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Leading a new era of responsible lithium production

**Global Metals,
Mining & Critical
Minerals Conference**

Investor Presentation

February 2023

CONNECTING
FOR THE FUTURE



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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 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 *Continued*

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").

The New Standard for Lithium Production in the U.S.

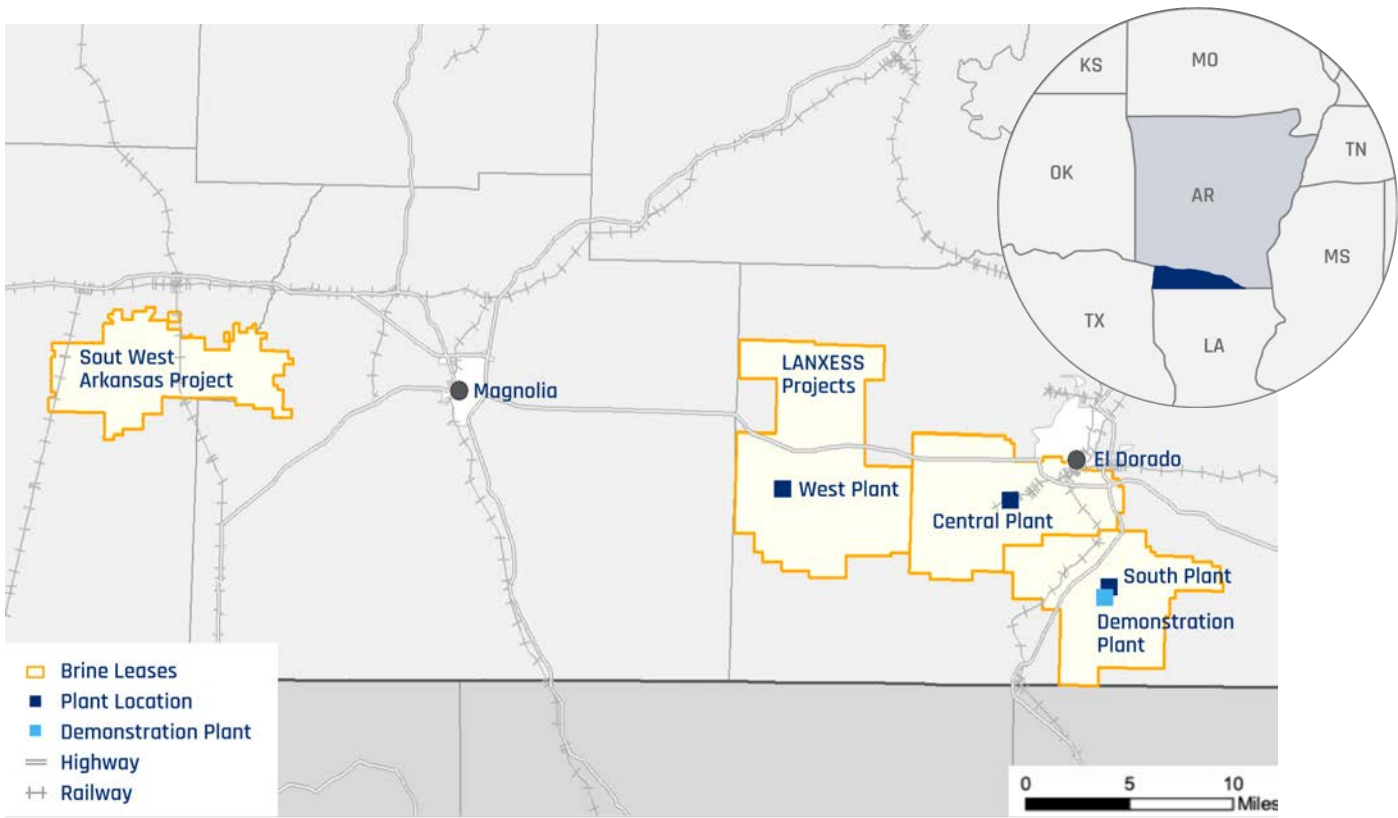
Standard Lithium is leading the new wave of U.S. lithium production with a comprehensive approach to project development utilizing a fully integrated direct lithium extraction process to unlock the critical mineral resource needed for the energy transition.

| | |
|------------------------------------|----------------|
| Total Resource ⁽¹⁾ | 4.3 Mt LCE |
| Unitized Acreage | 186k Acres |
| Run-rate Production ⁽²⁾ | 50 ktpa LCE |
| Demonstration Plant in Operation | 2+ Years |

Marquee Partners



Asset Base on the Country’s Largest Lithium Brine Aquifer



1. Lanxess Preliminary Economic Assessment August 2019 - SWA Preliminary Economic Assessment November 2021
2. Run-rate based on maximum production per facility see press release dated September 7, 2022

Building America's Next-Generation Lithium Supplier

Setting a new Standard for environmentally sustainable and strategically located lithium production in the U.S.



Massive Demand for Lithium

- Demand: >6x growth 2020A to 2030E ⁽¹⁾
- Expected supply deficit over the next decade



Projects with Robust Economics

- One brownfield and one greenfield project, with \$3B NPV and 4.3 Mt LCE resource ⁽²⁾
- First project has much of the required infrastructure already in place



Strategically Located with Social License to Operate

- Near the “Electric Mobility Manufacturing Corridor”
- Business-friendly state & an existing social license on the brownfield location



Strong Team and Partners

- Strong leadership team with top-tier project management and skilled workforce
- Best-in-class partnerships with Koch Strategic Platforms and LANXESS



Premier Asset Base

- The Smackover Formation has the highest identified grade lithium in brine in the U.S. and the potential for multi-decade growth
- 60+ years of commercial brine processing



Environmentally Friendly and Sustainable

- Small footprint compared to evaporation ponds & hard rock mining operations
- Carbon capture utilization & sequestration potential



DLE: Proven Technology

- Technology developed to fit the resource
- 8,000+ hours testing and proving out the technology at a demonstration plant

1. Benchmark Minerals Intelligence Q2 2022 Forecast

2. Lanxess Preliminary Economic Assessment August 2019; SWA Preliminary Economic Assessment November 2021

Arkansas: In Proximity to the Electric Mobility Manufacturing Corridor

Localizing supply and leveraging a century of energy production, plus decades of brine processing infrastructure

Significant Community and Stakeholder Support

- Home to North America's largest brine processing industry
- Significant existing infrastructure
- Low-cost power and water resources
- Most chemical reagents produced regionally
- Social license, stakeholder support for extractive industries
- Existing work force & deep talent pool

