



SOUTHERN CROSS BRITANNIA

Ethically Sourced Battery

Raw Materials



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PRODUCTION: **David Hill**

Southern Cross Britannia is positioning itself at the crux of the green energy transition by unlocking the major potential of northern Argentina. Here, the company owns several mining licenses which are expected to become major lithium and copper assets. CEO Christian Möbius talks to Energy Focus about progress in Salta Province.





Christian Möbius, CEO

By 2030, global lithium demand will exceed 500,000 metric tons. 45 mines were operating last year, with 11 opened or expected to open in 2023, and seven in 2024. Industry experts are clear in their assessment – it's not enough.

Insatiable demand from the burgeoning global electric vehicle (EV) sector – where lithium is the key material used in batteries – means that supply cannot meet demand. The pressure is on to ramp up quantities, and allow carmakers to transition from fossil fuel powered vehicles to those that generate no emissions as part of the worldwide commitment to control temperature increases.

However, it's not a simple switch, and lithium (and other associated EV minerals) is not found on anyone's doorstep.

The countries that have dominated lithium production include Australia, Chile, and China, with China the main processor and producer of lithium-ion batteries. But in these well-explored, drilled, and mined nations, there are not many untapped sources to find. Lithium is a finite resource.

New frontiers must be studied and fresh prospects must be found. South America is a key market and has been under the spotlight for some time, with many geologists recognising the riches where Chile, Bolivia, and Argentina meet. Known as the 'Lithium Triangle' this region has been prolific for some but challenging for others.

First prospectors saw salt lakes and attractive geography and began testing theories as far back as 1962.

Christian Möbius, CEO of Southern Cross Britannia – a mineral exploration

company – is a geologist by training and has long been interested in the geological potential of Argentina.

UNDEREXPLORED JURISDICTION?

In 2018, Möbius was listening to the chatter in markets about the energy transition, hearing more and more about the switch to EVs, and watching investment ploughed into the sector. He knew that Chile, Bolivia, and Argentina had significant lithium resources but Chile had been overrun with mining companies for many years looking for a piece of the pie. Bolivia's business landscape remains challenging, but Argentina – where Möbius spent many of his childhood days – is relatively underexplored and holds huge promise.

"As an explorer, you ask yourself: Where can I go where there is still an untapped geological potential? Where the potential to make large, world class discoveries is still intact? You're looking for underexplored jurisdiction with high geological potential, like Argentina," he says. "Argentina stuck out like a sore thumb because it had not had much exploration dollars invested."

With new lithium battery plants planned for various sites around the world, there was an obvious opportunity for those in the business of modern metal extraction. Apart from lithium, Argentina also boasts strong copper, nickel, and cobalt resources and Möbius sees what has been done in Chile as a roadmap for Argentina's mineral industry.

"Chile and Peru are responsible for 45% of new copper discoveries from 1990 until 2020. So almost half of the world's new copper was found in those two countries," he says. "Chile produces 30% of the world's

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copper and 25% of the world's lithium today. It's an enormous mining industry – a real powerhouse. Right next door is Argentina, a country that shares 5300 km of border, with a mining industry that was only 5% of the size of Chile's. But Geology doesn't know of political borders."

Previously, Argentina had been unappealing for foreign investment. Several governments up until 2016 had made for a challenging environment when it comes to moving money into and out of the country. This is a hurdle, especially in mining, with its inherently lengthy investment cycles "The governments that were in power after the country defaulted on its debt in 2001 and did not gain the trust of the international investor community," says Möbius. But in 2016, a business-friendly government was voted in, the mining laws were overhauled to increase the attractiveness of investments into the sector and some early movers seized the opportunity to capitalise on this new attractive frontier exploration area.

Möbius, who had worked in numerous roles, across the mining and petroleum exploration industries, in many countries across the world, built

a team and travelled to Argentina's Salta Province in the northwest of the country to understand how much potential lay beneath the arid, rocky land in the wide plateau of the Andes.

"We built a database with a plethora of different data sources to generate conceptual exploration targets, i.e. 'on paper'. We then reviewed and ranked them and selected a small subset and went out into the wild to explore the best of those targets," he says.

