



**GREEN & INDUSTRIAL METALS**  
**Copper: At the Centre  
of the Metal Supercycle**

## GREEN & INDUSTRIAL METALS

# Generational Demand Growth; Historical Supply Gap

Malleable, ductile, anti-microbial, corrosion resistant, and an excellent conductor of heat and electricity – copper is an industrial and green metal superstar. In fact, the use of copper and copper-based alloys is so widespread that global demand at any given moment can be used as a yardstick for the health of the world’s economy.

While copper supply is heavily concentrated in South America, countries around the world are host to producing mines and significant, undeveloped reserves, together with well-established recycling industries. In other words, the world is not about to run out of copper... or is it?

The world’s major economies are pouring \$billions into green tech and energy transition initiatives, such as the US\$738 billion US Inflation Reduction Act. As a result, the global green economy is expected to nearly double copper demand growth from now to 2030. In fact, copper is so important that the U.S. has added copper to its critical minerals list.

However, years of underinvestment by producers means primary copper supply is ill equipped to meet the approaching tidal wave of new demand. There aren’t enough mines, there aren’t enough near term producers, there aren’t enough high-grade ore bodies.

By 2035, Goldman Sachs predicts a supply gap of nearly 10 million mt – a gap so large that it could slow global economic growth and hold up the energy transition<sup>1</sup>.

As if the huge approaching growth curve were not challenge enough, further change is coming as the West begins pushing to re-onshore supply chains in key sectors. For copper, this could result in a supply upheaval because North America has the reserves, the infrastructure, and soon perhaps the political will, to try to reclaim its historical crown as the king of copper production.

All of which opens up a generational opportunity for investors.

The Oregon Group has crunched the numbers, consulted with analysts, and worked our way through volumes of data. In this report, we share what we’ve learned and how we believe the copper sector will develop in the coming years.

**“When global copper demand increases, it typically does so at a pace that outstrips supply side growth, leading to rapid price rises.”**

A. Milewski, The Oregon Group (Apr, 2023)

**“... if you really think about the future, you can see the world is clearly changing. It’s going to be electrified, and it’s going to need a lot of copper.”**

John LaForge, Head of Real Asset Strategy, Wells Fargo

**“What’s the price of something the whole world needs but we don’t have anything of?”**

Kostas Bintas, co-head of metals and minerals at Trafigura

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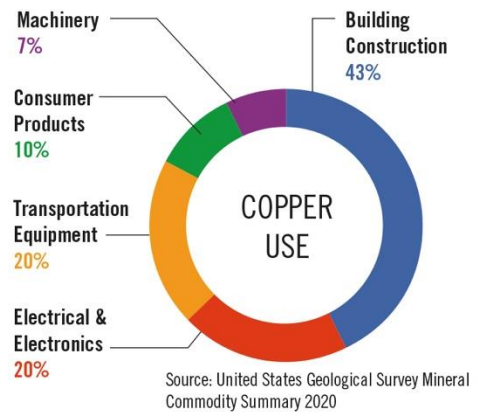
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# COPPER DEMAND

*"S&P Global estimates that copper demand could double to nearly 50 million mt annually by 2035."*

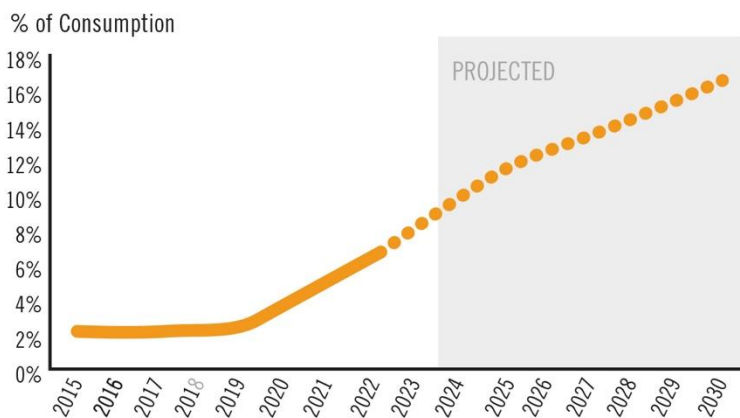
Global consumption of refined copper has more than tripled in the last 50 years<sup>ii</sup> thanks to global economic growth, with particular emphasis on China. Now, the world is entering a new period of transition that will upset the established supply and demand dynamics of the copper market at a scale yet to be widely appreciated.

