

# BECOMING THE WORLD'S FIRST OIL FIELD BRINE LITHIUM PRODUCER

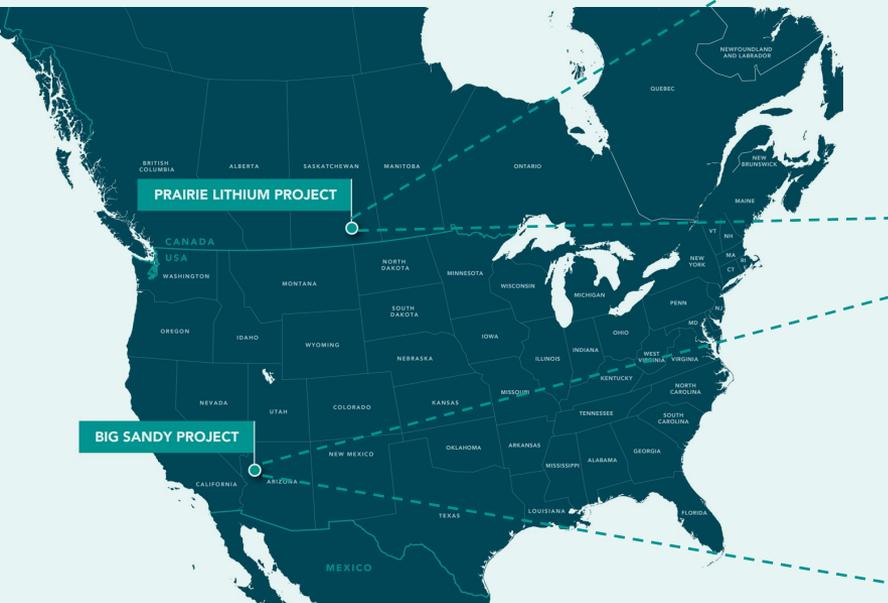
March 2024

ASX:AZL

# Company Overview

## Developing two large North American lithium projects

- ASX Code: **AZL**, OTCQB Code: **AZLAF**
- Combined resource of **6,720,800<sup>(1,2)</sup> tons** of LCE<sup>(3)</sup>



### Prairie Lithium Project

*Saskatchewan, Canada*

- Brine resource
- 390,000+ acres of sub surface mineral rights
- Located in Saskatchewan, Canada, one of the top ranked mining friendly jurisdictions in the world
- Large Indicated resource of 4.5MT LCE<sup>(3)</sup> at 106mg/L Li<sup>(2)</sup>
- Large Inferred resource of 1.8MT of LCE<sup>(3)</sup> at 101mg/L Li<sup>(2)</sup>



### Big Sandy Project

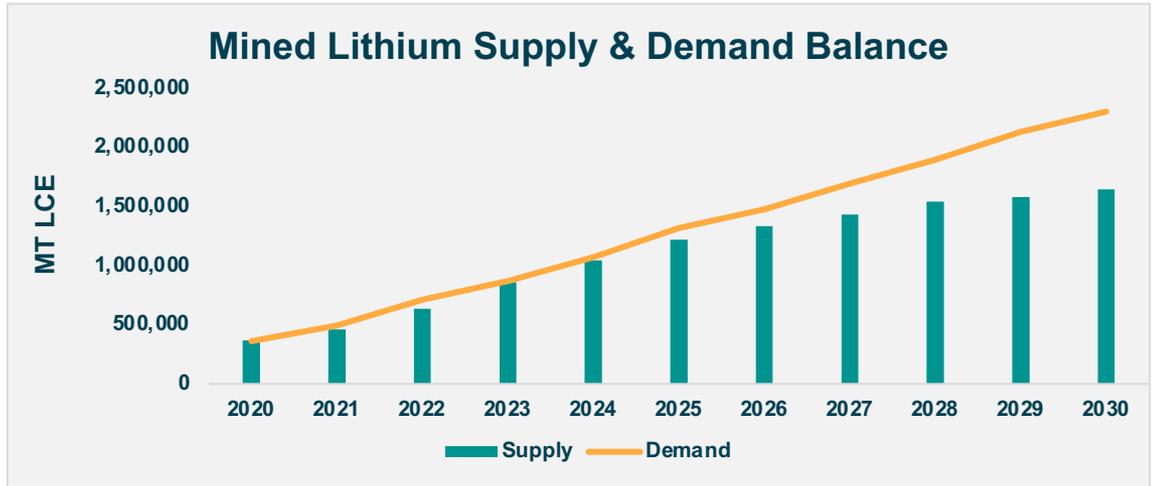
*Arizona, USA*

- Sedimentary resource
- Located just two hours north of Phoenix, Arizona, and AZL's Lithium Research Centre (LRC)
- Expandable resource with 320,800 tons<sup>(1)</sup> of LCE<sup>(3)</sup> from 4% of the landholding

Notes: (1) See AZL's maiden resource update in announcement "Big Sandy Lithium Project (Arizona, USA) Maiden Mineral Resource" – 26 September 2019.  
(2) 6.3 Million Tonne Lithium Resource At Prairie – Announcement by AZL (13/12/23). (3) Lithium Carbonate Equivalent (LCE).

