STRATEGIC METALS: A REAL SOURCE OF OPPORTUNITIES FOR INSTITUTIONAL INVESTORS

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KEY POINTS

- Climate change requires implementing an energy transition that could achieve carbon neutrality by 2050, phasing out fossil fuels (natural gas, coal and oil), and adopting low-carbon solutions, such as nuclear power, hydroelectricity and renewable energies (wind and solar power).
- The current energy transition is transforming our dependence on fossil fuels into a dependence on metals, something we are not fully prepared to deal with.
- Metal resources are sufficient for keeping global warming below the 2-degree threshold. Metal recycling, done properly, can help meet needs.
- However, mining faces major challenges that will have to be met, in order to meet demand, which will continue to rise in the coming years in support of the energy transition.
- As a result of this fast-growing demand and insufficient supply due to mining issues, our findings point to a significant, rapid and sustainable rise in metal prices and, hence, a source of opportunities for investors.
- Investing in the sometimes controversial metals sector is incompatible with an ESG policy. Metals emits less CO2 than fossil fuels, and innovation is leading to industrial methods that are more environmentally and socially friendly.
- To date, metals are not yet included in the European Taxonomy – one of the pillars of SFDR regulation in terms of sustainable investment. But mining activities are expected to be included soon.
- A proactive approach to carbon offsets is one way to comply with the requirements of SFDR "Article 8" funds.
- While metals are a highly volatile asset class, there exist solutions for limiting consumption of equity capital and for tapping into returns.
- Bottom line: metals seem a solid long-term investment that provides protection from equity-selection risk and geographical risk, and makes it possible to focus solely on demand, which is being driven up by the energy transition.

The energy transition is inevitable; metals are the key to it

Since 2015, with COP21 and the Paris Agreement, and based on published scientific research, we know with certainty that anthropogenic climate change is under way. It is being driven by the burning of fossil fuels and by the resulting CO2 emissions into the atmosphere. But until now, humanity has never made an energy transition. It has functioned by using wood, then coal, and then natural gas to meet its ever-growing energy needs.

To combat global warming, it is now necessary to target carbon neutrality by 2050 through a net-zero emissions policy. And to do that, we must learn to do without fossil fuels, mainly natural gas, coal and oil.

But this is easier said than done. 82%[1] of the world's primary energy consumed still comes from fossil fuels, despite efforts that have already been made.

Metals: the new black gold

The good news is that there exist solutions for addressing climate change. Some of these, such as nuclear power, are controversial. Commissioning times, safety issues and social acceptability limit its massive deployment anytime soon. Other, more traditional solutions, such as hydroelectricity, are more widely accepted but already heavily exploited, particularly in Europe and the United States. Development opportunities are to be found mainly in South America, Asia and Africa, but geopolitical challenges are hindering their implementation on the necessary scale.

That's why a consensus is forming around renewable energies, in particular wind and solar power. These look attractive, as wind and sun are ubiquitous and free of charge. However, their use does require special infrastructures, such as wind turbines and solar panels, which must be manufactured using metals. As a result, the current energy transition is transforming our dependence on fossil fuels into a dependence on metals, and we are not fully prepared to deal with that.

We have enough metals for the energy transition

Emmanuel Hache, head of research at IFP Énergies Nouvelles (IFPEN) and at IRIS, two French think-tanks, as well as an economist at IFPEN, has modelled the quantities that will be necessary for the energy transition. He found[2] that, in theory, resources are available and sufficient.

However, some metals pose special challenges. According to Hache[3], while we have enough lithium, copper is more problematic. To stay below the 2-degree threshold between now and 2050, we will have to consume 90% of the copper resources currently identified on the planet, probably 80% of bauxite resources, and about 60% of cobalt and 70% of nickel. These figures are high but do suggest that metals resources are sufficient on the whole for the energy transition.

A resource that doesn't go away

Unlike fossil fuels, metals do not vanish after use. Even after being used, they retain their physical properties, with the exception of metals used for nuclear power, which undergo structural changes.

[1] *BP statistical review 2022 - www.BP.com*

[2] *IFPEN and IRIS, Project GENERATE : The project was launched in 2018 for a 2-year research period*

[3] *https://theconversation.com/cuivre-quel-avenir-pour-ce-metal-essentiel-a-la-transition-energetique-119500, 11 Juillet 2019*

Beginning 2050, the first generations of wind turbines, solar panels and electric vehicles will have reached the end of their useful lives[4]. If an efficient recycling system has been set up by then, those materials will be able to be used to make new, similar infrastructures. That means that, over the long term, we will have enough metals to meet demand arising from the energy transition.

