For professional investors in Italy

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The long-term bull cycle for uranium and the role of utilities in the 2023 rally

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In a comment published last February we estimated that the price of uranium could reach **$60** per pound by the end of the year. This threshold was already **exceeded in the first days of September**, due to a growth in spot prices of around 30% since the beginning of the year. This trend places uranium as one of the **best performing raw materials of 2023** (Source: Bloomberg).

While the 2006-2007 uranium rally - which took the price as high as $137 a pound - was driven primarily by hedge funds, the current bull phase is primarily driven by forward purchases of utilities and select producers. it is therefore healthier, sustainable and far-reaching.

In particular, **utilities** have reappeared on the market after two years of substantial absence. In the first half of the current year, utilities signed long-term uranium purchase contracts for **107 million pounds**, a value at a 10-year high and compared with 125 million for the whole of 2022 (Source: 2022 Term Contracting Review). This trend is expected to continue in the coming months supported by utilities' need to manage depleting inventories: it is estimated that the inventories on which US utilities rely will only cover their needs for around two years, while those of European utilities for around three years (source: UxC). Asian utility inventories, particularly Japanese and Chinese, are more difficult to quantify, but overall, we estimate that utilities will need to increase purchases to meet future needs from the current 150 million pounds per year to over 250 million, a quantity that leads to a cumulative global supply **deficit estimated at 1.5 billion pounds by 2040.**

This deficit will be supported on one side by a limited supply, on the other by a demand for uranium which we estimate will structurally increase by 3/5% per year, in light of the expected extension of the life of existing nuclear plants and the expected new projects.

Governments around the world are, in fact, increasingly favourable to nuclear energy, considered a source of zero-emission electricity and increasingly a solution to the risks to energy independence and security. Japan itself, after having shut down its 33 power plants after Fukushima, has already reactivated 11 of them and intends to bring them back to full activity within

the decade. In the **USA**, the ADVANCE Act was approved last July to support the national nuclear industry, for which 8 billion dollars have been allocated. **Europe** has formally recognized the role that nuclear power can play in achieving the goals of "Zero Net Emission", set for 2050 and some countries such as France have extended the life of already operational power plants. Nuclear energy production plants are constantly growing: today there are **436** active reactors in the world, for a total of approximately 390 GW of electricity produced, equal to 9% of global production.

In light of the decarbonisation trend combined with the need to increase electricity production (which IEA estimates must double in the next decade), even assuming that the contribution of nuclear power to energy generation remains stable, it appears clear that energy production from nuclear energy is destined to double. And in fact, **59** traditional plants are already **under construction** and a further **111** have already been **approved**, while another **321** are in an evaluation phase. Of all these new and potential plants, almost 50% will be built in China (Source: World Nuclear Association).

An important contribution to the production of nuclear energy could also come from new **modular reactors** (SMRs, Small Modular Reactors): 76 are already under development, mainly in the USA, Russia and China, and it is estimated that the SMR market could reach to be worth **1 trillion dollars by 2050** (Source: Barclays Research) in light of the versatility of this solutions that will be able to supply energy even to individual production plants.

Several factors, both structural and contingent, are complicating the already **limited supply scenario**.

Among the **structural factors,** there is the high concentration of uranium production with consequent geopolitical risks: 40% is extracted in Kazakhstan, while 40% of enriched uranium - i.e. the fuel for nuclear plants - is produced in Russia. Furthermore, starting new mines takes around a decade and supply will only be able to increase slowly. This factor adds to the lack of investments on this front in the last twelve years. These investments were reduced of over 80% (source: S&P Global Market Intelligence) both due to the combination of the increase in extraction costs with a price of uranium, which in average was around $20 per pound, both from the disfavour towards nuclear energy generated by the tragic events of Fukushima.

The uranium deficit will also be supported by the shrinking of the **secondary market** that is essentially made up of countries' strategic reserves of uranium. These strategic reserves today are at their lowest level (500 million pounds, source: WNA) after having satisfied around 10% of demand through the uranium coming from disarmament of nuclear weapons for a decade.

Among the **contingent** factors that affect supply, we put in evidence:

1. the coup in Niger that could slow down the development of the Dasa project which should lead to the operationalization of the largest uranium extraction site in the world by 2025.
2. The reduction of the production forecast announced by Cameco, global leader in the supply of uranium with 20% of the market. Faced with furniture and workforce shortage issues at the Cigar Lake mines and Key Lake plant, Cameco's expected production for 2023 went from 33 million pounds to 30.3 million pounds, a decrease of approximately 15% in the current second semester alone. To meet its sales commitments, Cameco could increase purchases on the market, further supporting the price of uranium.

In light of the supply and demand dynamics and all the factors described, at Plenisfer **we think that the bullish phase of uranium** - which has been going on for three years - will be **long-term**: we expect it to continue for a decade and potentially even longer depending on the speed with which producers are able to expand the offer.

In particular, **we believe it is reasonable** to assume that within the next two years **the price of uranium could exceed the marginal cost of production**, **currently** equal to **75/80 $** per pound, according to a dynamic already observed for all other energy raw materials, none of which has a price today lower than its marginal cost.

This trend could accelerate if **financial investors** return to the market as happened during the rallies recorded in the price of uranium between 2000 and 2010.

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