# Lithium Supply & Demand Dynamics Support Price Appreciation

Lithium supply has struggled to keep up pace with demand



\*Supply includes projects that have completed necessary public market requirements, government approvals and are fully funded

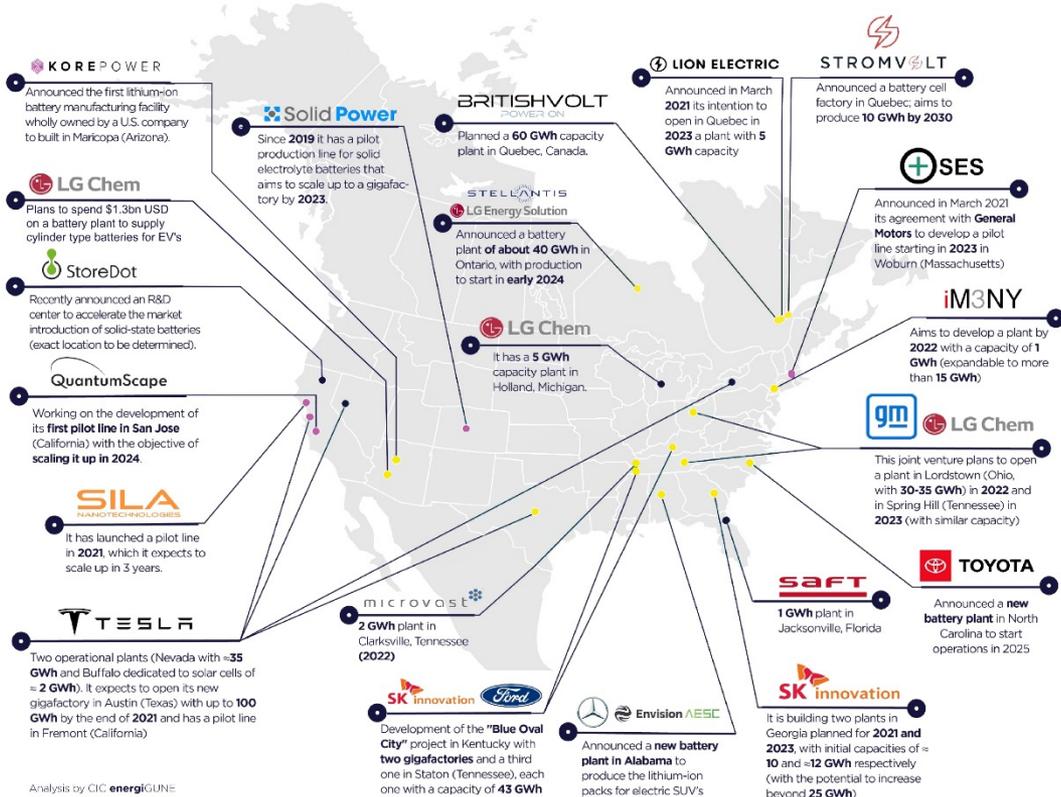


COUNTRY	PRODUCTION tLCE/Year	SHARE
Australia	307,000	45%
Chile	205,000	30%
China	103,100	15%
Argentina	34,100	5%
Brazil	14,000	2%
Zimbabwe	5,000	<1%
USA	3,000	<1%
Canada	2,500	<1%
Bolivia	2,000	<1%
Portugal	2,000	<1%

Source: Benchmark Mineral Intelligence 2022

# North America Lithium Industry

## A growing future customer base



Analysis by CIC energIGUNE

- GM, Ford and Stellantis have committed >\$50 billion to electrify their fleets
- A significant battery materials supply chain needs to be built in North America to support these commitments

### References

1. Stellantis announcement (May 24, 2022)
2. Ford announcement (May 19, 2021)
3. GM electrification commitment (November 17, 2022)



Announced that they will form a **Joint Venture** to operate, starting in 2025, a **gigafactory** of about 40 GWh.



They have announced a **joint venture (50% each)** to start building a **gigafactory in the USA** (the final location has not yet been determined)

# Prairie Lithium Project Overview

390,000+ acres of subsurface mineral permits

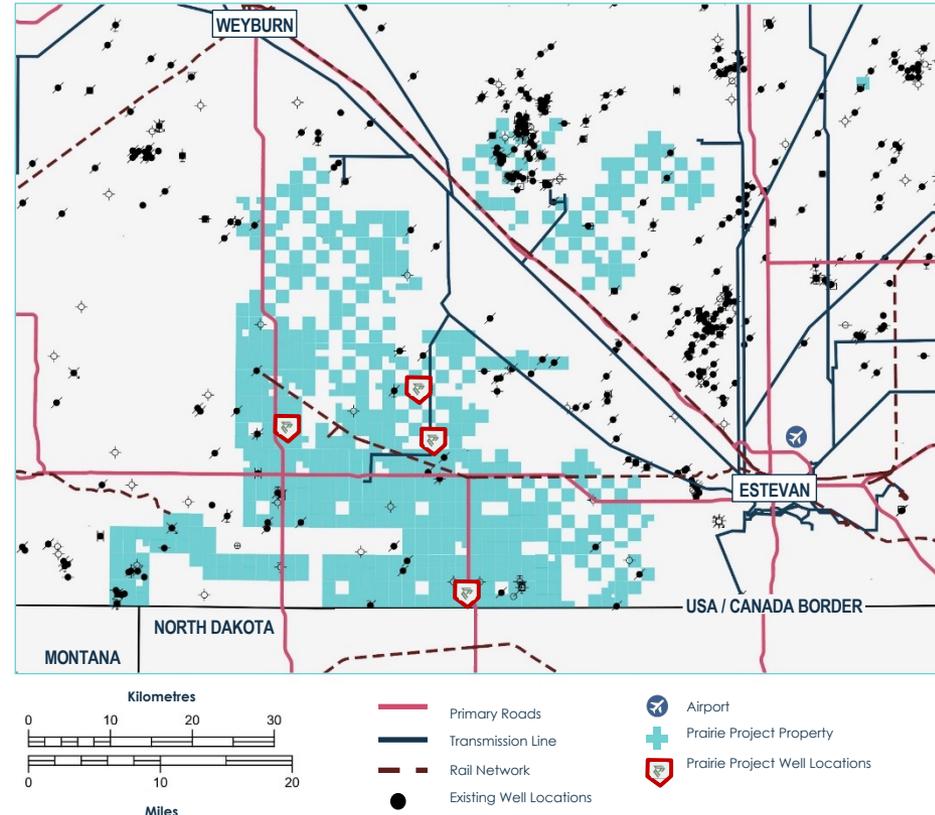
## Key Points:

