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Leading a new era of responsible lithium production in America

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Virtual Lithium Conference April 13, 2023



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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 resource and mineral resource and mineral resource 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", "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 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.

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Although the Company has attempted to identify important factors that 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 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 most recent MD&A for our most recently completed financial year and, if applicable, interim financial period, which are available on SEDAR at <a href="https://www.sedar.com">www.sedar.com</a> and EDGAR at <a href="https://www.sedar.com">www.se

#### 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").







#### Lithium market undersupplied for the foreseeable future

**Record battery demand** driven by EV adoption and a lack of structural investment in new lithium supply have created an opportunity for companies able to successfully bring new supply to market.



#### 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.



#### Standard Lithium operates the most advanced DLE project in North America

Standard Lithium has established a leading position in advancing DLE technology, **having** successfully produced 99.9% battery-grade Lithium Carbonate (Li<sub>2</sub>CO<sub>3</sub>) from its large-scale demonstration plant that has been in continuous stages of operation at the project site since May 2020.



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

Standard Lithium's projects leverage the existing infrastructure and expertise of one on North America's largest brine operations to fast-track commercial development. The projects have some of the **highest reported lithium concentrations** in brine in North America



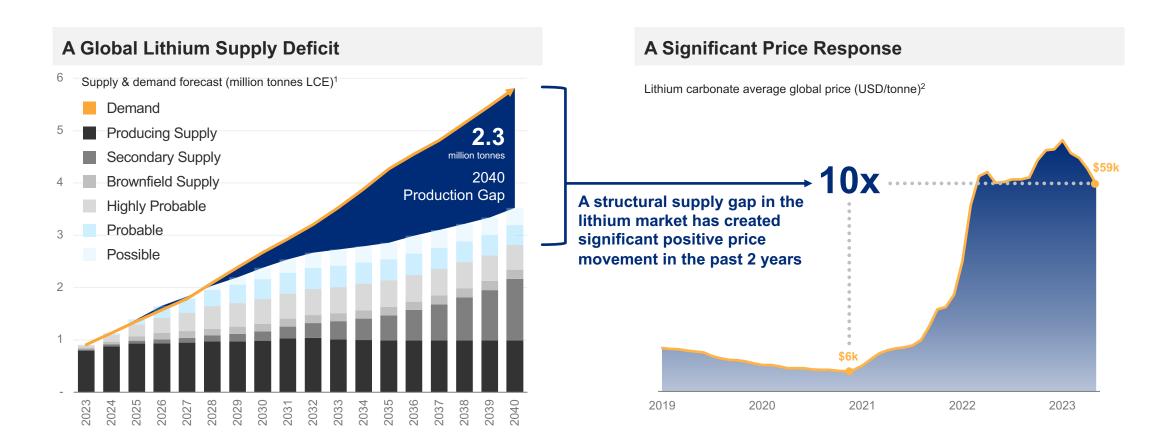
#### **Secured foundation for scaling in Texas**

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.

#### The Global Lithium Market

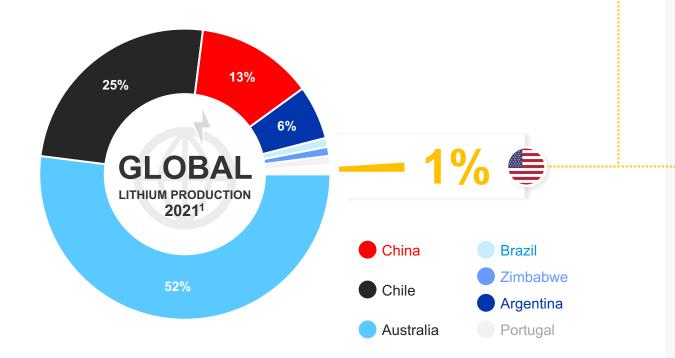


Demand for lithium is forecast to surge by 2040. Existing supply cannot facilitate demand, creating immediate need for new projects.

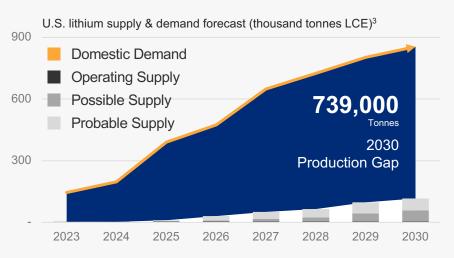


#### **Securing a Domestic Supply Chain**

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

#### **Our Assets**

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

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# The Smackover Formation

Standard Lithium has developed a Fully-Integrated Start to Finish DLE process to extract lithium from Smackover brine and 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

#### **Direct Lithium Extraction | Right Project – Right Place – Right Time**



#### **Critical Success Elements**

A direct lithium extraction project requires several critical components to achieve success in becoming the future of sustainable lithium production



Business-friendly state, ample water, and nearby access to necessary chemical reagents

#### **Formation**

Elevated lithium concentrations paired with optimal hydraulic conditions

#### **Technology**

Extraction technology developed specifically to fit the geological conditions of the formation