Localizing Supply Near Electric Mobility Corridor

  ~100 Miles to TX

  ~700 Miles to TN

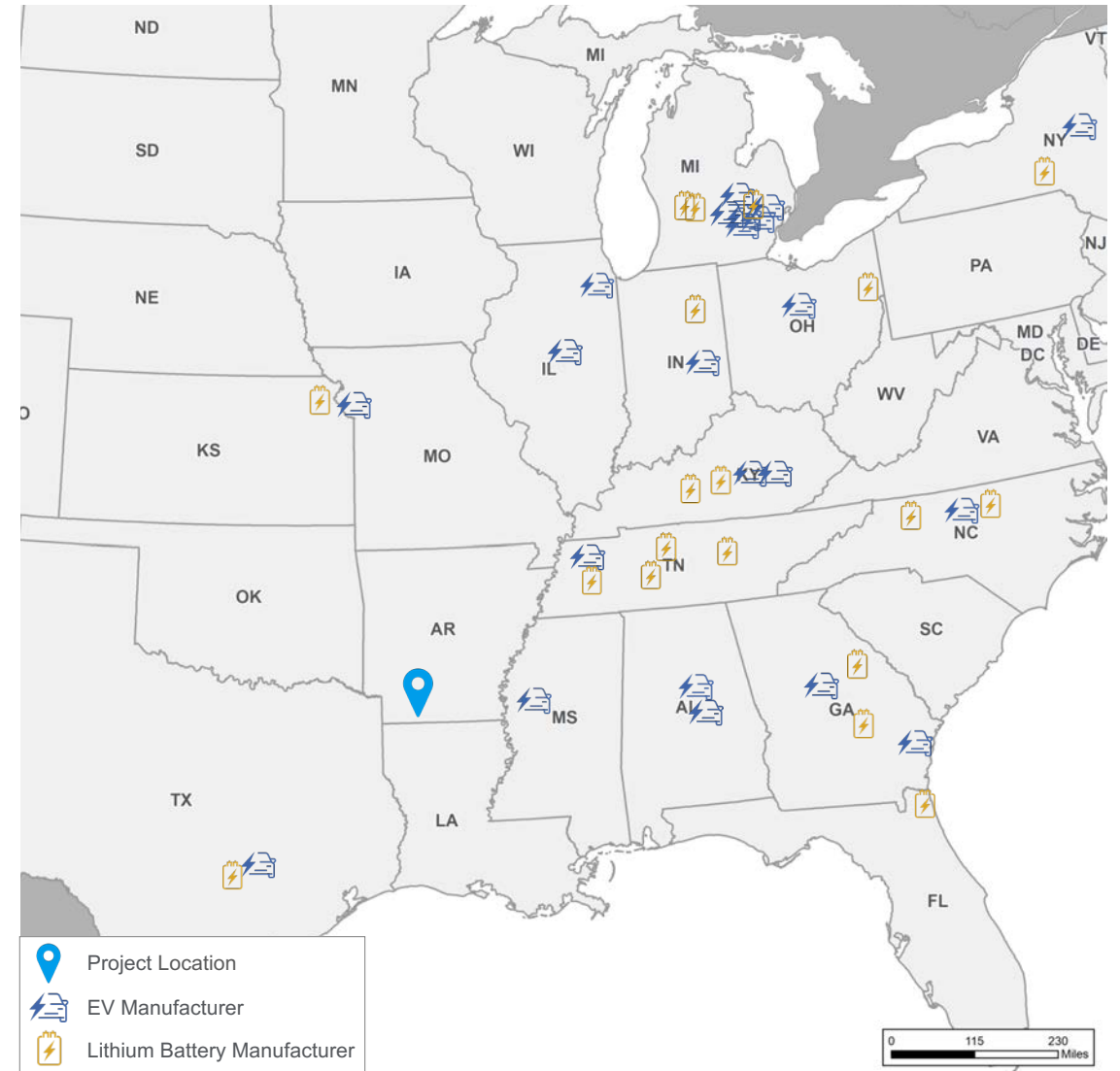
  ~1,000 Miles to MI

Current Supply Chain



20,000+ Nautical Miles to US Manufacturing ⁽¹⁾

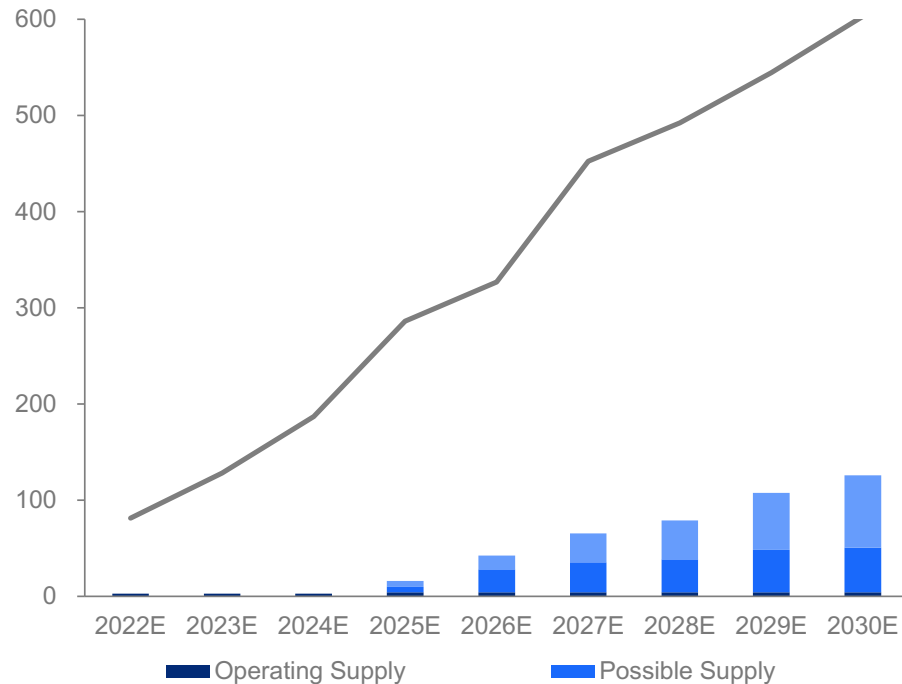
1. Assumes mining location in western South America or Australia, refining in China, cathode production in Korea, and OEM destination in the U.S.