- **Mining friendly jurisdiction**  
Saskatchewan, Canada is an existing oil and gas producing region with efficient permitting processes and well established infrastructure to fast track production
- Large Total Resource of **6.3MT of LCE** including 4.5MT Indicated at 106mg/L Li and 1.8MT Inferred at 101mg/L Li<sup>(1)</sup>
- **390,000+ acres** of nearly contiguous subsurface mineral permits in Saskatchewan
- **Modular process** that will shorten time to production, keep capital expenditure low and operate as a proof of concept for the DLE technology



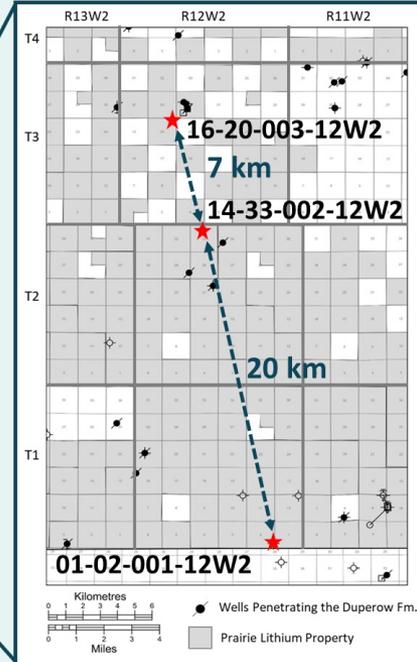
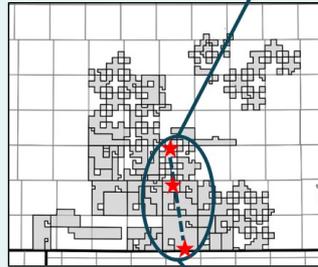
# Prairie Project Resource

- The Prairie project is targeting the Duperow Formation in Saskatchewan, Canada which is consistently ranked at the top of global mining friendly jurisdictions
- To date, 800 wells have been drilled through the Duperow Formation
  - Well mapped and well understood geology
  - Well established drilling and production procedures
- The Duperow Formation characteristics are:
  - 2,400m depth (7,874 ft)
  - 140m thick (459 ft)
  - Laterally continuous across the basin
- Total resource of 6.3 million tonnes of Lithium Carbonate Equivalent<sup>(2)</sup>
- Excellent access to utilities and services including:
  - Drill rigs, service rigs, skilled labour, fresh water, electricity, natural gas, railroads, grid roads, highways



# Contiguous Resource over 27km

- Three wells tested
- Large Indicated Resource (**4.5MT LCE**)<sup>(2)</sup>
- Total Resource of **6.3MT LCE**<sup>(2)</sup>
- Consistent grade over 27km
- **390,000+** acres of sub surface mineral rights



← 27 km →

	★ Well 01-02-001-12W2 mg/L Li	★ Well 14-33-002-12W2 mg/L Li	★ Well 16-20-003-12W2 mg/L Li	
<b>Duperow Formation</b>	Seward Member		99	
	Flat Lake Evaporite			
	Upper Wymark	166	172	137
	Middle Wymark		149	113
	Lower Wymark	130	130	103
	Saskatoon Member	53	68	48

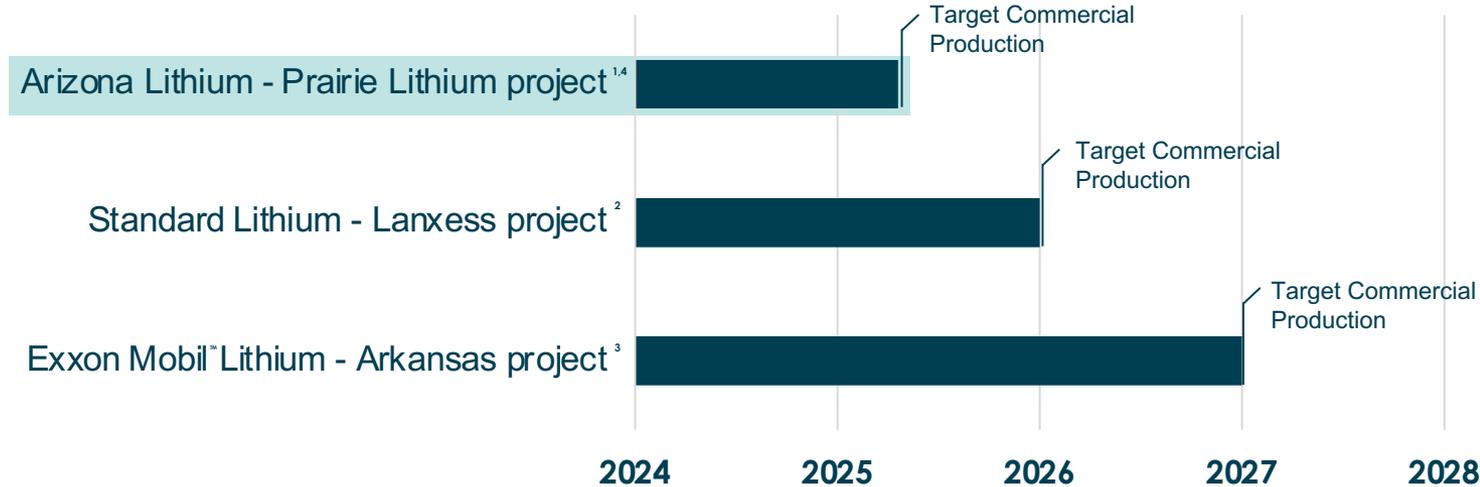
Lithium Concentration (mg/L)

