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Leading a new era of **responsible lithium production** in America

BENCHMARK WORLD TOUR 2023

June 27th 2023

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This Presentation shall not constitute an offer to sell or a solicitation of an offer to purchase securities, and shall not constitute an offer, solicitation or sale in any state or jurisdiction in which or to any person to whom such an offer, solicitation or sale would be unlawful. This Presentation includes information on peer companies and other industry and market data. We obtained information from publicly available and other third-party sources as well as the Company's good faith estimates. While the Company believes the information was prepared by reputable sources, the Company did not independently verify the information or the underlying assumptions. No representation or warranty is made as to accuracy, completeness or reasonableness of such information.

This presentation also includes certain estimates and projections that are based on internal models. Although the estimates are based upon assumptions and analysis that we believe to be reasonable, there can be no assurance that actual results will not differ, perhaps materially, from the estimates presented in this presentation.

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Forward-Looking Statements

Except for statements of historical fact, this Presentation contains certain "forward-looking information" within the meaning of applicable Canadian securities legislation and "forward-looking statements" within the meaning of the United States Private Securities Litigation Reform Act of 1995 (collectively referred to herein as "forward-looking information"). The statements relate to future events or the Company's future performance. All statements, other than statements of historical fact, may be forward-looking information. Information concerning mineral resource and mineral reserve estimates also may be deemed to be forward-looking information in that it reflects a prediction of mineralization that would be encountered if a mineral deposit were developed and mined. Forward-looking information generally can be identified by the use of words such as "seek", "anticipate", "plan", "continue", "estimate", "expect", "may", "will", "project", "predict", "propose", "potential", "target", "intend", "could", "might", "should", "believe", "scheduled", "implement" and similar words or expressions. These statements involve known and unknown risks, uncertainties and other factors that may cause actual results or events to differ materially from those anticipated in such forward-looking information.

In particular, this Presentation contains forward-looking information, including, without limitation, with respect to the following matters or the Company's expectations relating to such matters: the Company's planned exploration and development programs (including, but not limited to, plans and expectations regarding advancement, testing and operation of the lithium extraction pilot plant); commercial opportunities for lithium products; filing of technical reports; expected results of exploration; accuracy of mineral or resource exploration activity; accuracy of mineral reserves or mineral resources estimates, including the ability to develop and realize on such estimates; whether mineral resources will ever be developed into mineral reserves, and information and underlying assumptions related thereto; budget estimates and expected expenditures by the Company on its properties; regulatory or government requirements or approvals; the reliability of third party information; continued access to mineral properties or infrastructure; payments and share issuances pursuant to property agreements; fluctuations in the market for lithium and its derivatives; expected timing of the expenditures; performance of the Company's business and operations; changes in exploration costs and government regulation in Canada and the United States; competition for, among other things, capital, acquisitions, undeveloped lands and skilled personnel; changes in commodity prices and exchange rates; currency and interest rate fluctuations; the Company's funding requirements and ability to raise capital; geopolitical instability; war (such as Russia's invasion of Ukraine); the continued impact of the COVID-19 outbreak, including with regard to the health and safety of the Company's workforce; COVID-19 protocols and their efficacy and impacts on timelines and budgets; and other factors or information.

Forward-looking information does not take into account the effect of transactions or other items announced or occurring after the statements are made. Forward-looking information is based upon a number of expectations and assumptions and is subject to a number of risks and uncertainties, many of which are beyond the Company's control, that could cause actual results to differ materially from those that are disclosed in or implied by such forward-looking information. With respect to forward-looking information listed above, the Company has made assumptions regarding, among other things: current technological trends; ability to fund, advance and develop the Company's properties; the Company's ability to operate in a safe and effective manner; uncertainties with respect to receiving, and maintaining, mining, exploration, environmental and other permits; pricing and demand for lithium, including that such demand is supported by growth in the electric vehicle market; impact of increasing competition; commodity prices, currency rates, interest rates and general economic conditions; the legislative, regulatory and community environments in the jurisdictions where the Company operates; impact of unknown financial contingencies; market prices for lithium products; budgets and estimates of capital and operating costs; estimates of mineral resources and mineral reserves; reliability of technical data; anticipated timing and results of operation and development; inflation; war (such as Russia's invasion of Ukraine); and the impact of COVID-19 on the Company and its business. Although the Company believes that the assumptions and expectations reflected in such forward-looking information are reasonable, the Company can give no assurance that these assumptions and expectations will prove to be correct. Since forward-looking information inherently involves risks and uncertainties, undue reliance should not be placed on such information.

Cautionary Statement

Forward-looking information involves known and unknown risks, uncertainties and other factors that may cause the actual results, performance or achievements of the Company to be materially different from any future results, performance or achievements expressed or implied by the forward-looking information. Such factors include, but are not limited to: general economic conditions in Canada, the United States and globally; industry conditions, including the state of the electric vehicle market; governmental regulation of the mining industry, including environmental regulation; geological, technical and drilling problems; unanticipated operating events; competition for and/or inability to retain drilling rigs and other services and to obtain capital, undeveloped lands, skilled personnel, equipment and inputs; the availability of capital on acceptable terms; the need to obtain required approvals from regulatory authorities; uncertainties associated with estimating mineral resources and mineral reserves, including uncertainties relating to the assumptions underlying mineral resource and mineral reserve estimates; whether mineral resources will ever be converted into mineral reserves; uncertainties in estimating capital and operating costs, cash flows and other project economics; liabilities and risks, including environmental liabilities and risks inherent in mineral extraction operations; health and safety risks; risks related to unknown financial contingencies, including litigation costs, on the Company's operations; unanticipated results of exploration activities; unpredictable weather conditions; unanticipated delays in preparing technical studies; inability to generate profitable operations; restrictive covenants in debt instruments; lack of availability of additional financing on terms acceptable to the Company; intellectual property risk; stock market volatility; volatility in market prices for commodities; liabilities inherent in the mining industry; inflation risks; risks related to war (such as Russia's invasion of Ukraine); the development of the COVID-19 global pandemic; changes in tax laws and incentive programs relating to the mining industry; other risks pertaining to the mining industry; conflicts of interest; dependency on key personnel; and fluctuations in currency and interest rates, as well as those factors discussed in the section entitled "Risk Factors" in the Company's AIF.

Although the Company has attempted to identify important factors that could cause actual actions, events or results to differ materially from those described in forward-looking information, there may be other factors that cause actions, events or results to differ from those anticipated, estimated or intended.

Readers are cautioned that the foregoing lists of factors are not exhaustive. All forward-looking information in this this Presentation speaks as of the date of this Presentation. The Company does not undertake any obligation to update or revise any forward-looking information, whether as a result of new information, future events or otherwise, except as required by law. All forward-looking information contained in this Presentation is expressly qualified in its entirety by this cautionary statement. Additional information about these assumptions and risks and uncertainties is contained in the Company's filings with securities regulators, including the Company's most recent MD&A for our most recently completed financial year and, if applicable, interim financial period, which are available on SEDAR at www.sedar.com and EDGAR at www.sec.gov.

Currency

Except where otherwise indicated, all references to currency in this Presentation are to US Dollars ("$").

NI 43-101 Disclosure

Scientific and technical information in this Presentation has been reviewed and approved by Steve Ross, P. Geol., Vice President Resource Development, of the Company, who is a "qualified person" under National Instrument 43-101 – *Standards of Disclosure for Mineral Projects* ("NI 43-101").

