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Unlocking Brazil: Critical Minerals Projects & Investment Opportunities

MARCH 2026

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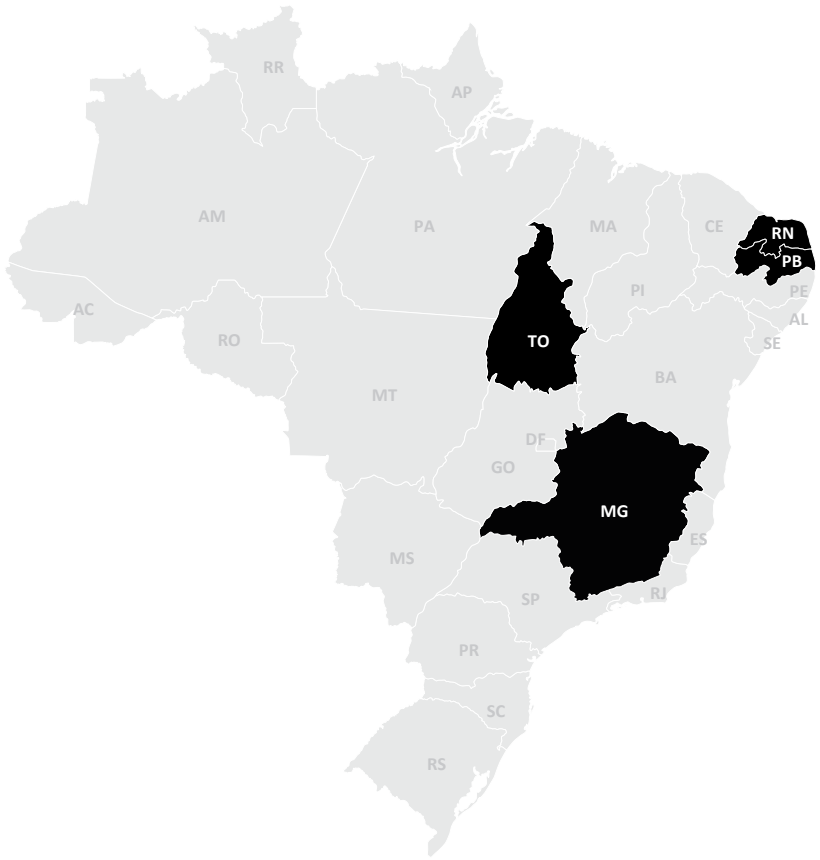
LITHIUM



In the global context, lithium deposits are primarily divided between brines, predominant in the so-called "Lithium Triangle" – comprising Chile, Argentina, and Bolivia – and hard rock deposits, common in Australia and Brazil. In brine operations, lithium content is measured as dissolved concentration in solution, typically ranging from **200 to 1,400 mg/L** in conventional operations, and may exceed **4,000 mg/L** in world-class salar systems; this model requires less mineral beneficiation given that lithium is already in solution, but it relies on solar evaporation ponds and entails longer production cycles. In hard rock deposits, such as Brazilian pegmatites – distributed across several regions of the country, with notable occurrences in the Jequitinhonha Valley and other areas of Minas Gerais, as well as in the states of Ceará, Bahia, and Tocantins – grades typically range **between 1% and 2%** Li_2O, and may reach higher values in elevated-grade zones. Although processing is more intensive – involving open-pit or underground mining, crushing, grinding, mineral concentration, and subsequent chemical conversion – the hard rock model offers greater operational predictability and reduced climatic dependency.

LEGEND

- ☑ IN OPERATION AND PRODUCTION
- ⬡ UNDER EXPLORATION AND DEVELOPMENT

GROTA DO CIRILO MINE *Sigma Lithium*

Production start: 2023 Processing capacity: 270,000 t/a Mine life: 100 million tonnes

Additionally, Sigma holds several early-stage exploration projects, including the Nezinho do Chicão, Barreiro, and Murial Projects.

VOLTA GRANDE MINE *AMG Brasil*

Operating since: 1945 Production expansion: 45% increase in output

Spodumene concentrate production: 130,000 t/a

CACHOEIRA MINE *Companhia Brasileira de Lítio*

Underground mining operation Feasibility studies underway for production capacity doubling

Measured + Indicated Resources: 4.5 million tonnes

ATLAS LITHIUM PROJECTS *Atlas Lithium Corporation*

In Minas Gerais, the following projects stand out: Neves, Salines, Clear, Coronel Murta, Eastern Properties, Itinga, Santa Clara, and Tesouras. In Northeastern Brazil, projects in the states of Paraíba, Rio Grande do Norte, and Tocantins demonstrate the region's exploration potential through the identification of lithium-bearing pegmatites.