# How Does The Brine Resource Compare?

✓ Highest quality indicated lithium resource discovered in Canada

✓ Prairie has a competitive North American grade with the bulk of the indicated resource at 127 mg/L<sup>(4)</sup>

## TARGET FIRST COMMERCIAL PRODUCTION DATES



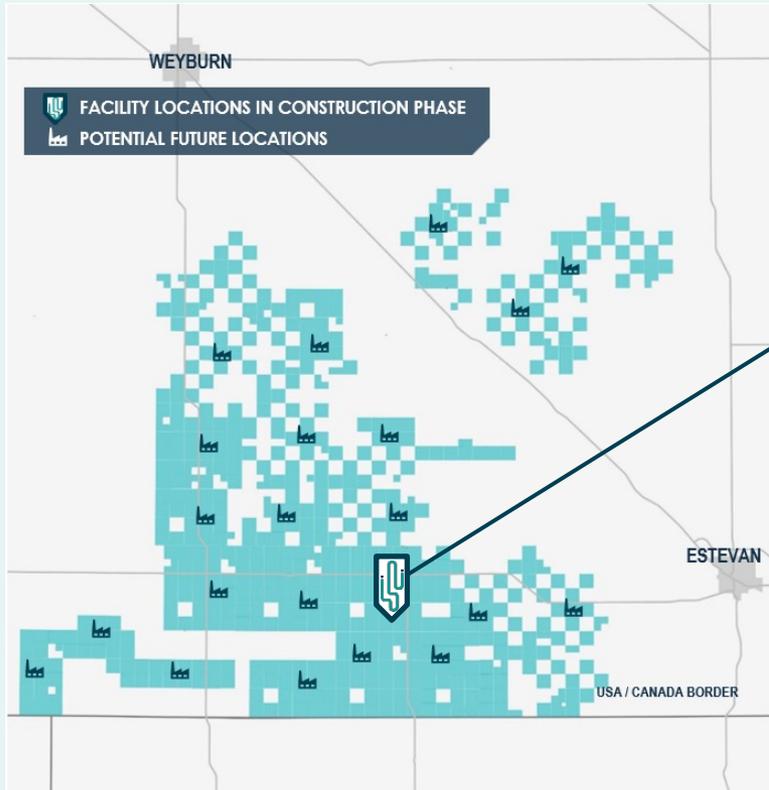
<sup>1</sup> Construction Commenced At Prairie Project – ASX Announcement (November 6, 2023)

Standard Lithium Files Definitive Feasibility Study for its First Commercial Lithium Extraction Plant – Phase 1A – NYSE Announcement (October 18, 2023)

ExxonMobil drilling first lithium well in Arkansas, aims to be a leading supplier for electric vehicles by 2030 - NYSE Announcement (November 13, 2023)

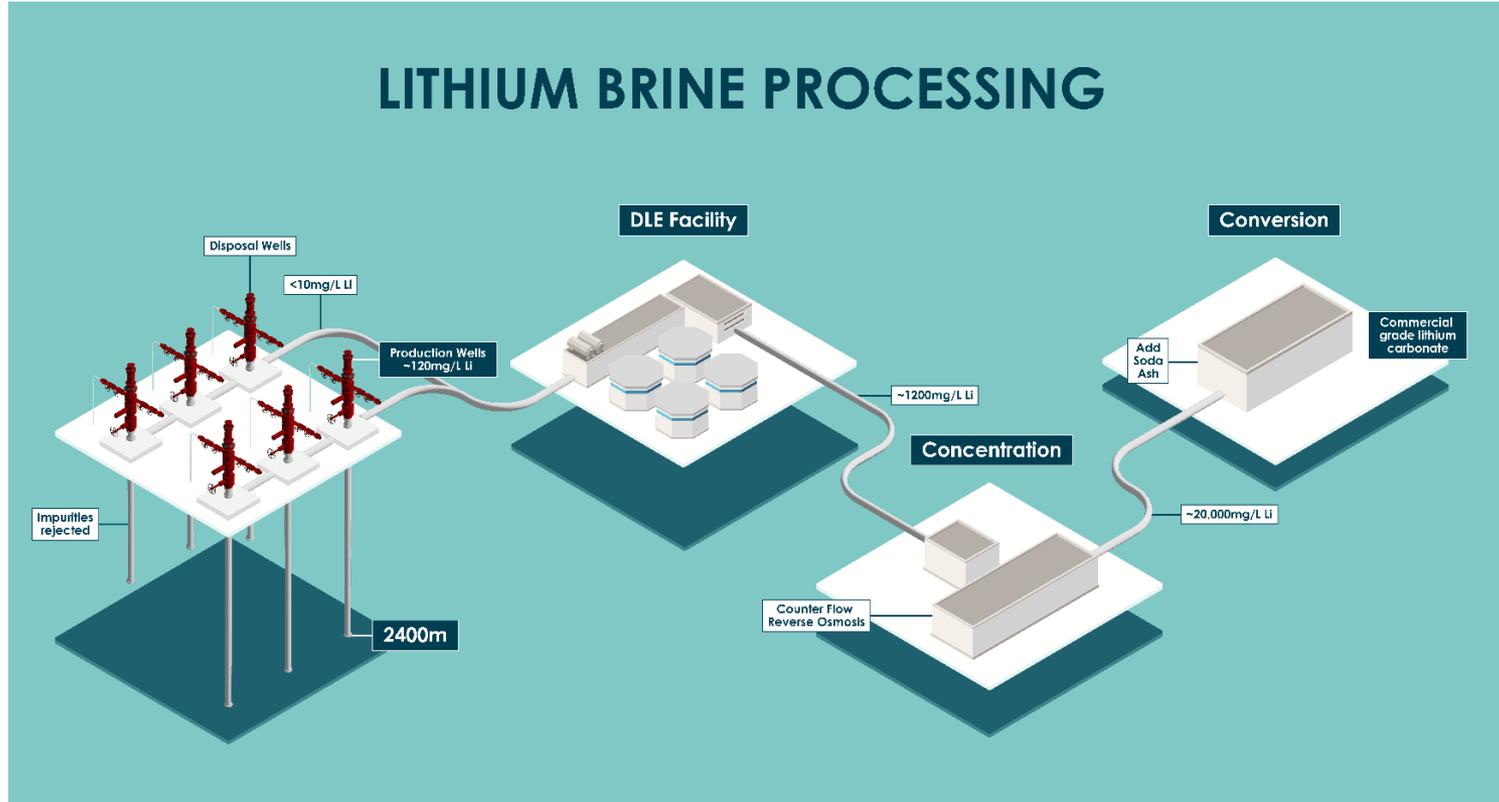
Prairie Lithium PFS Confirms Extremely Low Operating Costs of \$2,819 USD per Tonne – ASX Announcement (December 29, 2023)