A team of seven experts was deployed to bring a thorough understanding of the region. Local resources were examined, including previous geological surveys, satellite imagery, and other geological data. After generation and review of 200 conceptual targets, Southern Cross Britannia applied for the mining titles in eight areas, covering 130,000 hectares. The group took thousands of rock samples and photographs. The minerals that the company expects to find in large volumes are copper, gold, silver, lead, and zinc, and also uranium. But a large lithium brine prospect is tantalising for the company. "Our lithium project is strategically located in the

world famous Hombre Muerto Basin. This basin stands out as the best-in-class in Argentina, with the highest lithium concentrations, best magnesium to lithium ratio and overall low impurities. This drives low opex. Unsurprisingly, this basin attracted the first projects in Argentina which are now in production. It is very exciting. The excellent results of our latest exploration campaign have captured the attention of the market and we are currently in negotiation with several interested investors.

LITHIUM BRINE DEPOSIT

In the volcanic caldera Cerro Galán, a salt lake sits surrounded by rocky peaks. The lake, says Möbius, was the first sign of lithium potential for even the untrained eye. But his team uses deep geological knowledge to underpin theory with scientific data.

"People didn't get it," he says. "They knew about salt lakes but very few knew about how or why."

In the Andes, occasional rain falls on the hills and percolates to the lowest point in a basin by gravity, permeating rock and collecting water soluble minerals from the rock it flows through. A lake forms at the lowest point, but



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because evaporation rates are higher than precipitation, the basin hosting the lake won't overflow and form an exit river. The water evaporates and the water-soluble elements are left behind.

"We thought about the anatomy of a lithium brine deposit," remembers Möbius. "You need two ingredients to make it. Firstly, a situation where you can plausibly explain ground water. Our valley is closed in three directions, so any water that falls there has nowhere to go. It's 25km wide and 50km long with little inclination. The water flows very slowly underground through pores and cracks. Secondly, you need volcanic ash (geologists call it Ignimbrite). This is the original and primary source of lithium. There is a volcano on the western edge of our licenses – the Cerro Galán, a young volcano which has blown multiple times over the last six million years. With every explosion, large clouds of volcanic ash were sent into the air, so much as 650 cubic kilometres, which then rain down and form an increasingly thick layer of volcanic ash which eventually solidified. That is what

brings the lithium to the surface. Our project is entirely covered with volcanic ash so our situation is beautiful."

Now the market is noticing successfully drilled lithium projects away from the traditional concept on salt lakes, as there have been several highly successful drilling campaigns.

"At our project, we expect lithium concentrations ranking in the upper quartile worldwide for brine projects," declares Möbius. "Our geophysical exploration campaign that measured resistivity in the underground along 40 line Km and was completed in September shows, that there is brine.

"This project is large - 600 km². The projects around us rank upper quartile in comparison with lithium brine projects worldwide in terms of profitability. The unit cost is so much lower than anywhere else in the world. There are such high lithium concentrations and up there in the high Andes you have the unique advantage of having the option to produce by traditional evaporation method, so as not to be completely reliant on Direct Lithium Extraction Technology. This is

