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There’s Enough Lithium in Arkansas for the World’s EVs. Extracting It Is the Issue

A new study says there’s nine times more lithium in Arkansas than the projected need for EVs globally in 2030.

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A massive source of lithium has been discovered in Arkansas which could shift the global production scales in the United States’ favor and establish a local supply chain that would no longer depend on countries like Australia, Chile and Argentina. .

Lithium is a key product needed for rechargeable batteries of all kinds, including those that power electric vehicles–that’s why they’re called lithium-ion. So finding new sources is a big deal, especially when we’re talking about reserves so big they could satisfy the projected needs for the entire world’s EV batteries in 2030–at least nine times over.

According to a new study from the United States Geological Survey (USGS), **there are anywhere between 5 to 19 million tons of lithium in southwestern Arkansas.** To come up with these figures, researchers used a combination of water testing and machine learning. But here’s the kicker: extracting clean lithium out of there is difficult, time-consuming and possibly not very cost-effective.

That’s because the massive lithium reserves are present brines located in a geological unit known as the Smackover Formation, the USGS said. These brines are high-salinity waters associated with deep salt deposits that can be traced back to an ancient sea.

Moreover, scientists are weary of how much lithium could be commercially extracted and warn that their estimates are exactly that: estimates.

> “We estimate there is enough dissolved lithium present in that region to replace U.S. imports of lithium and more,” said Katherine Knierim, a hydrologist and the study’s principal researcher. “It is important to caution that these estimates are an in-place assessment. We have not estimated what is technically recoverable based on newer methods to extract lithium from brines.”

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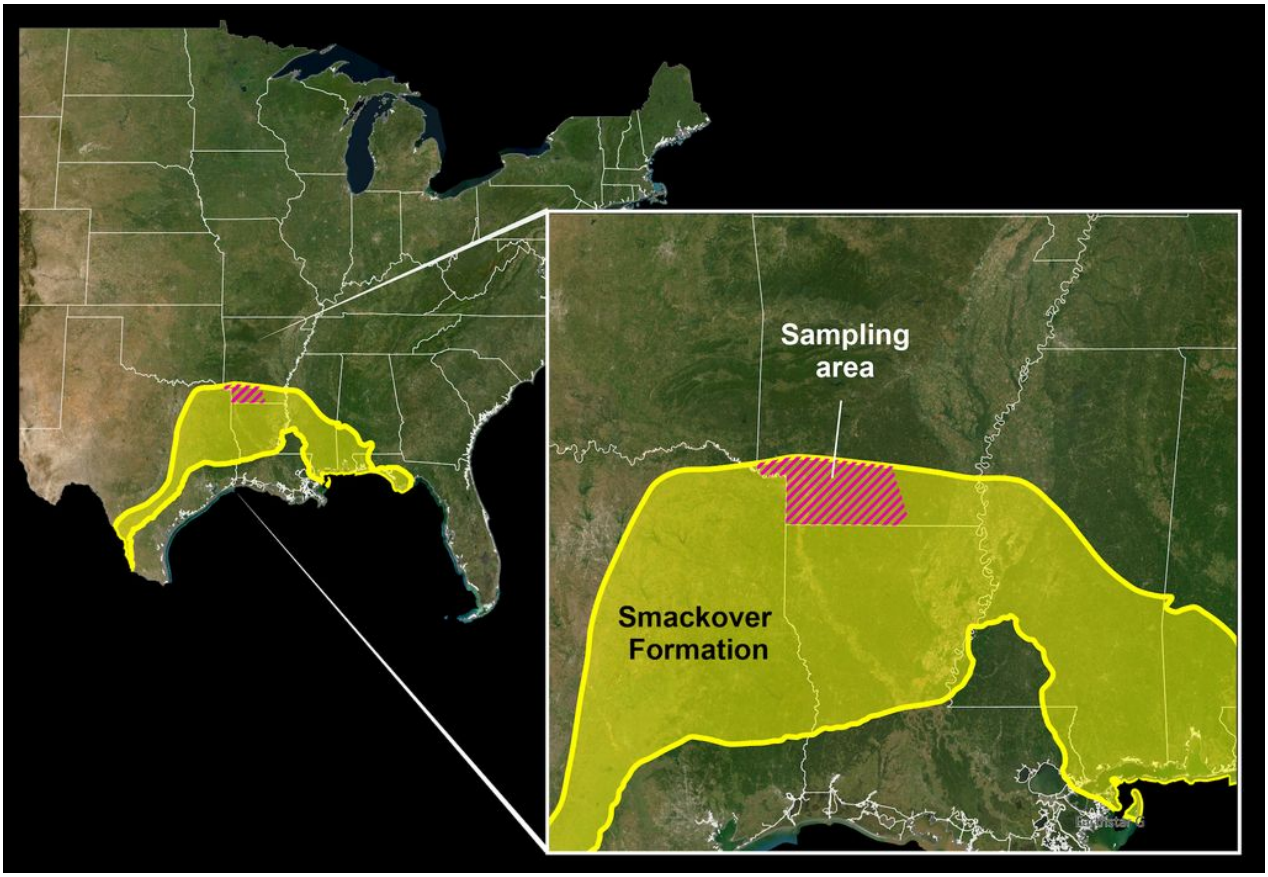

This map of the U.S. shows an inset area displaying highlighted areas for the Smackover Formation and sampling area. The Smackover Formation (highlighted in yellow) covers the southern to the eastern portion of Texas, the southern portion of Arkansas, the upper half of Louisiana and some eastern areas, the southern half of Mississippi, the southwest area of Alabama, and portions of the Florida panhandle. The sampling area is located in the lower portion of Arkansas (highlighted with red stripes). Source: USGS

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Incidentally, the same Smackover Formation is a historic site for oil and gas production where the salty, lithium-rich brine is brought to the surface as wastewater from these operations. This liquid can be processed to extract the precious chemical, but it's not easy.

Traditionally, the brine would be left in ponds until the water evaporates and the lithium can be scooped up, but this is time-consuming and requires a lot of physical space for the ponds. Another faster method is called direct lithium extraction (DLE) which uses chemical solvents or filters to separate the lithium from the water, but the technique is still in its infancy and there are concerns about the potential toxic waste left behind.

ExxonMobil–yes, the American oil and gas juggernaut–is reportedly already working on tapping the huge lithium resources buried 10,000 feet under Arkansas' surface. According to *The New York Times*, the company has already drilled exploratory wells in the state and plans to start production in 2027, with the ultimate goal of becoming a "leading" lithium supplier for electric vehicles. As reported by *The Verge*, the fossil fuel giant purchased drilling rights across 120,000 acres of land within the Smackover Formation in Arkansas.

The United States relies on imports for more than 25% of its lithium, so tapping this new source would be a global game-changer that would put America at the forefront of lithium

production. Another lithium-rich brine source is California's Salton Sea. Now we just need to extract it without making a mess.

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