Copper occupies an unassailable position in numerous, often interconnected global industries. Building construction, electrical and electronics, machinery and equipment, consumer products. Put together, these industries are currently responsible for the lion's share of copper consumption and can be considered the "traditional" sources of copper demand. Analyst consensus is that traditional demand will, as a whole, trend modestly upwards for years.



What's really going to make copper demand fly, however, and over the fastest timeframe, is the global transition to clean energy. What began with governments publishing their clean energy plans almost as public relations stunts, has now transformed into an ongoing period of increasingly aggressive action in the form of \$multi-billion government spending and tax incentive programs in countries such as the US, China, and Canada, and the entire EU bloc. Some countries such as the UK, France, Sweden, Hungary, and Denmark, have even enshrined carbon targets in law.

**Green demand will represent 47% of additional copper demand for the rest of the decade**



Source: ICA, IEA, BNEF, Goldman Sachs Global Investment Research

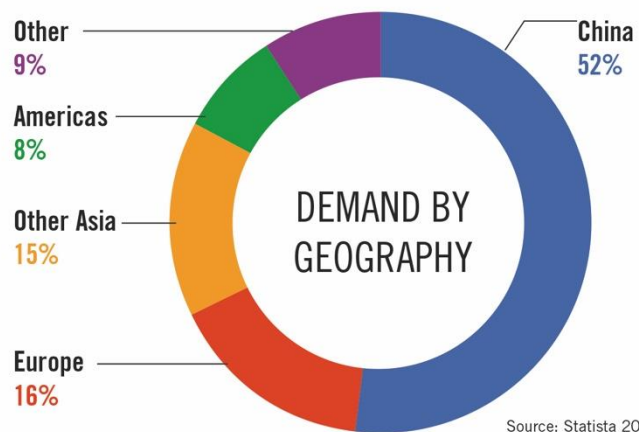
What does all this mean for the copper market? Well, as Daniel Yergin, S&P Global vice chairman, has pointed out: "*the energy transition is going to be dependent much more on copper than our current energy system,*" "*Copper is the metal of electrification, and electrification is much of what the energy transition is all about.*"<sup>iii</sup>

Wind and solar farms, hydro and nuclear power stations, electric vehicles (EV), EV charge station networks... we are talking about massive new demand. S&P Global estimates that copper demand could double to nearly 50 million mt annually by 2035.<sup>iv</sup>

### Who Needs Copper the Most, Why That's Changing, Why That Matters

When it comes to geographical demand, China is currently by far the largest consumer. In fact, it was the opening of China's economy at the end of the 1970's that, for decades, has supercharged demand for copper and many other metals. As we will get into later, The Oregon Group anticipates a radical increase in geographical demand from a variety of other countries going forward.

Such is the confidence in the forecasts, analysts believe that even a potential recession won't do more than create a small speed bump on this high-speed highway to growth. This is because the energy transition is being "legislated in" by governments around the world which, according to John LaForge, Head of Real Asset Strategy at Wells Fargo, makes copper "less dependent on the broader global economy than it used to be."<sup>v</sup>



# COPPER SUPPLY

*“What if I told you lithium is the new gasoline?”* – the now-famous headline of the 2015 Goldman Sachs report shone a light on lithium supply and demand trends and set the stage for a massive lithium boom. Investors piled in and lithium project exploration and development went wild. Ironically, while lithium was flying high, copper was nosediving. Exploration and development of the red metal had fallen off the radar of investors, and the majors continued to slash project costs at the expense of future proofing their production levels. Fast forward to today and copper prices may well be double their 14-year low in 2016 but the supply side has yet to recover from those years of neglect. Crunching the numbers makes for some eye opening conclusions. The largest recorded annual deficit for copper is 1 million mt, which is a fraction of the shortfalls now being forecast.

Copper is an abundant metal. Lots of countries produce it and the world has large reserves. These are proven facts that no doubt provide reassurance to the many industries that rely on copper. So, why is it that copper industry insiders – from major producers, influential metal traders to funds and analysts – are all warning of an upcoming supply shortfall so large that it could, according to Bloomberg, “hold back global growth, stoke inflation by raising manufacturing costs and throw global climate goals off course”?