#### Workforce

Available local workforce with requisite knowledge of chemical processing

#### **Social License**

Project is supported by local communities and governments



#### LOWER IMPACT

- ✓ No large mining pits or evaporation ponds
- Quick processing to end products
- ✓ Non-weather dependent
- Typically higher recovery and final purity



#### SIGNIFICANT IMPACT

- Resource intensive
- · Weather dependent
- Large project footprint, typically in fragile ecosystems
- Lengthy development time, up to 10 years



#### **HIGH IMPACT**

- Environmental pollution from dust and noise
- · Large project footprint
- · Significant quantities of overburden requiring disposal
- Carbon intensive extraction and processing



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 ("OPC")
- Provide key industrial technology & process solutions for commercialization
- Front End Engineering Design ("FEED") and Definitive Feasibility Study ("DFS") awarded to Koch's internal engineering, procurement, and construction subsidiary
- Potential for raw material supply agreements and offtake

## 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



#### **Standard Lithium Projects Overview**



PROJECT LO	CATION	STATUS	TARGET
			<b>PRODUCTION</b> (tpa)
Lanxess 1A: South Plant Ark	De <sup>r</sup> kansas	finitive Feasibility Study (DFS) Underway¹	5,000 - 6,000 Li <sub>2</sub> CO <sub>3</sub>
South West Arkansas: "SWA" Ark	kansas Pre	-Feasibility Study Underway²	30,000 LiOH

PROJECT	LOCATION	STATUS	TARGET PRODUCTION (tpa)
West Smackover Expansion Program	Texas	Exploration & drilling underway <sup>3</sup>	TBD
Lanxess 1B: South Plant Expansion	Arkansas	Planning <sup>1</sup>	<b>5,000</b> Li <sub>2</sub> CO <sub>3</sub>
Lanxess 2: West Plant	Arkansas	Preliminary Economic Assessment <sup>4</sup>	8,200 Li <sub>2</sub> CO <sub>3</sub>
Lanxess 3: Central Plant	Arkansas	Preliminary Economic Assessment <sup>4</sup>	3,000 Li <sub>2</sub> CO <sub>3</sub>

## 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<sup>3</sup>



#### **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

#### **The Lanxess Project**



#### One of the industry's most advanced largescale Direct Lithium Extraction projects

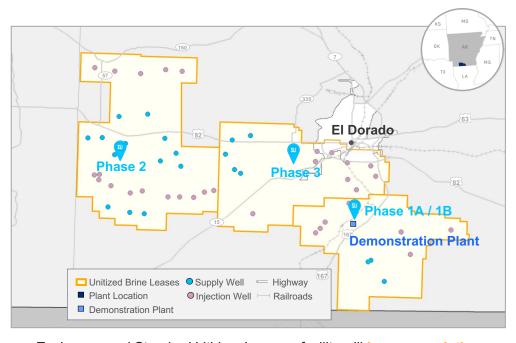
Phase 1A

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







#### **Lanxess Phase 1A**

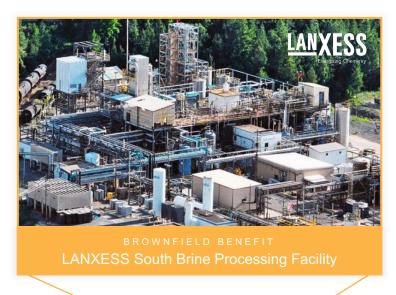


#### Leveraging brownfield benefits, Lanxess Phase 1A has expedited time to construction

Phase 1A Phase 1B Phase 2 Phase 3

STATUS: DFS & Full Feed Study for Phase 1A currently underway

- DFS & Full Feed Study Underway
- Final Investment decision target: Q4 2023
- Strategically located adjacent to Standard Lithium's Demonstration Plant
- Plant will utilize the same brine processing facility as the demonstration plant, creating efficiencies in construction
- Leverages brownfield benefits of LANXESS existing brine processing facility
  - √ Skilled labor
  - ✓ Brine supply & disposal
- Natural gas
- Electricity
- Fresh water
- ✓ Highways & rail





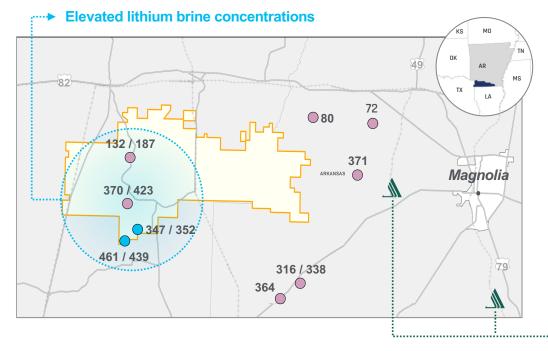
#### **The South West Arkansas Project**



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 ~30,000¹
- Well understood geology with extensive data including 2,444 wells drilled in the general project area
- Inferred resource of 1.2Mt LCE<sup>1</sup>
- Southern portion of the property contains average lithium concentration 399 mg/L<sup>1</sup>
- SWA Project covers approximately 36,000 acres of unitized brine leases<sup>1</sup>



**△** ALBEMARLE, one of the largest lithium producers, operates two large bromine chemical manufacturing plants nearby the SWA property

