesn't threaten our increasingly scarce clean water supply.
- The amount of copper that PolyMet would produce is insignificant. Basic fluctuations in demand, supply, and recovery all exceed the amount of copper that a PolyMet mine would produce.

Claims about the need for copper in order to supply the clean energy economy require real scrutiny, and proposals to source that copper through new mining must be considered in the context of all impacts including to air, land, and water. While there is no example of a solar panel or wind turbine that has not been built because of a metal shortage, we know with certainty that sulfide-ore copper mining in Minnesota would have serious consequences for our state.

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