The inevitable conclusion is that the market has yet to appreciate the implications of a simple fact: global reserves do not represent actual production. There may be a lot of copper deposits but there are not enough operating mines, and not enough projects that can quickly be advanced to production.

## Primary and Secondary Supply

While the specific split varies year to year, in 2021 primary supply (mining) was responsible for 83.3% of global copper production and secondary supply (recycling) provided 16.7%.<sup>viii</sup>

Mining techniques include surface, underground and leaching, with open pits being the most common. After extraction, the ore is refined into a concentrate, then smelted into a “matte”, converted into blister copper, and finally either fire refined in the traditional process route or re-melted and cast into anodes for electro-refining. Alternatively, in the hydrometallurgical route, copper is extracted from mainly low-grade oxide ores and sulphide ores through electrowinning, eventually resulting in refined copper cathodes. Production from recycled scrap uses a similar refining process to those used for primary production.

**If current copper supply and demand trends continue:**

**By 2035...**  
annual deficit up to 10 million mt (S&P Global)<sup>vi</sup>

**By 2040...**  
annual deficit up to 14 million mt (Bloomberg NEF)<sup>vii</sup>

Despite the laborious, multi-step process for refining copper, the massive, looming bottleneck for supply lies earlier in the life cycle, specifically with the lack of mine output.

## Old Mines and a Near-Empty Pipeline of New Production

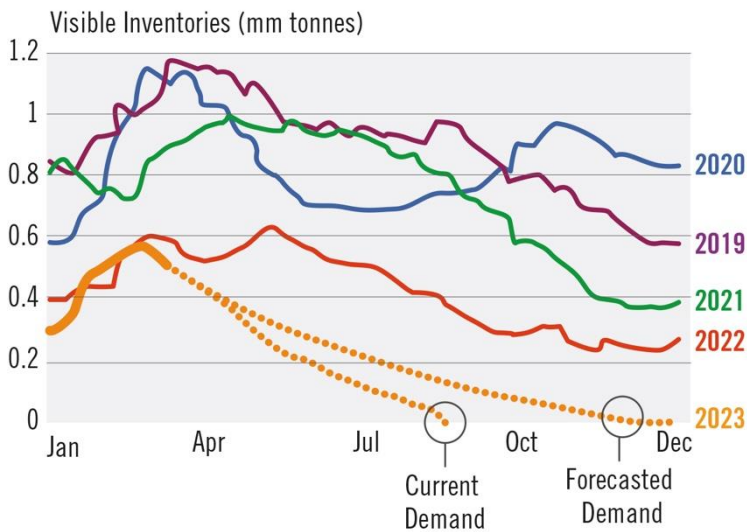
The mining sector is well known for underinvestment during times of low prices. Exploring even a single property costs \$millions and will typically not even yield a discovery. Taking a potentially economic discovery all the way to a construction decision costs \$tens of millions. As for building a mine and mill, well now we're typically topping a \$billion even in a low cost jurisdiction, not to mention the increasing ESG hurdles that must be overcome.

With such a high barrier to entry, it's easy to see why the copper sector, languishing in sub-incentive price levels for years, has become something of a poster child for underinvestment in new supply.

However, the sector still finds itself in a position where existing mines must be modernized, near-exhausted deposits must be expanded, undeveloped deposits must be advanced into production, and greenfield exploration must be reinvigorated. The problem is that, even with improved prices, the sheer scale of improvements and project development costs means it's difficult to see how any projects except the best and the fastest to production will find their way forward any time soon.

*"A massive shortfall will emerge - one that could hold back global growth, stoke inflation by raising manufacturing costs and throw global climate goals off course."*

### Global copper stockpiles will deplete by August if the present trend continues



Source: Goldman Sachs

The majors began responding to this looming gap not with a massive outlay of exploration and development dollars but rather by kickstarting mergers and acquisitions (M&A). In December 2022, BHP made a binding offer to acquire Oz Minerals, totaling \$6.4 billion. Also in that month, Rio Tinto increased its share at the Oyo Tolgoi mine copper mine in Mongolia for \$3.1 billion. However, this isn't adding new supply, it's simply putting more of the current and near-term supply in the hands of majors. By the summer of 2023, the majors had begun talking about increasing exploration and the potential for using new tech to extract ultra deep or geologically risky deposits. Not exactly a quick fix but

certainly an acknowledgement that there is not enough current and near term production to cope with the coming demand.