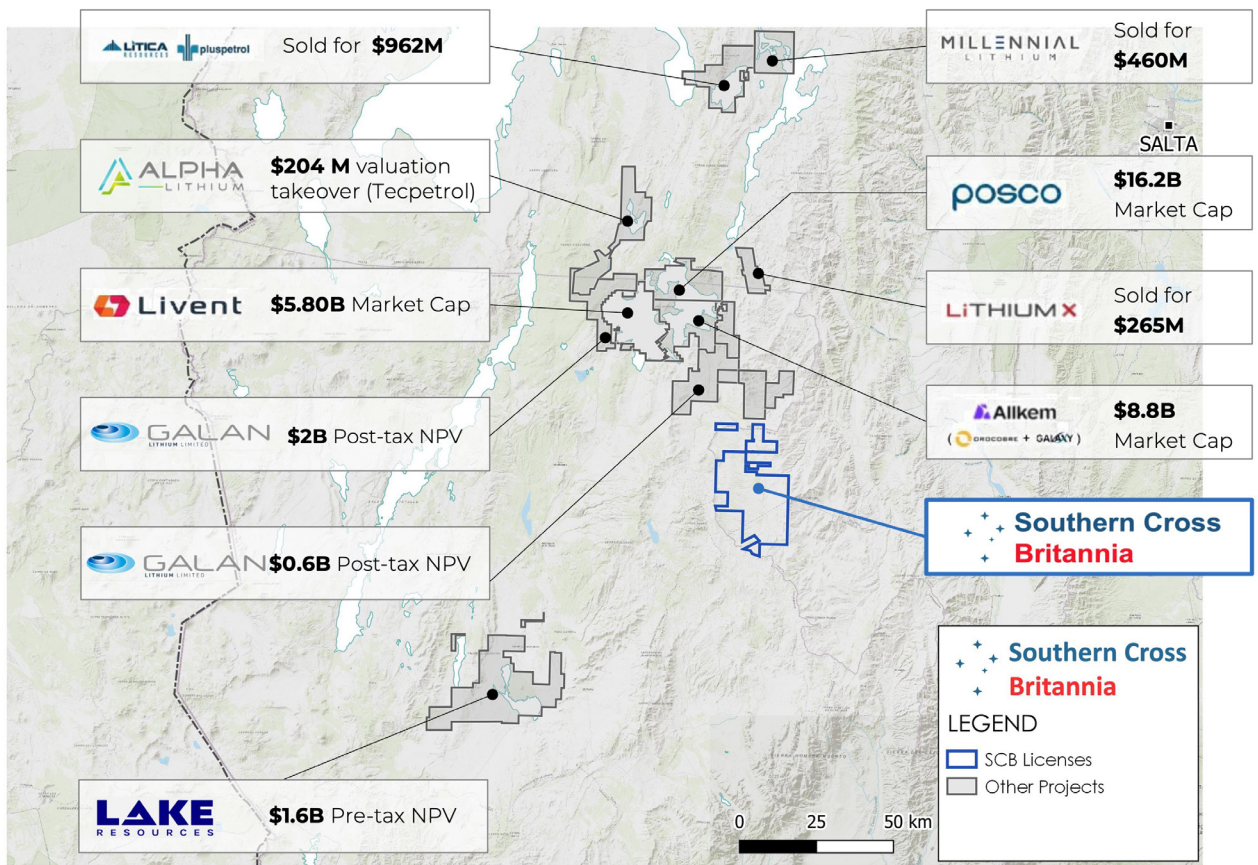
a technology which has received much attention and furore, given the large potential Li resources that may become commercially extractable reserves if the technology works, but so far it has not materialised the hopes of many who pursued projects that are completely reliant on it. Good if it works one day, but where we are we don't depend on it. And if it works on low quality brines, it definitely works on Hombre Muerto Brines! It is the fillet mignon of lithium brine projects," he smiles.

The coming months will see the team speaking with investors who can help to drive the drilling campaign and determine the declared asset, which can then be used to drive a valuation. An independent company will be commissioned to produce an economic assessment before a car or battery manufacturer will be sought to partner.

BOOTS ON THE GROUND

Southern Cross Britannia has a major advantage in Argentina, having capitalised on their early mover

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- **Abundant Fresh Water:** Our project benefits from an abundant supply of accessible freshwater resources.

Southern Cross Britannia is offering equity in this material lithium opportunity.

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advantage and holding licenses in areas of now-known high potential. By getting into the market before others (even some of the world's large mineral organisations), the company's reputation is growing. The recently geophysical survey was completed to guide the next steps in the process.

