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# Leading a new era of responsible lithium production in America

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September 2023 – Management Presentation



**Standard**  
L I T H I U M

S C I E N C E • S C A L E • S P E E D



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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 obligations 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; health and safety 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 health and safety protocols 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); global pandemics (such as COVID-19); 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](http://www.sedar.com) and EDGAR at [www.sec.gov](http://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 "NI 43-101 Technical Report South West Arkansas Project Pre-Feasibility Study" dated September 18, 2023 (the "South West Arkansas PFS"), available under the Company's SEDAR+ profile.

The mineral resources and mineral reserves 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 or reserves 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.

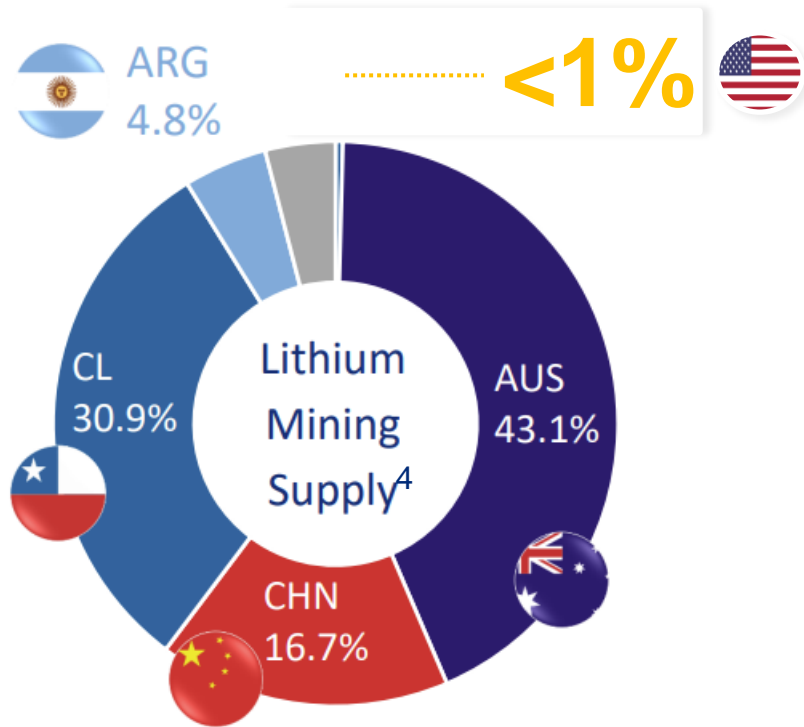
## Non-GAAP Measures

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").

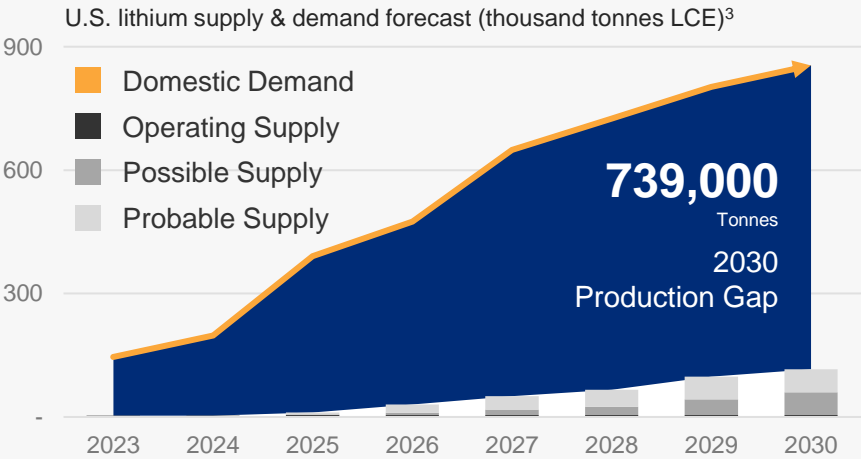
These are common performance measures in the lithium mining industry, but because they do not have any mandated standardized definitions, they may not be comparable to similar measures presented by other issuers. Accordingly, the Company uses such measures to provide additional information and readers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

# Securing a Domestic Supply Chain

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



## 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
<b>\$369B</b>	<b>\$65B</b>	<b>\$3.6B</b>
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.  
(4) Benchmark Minerals Q2 2023 Lithium Forecast.; Grey shading represents "Other".

