



CRITICAL MINERALS PRODUCTION INCENTIVES AND THEIR IMPACT ON LOCAL MANUFACTURERS: A White Paper

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1. Global Incentive Programs for Critical Minerals Production

Worldwide, governments are implementing strategic policies to secure a reliable supply of critical minerals, which are essential for a variety of high-tech and clean energy applications. The primary goal is to reduce dependency on a small number of foreign suppliers and foster domestic production. The United States, for example, has enacted the **Inflation Reduction Act (IRA)**, which offers a tax credit equal to 10% of the cost of production to producers of critical minerals, and provides incentives for electric vehicle (EV) manufacturers to source minerals from North America or countries with a free trade agreement (FTA) with the US. This policy is designed to catalyze a secure, domestic supply chain from mine to market.

Similarly, Australia has introduced the **Critical Minerals Production Tax Incentive** and a **\$2 billion Critical Minerals Facility**. The tax incentive provides a 10% refundable tax offset for eligible expenditure on the processing and refining of critical minerals. The facility offers loans and guarantees to help launch new projects, supporting Australia's strategy to enhance its role as a key global supplier. In Europe, the focus is on forging international agreements, such as a potential EU-US critical minerals agreement, to strengthen supply chains and improve sustainability. These programs often include direct funding, grants, and favorable tax schemes to de-risk investment in a historically capital-intensive industry.



NORTH AMERICA

- **IRA:** 10% tax reduction
- **BIL:** Grants & Funding for projects
- **DPA:** Federal funding & loan guarantees

EUROPEAN UNION

- **CRMA:** Faster project permits
- **EGD:** Funding for green projects
- **Horizon EU:** R&D project funding



AFRICA

- **AMV:** Policy reform for governance
- **MPRDA:** Access to mineral rights

AUSTRALIA

- **CMPTI:** 10% tax offset on processing
- **MMI:** Co-funding for grants (\$1M-\$20M)
- **NAIF:** Low-cost infrastructure loans
- **CMDP:** Grants to support new projects



2. The Materials and Their Criticality

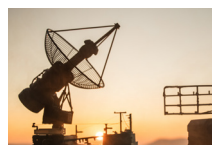
Critical minerals which include: aluminum, antimony, barite, beryllium, cerium, caesium, chromium, cobalt, dysprosium, europium, fluorspar, gadolinium, germanium, graphite, indium, lithium, manganese, neodymium, nickel, niobium, tellurium, tin, tungsten, vanadium, yttrium and others are defined as non-fuel minerals that are essential to the economic or national security of a country and have supply chains that are vulnerable to disruption. These materials are the building blocks of the modern green economy.

Lithium, cobalt, nickel, and manganese are vital for EV battery technology, while rare earth elements like neodymium are indispensable for permanent magnets used in wind turbines and military technologies. As the global transition to clean energy accelerates, the demand for these minerals is projected to increase exponentially. For instance, demand for nickel could grow ten-fold and lithium nine-fold by 2045, according to a European Parliament brief. The absence of a stable supply would have significant consequences, hindering technological advancement and national security.

Battery Technology



Defense Systems



Infrastructure



Personal Electronics

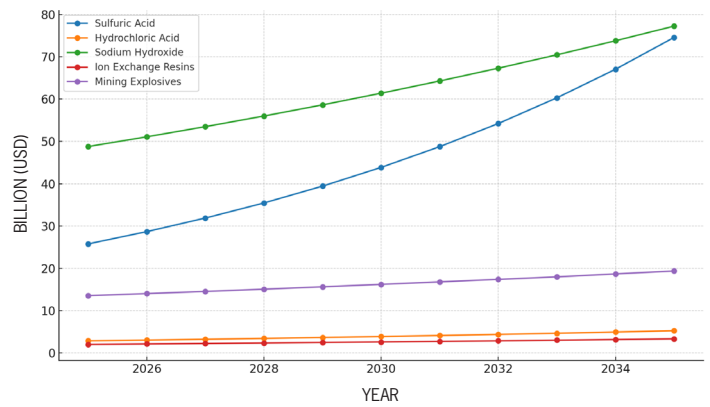


Power Generation



Critical Minerals Table

Increase In Demand for Specialty Chemical Producers

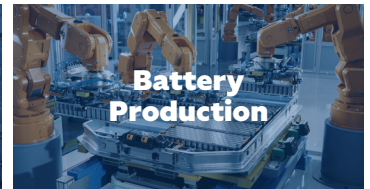


3. Primary Beneficiaries of the Incentives

The most direct beneficiaries of these incentive programs are companies at the beginning of the supply chain: mining, exploration, and processing firms. These companies are receiving public funding, tax credits, and loan guarantees that make it financially viable to explore new deposits and build or expand domestic processing facilities. The United States' IRA's production tax credits, for example, directly lower the cost of production for a domestic miner or processor. This has led to a flurry of investment in new projects and a renewed focus on domestic mineral wealth. Junior exploration companies also benefit from specific tax credits, providing the required funding to delineate and validate new mineral reserves.