# DLE Facility #1

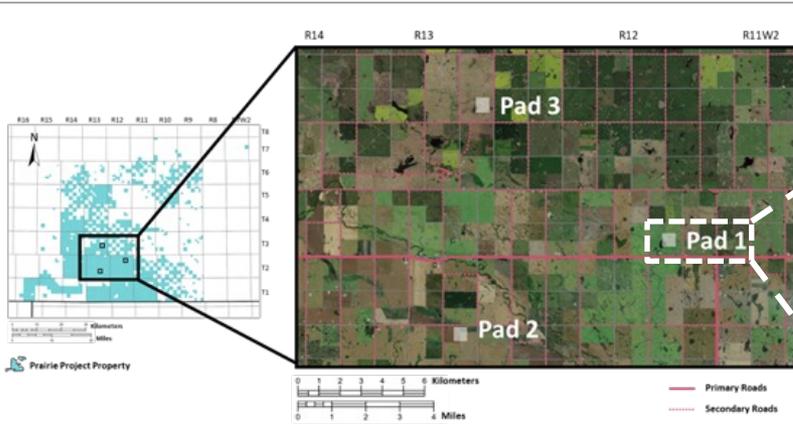


- Well pad construction is complete (see above)
- First two wells are approved for drilling in Q2 2024
- Area has been assessed for future production locations (see left) that can be bolted on one at a time, or as a group.

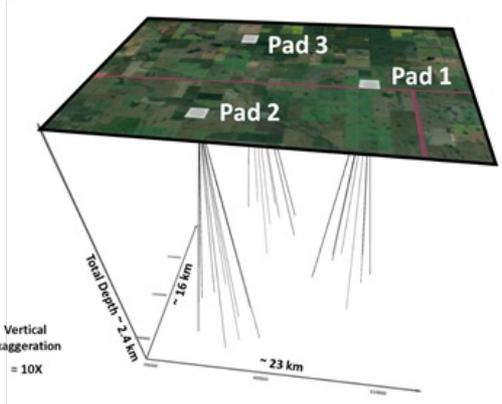
# How does it work?



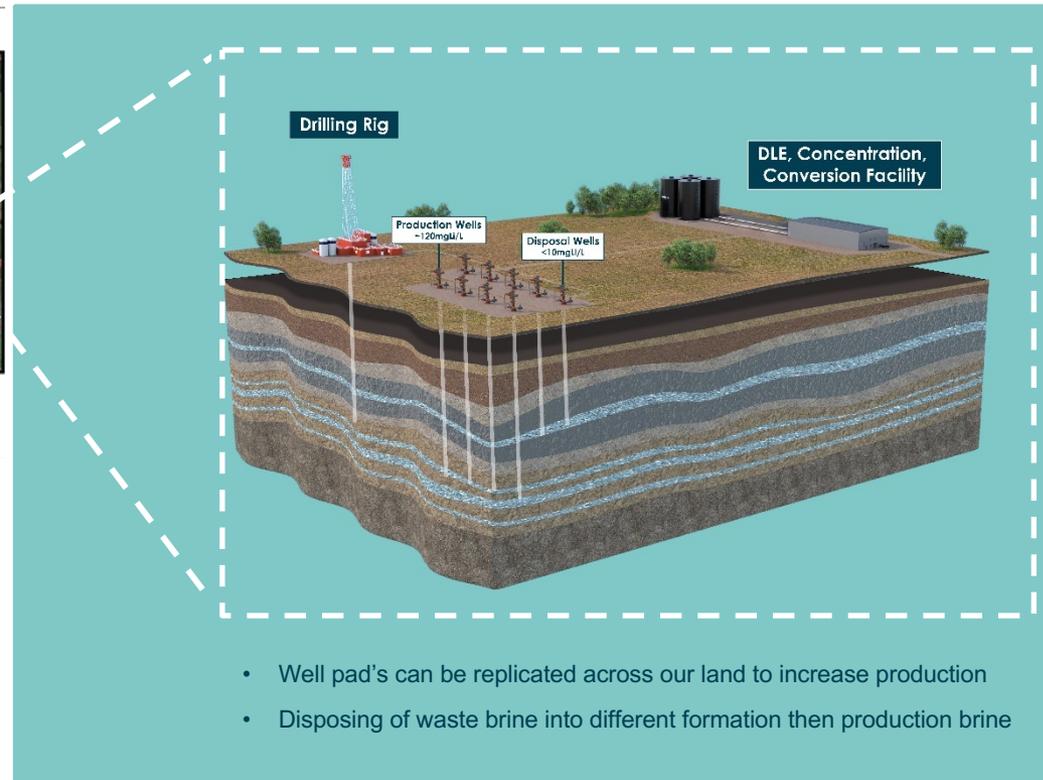
# How does it scale up?



