



GUEST COMMENT



ALEX WYLIE

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It may seem counterintuitive, but the oil and gas industry has a crucial role to play in the West's development of a sustainable lithium supply for global clean energy and electric vehicle (EV) battery production. Many see the petroleum business as an obstacle, but the industry seeks technological solutions to innovate and support the transition.

One technological innovation emerging is direct lithium extraction (DLE) from oilfield brines. Several DLE solutions are being used for producing lithium without building mines.

At Volt Lithium, our proprietary DLE technology has successfully extracted lithium (99% lithium extraction rate in field tests) and produced battery-grade lithium carbonate (a saleable product). We have successfully scaled up our field unit capacity to 96 000 l/d (equivalent to 600 bpd), representing a 100 times increase in our processing capabilities. This now paves the way for field production from DLE operations to commence in 3Q24 in the Permian Basin, Texas.

Our success builds upon decades of oil and gas experience and meeting several objectives: achieve commercial production, minimise environmental impact, and create a replicable economic model for oilfield producers in a variety of North American oil basins.

Developed countries like the US face a serious lithium shortfall for EV development. While the Biden administration aims for 50% of new domestic car sales to be EVs by 2030, new protectionist measures seek to protect US workers and companies in strategic sectors for the energy transition.

This past May, US President Joe Biden announced 100% tariffs on electric cars, and 25% tariffs on lithium-ion batteries for EVs, from China. Currently, 80% of the world's lithium is refined and processed in China. Such tariff moves will make it unaffordable for US companies to import.

These measures may spur more American lithium mines online, but hard rock operations will face environmental opposition and long-term deliberations from Indigenous and community stakeholders. It may take up to 20 years to commence production from these mines.

Instead of conventional mining, a near-term solution to America's lithium dilemma lies in the water produced as a by-product of oil production. For every barrel of oil produced, up to 4.5 bbls of water are produced from each well. Historically this water (brine) was considered a waste stream from oil production. However, the brine contains lithium that can be extracted to produce battery-grade carbonates or lithium hydroxide using DLE technology.

The Permian Basin produces 19 million bpd of brine, making it the single largest source of oilfield brine in North America. With the current brine output in the Permian, Texas could domestically extract up to 325 000 tpy of lithium using DLE technology. That output represents up to one-third of US lithium needs by 2030.

The process is sustainable. In North America, stringent oil and gas industry regulations provide the environmental framework for safe and responsible lithium production. Existing hydrocarbon wells and infrastructure eliminate the need for new drilling and pipelines, significantly reducing capital costs, exploration risk, and environmental footprint versus building a lithium mine.

The energy transition is inevitable, and both the petroleum and mining industries can play a leadership role in heralding its arrival.

DLE is a profitable opportunity for the petroleum industry to meet the critical metal's demand in North America and beyond, turning environmental stewardship into resource production.

The oil and gas industry has achieved remarkable efficiencies managing brine production and can leverage this expertise, through DLE technology, to become the globe's major lithium player. Let us build upon that expertise to create a paradigm that aligns the sector with various energy transition goals.

We must enhance communication about DLE's benefits across natural resource sectors, public markets, and among environmental, business, and government interests. Increasing awareness will attract more expertise and foster additional technological solutions to support the transition. **GMR**

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