United States: Facing an Extreme Lithium Supply Shortfall

New EV tax credit rules in the Inflation Reduction Act of 2022 (IRA) are expected to both deepen the supply deficit and significantly increase lithium extraction and refining capital spending

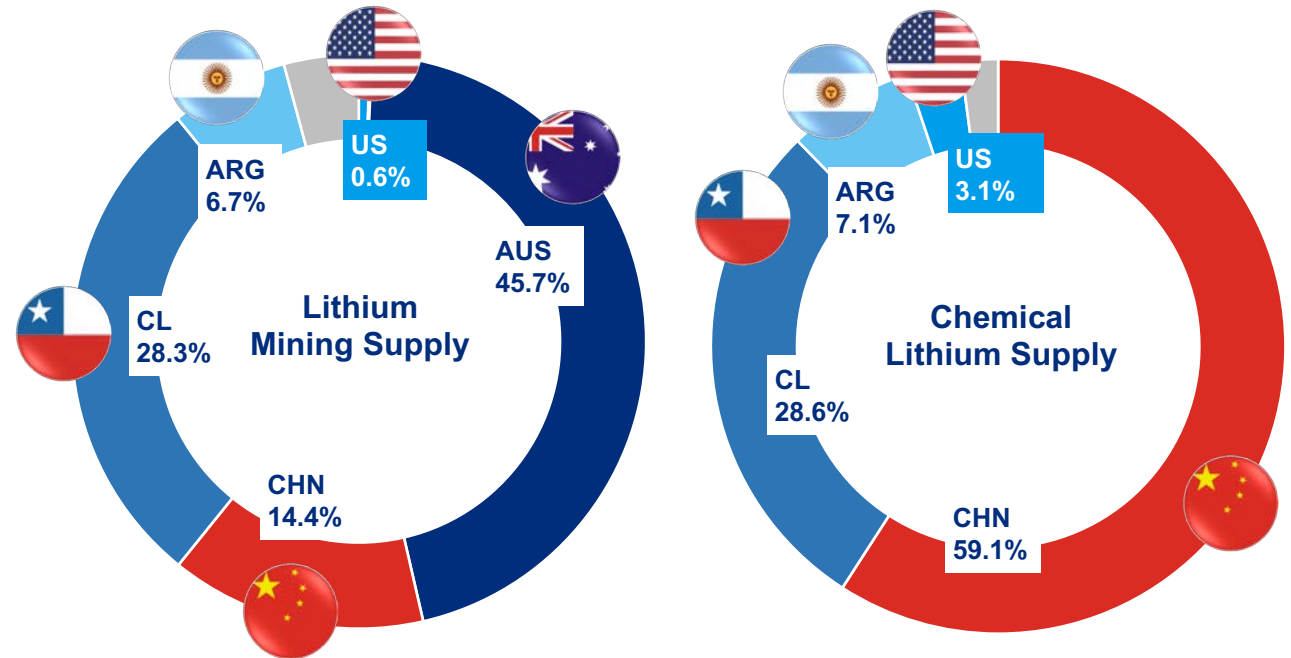
US Lithium Supply & Demand Estimates (kt LCE)



Source: Benchmark Minerals Q2 2022 Lithium Forecast. Demand estimates based on Benchmark Minerals Intelligence US Gigafactory Capacity assuming 800 tonnes LCE / GWh.

1. Grey shading represents "Other".

Lack of Local Supply... (2021E) ⁽¹⁾



✗ Today's lithium travels ~20,000 miles from resource to end user

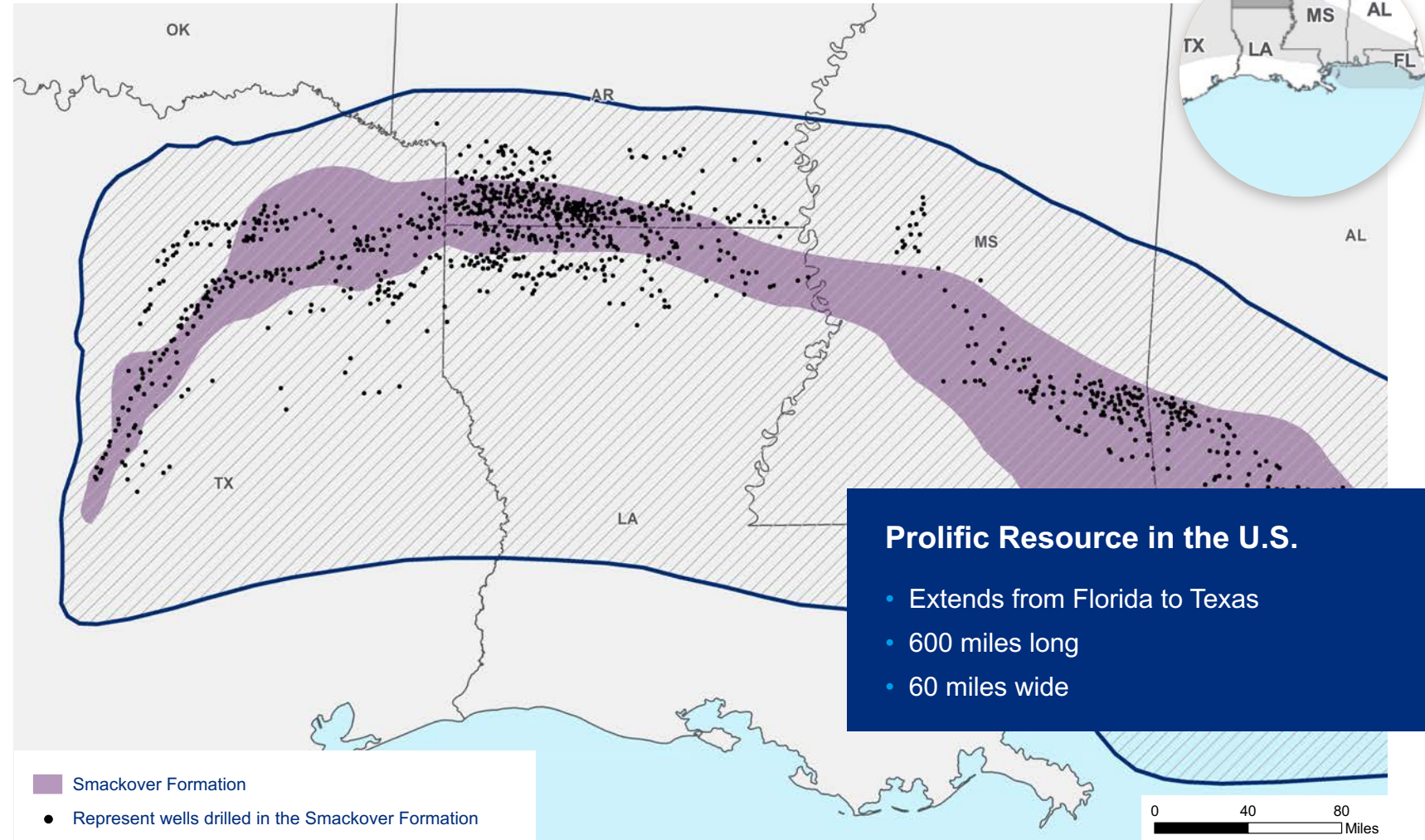
✓ The new **Standard** will travel < 1,000 miles to end user