Prairie Project Property



vertical and deviated production and disposal wells drilled from surface pad location



- Well pad's can be replicated across our land to increase production
- Disposing of waste brine into different formation then production brine

# Prairie Project Pilot Plant

## Pilot Plant at Prairie Project

(November 2023 – February 2024)

- >200,000L of lithium brine processed<sup>(1)</sup>
- >13,500L of lithium concentrate produced at the Pilot Facility in Emerald Park, Saskatchewan, representing approximately 80kg of LCE<sup>(1)</sup>
- Conversion of lithium concentrate into lithium carbonate taking place in Q1 & Q2 2024
- Pilot data will allow the company to finalize the engineering and design of the first commercial facility
- Steady-state lithium extraction of 95.6% achieved<sup>(2)</sup>
- Steady-state impurity rejection of 99.9% achieved<sup>(2)</sup>



# Prairie Project PFS

- Phase One (first module) – 6,000tpa - US\$290 million capital cost (plus contingency), US\$448 million NPV<sub>8</sub>
  - First production in H1 2025, total modeled production <3% of Indicated Resource

	Units	PFS Result
Production Rate	Years	20
Production Commencement	Tonnes per annum	6,000
Indicated Mineral Resource - Lithium Carbonate	Contained ('000t)	4,500
Recovery - Direct Lithium Extraction	%	90
Key Financial Parameters	Units	PFS Result
Capital Cost (excluding contingency)	\$US Million	290
C1 Operating Costs	US\$/t LCE	2,819
Price - Lithium Carbonate	\$US/tonne	21,000
Payback Period	Years	2.2
IRR - pre-tax	%	23.9
IRR - after-tax	%	20.4
NPV <sub>8</sub> pre-tax	\$US Million	448
NPV <sub>8</sub> after-tax	\$US Million	312

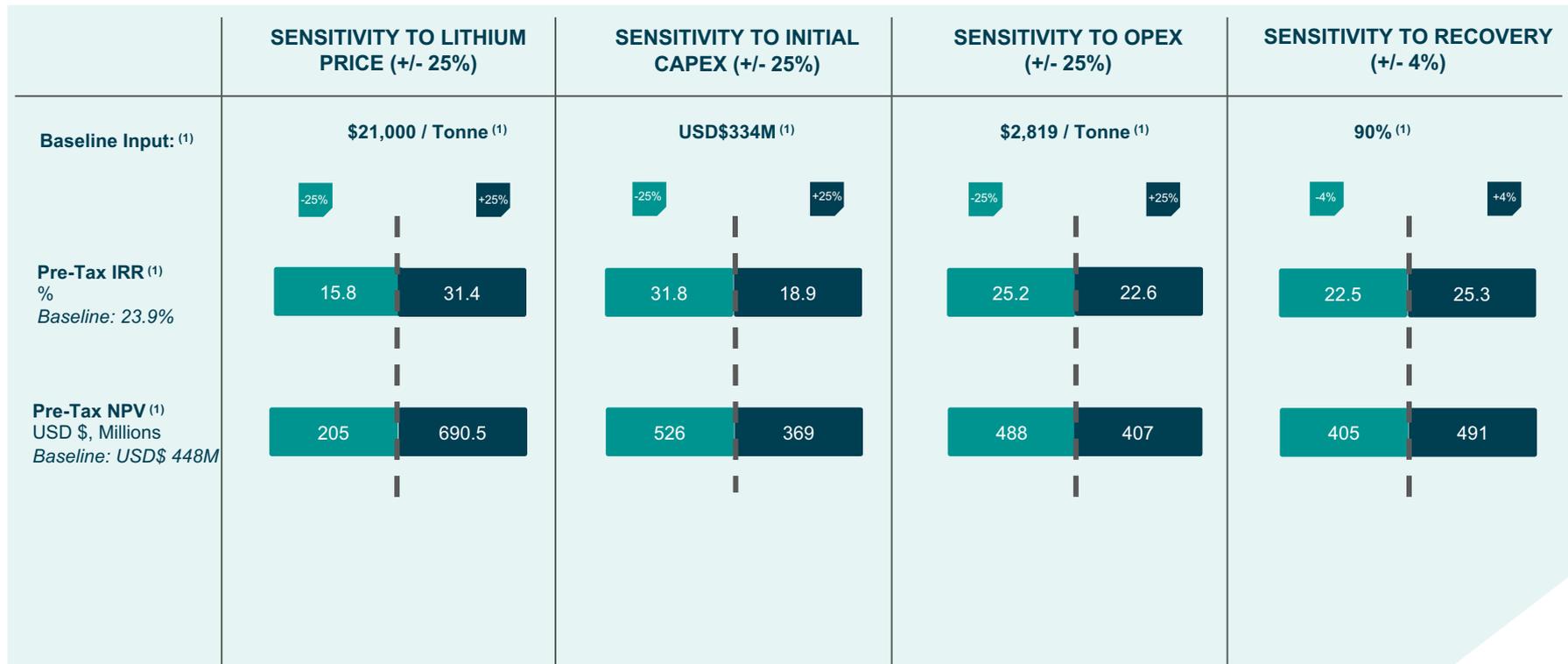
US\$2,819/t makes Prairie Lithium one of the lowest cost global projects

