

CRITICAL MINERALS

All the Right Elements Behind The Star of Electrochemistry
Part I: Mission Critical

India's efforts to step up domestic production of critical minerals remain crucial for its energy security

May 2024



What's Inside?

























OVERVIEW



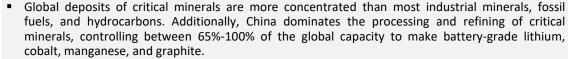


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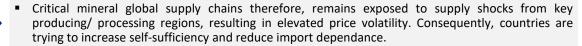
Mineral intensity of green energy is significantly higher than conventional energy systems. Thus, transformation of energy systems to increasing mineral intensity from increasing energy density is an irreversible process for meeting net zero commitments. This is expected to result in a surge in demand for critical minerals required in such green technologies. Consequently, global energy policy's priority has been gradually shifting from fuel/energy security to mineral security.





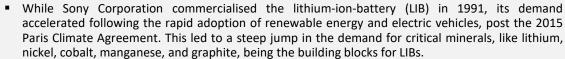




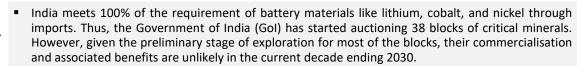














The grades of materials used in green technologies are significantly higher than their conventional industrial uses, requiring specialised knowhow in mineral processing and refining technologies. India's progress has been limited in this area. Therefore, there is a requirement for building domestic capability in mineral processing technologies like beneficiation and leaching.



The risk profile of exploration activities increases for deep-seated/ critical minerals, over surficial or bulk minerals, as the probability of finding a good reserve remains low for the former. Hence, to enable a more attractive risk-return framework for bringing specialised overseas mining companies, the GoI introduced auction of exploration licence.



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