# Why Standard Lithium

## Right projects, right place, right time



### Industry-Leading Assets

Three core projects over North America's highest-grade lithium brine formation



### Experienced Management Team

Management brings over 20 years of experience on average



### Phased Development Approach

Scaling success from demonstration facility across the Smackover formation



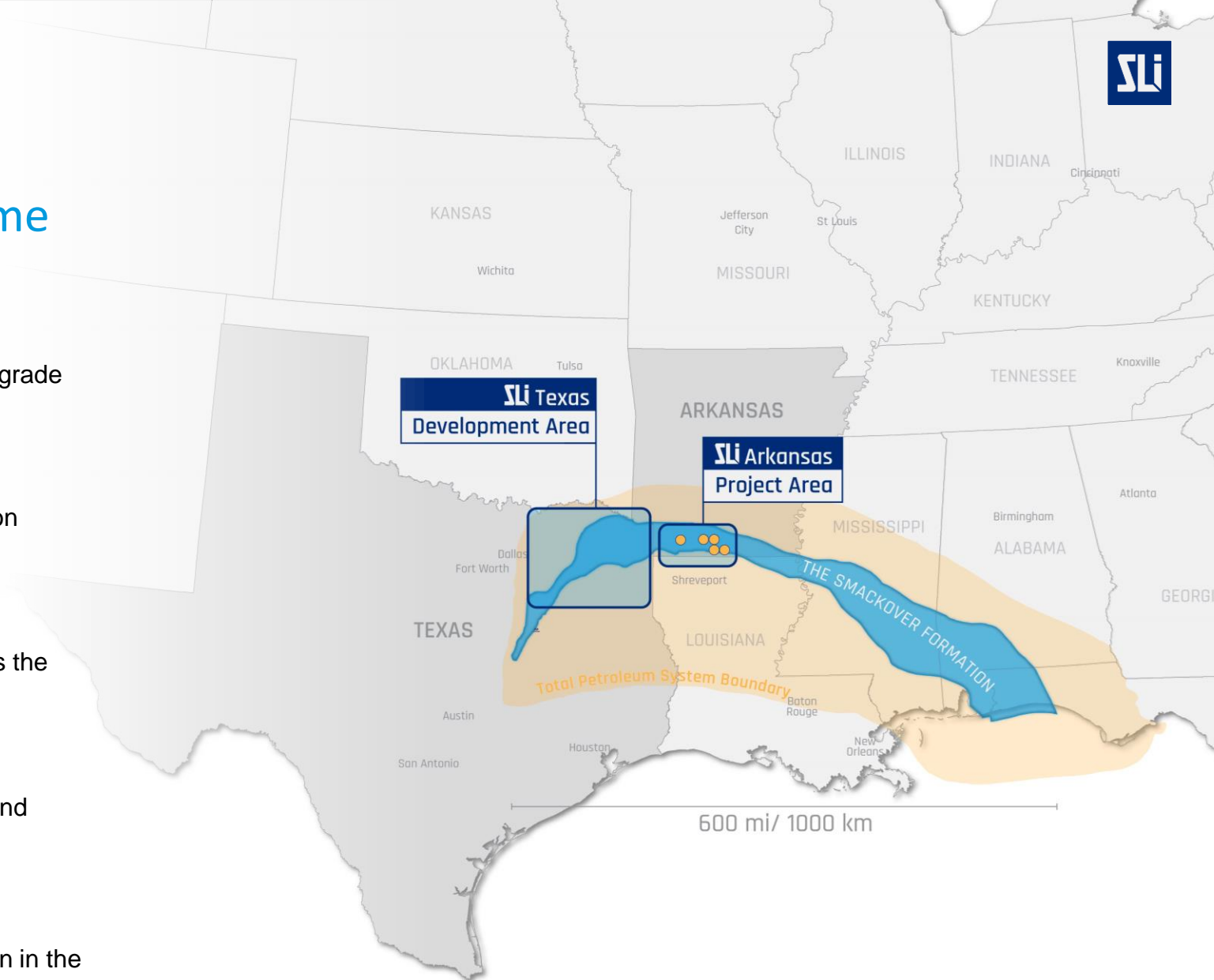
### Global, Strategic Partnerships

Global partners in Koch Disruptive Technologies and LANXESS



### Value Opportunity

Posed for revaluation with construction set to begin in the near term







# Industry Leading Experience

Management team is supported by 30+ highly-trained and experienced operations personnel

20+ years experience



**Robert Mintak**  
CEO



20+ years experience



**Dr. Andy Robinson**  
President & COO



15+ years experience



**Salah Gamoudi, CPA**  
CFO



30+ years experience



**Steve Ross, P.Geol.**  
VP Resource Development



45+ years experience



**Dr. Ross Lewis, P.Eng, FEC**  
VP Engineering & Technology



10+ years experience



**Allysa Howell**  
VP Corporate Communications



20+ years experience



**Jason Tielker, P.Eng**  
VP Project Delivery



20+ years experience



**Angus Remfry, CEng.**  
Project Management



## GLOBAL PARTNERS



## STRATEGIC ADVISORS

**David Park**  
28 years at various Koch entities

**Professor Jason Hein**  
Leads one of the largest chemistry research groups in Canada.

**Dr. Ron Molnar**  
35 years experience

**Dr. Mike Dry**  
40 years experience

**Craig Brown**  
45 years experience

**Professor Barry Sharpless**  
2-time Nobel Peace Prize winner in chemistry

# Partnerships



*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 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.



# The Smackover Formation

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.