Further information about the LANXESS Property ("LANXESS") Project, including a description of key assumptions, parameters, methods and risks, is available in the NI 43-101 technical report titled "Preliminary Economic Assessment of LANXESS Smackover Project", dated August 1, 2019 ("LANXESS PEA"), available under the Company's SEDAR profile.

Further information about the South West Arkansas ("SWA") Project, including a description of key assumptions, parameters, methods and risks, is available in the NI 43-101 technical report titled "Standard Lithium Ltd. Preliminary Economic Assessment of SW Arkansas Lithium Project" dated November 20, 2021 (the "South West Arkansas PEA"), available under the Company's SEDAR profile.

The Mineral Resource estimates contained in this Presentation have been prepared in accordance with the requirements of securities laws in effect in Canada, including NI 43-101, which governs Canadian securities law disclosure requirements for mineral properties. NI 43-101 differs from the requirements of the United States Securities and Exchange Commission ("SEC") that are applicable to domestic United States reporting companies. Any Mineral Resources reported by the Company herein may not be comparable with information made public by United States companies subject to the SEC's reporting and disclosure requirements.

Non-GAAP Measures

This Presentation includes certain performance measures ("non-GAAP measures") which are not specified, defined, or determined under generally accepted accounting principles (in the Company's case, International Financial Reporting Standards, or "IFRS").

These are common performance measures in the lithium mining industry, but because they do not have any mandated standardized definitions, they may not be comparable to similar measures presented by other issuers. Accordingly, the Company uses such measures to provide additional information and readers should not consider them in isolation or as a substitute for measures of performance prepared in accordance with generally accepted accounting principles ("GAAP").

Standard Lithium is Leading North America's Lithium Revolution

Pioneering a new wave of responsible U.S. lithium production through Direct Lithium Extraction ("**DLE**") technology with the vision of **becoming the next producer in the U.S.**

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The U.S. is focused on securing a domestic supply of lithium

The U.S. accounts for less than 1% of global lithium production. Lithium has been deemed critically important and recent government support programs for a domestic battery supply chain provide significant incentive for U.S. lithium production.

North America's Premier Lithium Brine Project Located in the U.S. Energy Heartland

The Smackover Formation has North America's highest lithium grade brine. Located in the energy heartland of the United States, Standard Lithium has over 180,000 acres of brine leases under development in Arkansas targeting total production of over 50,000 tonnes of lithium chemicals through a phased development strategy

On pace to become the next lithium producer in the U.S.

Projects leverage the infrastructure and expertise of America's largest brine industry to fast-track commercial development. Operating in a region not under extreme water stress, access to low cost power, reagents and with broad stakeholder support. A Definitive Feasibility Study is underway for the first commercial DLE project.

Pioneering Sustainable U.S. Lithium Production for a Cleaner Future

Standard Lithium has established a leading position in advancing DLE technology, from its large-scale demonstration plant that has been in continuous stages of operation at the project site since May 2020

Texas: A Foundation for Scalable Growth

Resource expansion work in Texas has confirmed, to the best of the Company's knowledge, the highest confirmed lithium grade brine in North America. Combined with an optimized, replicable and scalable **DLE** process, the Company is ideally positioned to play a key role in the future of lithium production for decades to come.

KOCH DISRUPTIVE TECHNOLOGIES

Formerly Koch Strategic Platforms

Koch Disruptive Technologies is a subsidiary of Koch Investments Group within Koch Industries (“Koch”). Koch is **one of the leading producers of petrochemicals and other industrial materials in the world**

- **$100M USD direct equity investment (US$7.42/sh)**
- Alignment with several Koch Industries business units: Koch Minerals and Trading, Koch Engineered Solutions, and Optimized Process Designs (“OPD”)
- Front End Engineering Design (“FEED”) and Definitive Feasibility Study (“DFS”) awarded to Koch’s internal engineering, procurement, and construction subsidiary
- Joint Development Agreement with Koch Technology Solutions (“KTS”) collaborate on technology & process solutions for DLE commercialization including performance warranties to further derisk commercial development

LANXESS
Energizing Chemistry

LANXESS is a global specialty chemical company with 60+ chemical production sites. The three Arkansas bromine facilities, which have been in operation for six decades, were acquired by LANXESS in 2017

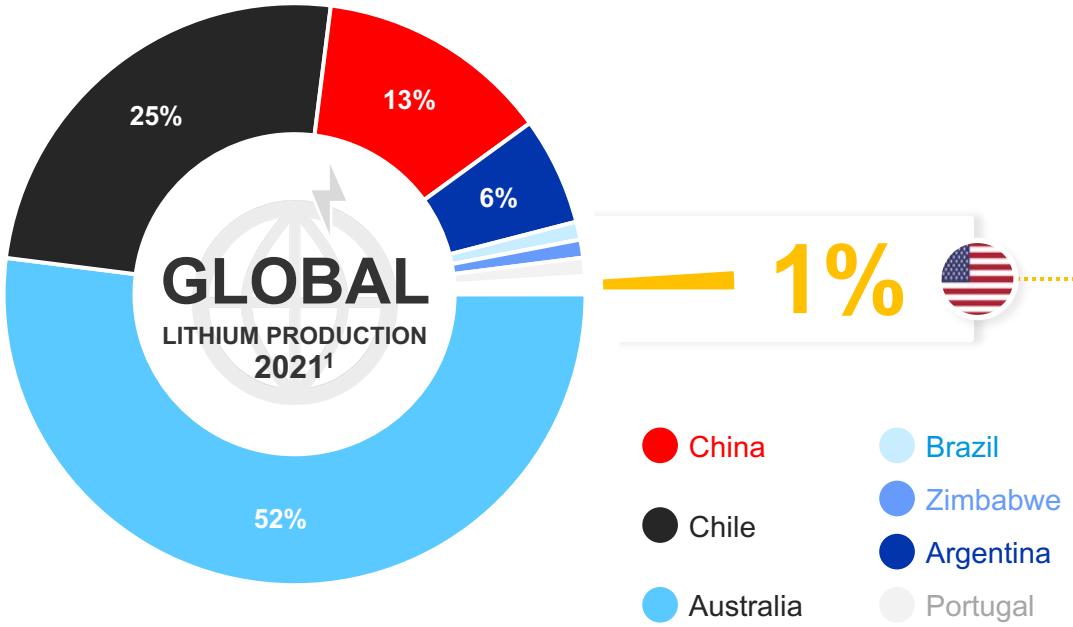
- **Owner of the largest existing brine operations in North America**
- Ability for Standard Lithium to utilize the existing brine infrastructure and operations to expedite and de-risk project execution
- Provides expertise in specialty chemicals, sales & marketing as well as operational and human resource skills needed to fast track production
- Memorandum of Understanding (MOU) in place for phased commercial lithium development, including off-take arrangements, from the Lanxess Project

Leveraging major strategic partnerships to de-risk and accelerate time to production

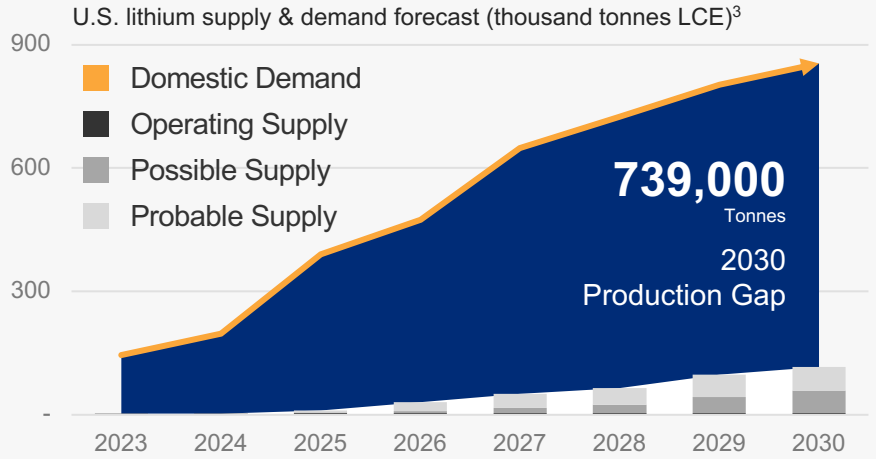
Standard Lithium is actively exploring additional strategic partnerships to further de-risk and expedite its commercial development strategy.

