

'White-gold rush' in Italy's lakes as lithium prospectors gather

Demand for European sources of the mineral, a key ingredient of electric car batteries, is set to surge by 2040 as Europe seeks to reduce reliance on China

Tom Kington, Rome

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Italy's volcanic lakes are proving a reliable pointer to the presence of lithium
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Italy's ancient volcanic lakes are at the centre of a "white-gold rush" as mining firms seek new supplies of lithium, a key ingredient in electric car batteries.

Altamin, from Australia, is the latest firm to obtain licences to prospect for the soft metal found in the scalding-hot thermal brine that lurks a mile beneath the green fields surrounding Lake Martignano near Rome.

Alexander Burns, the non-executive chairman of Altamin, said: "Italy already has the expertise in using brine to generate geothermal energy and so extracting lithium from it is just the next step."



The area is also starting to grab the attention of energy officials in Europe

Drilling at 16 spots in the the area in the 1970s proved the presence of lithium. Altamin, with its Italian partner, the energy company Iren, now wants to pipe the brine to the surface, extract the mineral and inject the liquid back into the earth using small pumping stations.

Burns said each pump could extract about 200 cubic metres of brine an hour – 200,000 litres. With a conservative estimate of 100 milligrams of lithium contained in every litre, a station could produce 20kg of lithium an hour, enough for two-and-a-half Tesla car batteries.

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Altamin is competing in the area with another Australian firm, Vulcan, which has already been given exploration licences around the nearby town of Cesano.

After being handed its first prospecting permissions a year ago by the Italian government, Altamin has been given four more licences in recent weeks, increasing its prospecting area fivefold to include the countryside between Sacrofano and Lake Bracciano, a large volcanic lake ringed by castles and olive and hazelnut groves.

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Tucked into gentle hills next to it sits the smaller Lake Martignano, flanked by woodland and meadows and swum in by intrepid bathers who navigate dusty, potholed lanes to find it.

The area is also starting to grab the attention of energy officials in Europe as the continent wakes up to its dependence on China for lithium and seeks sources closer to home. [Mining activity in Portugal](#) – considered one of Europe’s biggest sources – only provides one per cent of the world’s supply.

Luca Dal Fabbro, the executive chairman of Iren, said that lithium was among the 17 materials listed as strategic by the EU and demand is set to grow by up to 15 times between 2020 and 2040.

“But Europe has not paid enough attention, and it is no coincidence that two Australian firms have taken the licences here in Italy,” he said.





The majority of lithium is today mined or, in the case of the “Golden Triangle” between Argentina, Bolivia and Chile, extracted in brine form which is then dried in vast ponds.

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In China and Argentina only about 100,000 tonnes of lithium — about a tenth of the total extracted a year globally — is recovered using the so-called direct lithium extraction (DLE) method envisaged for Italy, Burns said.

Advocates say it is cheaper and cleaner than mining, for which sulphuric acid is needed to extract the lithium from pulverised rock, or using ponds for evaporation.

“The evaporation from ponds means the issue is water wastage, while we will send water back down, but not before using its heat to power the extraction of lithium from it — it’s very circular,” Burns said.



The global shift to electric vehicles has meant lithium is in high demand
JOHN MACDOUGALL/AFP/GETTY IMAGES

As total global production of lithium soars to 3.5 million tonnes a year in 2030, half a million tonnes is expected to derive from DLE as the technology gains acceptance, he added.

What makes the area underneath Lake Martignano so attractive is not just the lithium but the subterranean volcanic heat, said Sandro Conticelli, a geologist at the University of Florence.

“It’s an area with volcanoes packed in close to each other and the heat down below them moves the brine around, which increases absorption of lithium from the rocks,” he said.

“There will be nimbys who claim the reinjection of brine into the ground will create seismic activity but I don’t think it will be a big danger,” he added.

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