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



## 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



# Direct Lithium Extraction

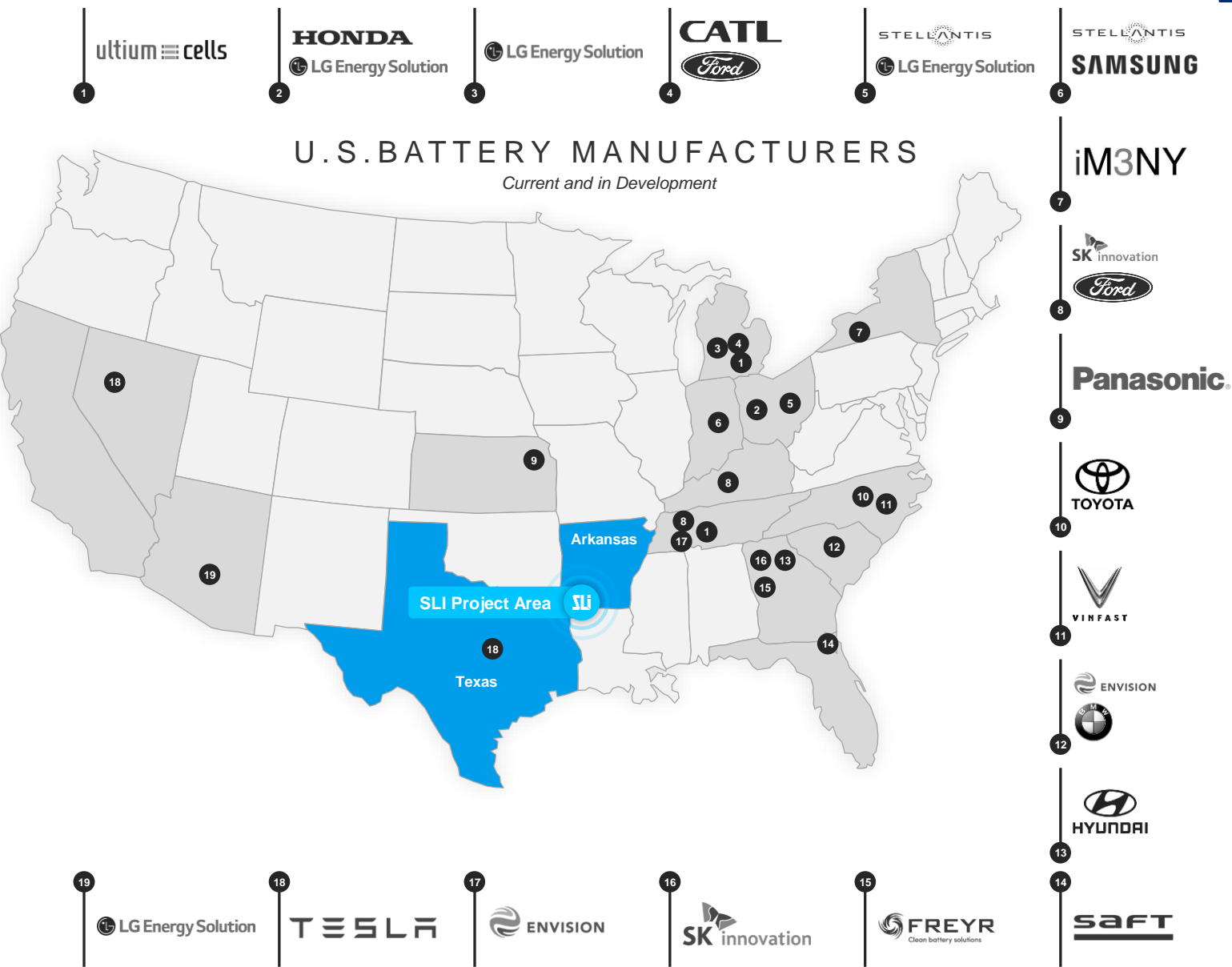


## Proven, Purpose-Built Technology

Three years of successfully running highly-automated shifts at 24/7 production capacity

# The Smackover Advantage

- Region is 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





# Smackover: Arkansas Projects

- A LANXESS Project: 2.8 Mt LCE Measured and Indicated resource<sup>1</sup>
- B South West Arkansas Project: 1.4 Mt LCE Indicated and 0.4 Mt LCE Inferred resource<sup>2</sup>



(1) LANXESS Definitive Feasibility Study Press Release, dated 6 September 2023.  
(2) SWA Preliminary Feasibility Study 18 September 2023; 1.4Mt Indicated Resource and 0.4Mt Inferred Resource lithium carbonate equivalent ("LCE").



