

### The State of Lithium Resources in 2024: A Deposit-Type Analysis for Supply Potential

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Demand for lithium (Li) has surged over the past decade due to its role in Li-ion batteries for electric vehicles, raising concerns over long-term supply. A 4,000 metric ton shortfall in 2022 drove Li carbonate prices up over 500% in 2023, sparking debate on alternative battery technologies. While mineral resources are often seen as finite, global Li production has steadily grown, with significant increases in reserves and resources from brownfield exploration and discoveries of new deposits. This study compiled internationally reported Li resources by deposit type and project for 2024. At least 143.9 million metric tons (Mt) of Li are reported globally across 146 brine, hard-rock, volcano-sedimentary (VS), and tailings projects, with an additional 6.8 Mt Li in China, yielding a global minimum of 150.7 Mt Li. While hard-rock deposits comprise most projects, they account for only 17.6% of total Li resources. In contrast, brine and VS deposits host more Li per project, representing 56.7% and 25.5% of total resources, respectively. Substantial resources are concentrated in the brines of South America's "lithium triangle" (Bolivia, Chile, Argentina), lithium-cesium-tantalum pegmatites of Western Australia, and VS deposits in the U.S. Basin and Range. Case studies across deposit types highlight ore grade, market prices, and extraction technologies (e.g., direct lithium extraction for geothermal brines) as key constraints on mine development. Brine deposits exhibit a wide variation in cutoff grades, partly due to estimates made during the 2023 price surge, with some lacking defined cutoff thresholds, contributing to inflated resource estimates. Overall, Li resources are sufficient to meet projected demand for decades to come. Future supply limitations will stem from economic, technological, or environmental factors rather than resource scarcity.