With mine supply growth set to peak around 2024<sup>ix</sup> we are racing towards a historic deficit of up to 10 million tons in 2035. Want to know the cost of removing that gap? Well, Goldman Sachs estimates that miners need to spend about \$150 billion.<sup>x</sup> If the problem is still not solved, BloombergNEF predicts a 14 million mt mined-output gap by 2040.<sup>xi</sup>

Now, you may be thinking about recycling output. It's true that many countries have well-established copper recycling industries. It's also a fact that scrap supply can help offset primary supply gaps, especially as prices rise. However, the emphasis here is on "help offset". There is simply no possibility that recycling can make up such a massive, predicted shortfall. Case in point, S&P Global has forecast that recycled production could grow only 5% from nearly 17% today, to about 22% of the total refined copper market by 2035.<sup>xii</sup>

As for the chance that a recession could put a serious dent in copper demand growth, much of future copper demand is being "legislated in," through governments' green transition policies, which makes copper less dependent on the broader global economy than it used to be.<sup>xiii</sup>

The supply and demand numbers are mind blowing but where does that leave prices? At time of writing, prices had been on a ten-day run as the markets reacted to further, visible tightening of copper supply, followed by a dip based on how fast China's post-pandemic revival was seen to be progressing. In other words, we've seen copper prices trend upwards significantly in the last few years in line with tightening supply but over the short term there will still be some volatility. Viewed through a slightly longer lens, according to Goldman Sachs, prices could double to an annual average of \$15,000 a ton by 2025. We think that's conservative.<sup>xiv</sup>

All in all, it's clear that copper is headed for an historic supply gap which in turn represents a generational opportunity for investors. That is, of course, assuming that the current trends continue.

# THE BIG TRENDS

## The Green Revolution is Being Built with Copper

Scores of battery megafactories are under construction worldwide. Automakers are going all out to electrify their product lines, and international charge station networks are being installed. Renewable and nuclear power stations are being built around the world. Power grid overhauls are underway to cope with the new, clean power generation. To ensure this continues, and to give their economies the associated economic boost, governments are rolling out legislation.

The energy transition is fueling greater demand for a variety of metals. However, most of these metals, such as nickel, lithium, and cobalt, are tied into electric vehicles (EVs) and energy storage. Copper, while also a major requirement for EVs and energy storage solutions, is also needed by pretty much everything related to the energy transition. In fact, according to S&P Global, copper demand related to the energy transition is projected to grow about two-and-a-half times by 2035, equal to around 13 million mt/year increase.<sup>xv</sup>

*"The amount of copper that's going to be used over the next 28 years is going to exceed all of the cumulative copper consumption that the world has seen since 1900."*

Why so much and so soon? Well, here are a few more facts and figures for you: a standard sized EV needs 2.5x more copper than a gas powered car; offshore wind farms need and solar facilities utilize about 5x and 2x more copper respectively than fossil fuel generation.<sup>xvi</sup> Additionally, every city using significant renewable power, and those supporting charge station networks must upgrade the transmission and distribution network or else the energy transition won't happen.

In S&P Global's 2022 report on copper, John Mothersole, director of nonferrous metals economics & country risk for Market Intelligence, stated "If we are to meet energy transition targets, the amount of copper that's going to be used over the next 28 years is going to exceed all of the cumulative copper consumption that the world has seen since 1900."<sup>xvii</sup>