Mining of metals remains a challenge

Our ability to extract metals at a pace compatible with the needs of the energy transition is a far more complex and concerning issue.

Let's take the example of copper. According to the International Energy Agency (IEA)[5], an organisation founded by OECD countries after the oil shocks of the 1970s to advise them on energy issues, there are currently about 250 operational copper mines worldwide. Based on their average size and the needs of the energy transition, 80 new mines of equivalent size would have to be opened to meet demand.

But, also according to the IEA, it takes, on average, 17 years to develop a new mine[6], from exploration to operation, and as much as 24 years for a new mine to be operational in the United States. This time constraint is a major challenge for achieving the objectives of the energy transition. And to date, there are fewer than 10 copper mining projects on the drawing boards worldwide.

That means that supply will probably be outstripped by demand. And when supply and demand are thrown into imbalance, the immediate impact is a rise in prices.

Metals prices are highly likely to move up

If we are truly committed to the energy transition and regard it as a priority, we will have to do "whatever it takes" to manufacture solar panels, wind turbines and electric vehicles, as Mario Draghi might say[7]. Higher prices will encourage producers to expand production, but the time needed to commission new mines will be an obstacle. As a result, all signs that we see suggest that metals prices will rise significantly over a long stretch of time.

In a study published in 2021, the International Monetary Fund (IMF)[8] modelled the volumes of metals needed for the energy transition, including four key metals — lithium, cobalt, nickel and copper — often called "electric metals", as they are essential for electric vehicles and other technologies.

According to the report, by 2040 – but probably well before then – prices of lithium, cobalt and nickel are likely to rise by several hundreds of percent. Copper prices could rise by 60%. The IMF nonetheless stressed that these are conservative estimates and that, if its forecasts are wrong, prices could increase even more.

Metals are an extremely solid investment case

The IMF suggests, metals prices are likely to appreciate significantly, rapidly and sustainably, probably over at least the next 10 years. To paraphrase Olivier Vidal[9], a researcher at CNRS and a specialist in these matters,

[4] *It's a simple calculation: the average life of a wind turbine is 25 years, to which you must add the dismantling. So roughly 30 years. The first generation of massively installed wind turbines dates from 2015-2020.*

[5] *Energy Technology perspectives 2023, janvier 2023*https://www.iea.org/reports/energy-technology-perspectives-2023

[6] https://www.iea.org/reports/the-role-of-critical-minerals-in-clean-energy-transitions/reliable-supply-of-minerals , *mars 2022*

[7] *Mario Draghi is the former President of the European Central Bank, former Italian Prime Minister. He did say that, on another subject, and this sentence became a reference. He said in 2011 about the measures that the ECB would take to defend the Euro ("whatever it costs").*

[8] *Energy Transition Metals, Octobre 2021,* https://www.imf.org/en/Publications/WP/Issues/2021/10/12/Energy-Transition-Metals-465899

[9] *Olivier Vidal of the CNRS: "In the next 30 years we will have to extract as much metal as since the start of human history". Journal du CNRS : September 2022*

in the next 30 years we will need to extract from the Earth's crust as much metal as since the start of human history.

An investment that is compatible with a responsible approach

Mining's compatibility with environmental, social and governance (ESG) practices is a crucial issue. We live in a world in which any economic activity, even services, begins by extracting materials that will be turned into computers, cables or any other tools that allow companies to function. In other words, to maintain economic activity, we will always need metals, and, in some cases, petroleum products.

The real question[10] is how to extract these resources in a way that minimises the impact on nature. On this point, metals offer some advantages regarding their environmental impacts, particularly in terms of CO2 emissions. Fossil fuels are estimated to account for about 70% of the world's CO2 emissions. In comparison, metals (encompassing the entire value chain, i.e., scopes 1, 2 and 3) account for about 13% to 15% of global emissions[11].

However, looking at the data in greater detail, we can see that most of these emissions are from two metals : steel and aluminium. Steel alone accounts for 70% of emissions from the metals sectors, while aluminium accounts for 20%. That means that production of all other metals combined accounts for just 1.5% of global CO2 emissions.