COLINA PROJECT *PLS – Latin Resources*

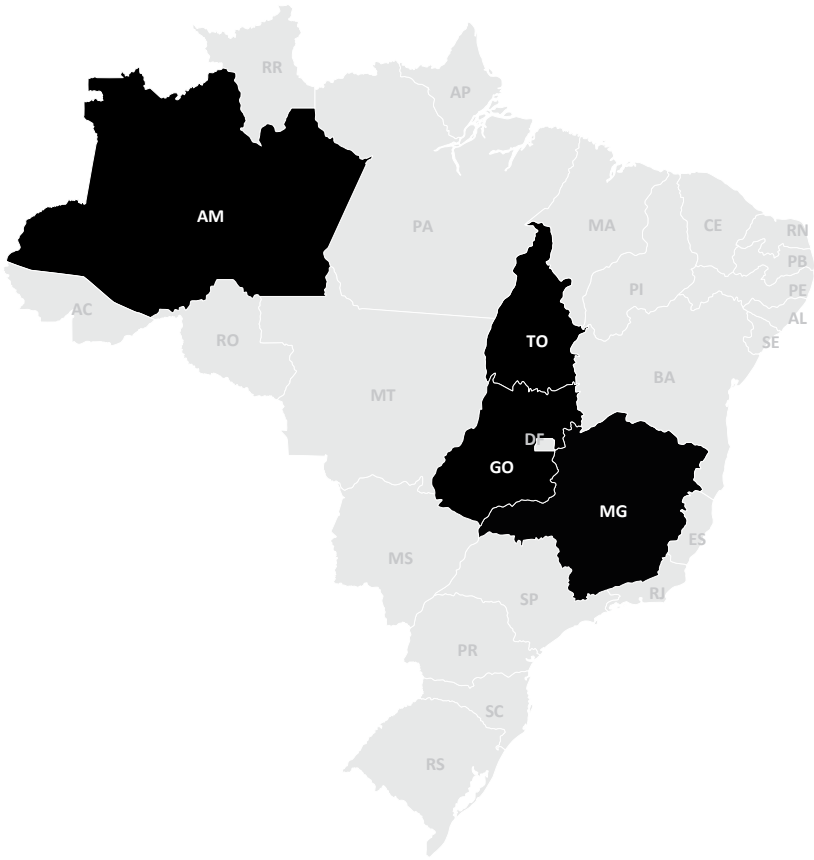
he Colina Project is a hard rock lithium operation that offers new supply opportunities for the North American and European battery markets. The Project hosts a total resource of 77.7 Mt at an average grade of 1.24% Li_2O.

LITHIUM IONIC PROJECTS *Lithium Ionic*

Early-stage exploration projects in Minas Gerais, including the Outro Lado, Bandeira, and Baixa Grande Projects.

Measured and Indicated Resources: 36.76 Mt at an average grade of 1.34% Li_2O.

RARE EARTH



Brazilian rare earth deposits differ from the predominant Chinese model, though not as uniformly as is often assumed. The so-called ionic adsorption clay (IAC) deposits – originally associated with southern China and, more recently, identified at significant scale in Brazil as well – are characterised by rare earth elements adsorbed onto clay minerals, with generally low to moderate grades (typically between **0.05%** and **0.3% TREO**), relatively straightforward heap leaching extraction, lower processing costs, and a high proportion of heavy rare earth elements (HREEs). Alongside these, Brazil also hosts hard rock deposits associated with carbonatites and alkaline complexes. In the latter, rare earth elements occur in minerals such as monazite and bastnäsite, at significantly higher grades (generally **between 2% and 8% TREO**, **potentially exceeding 10% in specific zones**), but require crushing, grinding, and mineral concentration stages, as well as more complex hydrometallurgical processing - often with an associated presence of thorium. Brazil's strategic position in the global rare earth market is increasingly underpinned by the competitive advantage of its ionic adsorption clay deposits.