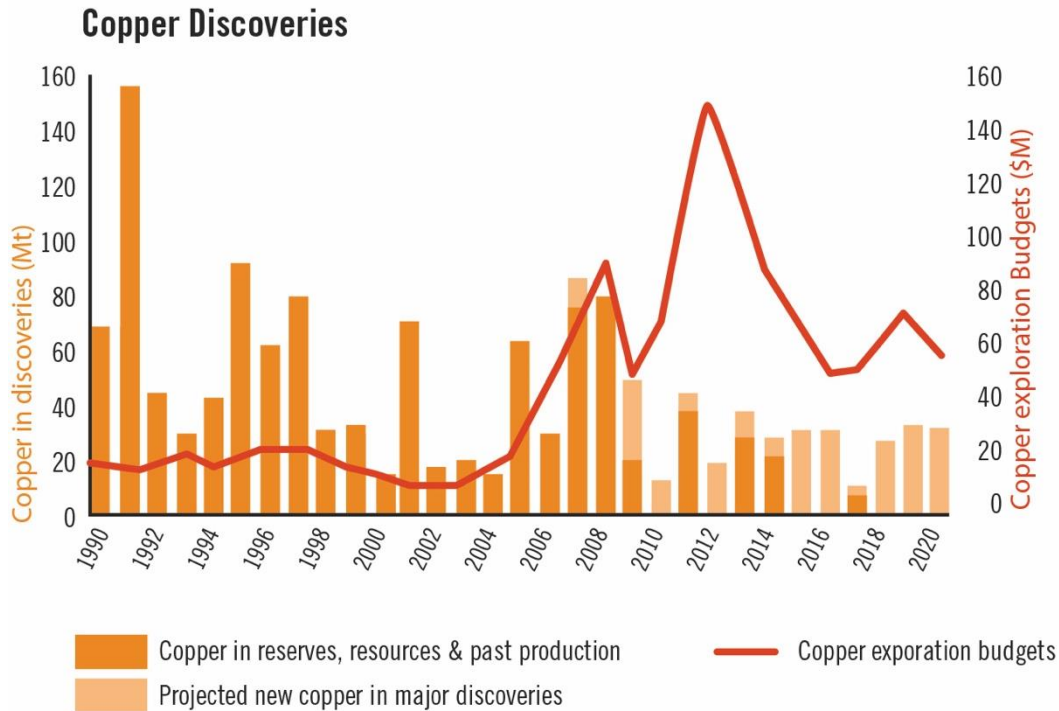
Mothersole's prediction is based on measurable activity: manufacturers are ramping up production, customers are purchasing and, most importantly of all, governments around the world are incentivizing. America is a perfect example. With the Inflation Reduction Act, Goldman Sachs estimates that US energy spending will increase by \$264 billion between 2023 and 2030. In response, the EU has proposed the "Net Zero Industry Act" (NZIA), which aims to dramatically increase the manufacturing of "technologies which are key to achieve climate-neutrality such as solar panels, batteries and electrolyzers, among others, or key components of such technologies." Even Canada is getting in on the act with C\$20.9 billion in net new green incentive spending by 2028. And that's just the West. China, the world's largest carbon emitter, plans to continue its aggressive rollout of renewables and nuclear power generation. The Green trend is here and it needs a lot of copper.



# Bringing on New Production... It's Not so Simple

Extended underinvestment, environmental regulations, social pushback, political change, and a scarcity of new, large, and economic deposits in reliable jurisdictions. New copper supply is facing genuinely daunting headwinds. Turning things around is not going to be easy, fast, or cheap, and our research suggests that extensive new production is a long way off.

There are plenty of charts stating that the world has plenty of copper – more than equal to global consumption now and in the foreseeable future. And it does... sort of. The world does have a lot of copper but the modest number of new discoveries in recent years isn't down to smaller exploration budgets. According to S&P, industry-wide copper exploration budgets in 2022 increased 21% to just shy of \$2.8 billion.<sup>xviii</sup> That's the highest level since 2014 but here's the kicker: although reserves and resources grew by an estimated 50 million tonnes, the majority of those increases came from assets discovered in the 1990s.<sup>xix</sup> This problem has been a known factor for some time. As the chart below shows, a decade ago saw massive annual exploration budgets but little in the way of new copper. Put more simply, the era of cheap, high-grade copper is over.



## Has South America Peaked?

South America has dominated copper supply for years, however, less and less copper is coming out of Peru and Chile as production, exploration and development hit hurdle after hurdle.

Chilean mines continue to struggle due to issues including water restrictions during an ongoing period of drought, operational problems with equipment, rockfalls, a dam freeze, and logistical challenges.

This is in addition to strikes and community protests. In addition, proposed mines are proving harder to get across the finish line. A perfect example being the rejection of the \$2.5B copper/iron Dominga project, citing environmental concerns. According to Chile copper commission, Cochilco, Chile's investment backlog reached 53 projects at \$73.66 billion for the 2022-2031 period.<sup>xx</sup>

All of this supports The Oregon Group's preference for brownfield copper projects, and we're not the only ones. In the opinion of Duncan Hobbs, head of research at trader Concord Resources "Big [greenfield] projects often face issues. Struggles on recent projects [are] a big advert for challenges new greenfield projects can face [and] few projects are coming online on time and on budget." Acquisitions and brownfield investments "are often less risky" than greenfield, according to Hobbs. Proven and functional resources, with completed infrastructure and regulatory approval, make purchasing existing mining companies a far safer investment than completely new ventures."<sup>xxi</sup>