# The Lanxess Project: Phase 1A





# Demonstration Plant



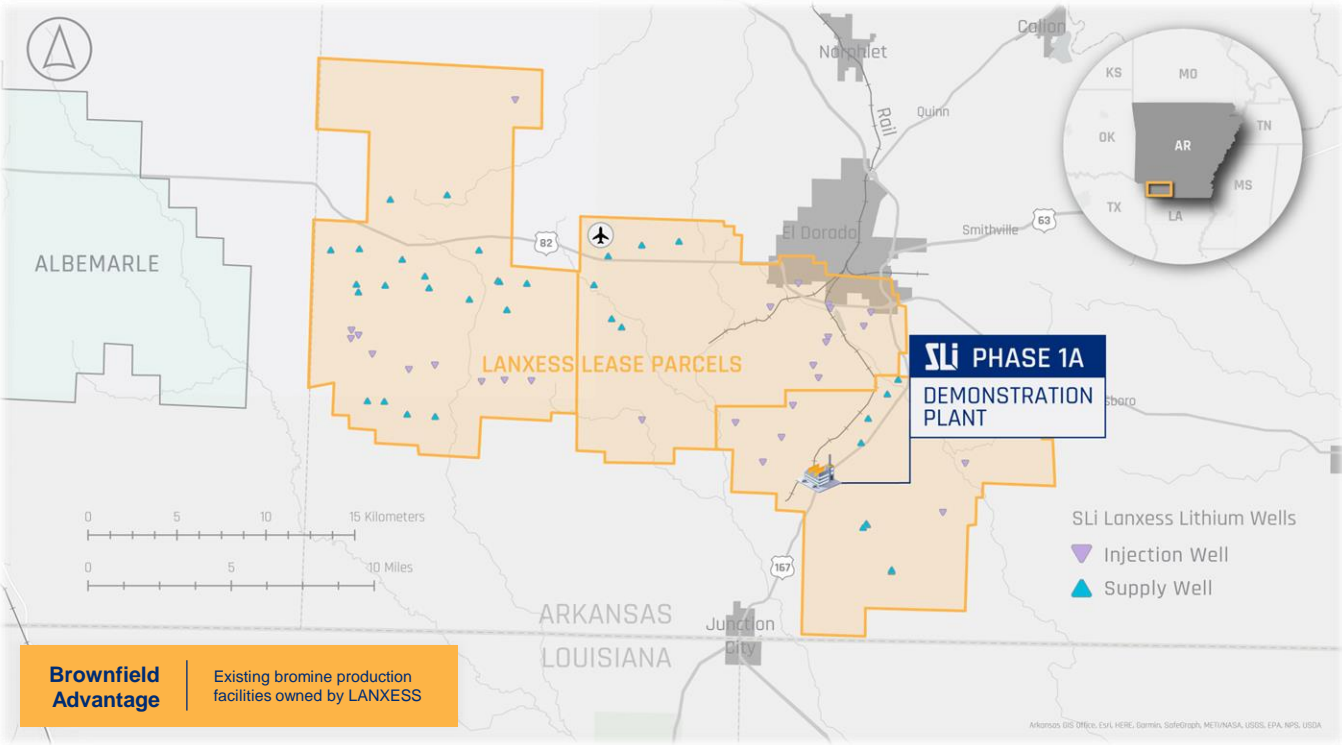


# Lanxess Project: Phase 1A

One of the industry’s most advanced large-scale lithium extraction projects over the country’s highest-grade lithium brine aquifer

Summary Metrics (USD)<sup>1</sup>

Average Annual Production	5,400 tonnes $\text{Li}_2\text{CO}_3$
Estimated Resource <sup>2</sup>	208 kt LCE
Development Capex <sup>3</sup>	\$365 million
Operating Life	25 years
Average Opex <sup>4</sup>	\$6,810 per tonne
NPV (8%) After-Tax @ \$30,000/t	\$550 million
IRR After-Tax	24%



217 mg/L

Average Lithium Concentration<sup>1</sup>

149k

Acres of Operating Unitized Brine Leases<sup>5</sup>

6

Existing Brine Supply Wells

6

Existing Brine Injection Wells

(1) Definitive Feasibility Study as of Q3 2023; all model outputs are expressed on a 100% project ownership basis.  
(2) Proven and Probable Reserve Estimate of lithium carbonate equivalent ("LCE") as of 31 August 2023.  
(3) Includes 15% contingency on capital costs.  
(4) Operating cost per tonne over life of the project.  
(5) LANXESS AG has exclusive brine extraction rights for 149,442 acres.