Securing a Domestic Supply Chain

- The U.S. accounts for less than 1% of global lithium production[1]
- China currently controls much of the critical mineral supply chain needed to power clean energy technologies[2]
- US lack of mining, processing, and recycling capacity of critical minerals could hinder EV development, leaving US dependent on unreliable foreign supply chains[2]



Domestic U.S. lithium demand is projected to maintain steady growth.



The U.S. government is incentivizing the development of domestic lithium production as demand climbs.

INFLATION REDUCTION ACT	DEPARTMENT OF ENERGY	DEFENSE PRODUCTION ACT
$369B	$65B	$3.6B
TOTAL FUNDING	TOTAL FUNDING	TOTAL FUNDING

(1) World Economic Forum
(2) US White House Briefing Room; October 19, 2022
(3) Benchmark North American Gigafactory Pipeline, assuming 800 tonnes LCE / GWh

Our Assets

Tested, scalable, fully-integrated DLE technology and first mover advantage on North America's Premier Lithium Brine resource

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S C I E N C E • S C A L E • S P E E D

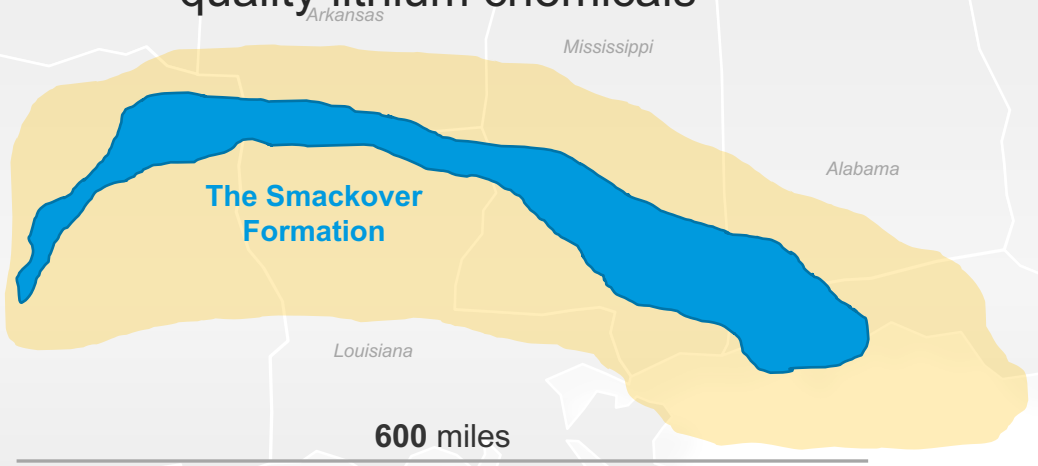
The Smackover Formation

Standard Lithium has developed a **Fully-Integrated Start-to-Finish DLE process tailored** to extract lithium from Smackover brine to produce battery quality lithium chemicals

For over 100 years, the Smackover formation in southern US has played a central role in America's conventional energy economy.

Commercial bromine brine operations have been ongoing for 60 years, with Arkansas being the world's second largest producer of bromine.

The same bromine rich brine contains some of the highest concentrations of lithium in North America.



Smackover Attributes

Ideal Concentrations

Brine has elevated lithium concentrations, typically ranging from 150-600+mg/L

Geology Fundamentals

Geological data from thousands of wells demonstrates regional formation homogeneity in thickness, continuity, and chemistry

Significant Brine Capacity

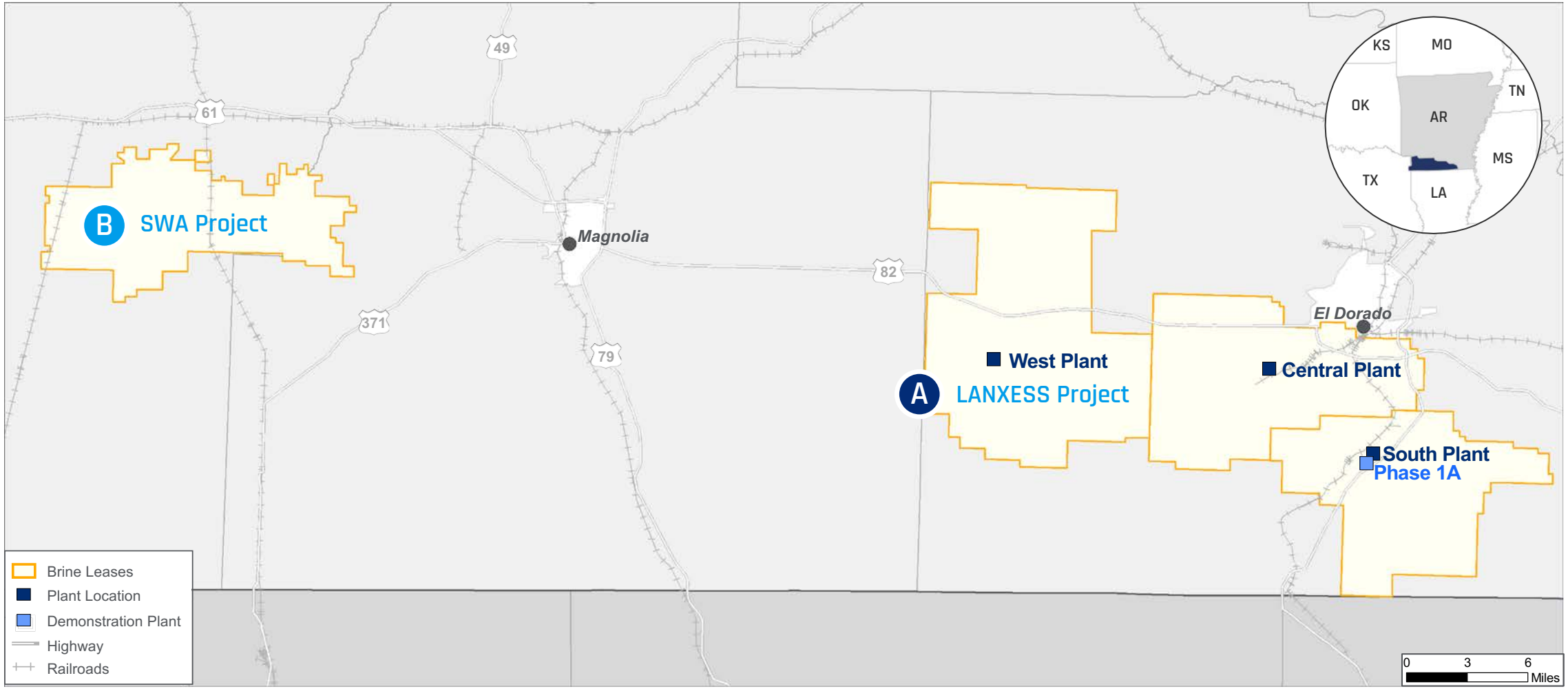
8+ billion gallons of brine pumped, processed and reinjected annually in south Arkansas

