

Commercialization

PROJECT NAME: Unlocking U.S. Lithium Production

APPLICANT: Lilac Solutions

Federal Cost Share: \$50,000,000

Recipient Cost Share: \$129,322,049

Supply Chain Segment: Materials Separation & Processing (Cathode Minerals)

Project Description:

Lilac's project in Fernley, Nevada, will demonstrate the production of lithium at commercially relevant scales (TRL 9) using Lilac's IX lithium extraction technology. The technology to be demonstrated has the potential to unlock lithium production from domestic resources that are unviable with current production technologies, and therefore vastly expand domestic lithium supply.

Most of the world's lithium resources are found in naturally occurring salt solutions, known as brines. However, most domestic brine resources contain lithium at concentrations too low, and impurities at concentrations too high, to make extraction commercially viable. Lilac's patented ion-exchange technology can extract lithium economically from these brines by directly capturing the lithium using solid ion-exchange beads, while impurities remain within the liquid resource and are returned to the natural environment. The extracted lithium is released from the solid ion-exchange beads using acid, producing a purified lithium stream that can be further processed into battery-grade lithium products using conventional technologies. This project will demonstrate economical and environmentally friendly lithium extraction from domestic lithium resources through three concerted efforts:

1. Demonstration of manufacturing of proprietary ion-exchange beads used by Lilac's technology at commercially relevant scales,
2. Demonstration of lithium extraction from domestic brine resources at commercially relevant scales.
3. Collaboration with partner FFRDCs and universities to maximize the positive impact of such projects on communities and the environment.

Community Benefits:

Domestic lithium supply is woefully inadequate to support the growth of the domestic battery supply chain and support U.S. leadership in the green-energy transition. By successfully demonstrating Lilac's lithium extraction technology from domestic lithium resources that are currently considered unviable, this project has the potential to add significant volumes of lithium to the domestic supply. Lilac anticipates that the financial assistance provided by DOE funds will significantly accelerate production of lithium within the U.S.

