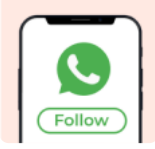




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The Silver Lining in the Global Energy Transition

Developing clean technologies will be highly mineral-intensive, positioning the metals and mining sector as a cornerstone in supporting this swift shift. To meet the rising demand, the industry must be future-ready and ensure an increased supply of critical minerals for India and the global market.



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The ongoing global energy transition is reshaping industries and redefining economies. At the heart of this transformation lies the exponential demand for critical minerals like zinc, silver, cobalt, copper and nickel. These essential metals are indispensable for both emerging technologies and traditional applications.

From solar panels and wind turbines to electric vehicles (EVs) and charging infrastructure, these metals are driving a sustainable future. Developing clean technologies will be highly mineral-intensive, positioning the metals and mining sector as a cornerstone in supporting this swift shift. To meet the rising demand, the industry must be future-ready and ensure an increased supply of critical minerals for India and the global market.

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Among these critical metals, silver stands out as an essential resource due to its unmatched conductivity and versatile applications. Silver has become an important precious metal in the infrastructure of clean energy.

According to the World Bank, the energy transition will require an estimated \$1.7 trillion in global mining investments, with India alone needing over 3 billion tonnes of metal to achieve its renewable energy goals. The criticality of silver has clearly translated into its significant outperformance compared to gold this year, with prices surging over 40% year-to-date and crossing Rs 1,00,000 per kilogram domestically. This trend emphasises silver's dual role as a secure investment and an essential industrial metal.



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According to the World Silver Survey 2024, the global silver mine production reached 25,830 tons while the total demand soared to 37,169 tons in 2023. The persistent supply deficit in the global silver market is driven by mining disruptions and surging industrial consumption, one of

the reasons for the increasing silver prices.

Industrial applications dominate silver consumption, accounting for a substantial 55.8% of the global demand. The rapid global energy transition has been a major driver, particularly in the photovoltaic (PV) sector. PV technology, which converts solar energy into direct current electricity, relies heavily on silver due to its unmatched electrical conductivity and thermal efficiency.

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Solar energy, the fastest-growing renewable energy source, witnessed approximately 440 gigawatts (GW) of new installations in 2023 alone. Industrial demand reached a new high in the 2023 calendar year (CY), driven mostly by the electrical and electronics industry, which expanded by 20% to 445.1 million ounces.

Following the global trend, India's demand for silver is also on an upward trajectory, primarily driven by two sectors which are jewellery and industrial applications. Industrial demand, particularly in electronics and solar energy is growing, as these industries require materials that are both conductive and durable.

Moreover, the growing advancements in the field of artificial intelligence will further drive the need for silver across various end-use industries, including EVs, 5G technology, transportation, nanotechnology, biotechnology, healthcare, consumer electronics & wearables, computing, and energy in data centres.

India is one of the largest consumers of silver, accounting for 21% of the global demand, yet it only produces 10% of its consumption needs. This presents a significant opportunity for the country to boost its production and bridge the gap, positioning itself as a global player in the silver industry. Increasing production capabilities will allow India to meet domestic demand while also making a substantial contribution to the international market.

Silver production in India is not just essential for domestic needs but also crucial for the global market. With significant reserves, growing industrial applications and supportive government policies, India is well-positioned to boost its silver production and overcome the existing supply-demand gap. This journey sets the stage for India's transition from a net importer of silver from geopolitically volatile countries to a global leader in silver production.

Hindustan Zinc has added to India's strong credentials in silver production. It is the world's third-largest silver producer and India's sole silver producer, is well positioned to cater to this growing silver demand. Originally established as a public undertaking company with a primary focus on zinc production, the company has strategically expanded its portfolio to include a variety of metals including silver, leveraging its abundant mineral resources available in the state of Rajasthan.

Hindustan Zinc's Sindesar Khurd Mine in Rajsamand district, Rajasthan is recognized as the world's second-largest silver-producing mine as per the World Silver Survey 2024 by the Silver Institute, USA. Further, Hindustan Zinc's silver refinery at Pantnagar in Uttarakhand operates on 100% renewable energy and is part of the London Bullion Market Association's (LBMA) Good Delivery List, producing 99.99% pure silver through responsible sourcing practices.

India's silver story is on an ambitious path, driven by demand and powered by innovation. The outlook for silver remains bullish, stemming from its growing role in the energy transition and its numerous emerging applications. India's silver maximisation strategy will capitalise on this growth potential in the coming years.

(This article is written by Arun Misra, CEO & Wholetime Director – Hindustan Zinc Ltd)

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