The Smackover Formation is North America's Premier Lithium Brine Resource

Smackover: Arkansas Projects

A 3.14 MT LCE LANXESS Project

B 1.2 MT LCE South West Arkansas (SWA) Project



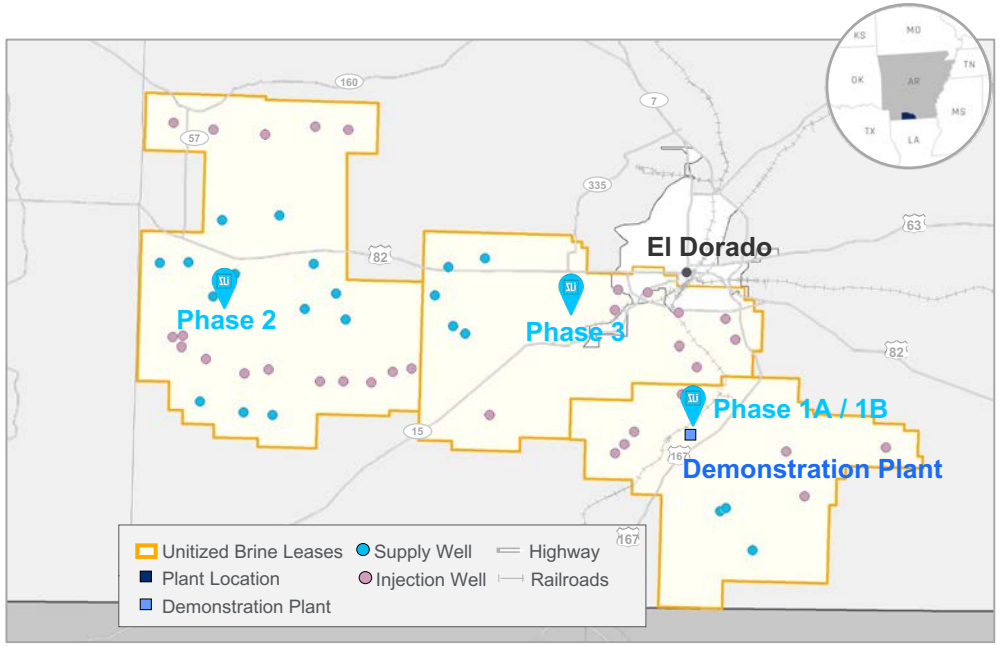
1. LANXESS Preliminary Economic Assessment August 2019.
2. SWA Preliminary Economic Assessment November 2021.

The Lanxess Project

One of the industry's most advanced large-scale Direct Lithium Extraction projects

Phase 1A	Phase 1B	Phase 2	Phase 3

- Projects have significant local support
- The proposed facilities leverage existing brine processing facilities from LANXESS
- Finalized MOU with LANXESS that defines commercial development strategy including, site leases and offtake arrangements.
- Phased development approach, allowing for operational flexibility reducing initial capex requirements

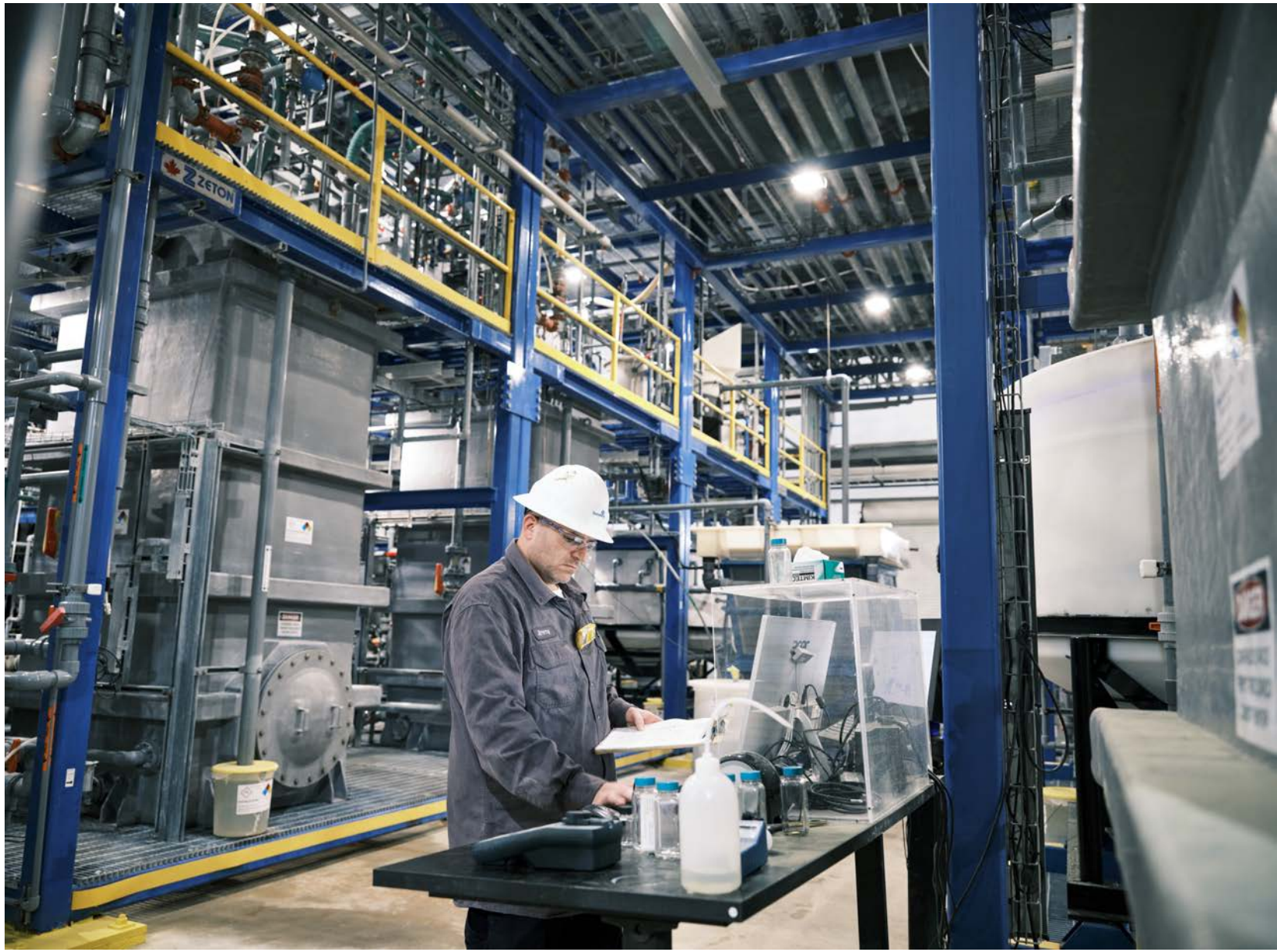


Each proposed Standard Lithium Lanxess facility will **leverage existing bromine production facilities** owned by LANXESS