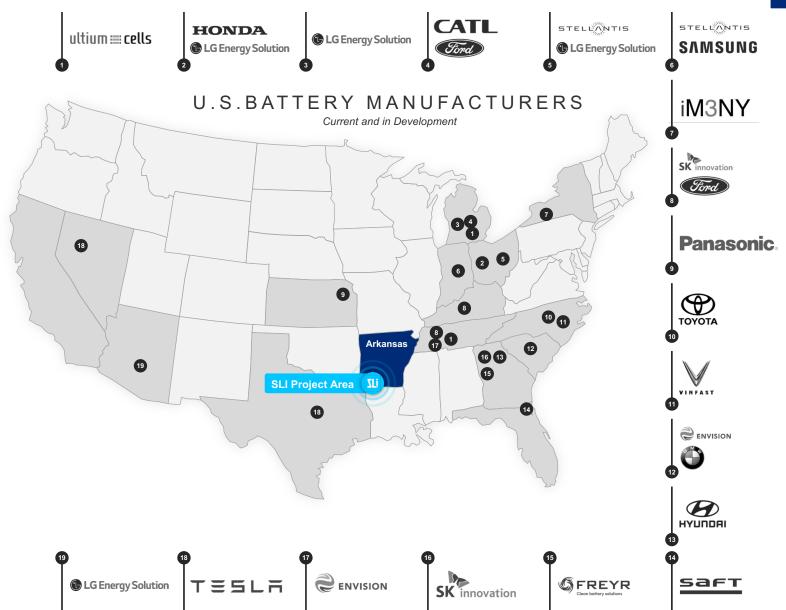


Unitized Brine Leases



# The Arkansas 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





#### **Standard Lithium Scaling Formula**

- Familiar geological structure
- Integrated, purpose-built DLE technology
- Highest tested lithium brine concentration<sup>3</sup> in the U.S.

Initial scale of proven DLE process & technology

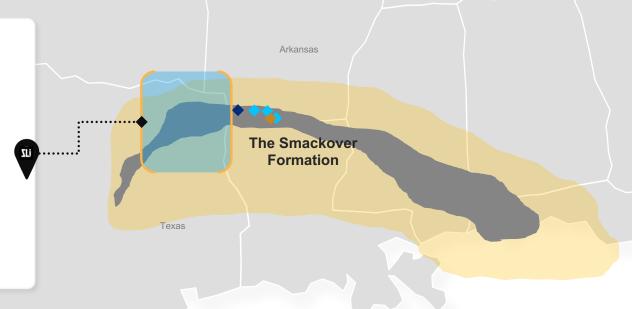
DLE Formula **Demo Plant Optimized Lanxess Projects** 21,700<sup>1</sup> **PRODUCTION SWA Project**  $30,000^2$ 

Opportunity to develop industryleading production capacity in Texas Standard Lithium has located a brine resource with the highest tested lithium concentration, to the best of the Company's knowledge, in North America3

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

#### **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 Funding Sources**

Government incentive programs have potential to put U.S. producers at a significant advantage globally.

#### **Government Sources**

#### **IRA Tax Credits**

Inflation Reduction Act ("IRA") provides multiple tax credit opportunities to fund the development of domestic battery supply chains. Section 48C provides tax credits equal to 30% of project capital expenditures. Section 45X is a 10% tax credit for operating expenses for the life of the asset.

#### **DoE Funding Program**

The US Department of Energy ("DOE") has been actively providing grants and loans from a 2021 \$65B infrastructure law to processing and manufacturing plants for battery materials.

#### **DPA Funding Program**

President Biden has authorized the Defence Production Act ("DPA") to ensure the availability of domestic sources of critical minerals for defence, civilian use, and homeland security needs.

#### **Strategic Partnerships**

To ensure new supplies of lithium go into production, EV manufacturers have begun to make direct equity investments into lithium producers alongside exclusive supply agreements.

EV manufacturing sales may be at risk for those lacking a strategic supply partnership.

#### **Project Financing**

Standard Lithium is leveraging its brownfield expansion opportunity with LANXESS to expedite project financing potential.

Standard Lithium maintains a strong network of lenders and is actively engaging candidates.

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**Completion of Feasibility Studies** 

Completion of the Lanxess DFS & Full Feed Study and SWA **Preliminary Feasibility** Study will shift both projects towards commercial production. CATALYST

#### **Lanxess DFS SWA PFS**

Lanxess Phase 1A DFS underway with target completion H1/23 and FID anticipated H2/23. SWA PFS underway with target completion H1/23 and subsequent DFS to commence H2/23.

#### **Secure Additional Partnerships**

Standard Lithium is actively seeking and evaluating potential strategic partners for project development expertise and potential offtake contracts.

#### **Texas Expansion**

Standard Lithium is positioning to add production capacity and will begin prospecting additional DLE facilities in Texas locations.

#### Government **Funding**

Standard Lithium is positioning to align with the major U.S. government incentive programs.

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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<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 projectsourced CO₂ for use as a reagent
- ✓ Opportunity exists for CO₂ sourced from large regional emitters to be permanently sequestered as part of normal brine reinjection activities

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