2.2 year payback period will be even lower for future modules making Final Investment Decision for expansions significantly easier

## Post PFS – What’s next?

- Phase Two – another three to four modules at a capital cost of approximately US\$210 million for each module (6,000tpa production)
  - Expected to be sanctioned in 2026, will bring total production to 24,000 – 30,000tpa
- Phase Three – further modules following the success of Phase Two

# Prairie Project PFS – Financial Sensitivity

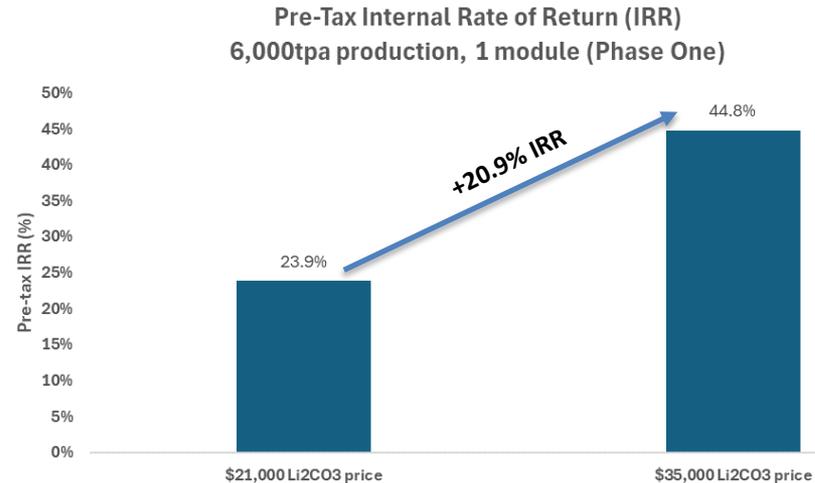
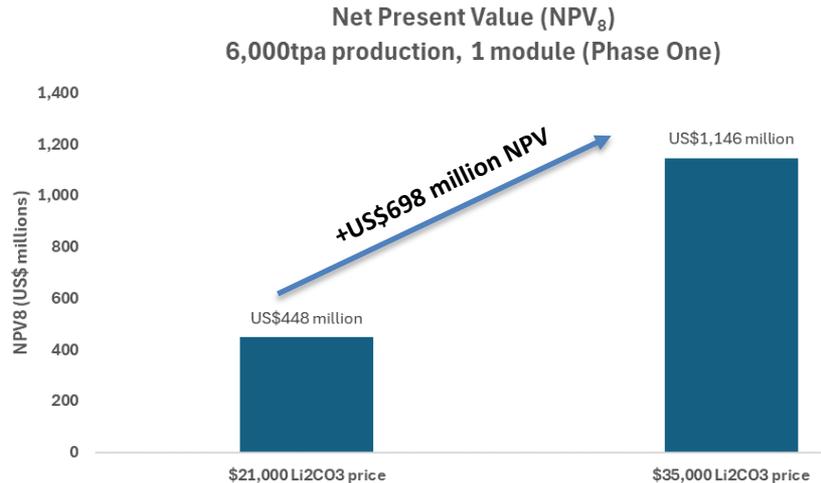


Lower Input
  Higher Input

Source: (1) ASX Announcement of Prairie Lithium PFS (28/12/23).

# Prairie Project PFS Sensitivity

- The Prairie Lithium project PFS is based on a conservative long term  $\text{Li}_2\text{CO}_3$  price of US\$21,000/t
- Recent Wood Mackenzie analysis<sup>(2)</sup> has shown a long term  $\text{Li}_2\text{CO}_3$  price of US\$35,000/t
- With future supply deficits (see Slide 3) it is realistic to envisage a higher  $\text{Li}_2\text{CO}_3$  price, with the effect of a \$35,000 long term  $\text{Li}_2\text{CO}_3$  price illustrated below:



- The Prairie PFS is based on Phase One (6,000tpa), assuming no economies of scale the NPV after Phase Two (18,000-24,000tpa) is expected to be 4-5x the current NPV