The Lanxess Project Phase 1A

Demonstration Plant

Demonstration Plant



Lanxess Phase 1A

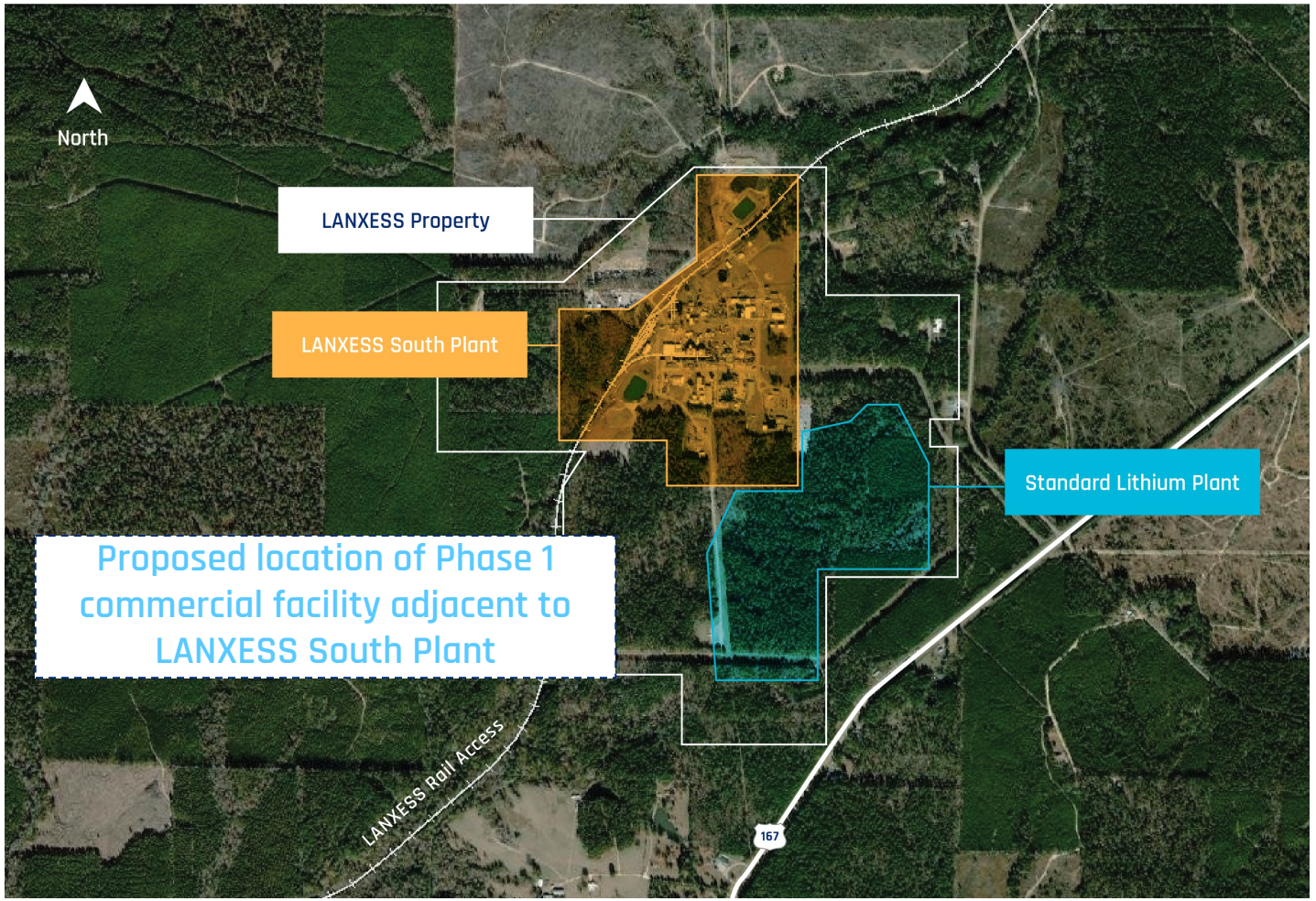
First phase is a 'brownfield' project leveraging existing commercial brine operations to fast-track production; scale achieved through 'greenfield' projects with massive resource potential

Access to Existing Resources

- Brine Supply & Disposal Network
- Electricity
- Fresh Water
- Natural Gas
- Paved Highway
- Rail
- Skilled Labor

Project has broad local support and social license to operate:

- Not subject to local planning and zoning ordinances
- Union County does not regulate industrial siting and construction



Smackover: Arkansas Projects

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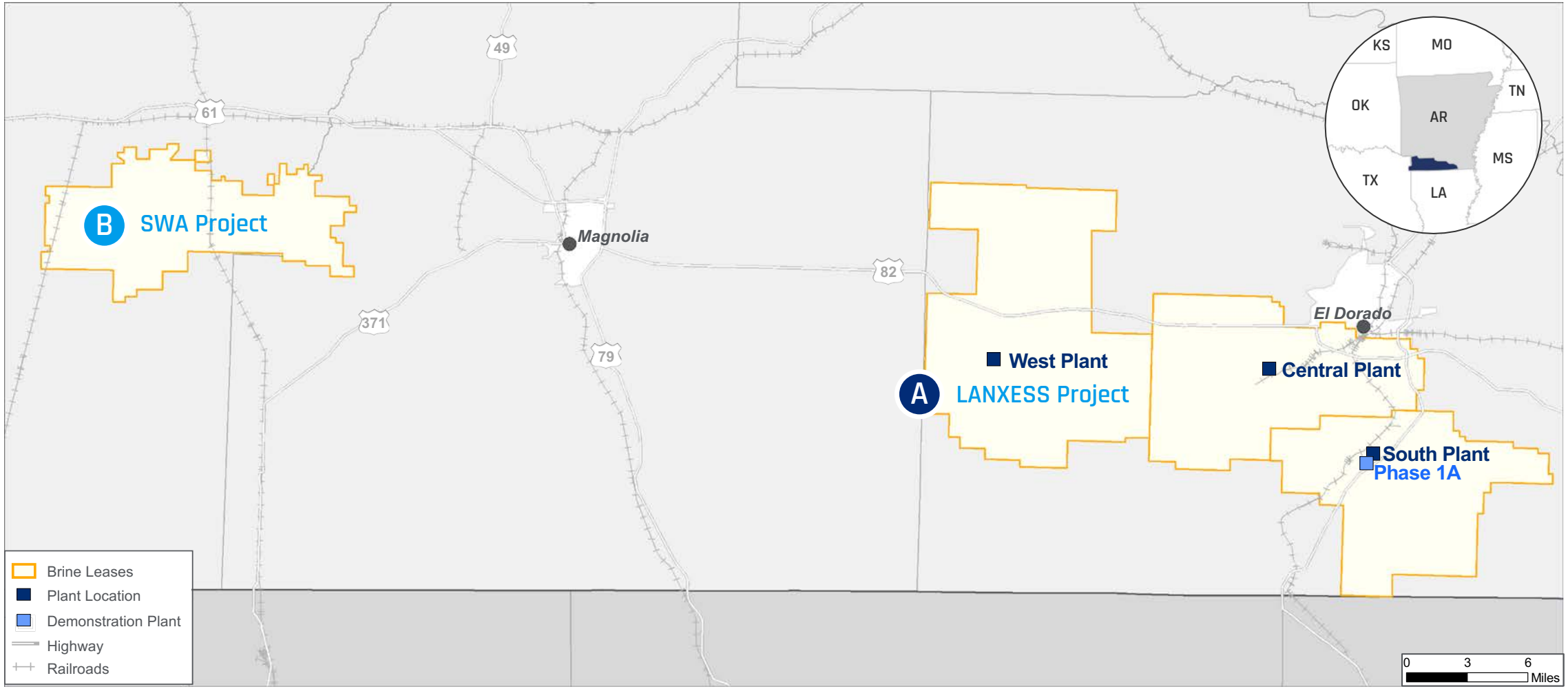