Hence, replacing fossil fuels through increased mining is advantageous from the point of view of CO2 emissions. Although stepping up mining activities would cause a slight uptick in metals-related emissions, the overall impact would be far below that of fossil fuels. Moreover, efforts are already under way to make production of metals, in particular steel and aluminium, less CO2-intensive.

Meanwhile, progress is being made in making mining more environmentally friendly. In France, mines often call to mind scenes from the movie Germinal. But modern mines can be designed to minimise their environmental impact and comply with sustainability standards.

The Kiruna mine in Sweden, for example uses trucks equipped with electric engines, thus reducing its environmental impact considerably. Mining is partly automated, with ore-extracting jackhammers being remotely operated.
These innovations help reduce the human and environmental impacts, while making operations more efficient.

[12]That being said, keep in mind that mining will always have an impact on nature, and on biodiversity in particular. This is undeniable. However, if we replace fossil fuels with renewable energies, the impact of the increased mining necessary to extract metals will be easily offset by the halt of extractions of fossil fuels.

[13]And, lastly, the water impact must also be considered, as exploitation of fossil fuels, including natural gas, uses a lot of water. Here again, the switch from fossil fuels to renewable energies would be advantageous.

[10] https://www.strategie.gouv.fr/files/files/Publications/2020/NA%2096%20m%C3%A9taux/fs-2020-na96-externalite-carbone-metaux-octobre.pdf , *France Stratégie, octobre 2020, comment évaluer l'externalité carbone des métaux*
[11] *Hannah Ritchie & Max Roser "Emissions by sector", Our World in Data, August 2020*
[12] https://www.sciencedirect.com/science/article/pii/S0301420725000583?ssrnid=4918144&dgcid=SSRN_redirect_SD, *Cumulative Energy demand and global warming potential of metals and minerals production: assessment, projections and mitigation options, march 2025, Thibaut Feix, Emmanuel Hache*
[13] *Source: IEA, Reducing the impact of extractive industries on groundwater resources, march 2022,* https://www.iea.org/commentaries/reducing-the-impact-of-extractive-industries-on-groundwater-resources

Integrating sustainability in metals investments remains a challenge

Addressing environmental or social criteria in the metals sector is increasingly challenging. Most investments are via forward contracts or on the physical market. The lack of a "real" contact person makes it impossible to engage in dialogue to influence practices. When buying gold, for example, there is no way to evaluate extraction standards or to choose a mining company from a particular geographical area. You are buying an inert metal at a market-clearing price. Full stop. That means that we cannot use "best-in-class" or "best-in-universe" approaches, as we do on the equity or bond markets.

It is possible, however, to align with funds classified SFDR "Article 8" through a voluntary mechanism for offsetting CO2 emissions at the level of the portfolio management company, through fees paid by investors. Changes in the cost of this offset therefore have no impact on fund performance.

Metals are not yet in the European taxonomy

[14]When the Taxonomy was written, its annex report stated that metals were essential to the energy transition. However, the environmental impacts of metals extraction were deemed too challenging to analyse in the allotted time, and mining of metals was therefore excluded from the Taxonomy. A list of necessary metals was nonetheless drawn up, in including all metals in which we invest.

However, things are changing, In France, Benjamin Gallezot, the interministerial delegate on critical metals, reporting to the prime minister's secretary general for investment, recently stated in an interview with the financial magazine L'Agéfi[15] that the European Union had decided to include mining activities in the Taxonomy under certain conditions, as was done for natural gas and nuclear power. A pan-European consultation has been launched to lay the groundwork for this inclusion, an inclusion that we hope will happen soon.

Bottom line: without metals there is no energy transition. So, it makes sense and is imperative to include the mining industry in the Taxonomy, as the energy transition won't work without sufficient mining of metals.

A market that remains volatile and a burden on regulatory capital

The commodities market differs from other asset classes in one basic respect: Prices are set on the basis of an instantaneous equilibrium. That means that they can be heavily impacted by the slightest bad news. Moreover, unlike other asset classes, such as equities, bonds or real estate, commodities do not offer regular income. And, lastly, institutional investors face regulatory constraints, particularly from Basel III, which imposes capital requirements based on the level of risk of assets in which they invest.