Smackover Formation: One of the World's Largest Brine Aquifers

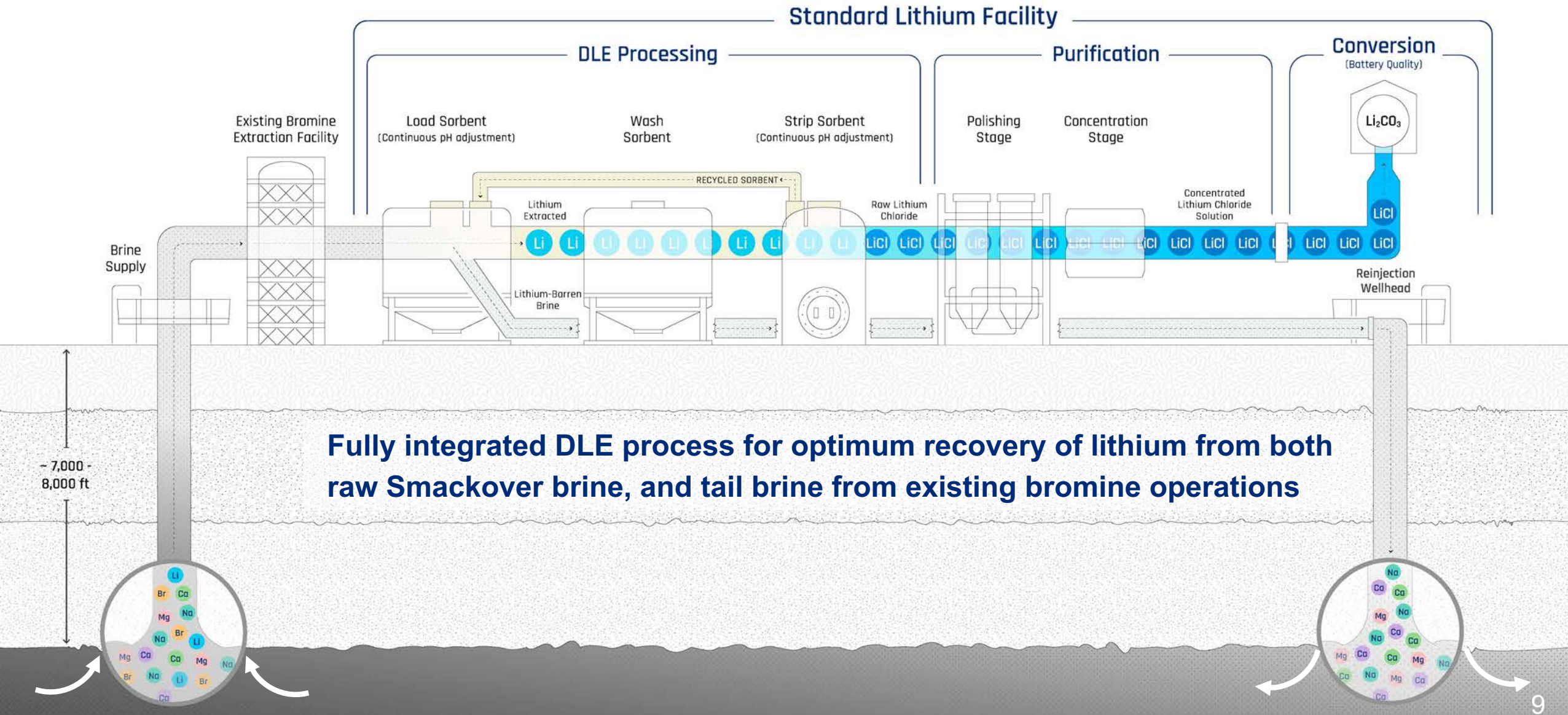
Productive bromine operations and elevated lithium concentrations make the Smackover a promising lithium production powerhouse with room to scale

Smackover Advantage:

- Extensive, porous and permeable limestone aquifer hosts huge volumes of mineral rich brine and can take large reinjection volumes
- Geological data from thousands of wells demonstrates formation homogeneity in thickness, continuity and lithium chemistry
- One of the world's largest sources of bromine, a mature regulatory framework with 60 years of commercial brine operations, and 8+ billion gallons of brine pumped, processed and reinjected annually
- Brine has elevated lithium concentrations, typically ranging from 150-500mg/L



Proven Technology: The Technology to Unlock the Resource Base



DLE: The Benefits & Results Speak for Themselves

DLE technology is the key to unlocking a globally significant Smackover lithium resource



Scalable, modular, highly automated process



Efficient, not weather dependent, fast – hours not months, higher recovery, higher purity than solar evaporation ponds



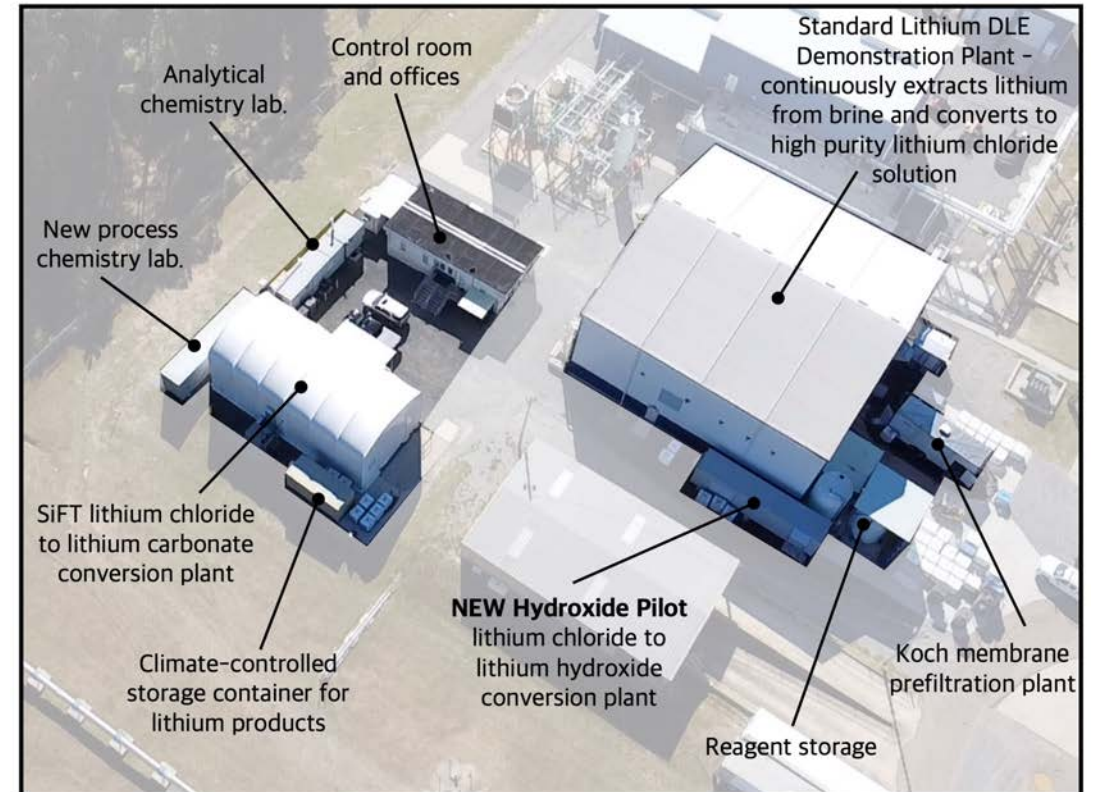
Smaller environmental footprint – dozens of acres vs. thousands with evaporation ponds / hard rock mining