For Peru, the main source of difficulty has been protests that began targeting some of the largest operations in early 2022, including Glencore's Antapaccay Mine, Southern Copper's Cuajone and MMG's Las Bambas, the country's fourth-largest copper mine and the world's ninth biggest. The demonstrations threaten to block access to almost \$4 billion worth of copper. By March, 2023, as reported by Reuters, Fitch Ratings said: "We believe protests and blockades that extend beyond three months can pose a material risk to a mine's operations, including logistics."<sup>xxii</sup>

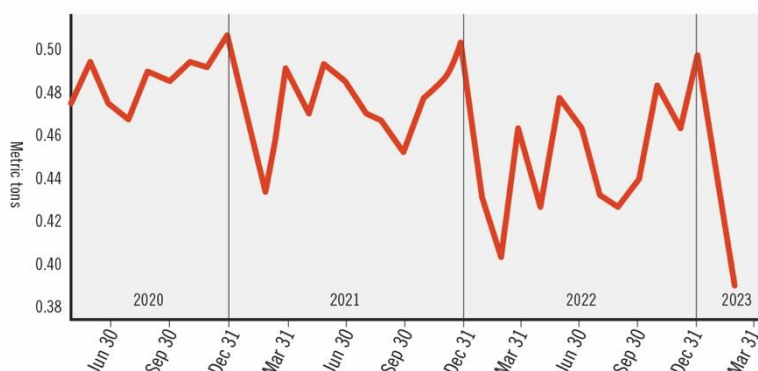
## What Happened to Copper Grades?

Additionally, grades of existing, producing mines have continued to fall dramatically with Chile recording a year-on-year decline of 7% in November, 2022. This is partly because, between 2001 and 2014, 80% of new reserves came from re-classifying waste rock into mineable ore by lowering the cut-off grade.<sup>xxiii</sup>

By lowering cut-off grades and high-grading (removing the best ore and leaving the lower grades) the grade of new reserves each year has steadily declined.

As if all of these issues were not enough, we then have the hurdle of inflation, which is driving up the cost of construction and production. Goldman Sachs estimates that the average incentive price for new production is approximately 30% higher than it was 2018 at around \$9,000 a ton.<sup>xxiv</sup>

**Copper Mines are Struggling in Chile**  
Top producer of the metal posts lowest output since 2017



## Re-onshoring: Putting America Back in the Driving Seat

We've already discussed the fact that the energy transition is being fast tracked in multiple countries at a government level. The benefits for climate change are powerful drivers, but governments are also chasing the economic advantages and countries consider themselves in competition with each other. Geopolitics is very much alive and well in the energy transition trend and this includes not just security of energy supply but also of supply chains in general.

In the 1960's, the US was both the largest producer of mined copper and the largest consumer. Combined with US companies' control (before nationalization) of copper mines in South America, the US controlled 45% of the world's production. Today, the US is the world's fifth largest copper producer.

In a bid to boost the US's production of critical minerals, last year's Inflation Reduction Act provided tax incentives for companies investing in the mining of critical metals and the production of electric vehicles and renewable energy in the United States. However, permitting new mines in the US can take between 7-10 years, sometimes longer. This increases the potential upside for past producing projects, of which the US has a variety.

The Oregon Group believes that a significant source of new supply will come from companies taking older, previously undeveloped deposits into production, and re-starting historic, past-producing operations with accompanying, modern exploration and development methods used to expand the ore bodies. We don't believe it will be the majors that do this. It will be smaller plays that undertake the hard work, then sell to majors that are looking for quick ways to increase production.

# INVESTING IN COPPER

**It's a proven fact that copper supply has tightened, and the forecasts from a range of highly respected analysts and industry insiders, point towards a major, historical supply gap. For investors interested in getting positioned in copper, the question then becomes: what is the best entry point?**

**There are various options. You can run with an ETF, which will give you direct exposure to the copper price without the hassle of becoming a stock picker but at the cost of perhaps missing out on individual plays with the greatest upside. You can pick up a position in one or more of the current producers, which benefit from existing cash flow at a time of upward trending copper prices but will also come with other potential exposures such as the risks in play in South America. Then there are your developers and explorers, which typically have a lower entry point with greater potential reward but also increased risk. What follows are examples of each investment category.**

## Copper ETFs

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### **Bloomberg** iPath Series B Bloomberg Copper Subindex Total Return ETN

TICKER: JJC, PRIMARY EXCHANGE: NYSE

An exchange-traded note issued in the US. It follows the price of copper futures contracts and doesn't precisely match copper market prices. However, it provides direct exposure to copper.