[16]Commodities are regarded as the riskiest assets, which means that an institutional investor must immobilise 49% of its equity capital to cover its investments in metals. That makes these investments especially expensive in equity capital terms.

There are, however, solutions for reducing capital costs, particularly via structured products, especially those with guarantees of principal. This reduces regulatory capital requirements. Boosted growth notes, for example, lower capital requirements to 15-17% (vs. 49% without a structured product). A structured product generating conditional income can lower the capital requirement to about 22%.

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[14] *European Union, 2020, TEG final report on the EU taxonomy.* https://finance.ec.europa.eu/system/files/2020-03/200309-sustainable-finance-teg-final-report-taxonomy-annexes_en.pdf

[15] https://www.agefi.fr/news/economie-marches/benjamin-gallezot-diamms-letat-soutient-lindustrie-dans-la-securisation-de-ses-approvisionnements-en-minerais-et-metaux-strategiques, *décembre 2024*

[16] https://www.eiopa.europa.eu/browse/regulation-and-policy/solvency-ii_en

An alternative thematic to other asset classes

Another approach consists in integrating commodities into an allocation based on themes such as climate change or the energy transition.

When they invest in the energy transition, portfolios are often steered towards the equities or bonds of companies that make solar panels, electric cars or other "low-carbon" solutions. However, this approach can be risky.

A historical precedent illustrates the risk. During the first wave of solar development in 2010, the largest companies were European. [17]But as a result of aggressive competition from China, European companies' prices collapsed, sending many of them into bankruptcy. Although investors had bet on the right thematic (solar power), they lost their investment because of this competitive risk.

Investing in metals is a more stable and global alternative – whether it's a Chinese, European or US company that ultimately wins out, all will be using the same metals.

So, by investing in metals, it is possible to rein in these geographical and equity-selection risks and to focus solely on demand for metals, which, in our view, makes this investment more directly linked to the energy transition[18].

[17] *Solar industry in trouble, Deutsche Welle, 16/06/2012, https://www.dw.com/en/chinese-exports-crushing-german-solar-industry/a-16031596*

[18] *Anais Culot 12 September 2022, "Le sous-sol, le grand oublié de la transition énergétique".*

MAIN RISKS

Risk of loss of capital

The risk that invested capital will not be returned in full is inherent to this type of investment management, which offers no capital guarantee.

Counterparty risk

Counterparty risk is incurred from swaps and other derivatives contracted by the Subfund. The Subfund is exposed to the risk that credit establishments may not be able to honour their commitments on these instruments. This risk could result in a decline in the Subfund's net asset value.

Interest rate risk

Through an index, directly or via money-market funds selected to remunerate cash on hand, the Subfund may be invested in interest-rate futures and/or in fixed-rate debt securities. In generally, the price of such securities falls when interest rates rise.

Risk incurred by an investment in commodity futures

The Subfund is exposed to commodity prices via commodity index swaps. Keep in mind that a decline in commodity markets or a worsening in exogenous conditions, such as storage or weather conditions, could result in a decline in the Subfund's net asset value. The reason for this is that commodity futures prices are closely linked to current and future production of the underlying product or even the estimated natural reserves in the case of energy commodities. Climate and geopolitical factors may also alter the levels of supply and demand of the underlying product and, hence, modify its expected scarcity expected on the market.

Sustainability risk

Sustainability risks arise mainly from weather events resulting from climate change (called physical risk) and from societies' capacity to respond to climate change (called transition risks). They are likely to result in unexpected losses affecting fund investments and financial performances. Social factors (inequalities, labour relations, investment in human capital, accident prevention, changes in consumer behaviour, etc.) or gaps in governance (involving recurring and material violation of international agreements, corruption, product quality and safety, and selling practices) may also result in sustainability risks.

Credit risk

This is the potential risk of a downgrade in the issuer's credit rating, which would have a negative impact on the bond's price and, hence, on the Subfund's net asset value. The use of credit derivatives may exacerbate this risk.

Liquidity risk

The portfolio's liquidity risk depends on the liquidity of the investment vehicles used: this liquidity risk present in the Sub-Fund essentially exists on account of OTC positions and, in the case of events which may interrupt the trading of shares on the markets on which they are traded. A stock's lack of liquidity may increase the cost of liquidation of a position and hence cause a drop in the net asset value of the Sub-Fund.

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