Faster to market – bolt-on process leverages the existing infrastructure of North America's largest brine processing operations



Most advanced DLE technology – industrial scale pre-commercial demonstration plant installed at the project



Arkansas Projects: Overview

SLI's has numerous Smackover assets to bring to market

First Phase Projects

LANXESS South Plant



Key Operating Metrics:

- **Production:** ~5-6,000 TPA BQ Li_2CO_3
- **Ownership:** LANXESS has option to acquire between 30 and 49%
- **Upcoming milestones:** FEED and DFS underway, expected completion 1H'23

South West Arkansas Project



Key Operating Metrics:

- **Production:** ~30,000 TPA BQ LiOH
- **Ownership:** 100% SLI
- **Upcoming milestones:** NI43-101 Pre-Feasibility Study underway, expected completion 1H'23

Next Phase Projects

LANXESS South Plant Expansion



Target ~5,750 TPA BQ Li_2CO_3

LANXESS South Plant Expansion



Target ~8,000 TPA BQ Li_2CO_3

LANXESS Central Plant



Target ~3,000 TPA BQ Li_2CO_3

Expansion Program



Exploration and Drilling Underway

Arkansas Projects: Existing Infrastructure Reduces Risk

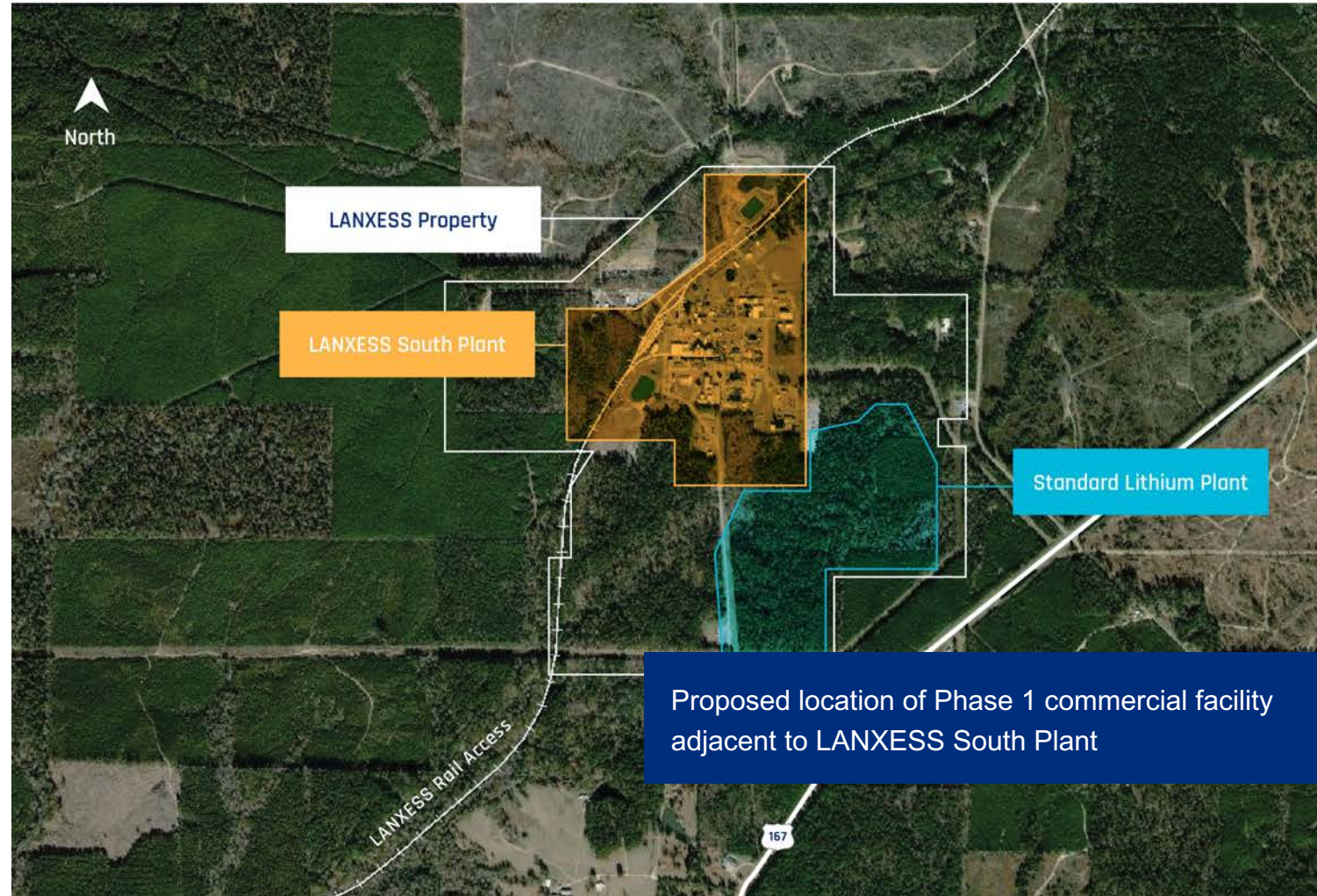
First phase is a 'brownfield' project leveraging existing commercial brine operations to fast-track production; scale achieved through 'greenfield' projects with large resource potential

Access to Existing Resources

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

Project has local support and license to operate:

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



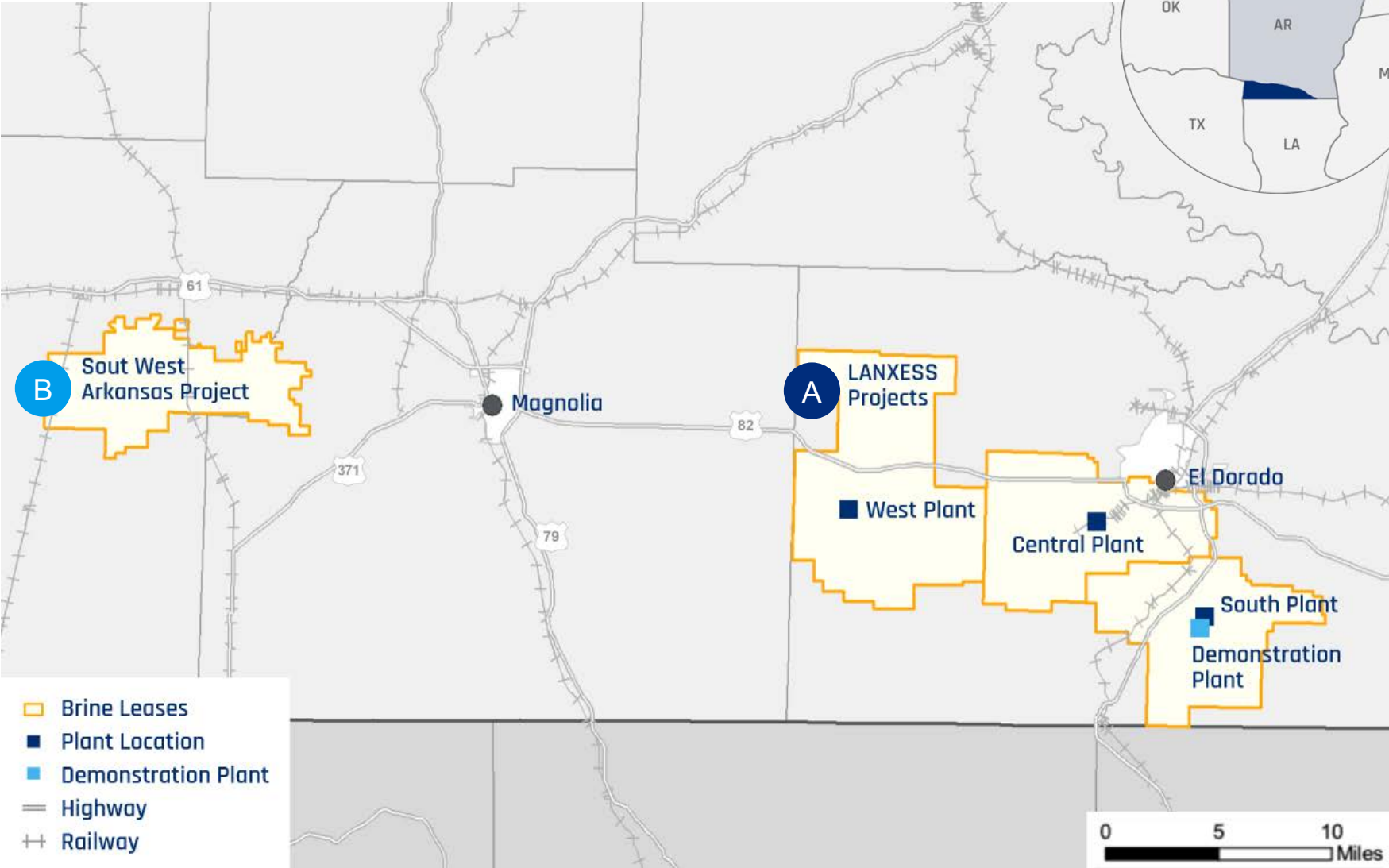
Project Details

Arkansas Projects: SLI Asset Map

Currently developing two projects in Southern Arkansas:

A LANXESS Project
3.1 Mt⁽¹⁾ LCE

B SWA Project
1.2 Mt⁽¹⁾ LCE



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

LANXESS Project: Overview

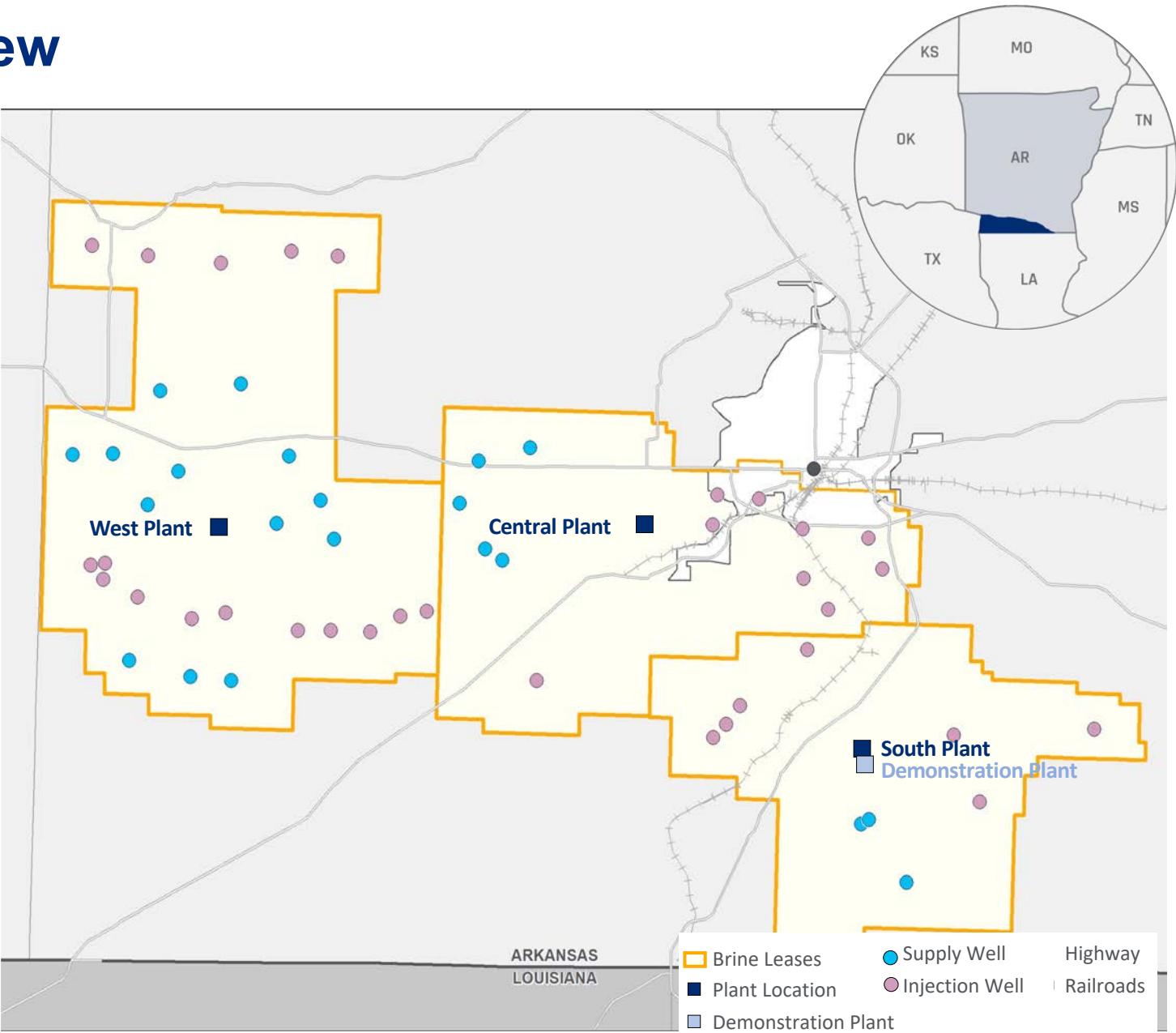
One of the industry’s most advanced projects to develop, leveraging significant infrastructure, and active existing large-scale brine extraction, processing, and brine reinjection