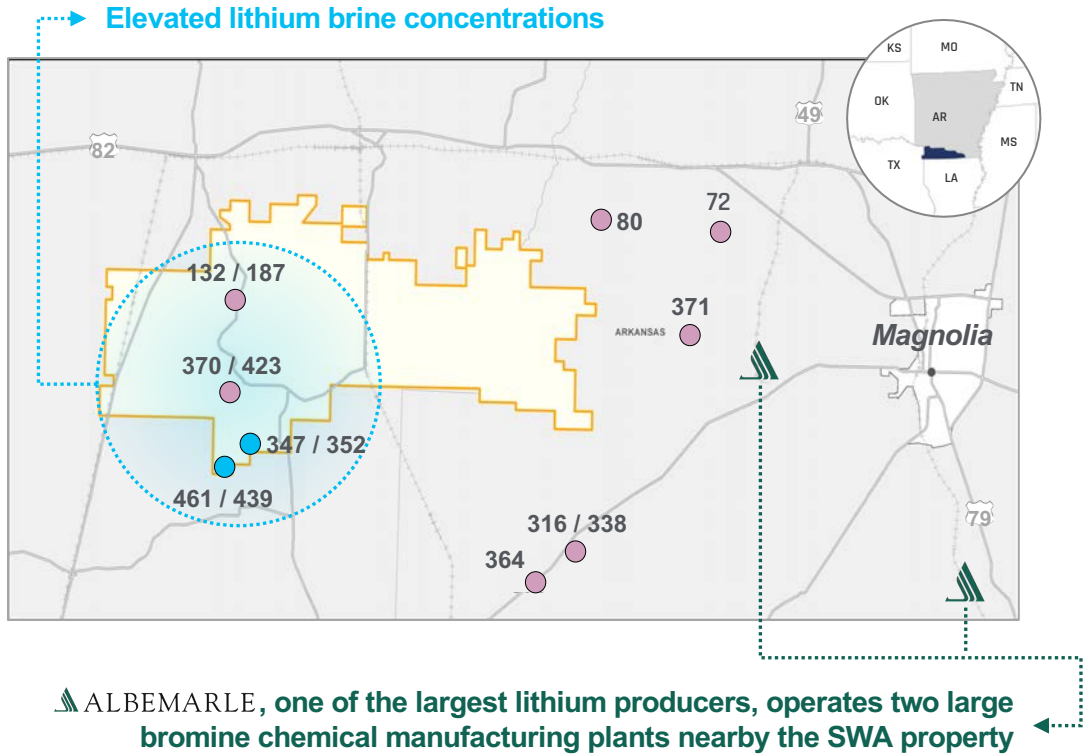
1. LANXESS Preliminary Economic Assessment August 2019.
2. SWA Preliminary Economic Assessment November 2021.

The South West Arkansas Project

Approximately 25 miles west of the Lanxess project, will benefit from much of the same existing local infrastructure; water, power, road, rail and workforce

STATUS: Preliminary Feasibility Study is underway

- Tonnes of annual LiOH production ~30,000[1]
- Well understood geology with extensive data including 2,444 wells drilled in the general project area
- Inferred resource of 1.2Mt LCE[1]
- Southern portion of the property contains average lithium concentration 399 mg/L[1]
- SWA Project covers approximately 36,000 acres of unitized brine leases[1]



(1) SWA Preliminary Economic Assessment November 2021
(2) Moldovanyi and Walter (1992)

The South West Arkansas Project

The South West Arkansas Project – Recent News

Standard Lithium Drills and Samples Highest Confirmed Grade Lithium Brine in Arkansas

Samples from Four Zones at its South West Arkansas Project Average 563 mg/L Lithium and Include a Sample of 581 mg/L

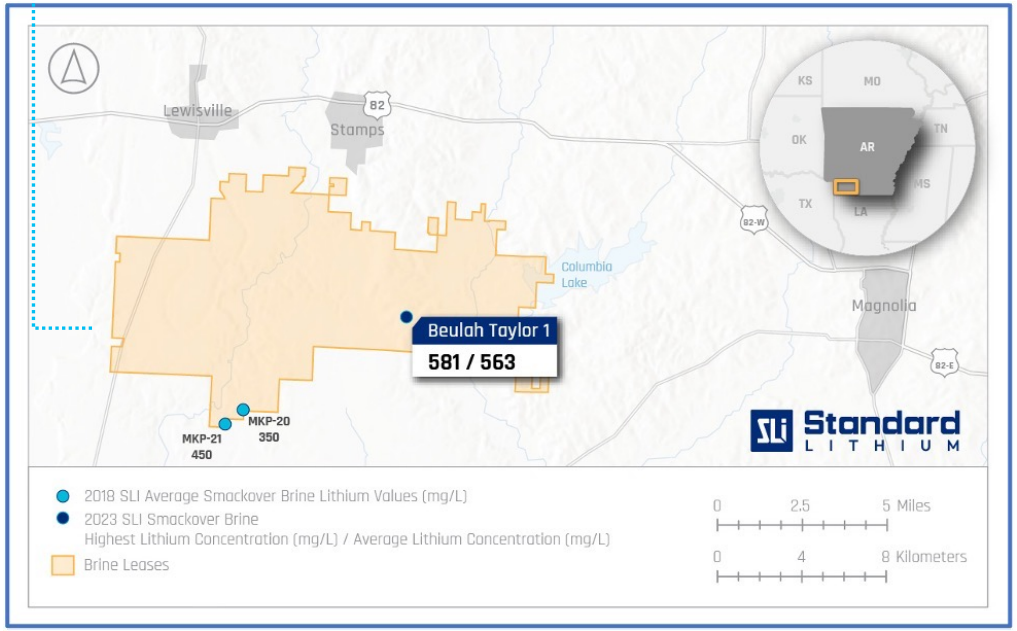
Table 1: Beulah-Taylor#1 Lithium Brine Analyses in South West Arkansas Project Area

Smackover Sampling Name [1]	Lithium concentration (mg/L) [2]	Average Lithium concentration (mg/L) [3]
Zone 1 (Upper Smackover)	531 / 569	**563**
Zone 2 (Upper Smackover)	**581 / 574**	
Zone 3 (Upper Smackover)	570	
Zone 4 (Middle Smackover)	551	

Notes:

[1] Smackover Formation descriptors (Upper, Middle, and Lower) are a local project area naming convention.
[2] Where two lithium analyses are provided, they represent the main sample and a blind duplicate for QA/QC purposes.
[3] Unweighted mean lithium concentration from the four representative brine samples (plus duplicates) from Beulah-Taylor#1.

Elevated lithium brine concentrations



(1) SWA Preliminary Economic Assessment November 2021
(2) Moldovanyi and Walter (1992)

Standard Lithium Scaling Formula

+ Familiar geological structure
+ Integrated, purpose-built DLE technology
+ Highest tested lithium brine concentration[3] in the U.S.