# Lanxess Project: Phase 1A

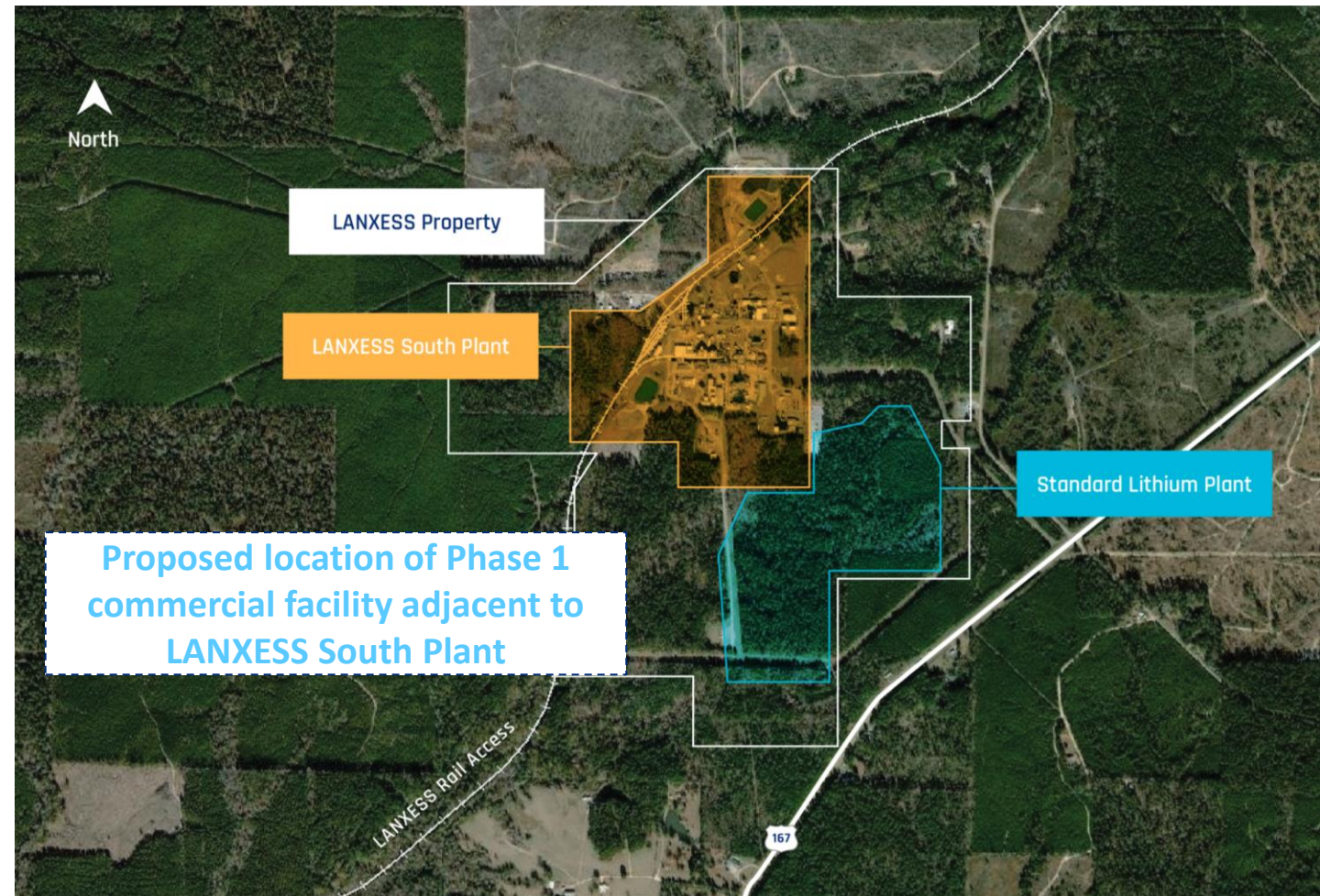
First phase is a 'brownfield' project leveraging existing commercial brine operations to fast-track production; scale achieved through 'greenfield' projects with massive resource potential