"In layman's terms, think of it as a tomography of the subsurface – it's an indirect method of imaging the

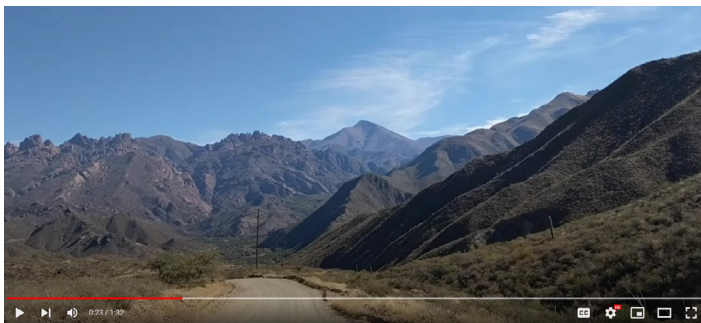
underground and it is used to detect ground water and brines, and serves as a planning basis for a drilling campaign. It confirms what we already knew – that there are brines underneath our mining licenses," Möbius states. "That is the pinnacle of our activity to date."

This would not have been possible without early presence in Argentina. And this would not have been possible without foresight into the EV transition and geological knowledge of the area. Möbius is a former Commissioned

Officer with an Evac. Op. unit of the German paratroopers, geologist with a large Anglo American Mining company in South Africa, oil and gas engineer in Congo and Europe and lastly, geoscientist in London, where he was part of a small team responsible for the largest gas discoveries in the Dutch and German sector of the North Sea in the past 25 years: N05-A. He knows about questioning general beliefs, implementing think first principles, and going where others have not. That's the spirit of an explorer. "What's behind that hill?"

"There is a large requirement for copper in EVs – four times the amount used in a typical combustion engine car," he says of the company's genesis. "I saw the boom for lithium, copper, cobalt and others that are required for the move towards electric mobility."

Copper is the other big focus for Southern Cross in Argentina. The company holds a license on a particular prospect – Copper One – on the Archibarca lineament, one of several





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northwest-southeast trending structural corridors that transect the Central Andes of northern Chile and Argentina.

"When you talk about copper and lithium and rare earth minerals, it goes hand in hand with a low-carbon future. If we, as a society, are serious about our endeavour to achieve the zero emission goals and going green with energy, we will need electricity, and that is transported by cables. Pure silver is the most conductive of all metals. Next best is copper and that is much cheaper. So, we need this to happen. There is scope to replace long distance power lines with aluminium but that is not nearly as efficient as copper, certainly when talking about putting in local infrastructure in cities. With current mines in production, the climate goals will not be achieved. We will need a lot more copper to electrify mobility in general and we will need more lithium to keep up with Battery EVs demand," details Möbius.

For the business, the spoils could be just as positive as the impact on

the green transition. the prices for copper and lithium have been steadily increasing over the past five years, and with demand set to increase and supply still strained, there is an appealing market developing.

"Southern Cross was an early mover in this mining boom," Möbius continues. "If you look at prices of lithium or copper in 2018, they were not anywhere near where they are now. We started applying for licenses in 2019 when copper was under \$6000 per ton. After 2020, it went up to around \$11,000 per ton. That spurred more activity. When you go to Argentina now and you want to pick up licenses, everything is taken. You pay top dollar to acquire licenses from others."

The same is true for lithium. From 2019 to 2021, prices dropped from around \$10,000 per ton down to around \$7000 per ton, before moving up sharply from Q2 2021 to around \$70,000 before decreasing again. "There are some ventures that have popped up and spent an enormous amount

of money acquiring licenses, but we were already there and we had those licenses, and that is our advantage as a first mover," highlights Möbius.

His message to the industry is clear – now is the perfect time to get involved. Copper and Lithium, or White Gold, are the minerals of the future, and Southern Cross Britannia has one of the best areas in South America's potent Lithium Triangle.

"There is not much left that is not already drilled so we are probably the last undrilled lithium brine project of material size – 600 Km². The next project – our neighbour to the north, in the same geological situation – is 240 km² with a net present value at 8% discount rate of 660 million after tax, assuming \$18,000 per ton lithium carbon equivalent.

"Ours is twice as big," he concludes. ■

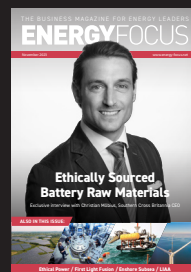
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Published by CMB Media Group
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AS FEATURED IN
ENERGY FOCUS
NOVEMBER 2023