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PELA EMA MINE *Serra Verde*

Production start: 2024. Ionic adsorption clay (IAC) REE deposit with a 25-year mine life and expected production of 5,000 t/a of rare earth oxide (REO)

Serra Verde holds additional early-stage exploration projects in the states of Goiás and Tocantins.

CARINA PROJECT *Aclara Resources*

Semi-industrial pilot plant commissioned in 2025; production expected in 2028. Projected mine life of 18 years with an Internal Rate of Return (IRR) of 22%

Measured and Indicated Resources: 236.3 Mt at 1,572 ppm TREO

EMA PROJECT *Brazilian Critical Minerals*

Average production of 4,800 t/a TREO over a 20-year mine life

Production expected in 2027

Measured and Indicated Resources: 248 Mt at 716 ppm TREO

PCH PROJECT *Appia Rare Earth & Uranium*

Additional drilling programmes ongoing across mineralised zones

Measured and Indicated Resources: 6.6 Mt at 2,513 ppm TREO

CALDEIRA PROJECT *Meteoric Resources*

Projected mine life of 20 years

Measured and Indicated Resources: 308 Mt at 2,864 ppm TREO

Life-of-mine production rate: 13,500 t/a

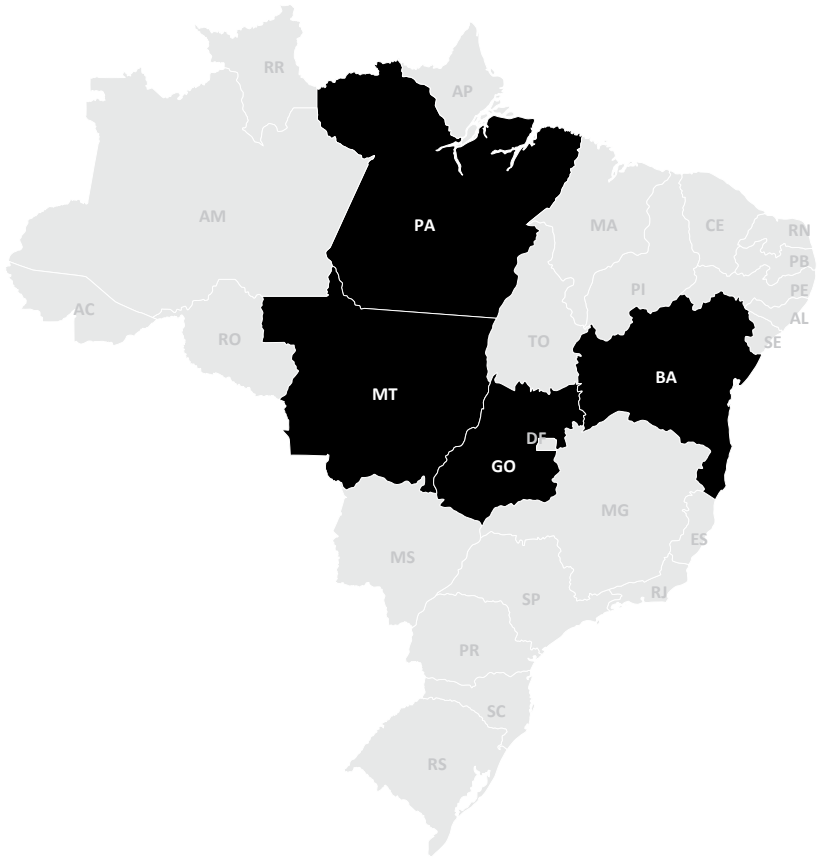
COLOSSUS PROJECT *Viridis Mining*

Projected mine life of 20 years

Measured and Indicated Resources: 62 Mt at 2,590 ppm TREO

Production expected in 2028

COPPER



Brazil accounts for approximately **1.9% of global copper production**, but holds significant and largely untapped expansion potential. Brazilian deposits are predominantly of the IOCG (Iron Oxide Copper-Gold) type, concentrated in the Carajás Mineral Province in Pará and the Borborema Belt in the Northeast, with additional occurrences in Goiás, Bahia and Alagoas. The **average grade** of the five largest copper mines in Brazil is **0.56% Cu**, comparable to Chile (0.62%) and higher than Peru (**0.5**%), with notable highlights such as the Pedra Branca operation in Carajás, where the average grade reaches **1.53% Cu**. What distinguishes Brazil in the global context is not only its geology, but the strategic moment: copper already accounts for **32.7%** of all mineral exploration investment in the country – the largest share among all commodities - and global demand for the metal is expected to nearly double by 2035, driven by vehicle electrification, transmission network expansion and, increasingly, data centre infrastructure for artificial intelligence.