## 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

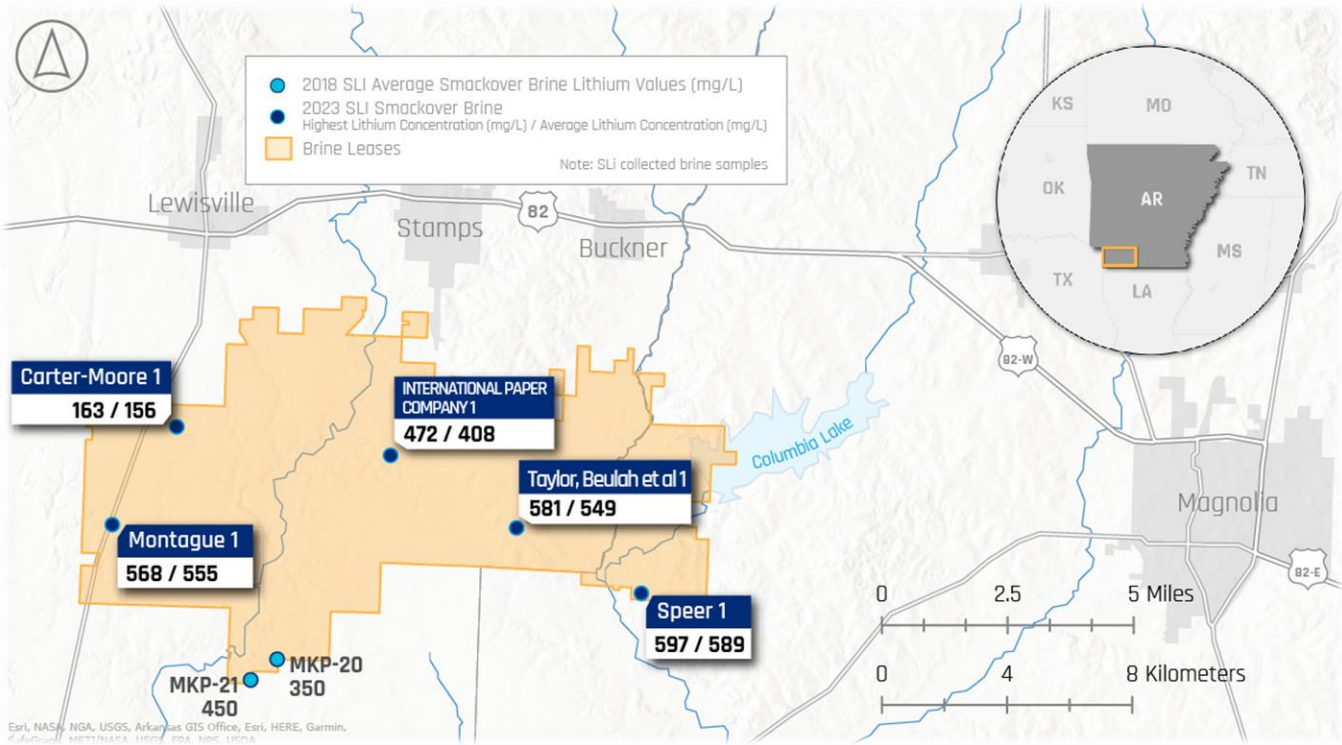




# South West Arkansas Project

25 miles west of the Lanxess Projects, Standard Lithium has drilled the highest confirmed lithium grade brine in Arkansas

Summary Metrics (USD) <sup>1</sup>	Base Case	High Case
Annual Production	30,000 tonnes LiOH	35,000 tonnes LiOH
Estimated Resource <sup>2</sup>	1.8 Mt LCE	1.8 Mt LCE
Development Capex <sup>3</sup>	\$1.274 billion	\$1.360 billion
Operating Life	20 years	20 years
Average Opex <sup>4</sup>	\$4,073 per tonne	\$3,964 per tonne
NPV (8%) <small>After-Tax @ \$30,000/t</small>	\$3.1 billion	\$3.7 billion
IRR <small>After-Tax</small>	32.8%	35.4%



**437** mg/L

Average Lithium Concentration<sup>2</sup>

**36k+**

Acres of Proposed Unitized Brine Leases

**424**

Wells Drilled in Area

(1) Pre-Feasibility Study as of Q3 2023; all model outputs are expressed on a 100% project ownership basis.  
(2) Includes Indicated Resource of 1.4Mt and Inferred Resource of 0.4Mt lithium carbonate equivalent ("LCE") at an average grade of 437 mg/L.  
(3) Includes 20% contingency on capital costs.  
(4) Operating cost per tonne over life of the project.



# South West Arkansas Project





# South West Arkansas Project: Recent Developments

The 118-acre parcel is located in Lafayette County, Arkansas near state highway 29 which historically has been used to access logging operations. A portion of the property has previously been logged and the remainder of the harvestable timber will be removed before the end of the year.