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**GLOBAL X**

### **Global X Copper Miners ETF**

TICKER: COPX, PRIMARY EXCHANGE: NYSE

Global X Copper Miners provides exposure to a range of copper miners. As of early 2023, the ETF held 39 copper stocks.

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**USCF**



### **United States Copper Index Fund**

TICKER: CPER, PRIMARY EXCHANGE: NYSE

CPER is designed to be a convenient, cost-effective way for investors to access the returns of a portfolio of copper futures contracts.

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## PRODUCERS, DEVELOPERS & EXPLORERS

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### Freeport-McMoRan

TICKER: FCX, PRIMARY EXCHANGE: NYSE

A major copper producer with seven open-pit copper mines in North America. FCX is also the world's largest molybdenum producer and a significant gold producer.

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### First Quantum Minerals

TICKER: FM, PRIMARY EXCHANGE: TSX

One of the world's top ten copper producers. Also active in nickel but primarily focused on current production and a significant pipeline on near-term and future production.

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### Southern Copper

TICKER: SCCO, PRIMARY EXCHANGE: NYSE

Another top ten copper producer. Focused on produced based in Peru and Mexico. Additionally produces and refines molybdenum, zinc, silver, lead, and gold.

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### Ivanhoe Mines

TICKER: IVN, PRIMARY EXCHANGE: TSX

Copper producer with a strong focus on further development of its existing assets as well as exploration. Owns impressive assets in Africa including the world's fastest growing major copper mine.

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### Faraday Copper

TICKER: FDY, PRIMARY EXCHANGE: TSX

Copper developer that is advancing a large resource in the US State of Arizona.

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### NGEx Minerals

TICKER: NGEX, PRIMARY EXCHANGE: TSX-V

NGEx Minerals is a Lundin Group copper and gold exploration company based in Canada with projects in Chile and Argentina.

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The following companies have been chosen as spotlight copper companies for their strengths and potential upside.

## US Copper Corp

TSX.V:USCU | OTCQB:USCUF | FRA:C73

### Hidden Gem with Leveraged Exposure to America's Copper Renaissance

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US Copper came to our attention after we conducted an exhaustive search for past copper producing mines in the US that still had significant copper resources. With copper now part of the US critical minerals list, it's clear that US assets with near term production potential have upside beyond similar stage projects elsewhere. Once found, we ruthlessly screened these US projects by metrics including grade, metallurgy, location, infrastructure, and permitting. Then, because we are always hunting for the optimum entry point, we then shortlisted our shortlist by lowest market value.

Toronto-listed US Copper Corp. ("USCU") emerged as the most attractive investment candidate for US copper exposure. The Company owns a large, late-stage copper asset in the US. It has the potential to be fast tracked into production, and it has a low entry price with a market cap below US\$10 million (112M shares @ C\$0.05/share).

The company has two billion pounds of copper in three deposits located 100 miles northwest of Reno, Nevada in mining-friendly NE California. The property includes two historic mines that yielded over 160 million pounds of copper at an average grade of 2.2% Copper, and with additional gold and silver byproducts providing 20% of total revenues. In the 1960s, Placer drilled over 500 holes on their way to making a new discovery at Moonlight and calculating a total historical resource of four billion pounds of copper. Placer looked at building a mine there in the 1970's but a fall in copper prices put their plans on the back burner.

US Copper picked up the property in 2013-16 and had a Preliminary Economic Assessment prepared in 2018 that demonstrated the Moonlight Deposit alone was economic at \$3.15 copper yielding an after tax USD\$179 million NPV at 8% discount rate. The economics would be significantly improved by adding in the other 2 deposits with known resources, as well as the oxide cap that was treated as waste in the PEA. (Placer did not assay the top 50 feet of their drilled holes in the 1960's).

Existing infrastructure with highways, railway lines, and hydro are all close by. The deepwater port in Sacramento is only two hours away and there are a number of local communities nearby, representing an ideal source of skilled labour.

