

Factsheet



Cornish Lithium

Key Facts

- Exploring for lithium in enriched geothermal brines
- +300km² exploration rights across Cornwall, UK
- Aims to establish a new high-tech, environmentally responsible metals company
- Global lithium demand is growing due to batteries and electric vehicles
- Cornwall's geology is highly prospective for battery metals such as lithium, cobalt, tin, copper etc.

Directors & Management

Jeremy Wrathall
Founder & CEO

Derek Linfield
Chairman

Keith Liddell
Non-Exec Director

Louise Wrathall
Non-Exec Director

Chris Harker
Head of Exploration

Overview – A new metal from an old mining area

Cornish Lithium is using modern exploration techniques and digital technology to re-evaluate Cornwall's mineral potential in the light of the battery revolution. Cornwall has a world-class mineral endowment, but has stood idle for decades. The battery revolution provides the impetus and opportunity to explore for raw materials which are vital to modern technologies. Cornish Lithium believes that the extraction of lithium, in combination with geothermal energy, has the potential to rejuvenate the economy of Cornwall and to provide much needed high value employment across the county. The Company is primarily focussed on extracting lithium from known occurrences in brine and in hard rock. Cornish Lithium is also evaluating the potential in Cornwall for other metals particularly those which are vital to modern technologies such as electric vehicles and power storage batteries.

Lithium extraction from enriched geothermal brines

Cornish Lithium is exploring across Cornwall for lithium contained within naturally-occurring underground 'hot springs', with the aim of creating a new high-tech, environmentally responsible mining industry in the region. The Company was founded in 2016 and now employs a team of seven geologists and a digital archivist to evaluate lithium potential over 300km² of the county, for which Cornish Lithium has rights to explore for the metal. This is believed to be the largest, unified exploration effort ever conducted in Cornwall.

Why Cornwall?

The Cornish mining district is a world-class mineral province, with estimated historic production of around £45 billion from tin and £11 billion from copper at current prices. The well-known granite outcrops (from Dartmoor in the east to the Isles of Scilly in the west) are connected deep below the surface and form one of the top five lithium-enriched granite areas worldwide according to the USGS.

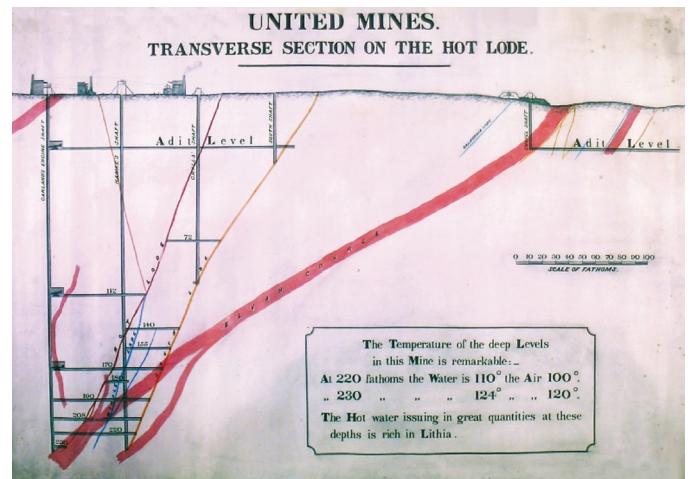


Figure 1. Transverse section showing the Hot Lode where lithium was first discovered in Cornwall in 1864.

As geothermal fluids circulate in the earth's crust, lithium is leached out of the granite into solution. Lithium in brine was first identified in 'hot springs' in 1864 when such fluids were discovered underground in one of Cornwall's historic tin mines and analysed for its lithium content. (Figure 1). Using the latest geological software and ultrafast computers, Cornish Lithium is currently evaluating the most prospective areas in which to drill extraction boreholes. Such boreholes will be drilled into permeable geological features to extract enriched geothermal brines, from which the lithium will be recovered in a suitable processing plant on surface. Recently developed extraction technologies now make this possible.

Why lithium?

Lithium is an essential component of modern batteries for environmentally friendly electric vehicles and for the storage of renewable power. The rapid adoption of electric vehicles has seen demand for lithium increase dramatically over recent years; a trend that is expected to accelerate in the coming decades. Global demand for lithium is predicted to increase to 785,000 tonnes LCE (Roskill) by 2025, from 217,000 tonnes LCE in 2017 (Reuters). The mining industry needs to discover new sources of lithium to ensure supply can keep up with demand. The Company believes that Cornwall potentially contains a very significant quantity of lithium in geothermal brines, making it a priority target for exploration.