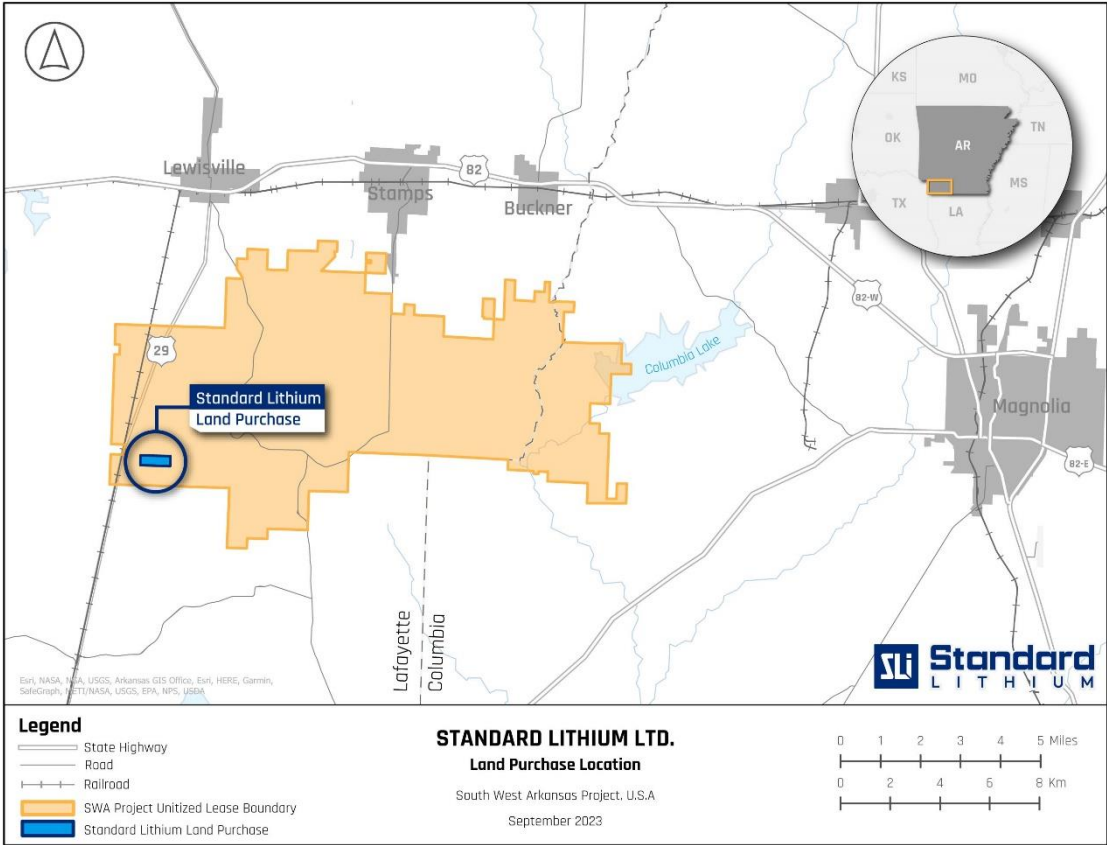


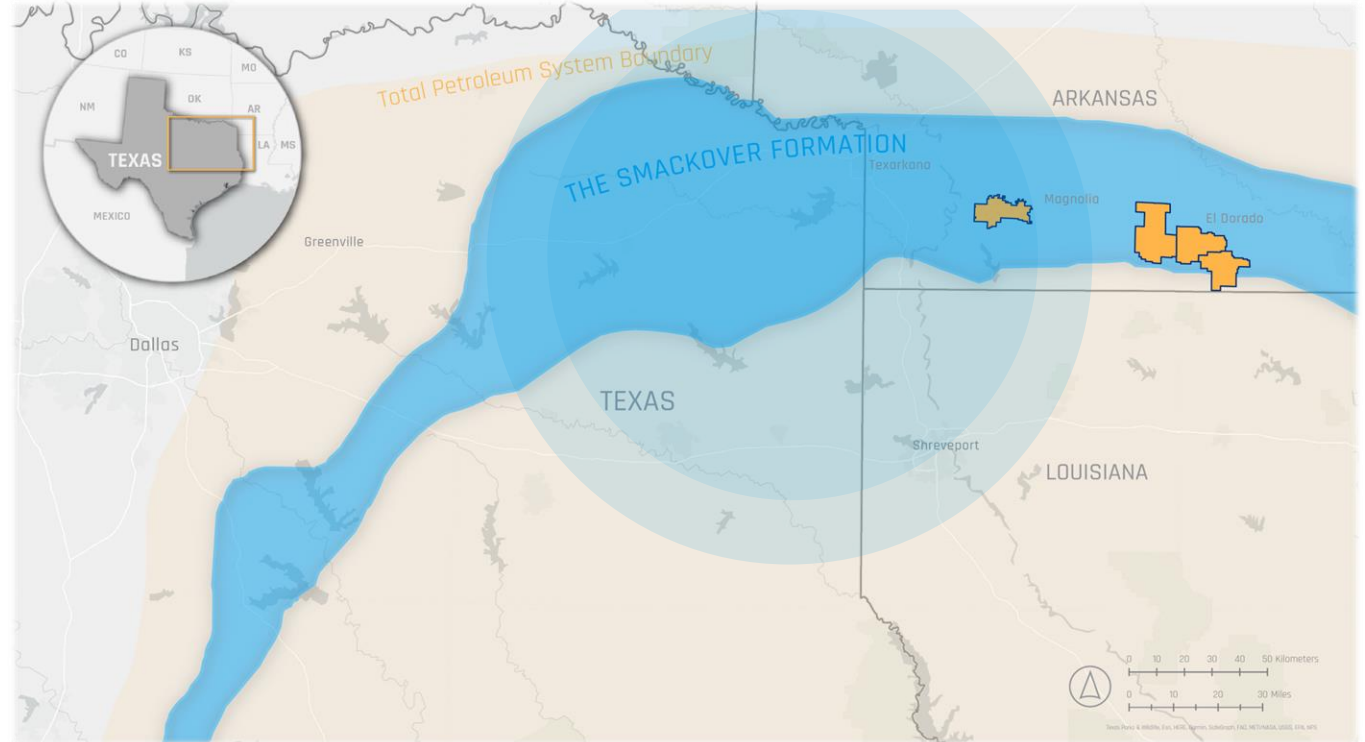
Figure 1: Overview of South West Arkansas Project and Land Purchase



Figure 2: 118-acre Land Purchase Bird's Eye View

# East Texas Exploration

Standard Lithium has secured land, drilled, and sampled lithium brine showing significant potential to further expand production footprint