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- ☑ IN OPERATION AND PRODUCTION
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SOSSEGO AND SALOBO MINES *Vale Base Metals*

Sossego has been in operation since 2004 and Salobo since 2012 — 2024 production: 265,200 tonnes

Salobo is the largest reserve in the country, with 1.1 billion tonnes

CARAÍBA COMPLEX *Ero Copper*

Pilar, Vermelhos and Surubim mines — 2024 production: 35,444 tonnes

Measured + Indicated Resources: 161.08 Mt at 0.91% Cu

CHAPADA MINE *Lundin Mining*

In production since 2007 — Capacity of approximately 65,000 t/day

Measured and Indicated Resources: 1,268.5 Mt at 0.24% Cu

PEDRA BRANCA MINE *BHP Group Limited – Corex*

Installed capacity of 720,000 tonnes per year of copper and gold ore

Encompasses multiple deposits distributed across Água Azul do Norte, Curionópolis and Canaã, including the Antas mine in the Carajás gold-copper region and the Santa Lúcia iron oxide gold-copper deposit.

CABAÇAL PROJECT *Meridian Mining*

Expected mine life of ten years and seven months — Resources: 51.43 Mt at 0.40% Cu

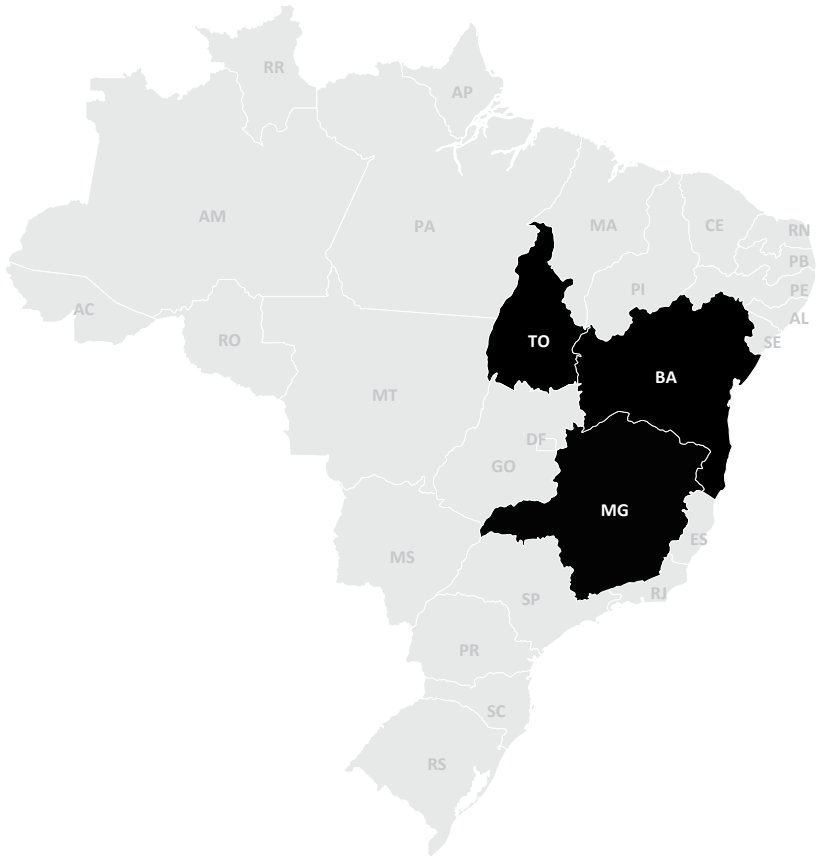
High-prospectivity Gold, Copper and Silver deposit

VALE BASE METALS PROJECTS *Vale Base Metals*

Bacaba Project, Cristalino Project, Barão Project, Alemão Project, Paulo Afonso Project and Project 118, as well as the Furnas Project, a joint venture between Vale Base Metals and Ero Copper

Copper projects located in the Carajás region, in the vicinity of the Sossego Complex