The project

Having established the existence of lithium bearing brines in Cornwall, Cornish Lithium has assembled rights to explore for lithium in brines across over 300km² of the county. The company is currently compiling and digitising various sources of historic data to evaluate the optimal locations for extraction boreholes to be drilled. Figure 2 shows a schematic 3D model of the extraction process. The Company is currently pursuing three main parallel activities in order to develop the project.

1. Data assimilation

Due to extensive historic mining activity in Cornwall vast amounts of geological data are available in various archives and other historical collections. The team at Cornish Lithium is using modern digital mapping and 3D modelling tools to assemble this data into a coherent model which can be easily interrogated and analysed. This approach enables historic data to be combined with data from modern exploration techniques, such as satellite imagery, which is revealing new opportunities across the county, giving Cornish Lithium an excellent understanding of Cornish geology in combination with mineral ownership – something that has never been achieved on such a scale before. The company therefore has the opportunity to explore on a regional basis, which is leading to a better understanding of the geology, including the large fault structures that are believed to host lithium in brine.

2. High-tech exploration

Modern exploration techniques have not been used before in the historic mining region of Cornwall and, as a result, the potential for new discoveries has not been assessed for many decades. Cornish Lithium is using cutting-edge techniques to better define lithium prospectivity across Cornwall. For example, Cornish Lithium was the lead industrial partner in an Innovate UK funded project which tested the validity of using satellite mapping techniques to delineate prospective areas for lithium brines. (Figure 3). ‘Project Lithium’ also involved working closely with environmental consultants to begin mapping out the environmental baseline of the project areas.

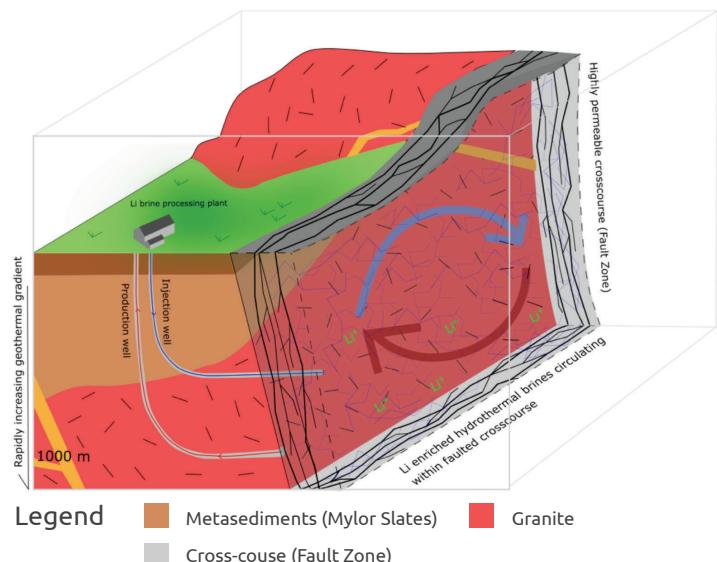


Figure 2. Schematic model of lithium extraction from brines

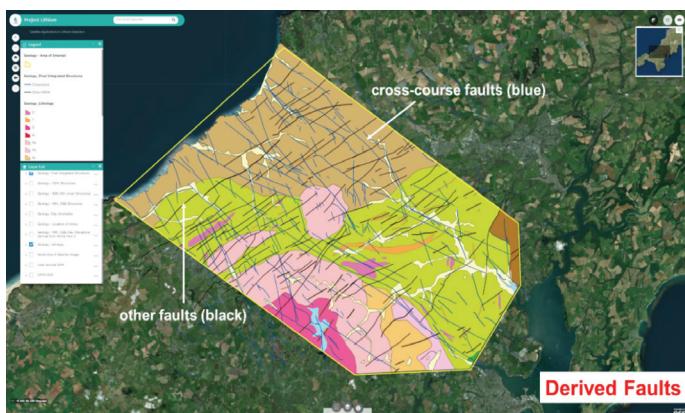


Figure 3. Geological structures derived from satellite mapping

3. Processing techniques

The company is working with various technology groups, including academia, to evaluate the most effective way to directly extract lithium from the geothermal brines that occur in Cornwall. This study is ongoing and builds upon known technologies which extract lithium directly without the use of solar evaporation.



Jeremy Wrathall Founder and CEO of Cornish Lithium: “I am delighted to have the opportunity to re-evaluate the geological potential of Cornwall in light of the “Battery Revolution” that is going to transform all our lives over the coming decades. The presence of lithium in geothermal brines offers significant transformational potential for the Cornish economy. Using modern technology, we can also see the great potential that remains in Cornwall for other metals which are vital in today’s society.”