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Cornish Lithium: Unlocking Unconventional Lithium Deposits to Accelerate the Energy Transition in the UK

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The energy transition is focused on rapidly decarbonising global energy consumption in a bid to meet the goals of the 2015 Paris Agreement. Simultaneously, there is a shift towards geopolitically secure and responsible supply chains, leading to renewed interest in mineral exploration and refining in Europe. One key metal for the transition is lithium for use in batteries, presently produced from South American salars or Australian spodumene resources. Existing resources must increase production. However, to meet the expected demand driven by electrification of the automotive industry, novel and unconventional resources must be discovered and brought online. The result is a revolution in new exploration and processing techniques as the mining industry races to keep up with future demand for critical metals.

In Cornwall, UK, lithium concentrations were first reported in geothermal fluids in 1864 and the county is underlain by one of the world's largest lithium-enriched granitic batholiths. Cornish Lithium Ltd is an innovative mineral exploration company, focused on the responsible extraction of lithium from both sources. Production from hard-rock is centred on a non-operational kaolin pit. In 2021, a JORC compliant Maiden Inferred Resource Estimate was announced with 51.7 Mt at 0.11% Li. By utilising existing infrastructure and Lepidico's L-MAX®/LOH-MAX® hydrometallurgical process, which does not use a high temperature roast, production is expected to have a considerably reduced environmental impact with respect to current hard-rock sources of lithium over a 20-year life-of-mine. Lithium extraction from geothermal waters provides Cornwall an opportunity to produce low-carbon lithium, heat and other metalliferous co-products to revolutionise industries across the region. Exploration boreholes have confirmed the presence of "globally significant concentrations of lithium" in geothermal waters extracted from natural fracture zones. Together, these Cornish Lithium projects show how innovation can lead to renewed exploration and production of critical metals in historic mining districts.