GRAPHITE



Brazil holds approximately **74 million tonnes** of natural graphite reserves, positioning itself as the second largest reserve holder in the world, behind China and ahead of Madagascar, Mozambique and Tanzania, according to the USGS Mineral Commodity Summaries 2025. In terms of production, Brazil ranks as the fourth largest producer worldwide, with **68,000 tonnes** produced in 2024. Brazilian production is primarily concentrated in the Bahia-Minas Province, which ranks among the world's largest flake graphite deposits. Brazil's strategic differentiator is not solely geological, but is closely tied to the most critical moment in global demand for the substance. Graphite accounts for approximately **53.8% of mineral demand in batteries** – more than any other substance – serving as the anode material. Brazilian domestic demand for graphite associated with energy storage technologies is expected to grow from **13,900 tonnes** in 2025 to **446,000 tonnes** in 2045, with cumulative demand estimated at **1.6 million tonnes** by 2050.

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☑ MINES: ITAPECERICA, PEDRA AZUL E SALTO DA DIVISA — *Nacional de Grafite Ltda.*

1942: Beginning of graphite deposit studies. Mines with combined resources of 461.26 Mt at a grade of 47.38% TGC

Annual production capacity of the operations is 70,000 tonnes

☑ MATEUS LEME MINE — *Grafita - MG*

Flake-type graphite mine

Estimated resources: 91.47 Mt at a grade of 14% TGC

☑ MAIQUINIQUE MINE — *Extrativa/Grafite do Brasil*

Production commenced in 2002 Estimated resources: 33.3 Mt at a grade of 9.60% TGC

Carbon concentration of 99.98%

☑ BOA SORTE MINE — Graphcoa/Appian Capital Brazil

Operations commenced in 2025 Initial capacity of 5,500 t/year with grades of up to 98%

Assets currently in the exploration phase, with a forecast to reach 65,500 t/year

⬡ PORTO NACIONAL PROJECT — *Di Castro's Construtora Ltda.*

Final Exploration Report approved Awaiting issuance of the mining licence.

Estimated resources: 3.95 Mt and 5.3% TGC.

⬡ SANTA CRUZ PROJECT — *South Star Mining Corp*

Preliminary economic assessment completed in 2026 Commercial production expected to commence in Q2 2026

Measured and Indicated Resources: 3.95 Mt and 2.29% TGC.

NICKEL

Brazil holds approximately **16 million tonnes** of contained nickel reserves, positioning itself as the third largest reserve holder in the world. In terms of production, Indonesia leads by a wide margin, accounting for approximately **59% of global output**, while Brazil ranks as the sixth largest producer worldwide. Demand for nickel grew **between 6% and 8%** in 2024, driven primarily by energy applications such as electric vehicles, battery storage and transmission networks. For battery metals such as nickel, cobalt and graphite, the energy sector accounted for **85% of total demand growth** over the past two years. Brazil's strategic differentiator lies precisely in this diversification window. With substantial reserves, consolidated ferronickel production and a positive trade balance, the country is well positioned to move up the value chain – from concentrate and ferronickel to battery-grade nickel sulphate – meeting the demand of Western investors seeking reliable suppliers

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SANTA RITA MINE *Atlantic Nickel/CBPM.*

Estimated reserves: 255.1 Mt at a grade of 0.5% Ni Estimated processing capacity of 6.5 Mt/year

The underground mine expansion project is underway, which will extend its useful life to 30 years

ONÇA PUMA MINE Vale Base Metals.

In production since 2011 2024 production: 14,200 tonnes

Consolidated as the largest ferronickel operation in Brazil

CODEMIN AND BARRO ALTO MINES *MMG Limited*

CODEMIN has been in operation since 1982 and Barro Alto since 2011

Estimated resources: 26.3 Mt at an average grade of 1.2% Ni Capacity of approximately 40 Kt/year

JAGUAR PROJECT *Centaurus Metals*

Expected useful life of 15 years Forecast average production of 18,700 t/year

Measured and Indicated Resources: 9.8 Mt at a grade of 0.93% Ni

LUANGA PROJECT *Bravo Mining Corp*

Palladium, platinum, rhodium, gold, and nickel deposit

Measured and Indicated Resources: 158 Mt at a grade of 0.12% Ni

PIAUÍ NÍQUEL PROJECT *Brazilian Nickel Ltda.*

Estimated resources: 98.8 Mt at a grade of 0.84% Ni Installation Licence (IL) granted in 2023

Pilot plant with capacity to produce 1,400 t/year

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