For investors seeking exposure to America's copper renaissance, this company ticks all the boxes as a former producer, large, remaining copper resource with economic grade, excellent infrastructure, and an attractive entry point. You can watch a video of the company's main copper project here: <https://f.io/LPM5ODIq> or visit: [www.uscoppercorp.com](http://www.uscoppercorp.com).

## Freeport Resources Inc.

TSX:FRI | OTCQB:FEERF | FRA:4XH



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COMPANIES

### Compelling Risk/Reward Play on the Copper Price

Freeport Resources owns one of the largest, undeveloped copper projects in the world and already has the engineering and feasibility studies in place. At today's share price of \$0.025, its market cap is under USD \$3 million, making it arguably the market's most undervalued copper asset, which is of course why it came to our attention.

Why so undervalued? It's simple: the company has been stuck on its license renewal application. However, with encouraging permitting-related news in March from the Papua New Guinea ("PNG") Mining Ministry, and potential game-changing catalyst technologies, the Company has strengthened its prospects for moving toward development. Freeport is a perfect example of what we search for in this sort of market: an asymmetric risk/reward where the downside from \$0.025 per share is negligible compared with the upside of such a large copper resource.

Freeport's principal asset is its 100% owned, Yandera copper project located in PNG. The project was acquired Sentient Private Equity, a US\$2.7 billion specialist mining Private Equity (PE) fund. Sentient, and the project's prior owner, spent in excess of USD \$200+ million in engineering and feasibility studies but was forced to sell when the Fund was liquidated. The project is held under a 2-year renewable exploration license which has expired but was renewed eight times previously.

The 2022 elections in PNG resulted in several new appointments in the Mining Ministry. The bottlenecks of the past two years, primarily a result of the pandemic and other political concerns, are opening up and, per recent discussions with the government, the Company received its 2021 license renewal. The Warden's Hearing in May of 2023 was extremely well received by the Yandera landowners and community and the Company is now awaiting the MRA to complete their compliance and site inspection scheduled for September 2023. After this review is completed the Company is optimistic it will receive its renewal and Exploration License 1335 will then be current.

Yandera is a major, world class copper deposit. A pre-feasibility study completed in 2017 showed total resources of 959 million tonnes of copper equivalent grading 0.37%, including measured and indicated resources of 728 million tonnes, grading 0.39% copper equivalent. According to the conclusions of the Worley Parsons 2017 Pre-Feasibility Study, the Project has an IRR of 23.5% with an expected payback of 5 years and 8 months based on a copper price of \$3.35 per pound. With copper already trading above \$4.00 and with analyst estimates forecasting much higher prices in the coming years, the project economics will become increasingly more attractive.

Recent advances in new copper catalyst technologies have opened an entirely new, low-cost processing route for Yandera and other large yet lower grade sulphide copper deposits. These technologies, which allow for the treatment of lower grade sulphide ores as oxides via a standard SX/EW circuit, are currently employed and being tested at various projects by Jetti Resources and Rio Tinto. The Company is currently evaluating these technologies to determine if they are applicable to the Yandera project. If they prove to be viable, this could greatly enhance the feasibility of Yandera by significantly reducing the CAPEX and OPEX required to transition the project to production.

View a video of the project <https://youtu.be/6EdmRWt91pY> or visit [www.freeportresources.com](http://www.freeportresources.com).



# THE OREGON GROUP PROJECTIONS

The world is so used to copper supply being plentiful that it has yet to appreciate the true scale of the problems facing global production.

Based on our analysis, we believe that we are in the early stages of an extended copper bull market. We believe there will still be some price volatility in the short term but we are also convinced that long term growth is all but secured thanks to the accelerating transition to clean energy and the green economy, both of which are being supported by aggressive government legislation and funding.

Global competition, and the desire in certain countries such as the US to re-onshore their supply chains, will not only increase the rate of clean energy adoption but will also open up investment opportunities in a copper market that was previously dominated by South America.

We think that, as the broader market does become more aware, there will be a rush to finance high quality brownfield projects in safe, reliable jurisdictions, as well as major, advanced deposits that can be taken into production at an accelerated pace.

## Bottom Line

Copper is approaching an historic gap in supply, which in turn represents a generational investment opportunity. Some short term volatility will give way to upwards trending prices over the medium to long term.

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## SOURCES

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