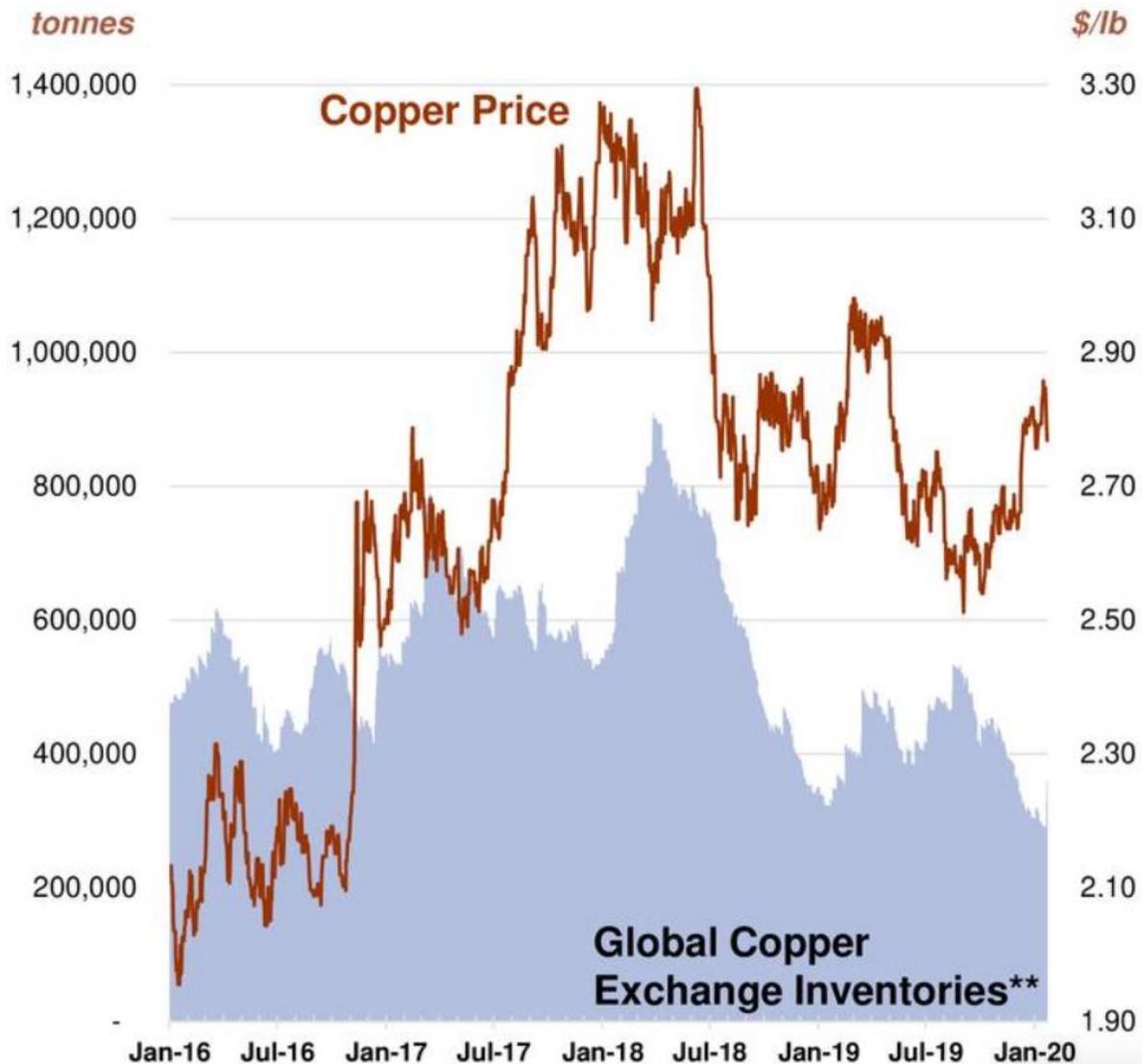


Inside Freeport McMoRan: major goals, and last quarter's progress.

Jan. 31, 2020

Halfway through Freeport's transition period (from surface to underground mining at its giant flagship mine in Indonesia), we're used to the news from quarterly earnings calls: on-track progress of the ramp up of both the underground portion of Indonesia's Grasberg mine and a new mine in Arizona called Lone Star, and progress on its data analytics performance improvement project. Freeport's 4th quarter was no exception, with progress being made on all 3 fronts. In Indonesia, it has completed most of the infrastructure needed to mine underground, which is by far the most difficult part of the development of that mine. At Lone Star, development is 75% complete and the company remains on budget and on time for 2020 production. On its data analytics project, it is finalizing algorithms used to promote efficiency. (That sounds pretty fuzzy, until we hear the company's prediction for tremendous returns on its use of artificial intelligence.) The majority of money relating to this initiative will be spent in 2020, with results of at least 200 million additional pounds of copper per year beginning in 2022.

The copper industry's fundamentals remain the same: an eventual undersupply given even modest demand growth within the next decade. Phase 1 of the trade deal helped boost copper prices up from the low levels of the third quarter. Copper ended the year at \$2.80/lb, up from \$2.60/lb of Q3 but still well below the \$3.30/lb it takes to justify new mines. Global inventories are at multi-year lows, as seen in the chart below, covering the past 4 years. The decarbonization trend on top of normal demand growth should really help out prices in the near future.



For 2020 production, the first quarter expects the lowest production numbers for both copper and gold, as Freeport hits a bottom during this 2 year transition period. Each remaining quarter in 2020 ramps up until the fourth quarter ends at higher production levels than this year. The current cost of production is also at high levels due to lower volumes. Once ore volumes increase from the underground mines at Grasberg, the cost per pound of copper drops significantly. Part of this is due to the extremely high grades of ore in the deep mine. One of the mines has a 1.7% copper grade, which almost triples the industry average of 0.6%.

Its nice to keep hearing about Freeport's progress towards the eventual ramp up of production and lowering of costs. Freeport's CEO succinctly stated: "During this period of time, execution is our battle cry, and that's exactly what we did. We executed." Similarly, we investors can tell ourselves, "Waiting is our battle cry. If we are patient, it will pay off."

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