**489 mg/L**  
Average Lithium Concentration<sup>1</sup>

**634 mg/L**  
Highest Lithium Concentration<sup>1</sup>

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



# The Smackover Expansion Project

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

**STATUS:** Confirming resource

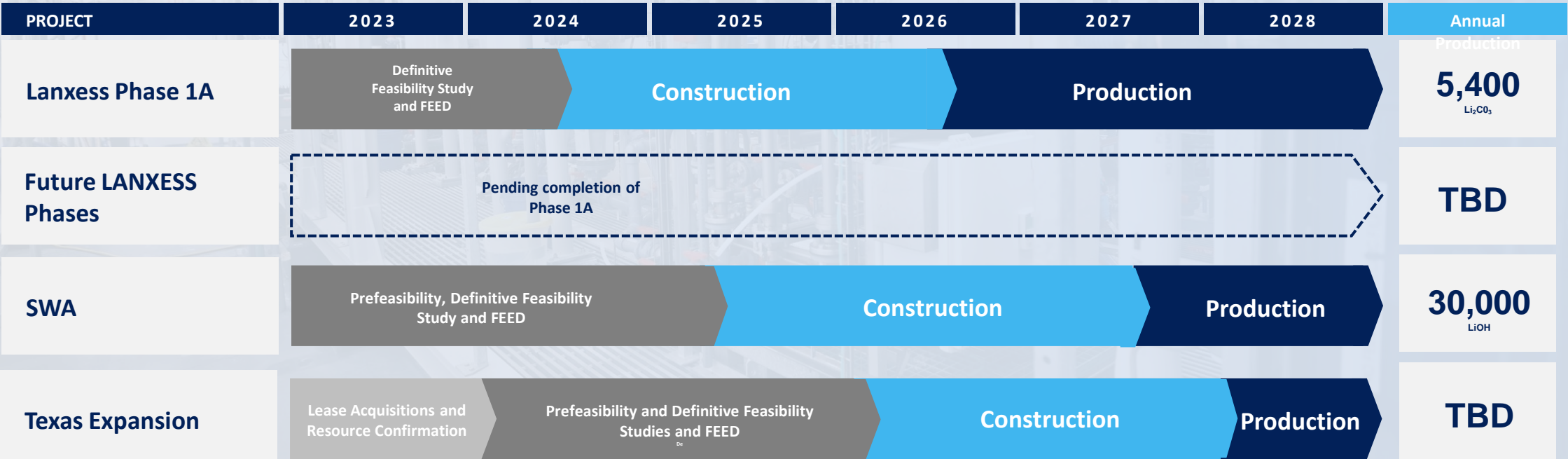
- Team of Smackover specialists have been working for the past three years to identify the most prospective areas to secure high-quality brine resources in East Texas
- Acquiring prospective brine rights in key project areas
- Acquired the rights to one existing well and a new deep well
- Samples collected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





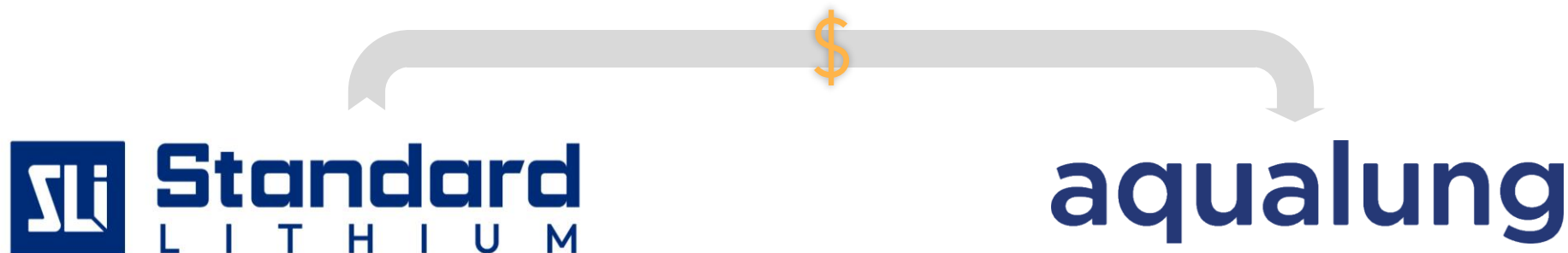


# Project Timeline



# 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<sub>2</sub>

## 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<sub>2</sub> sequestration technology integrates into existing brine reinjection process
- ✓ Sequestered CO<sub>2</sub> can generate revenue through carbon credit sales
- ✓ Reduces supply chain complexity and reduces reagent cost by utilizing project-sourced CO<sub>2</sub> for use as a reagent
- ✓ Opportunity exists for CO<sub>2</sub> sourced from large regional emitters to be permanently sequestered as part of normal brine reinjection activities



# Investing In Carbon Solutions

Addition of Aqualung technology has potential to capture for use or sequester significant volumes of CO<sub>2</sub>





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# Leading a new era of responsible lithium production in America

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