Initial scale of proven DLE process & technology

Demo Plant	DLE Formula	**Optimized**
Lanxess Projects	PRODUCTION	**21,700[1]** tpa Li_2CO_3
SWA Project	PRODUCTION	**30,000[2]** tpa LiOH

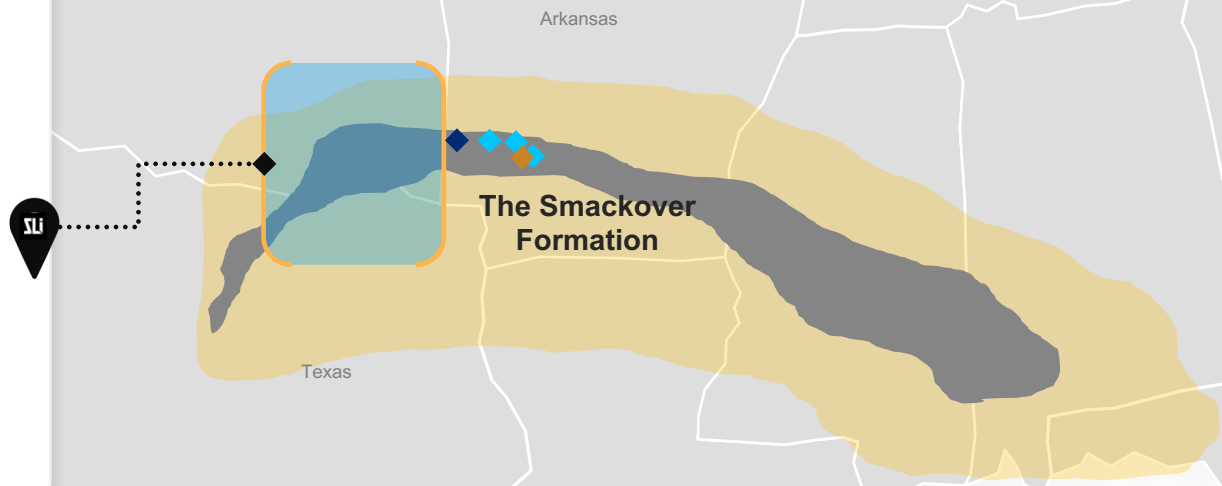
Opportunity to develop industry-leading production capacity in **Texas**

Standard Lithium has identified a select number of highly prospective lithium brine project areas in the Smackover Formation in East Texas and began an extensive brine leasing program in the key project areas.

Lithium concentration

298 - 634 mg/L

This discovery adds depth to inventory of future projects



(1) Lanxess Preliminary Economic Assessment August 2019 - SWA Preliminary Economic Assessment November 2021
(2) South West Arkansas Preliminary Economic Assessment November 2021
(3) Resource Expansion Program – See News Release March 28, 2023

The Smackover Expansion Project

Targeting locations over optimal brine resources to secure a foothold for large-scale production

STATUS: Confirming resource

- Team of Smackover specialists have been working for the past three years to identify the most prospective areas to secure high-quality brine resources in East Texas
- Acquiring prospective brine rights in key project areas
- Acquired the rights to one existing well and a new deep well
- Samples collected to date were tested multiple times by third parties to confirm **lithium concentrations ranging from 298 to 634 mg/L[1]**
- To the understanding of management, these are the **highest tested lithium brine concentrations in North America**

CONCENTRATION RANGE[1]

298 - 634 mg/L

(1) Average tested lithium concentration in East Texas new well
(2) Average brine sample from Salton Sea, Table 1, Warren 2021. Techno-Economic Analysis of Lithium Extraction from Geothermal Brines. Golden, CO: National Renewable Energy Laboratory. NREL/TP-5700-79178

(1) March 28, 2023 news release

Standard Lithium Projects Overview

CURRENT PROJECTS

PROJECT	LOCATION	STATUS	TARGET PRODUCTION (tpa)
Lanxess 1A: South Plant	Arkansas	Definitive Feasibility Study (DFS) Underway[1]	5,000 – 6,000 Li_2CO_3
South West Arkansas: "SWA"	Arkansas	Pre-Feasibility Study Underway[2]	30,000 LiOH

FUTURE PROJECTS

PROJECT	LOCATION	STATUS	TARGET PRODUCTION (tpa)
Lanxess 1B: South Plant Expansion	Arkansas	Planning[1]	5,000 Li_2CO_3
Lanxess 2: West Plant	Arkansas	Preliminary Economic Assessment[4]	8,200 Li_2CO_3
Lanxess 3: Central Plant	Arkansas	Preliminary Economic Assessment[4]	3,000 Li_2CO_3
West Smackover Expansion Program	Texas	Exploration & drilling underway[3]	TBD

The right projects, the right place, the right time

Location
Region has a large existing brine processing industry, significant infrastructure, water, power, reagents

Tier One Brine Resource
The Smackover formation hosts the highest reported grade lithium concentrations in the North America[3]

Technology
Fully integrated DLE process tailored, optimized and tested at scale for Smackover brine

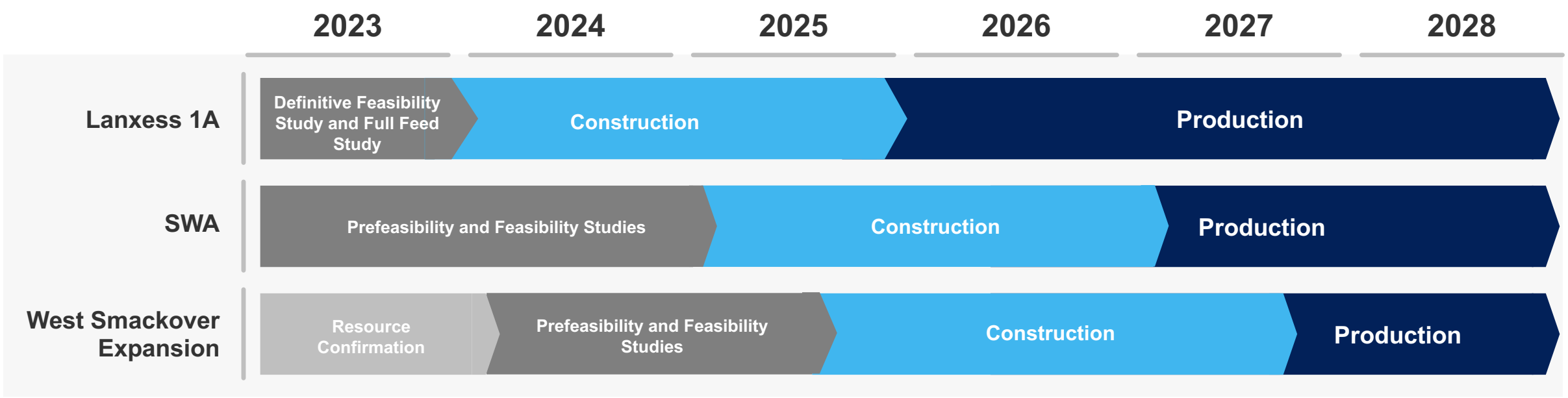
Workforce
Arkansas hosts a skilled workforce with experience in brine operations, chemical processing and reservoir management

Social License
Project has significant local support and social license to operate in the prospective areas

(1) LANXESS South Definitve Feasibility Study – See News Release September 7, 2022
(2) SWA Preliminary Economic Assessment November 2021
(3) Resource Expansion Program – See News Release March 28, 2023
(4) LANXESS Preliminary Economic Assessment August 2019

