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Analysis of today
Assessment of tomorrow

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Arkansas vast lithium reserves—a possible game-changer in the global market

The recently confirmed vast reserves of lithium in Arkansas may seem like a game-changer in the global market of critical minerals but also an important part of the solution to the problems of the green transition.

As an investor in the Arkansas field, Exxon, whose development laboratories produced the first rechargeable lithium-ion battery in the 1970s, is now in a position to significantly influence the global shift towards sustainable energy sources.

Last Monday, the US Geological Survey (USGS) confirmed reserves of between 5 million tonnes and 19 million tonnes of lithium in southwest Arkansas, in part of the Smackover Formation that extends from Texas to Florida.

The quantities of the critical mineral are, according to the USGS, sufficient to exceed the 2030 global demand for lithium, as estimated by the International Energy Agency.

"The low-end estimate of 5 million tonnes of lithium present in Smackover brines is also equivalent to more than nine times the International Energy Agency's projection of global lithium demand for electric vehicles in 2030," USGS announced on Monday.

Exploitation despite the low price

The federal agency's study of Arkansas' vast lithium reserves comes at a time when the price of lithium on the world market is at its lowest level in several years.

Reduced demand for electric vehicles in the global market, except in China, has made the record high price for a tonne of lithium of $80,000 in 2022 fall to below $10,000 today.

However, Exxon, which has so far bought mineral rights to about 120,000 acres in Arkansas and whose wells have confirmed vast reserves of lithium, has plans to mine in Smackover.

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The company's final decision will depend on the cost-effectiveness of the new technology it has been developing and plans to apply to lithium mining in Arkansas.

Instead of the usual extraction of lithium from brines, through the evaporation of water that leaves behind a valuable mineral deposit, Exxon intends to apply direct lithium extraction, or DLE.

This method is far more efficient than the previous one; it produces minerals faster, and what's also important about the entire process is that it has significantly fewer consequences for the environment at the place of exploitation.

The company announced the start of commercial exploitation in Arkansas in 2027 so that by 2030 it could produce enough lithium to power a million electric vehicles a year. By the end of the year, Exxon should decide which technology it will use for lithium mining in Arkansas.

A shift in favour of US manufacturers

Even by just confirming its launch, Arkansas lithium exploitation will undoubtedly impact the global market, where Australia is the traditional leader with over 50% market share, but it will have an even greater impact on China, which currently holds an absolute dominant market share for EV batteries, ranging from 70 to 80%.

According to the USGS, which is responsible for monitoring market developments, the US now imports 25% of its lithium needs. But, given national strategies to stimulate domestic production of EVs, demand is likely to increase in the coming years. In this context, the exploitation of the Smackover fields can play a

dominant role in meeting the expected growth in demand.

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Moreover, the confirmed quantities have the potential for a shift in the current market conditions, in favour of US manufacturers above all, but certainly for the reduction of Chinese dominance in the production of batteries for EVs.

The current low price of lithium on the global market is solely related to the decline in demand for EVs in major markets, such as the EU, where high import tariffs on imports from China have been imposed in response to large government subsidies for EV production.

Currently, the low price is not much of a concern, as the lithium market is prone to large swings, sharp falls, and equally rapid spikes.

"What we've learned historically from lithium pricing is that it can change, and it can change rapidly. It doesn't faze us that much because we know the long-term outlook is fantastic," said Dale Henderson, from Pilbara Minerals, an Australian mining company.

A response to Chinese dominance

The long-term outlook is based on strategies for transitioning from hydrocarbon fuels to electric vehicles in order to reduce greenhouse emissions in the transport sector, which is the largest percentage participant in the creation of the greenhouse effect.

Although the European and US strategies for the green transition are subject to frequent criticism as being too ambitious, primarily in terms of deadlines, there are no policies in sight that would require dramatic changes in this field.

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Also, the long-term plans for the exploitation of lithium in Arkansas are also benefiting from the fact that the Chinese strategy for dominating this market has proven to be too expensive and insufficiently sustainable in the long term.

Its effort to dominate the world EV market by controlling the exploitation of raw materials globally has cost at least $4.5 billion, which went to purchase 20 lithium mines in Africa and South America.

The confirmation of vast stocks in the US and plans for rapid exploitation is a response to China's expansion in the past years and, at the same time, a hint of a shift in its previous dominance of the lithium battery market.