Overview

- DLE demonstration plant operating at South Plant since May 2020
- Finalized MOU with LANXESS for a phased commercial development including offtake arrangements
- DFS & Full FEED Study for Phase 1A underway

| | |
|--|-------|
| Permitted Brine Processing Plants | 3 |
| Gallons of Annual Brine Production | 4B+ |
| Acres of Operating Unitized Brine Leases | 150K+ |
| Miles of Existing Pipeline | 200+ |
| Indicated Resource ⁽¹⁾ | 3.1Mt |

1. LANXESS Preliminary Economic Assessment August 2019.



South West Arkansas Project: Overview

Greenfield project to add battery-quality LiOH supply to Standard’s asset base

Overview

- Approximately 25 miles west of the LANXESS Project
- Well understood geology with extensive data including 2,444 wells drilled in the general South West Arkansas Property area
- Significant existing infrastructure including road, rail, power and water
- Preliminary Feasibility Study is underway

Wells Providing Subsurface Data in the Area of Interest

2,444

Acres of Unitized Brine Leases⁽¹⁾

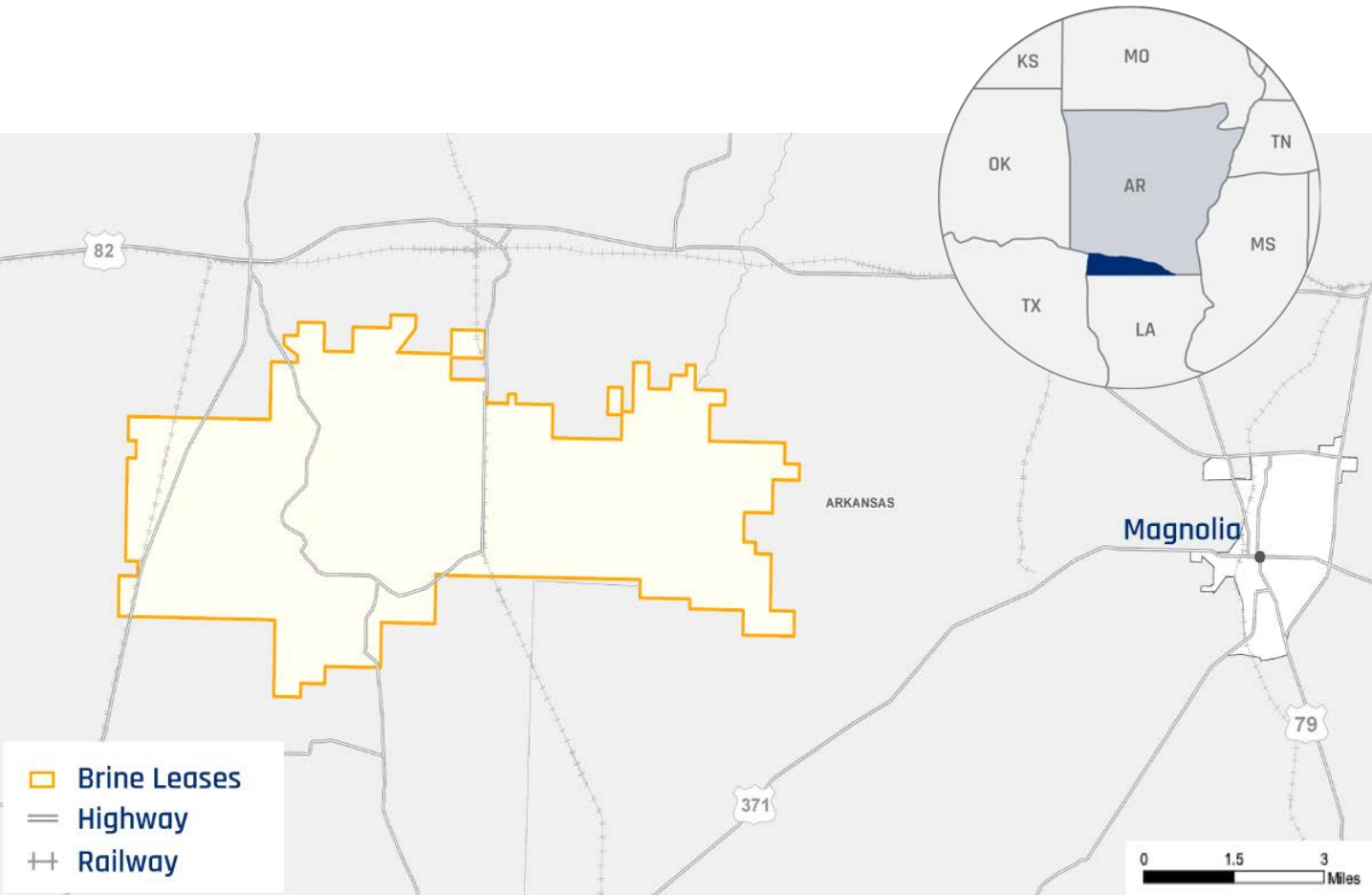
36K+

Inferred Resources⁽¹⁾

1.2Mt

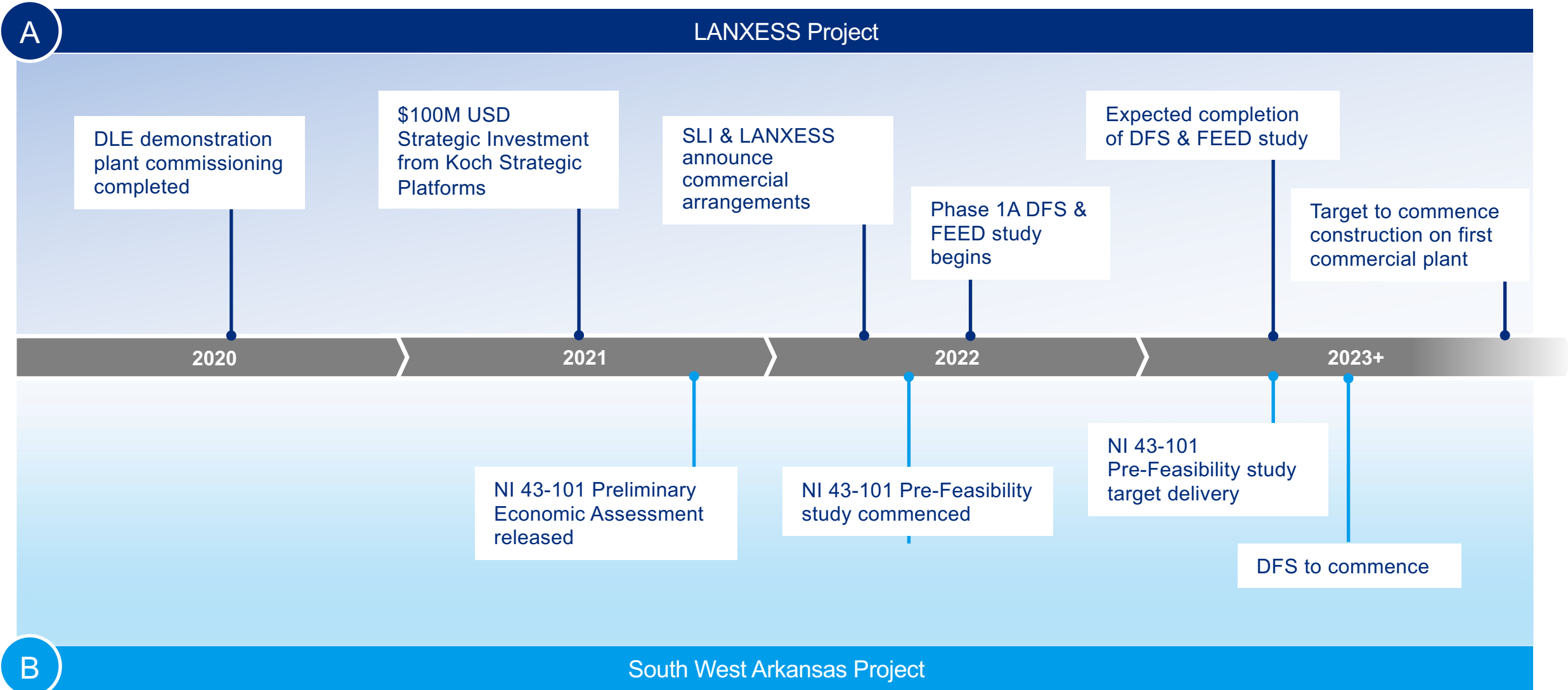
Tonnes of Annual LiOH Production⁽¹⁾

~30.0k



1. SWA Preliminary Economic Assessment November 2021.

Arkansas Projects: Summary Timeline



Strategic Smackover Resource Expansion Program



US Government: Funding Opportunities

The coming lithium shortfall prompted the US government to provide several financing opportunities to help fund domestic lithium projects. Standard Lithium is exploring these opportunities to lower cost of capital and boost projected cash flow ⁽¹⁾

1. Company forecasts do not assume any of these benefits.

Department of Energy

- The Loans Programs Office has ~\$18B in available funding to provide low-cost debt capital for fuel-efficient vehicle and eligible component manufacturing in the US through its Advanced Technology Vehicles Manufacturing (“ATVM”) Loan Program



Defense Production Act (DPA)

- Authorizes the President to ensure the availability of domestic sources to meet United States’ defense, essential civilian, and homeland security requirements
- President Biden issued a Determination to add lithium, nickel, cobalt, graphite and manganese to the critical minerals list
- Total funding for current DPA actions of ~\$3.6B FY22-FY27




Inflation Reduction Act

- The IRA is a historic investment in climate policy by the US Government primarily through the Tax Code
- Credits for domestic manufacturing and mining that Standard Lithium is contemplating are:
 - Advanced Energy Project Credit under Section 48C (allocation increased by \$10B)
 - Advanced Manufacturing Production Credit under Section 45X

Aqualung: Carbon Capture and Sequestration Technology Enhances Opportunity

New technology has potential for significant sustainability benefits across the entire project fairway

- Minimize CO₂ emissions from future operations and related supply-chain activities
- Project-sourced CO₂ utilized to optimize flowsheet, reduce reagent costs
- CO₂ sourced from large regional emitters may be permanently sequestered by the Company as part of normal brine reinjection activities.
- Aim to make the Gulf Coast region an industry leading producer of sustainable lithium chemicals

| | | | |
|---|---|--|--|
| Objective | <ul style="list-style-type: none"> • Core membrane technology is the culmination of over 20 years of research from Norwegian University of Science and Technology (NTNU) • Demonstrated, both in lab and at pilot scale, superior properties with regards to permeability, selectivity, and safety • In the process of providing proof of commercial concept via pilot units across numerous assets with varying CO2 concentration levels from 4% to 20% | | |
| Partners | <div>aqualung</div> <div>Carbon Capture Technology</div> | <div>  </div> <div>Utilization of CO₂ in Lithium Production and Brine Operations</div> | |
| Additional Strategic Partners In Recent \$10M Equity Raise | <div>  <div>GLOBAL SHIP LEASE</div> </div> | <div> <div>Golar LNG</div>  </div> | <div>  <div>MKS PAMP</div> </div> |

Project Advantages: Clear Path to Commercializing



Construction

- ✓ First project has brownfield benefits
- ✓ Stage construction allows for operational flexibility and lower initial capital costs



Infrastructure

- ✓ Existing infrastructure lowers cost and decreases time to first production
- ✓ 200 miles of existing pipeline, established rail, cheap power, and abundant water



Technology

- ✓ Integrated, proven DLE technology optimized for recovery from Smackover brine
- ✓ 8,000+ hours of operation at industrial-scale demonstration plant



Workforce

- ✓ 20+ workforce currently in place with demonstration plant experience
- ✓ Local college provides new talent with a bromine brine processing education program



Permits

- ✓ Ordinary permitting requirement
- ✓ Clear path to obtaining permits



Brine Extraction & ReInjection

- ✓ Moderate brine temperatures making it operationally superior to geothermal brines
- ✓ 60+ years of reinjecting brine into aquifer

Thank You

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