Project Timelines

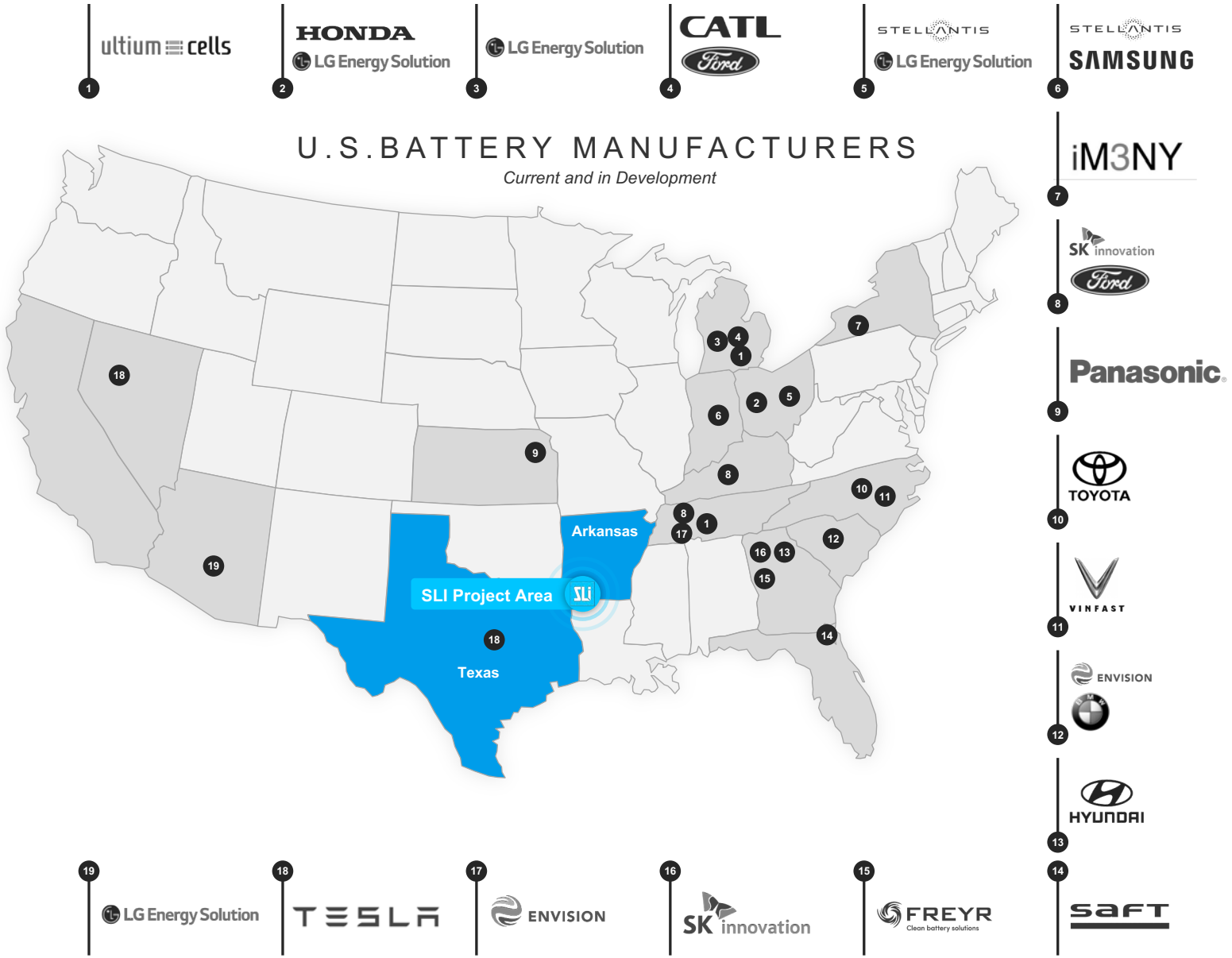
PROJECT TIMELINE ESTIMATES[1]



(1) Management estimates

The Smackover Advantage

- Home to one of **North America's largest brine processing industries with 60+ years of operations**
- A **mature regulatory framework exists** for brine production and re-injection operations
- **Low-cost** power and ample water resources
- Most chemical reagents are **produced within the Gulf region**
- **Highly skilled workforce** and access to deep talent pool. Local university and community college programs offer, operator, engineering and chemical processing programs
- Resource projects have **community and stakeholder support**, a social license to operate in a region familiar with extractive industries



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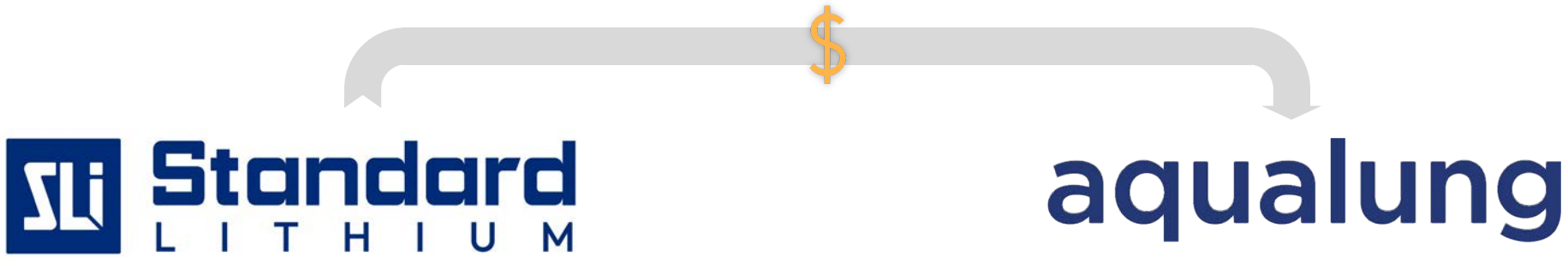
Investing In Carbon Solutions

In 2022 Standard Lithium made a strategic investment into Aqualung Carbon Capture AS (“Aqualung”), a leader membrane carbon capture and separation technology in heavy industry and transport.



Addition of Aqualung technology has potential to capture for use or sequester significant volumes of CO_2

AQUALUNG TECHNOLOGY

Core membrane technology is the culmination of over 20 years of research from Norwegian University of Science and Technology

Technology has been demonstrated, both in lab and at pilot scale, to **accelerate decarbonization while mitigating carbon costs across value chains.**

SYNERGIES FOR STANDARD LITHIUM

- ✓ CO_2 sequestration technology integrates into existing brine reinjection process
- ✓ Sequestered CO_2 can generate revenue through carbon credit sales
- ✓ Reduces supply chain complexity and reduces reagent cost by utilizing project-sourced CO_2 for use as a reagent
- ✓ Opportunity exists for CO_2 sourced from large regional emitters to be permanently sequestered as part of normal brine reinjection activities

(1) Management estimates based on internal calculations; Assumes 8 billion gallons per year of brine extracted

Investing In Carbon Solutions

In 2022 Standard Lithium made a strategic investment into Aqualung Carbon Capture AS (“Aqualung”), a leader membrane carbon capture and separation technology in heavy industry and transport.

Addition of Aqualung technology has potential to capture for use or sequester significant volumes of CO_2

NYSE : SLI | TSX.V : SLI | FSE : 5LI

Leading a new era of **responsible lithium production** in America

SCIENCE • SCALE • SPEED

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