5. How Flexicon Works with the Industry

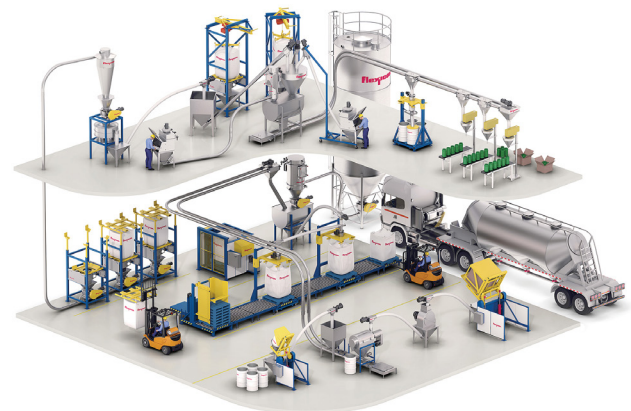
As a leading provider of bulk handling equipment, Flexicon plays a crucial role in the mining and allied industries by enabling the efficient, safe, and dust-free handling of raw and processed materials. Their products, such as bulk bag fillers, bulk bag dischargers, and flexible screw conveyors, are purpose-built to handle challenging materials encountered in mining, including abrasive minerals, filter cake, and dry chemical additives like leaching or water treatment agents. For instance, a bulk bag filler with a **REAR-POST** design can fill bulk bags with up to 4,400 lb (2,000 kg) of abrasive materials such as dressed ore with precision and stability.



4. Indirect Impact on Secondary Industries

The ripple effect of these incentives extends far beyond the mining sector. Secondary industries that depend on a stable supply of critical minerals stand to benefit immensely. The most prominent examples are the automotive, aerospace, defense, and electronics sectors. The IRA's EV tax credits, for example, are designed to create a direct link between domestic mineral production and local manufacturing, encouraging a fully integrated, regional supply chain. Companies in these sectors are incentivized to build new plants and expand operations in areas where they can access a secure and cost-effective supply of minerals and components. This leads to job creation and a boost in local manufacturing capacity. Downstream beneficiation industries, such as specialty chemical producers and component manufacturers, are also positively impacted.

Flexicon's range of filler and discharging systems ensure a dust-tight seal and can be automated to fill bags to a precise weight, which is critical for product consistency and transportation. Likewise, bulk bag dischargers with features like integrated **Bulk Bag Conditioning**, **FLOW-FLEXER®** bag activators, and **POWER-CINCHER®** flow control valves are used to dispense difficult-to-handle materials, ensuring a consistent flow while preventing dust and spillage.



6. Verifiable Real-World Solution

A compelling example of Flexicon's impact is a solution provided to Vale, a global mining giant, to handle copper concentrate. Vale needed to package 27 to 35 tons/h of copper concentrate into bulk bags efficiently and safely. Flexicon's Project Engineering Division integrated a dual bulk bag filling and palletizing system into Vale's existing process. The solution included two Swing-Down® bulk bag fillers, a pallet dispenser, and powered roller conveyors. This automated system allowed operators to safely and quickly attach bag spouts at floor level, eliminating the need to reach overhead. The system automatically fills bags with up to 2.2 tons (2 metric tons) of copper concentrate, stabilizes them with a densification deck, and moves them to a labeling station. This solution not only drastically increased the filling capacity but also enhanced worker safety and process consistency.



7. Conclusion

Critical minerals production incentives are a powerful tool for governments to bolster national security, drive economic growth, and accelerate the transition to a clean energy future. By stimulating investment in mining and processing, these programs create a robust foundation for secondary manufacturing industries, establishing resilient domestic supply chains. Companies like Flexicon, which provide the essential equipment for bulk material handling, are a critical link in this ecosystem, ensuring that raw minerals are processed and packaged safely and efficiently. The long-term success of these initiatives will be measured not only by the quantity of minerals produced but by the strength of the integrated industrial ecosystem they help create.

This video from Flexicon Corporation showcases VALE's Dual Bulk Bag Filling/Palletizing System that fills 30 tons/h of Copper Concentrate.



**SCAN TO
WATCH**

This video from Flexicon Corporation demonstrates two integrated SWING-DOWN® Bulk Bag Fillers with a Flexicon Pallet Dispenser and Powered Roller Conveyors.



**SCAN TO
WATCH**

Contact **sales@flexicon.co.za** or call **+27 41 453 1871** to discover how these solutions can empower your operations to thrive in the critical minerals boom.

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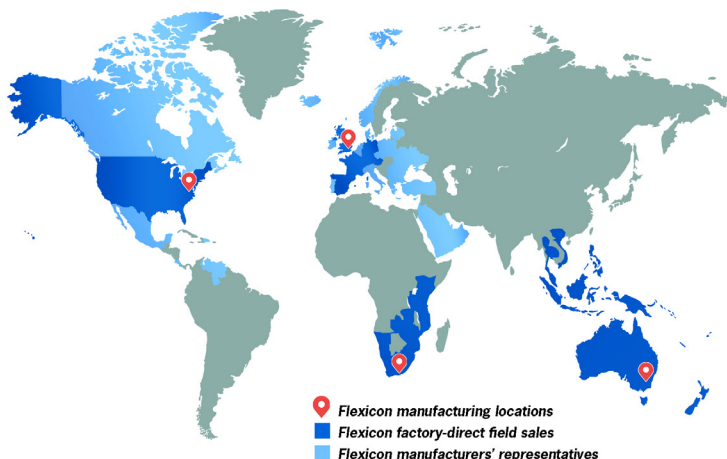
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Make adaptability a core
component of your process

Integrate modular systems to
ensure uninterrupted production
and maintain quality

Back it all with a Lifetime
Performance Guarantee



● Flexicon manufacturing locations
■ Flexicon factory-direct field sales
■ Flexicon manufacturers' representatives

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