# Big Sandy Project Overview

## Key Points:

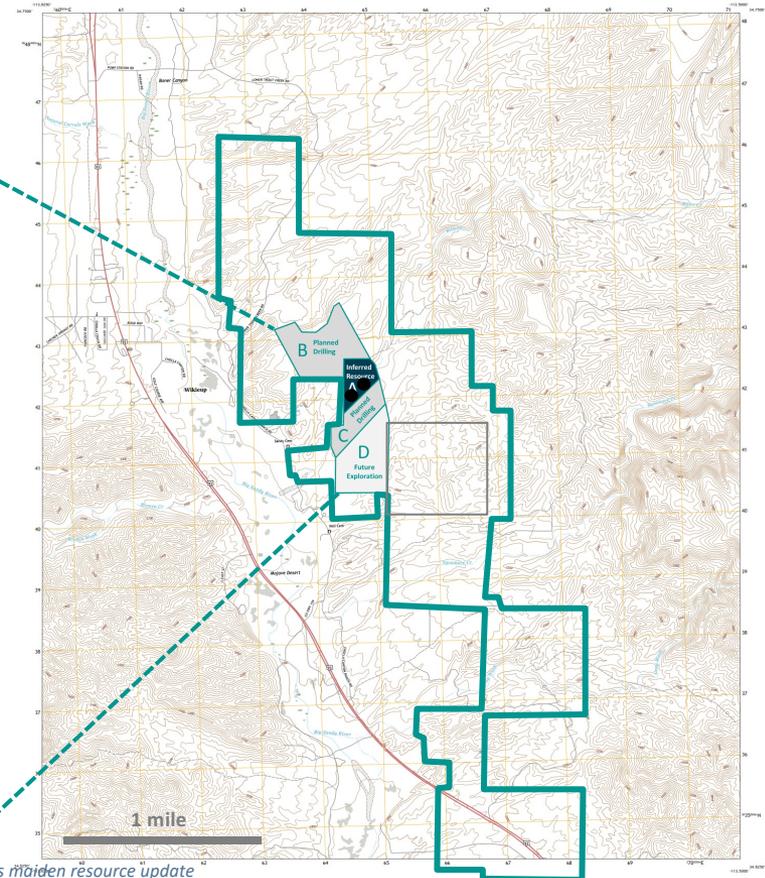
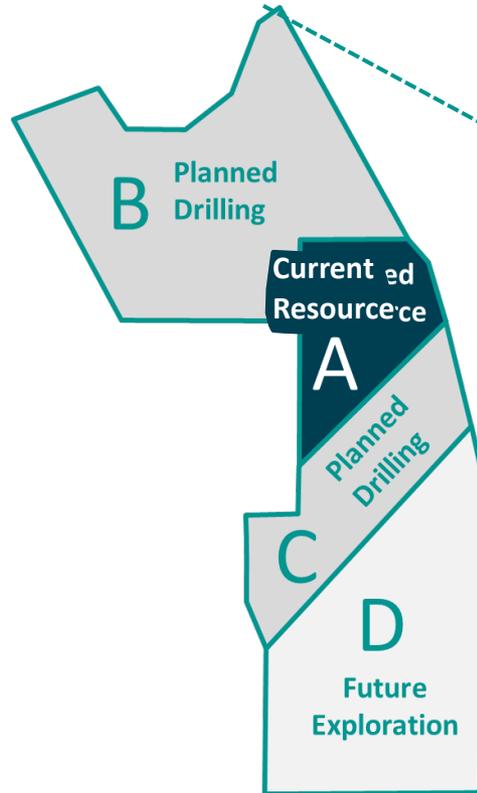
- First drilling program completed in 2019
- Total Inferred and Indicated Resource **320,800 tons<sup>(1)</sup>** of LCE from 4% of the landholding
- Production of high-quality battery grade Lithium Carbonate of **99.8%<sup>(2)</sup> purity (Battery Grade >99.5% purity)** from Big Sandy Ore
- The Big Sandy Lithium Project is located in northwest Arizona, approximately 225 kilometres north of Phoenix, and approximately 90 kilometres southeast of the regional center of Kingman



# Big Sandy Project Resource

## Exploration upside

- **Strategic Mining Service Agreement with Navajo Transitional Energy Company (NTEC)<sup>(1)</sup>**
- Inferred and Indicated Resource of **320,800 tons<sup>(2)</sup>** of LCE from 4% of the landholding at Big Sandy
- Two hours north of Phoenix with direct access from Highway 93
- Future development plans include drilling to the north and south of the current Indicated and Inferred Resource

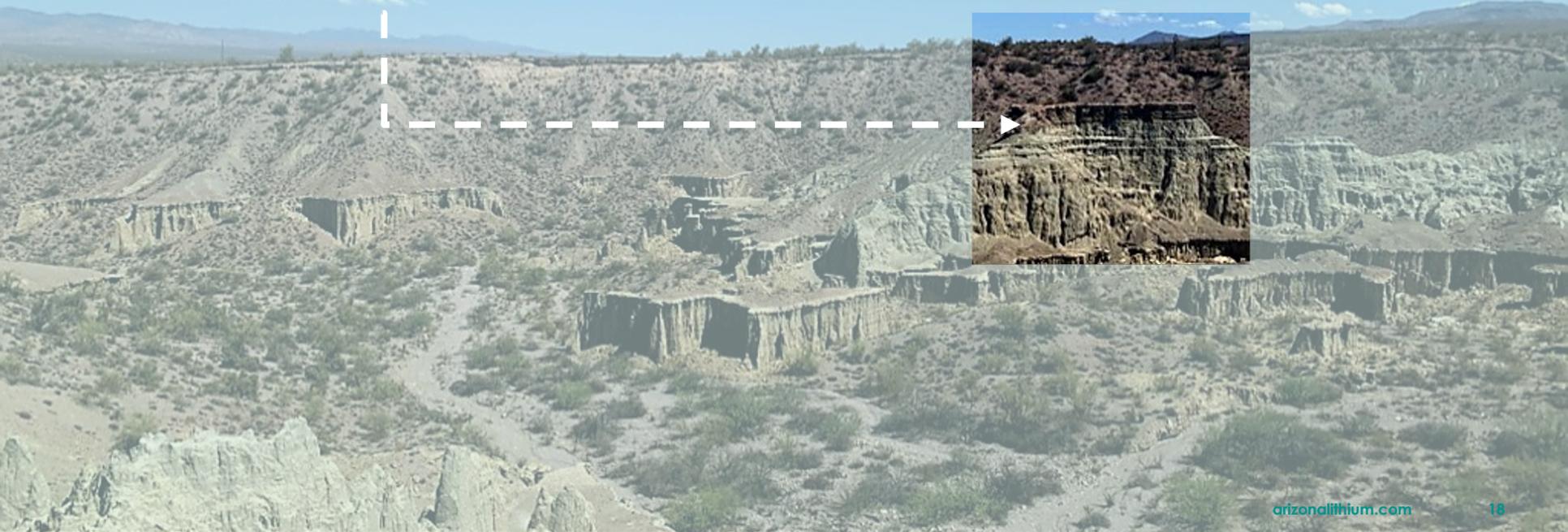


Notes: (1) ASX Announcement of Mining Services Agreement With NTEC For Development & Production At Big Sandy (11/03/24); (2) See AZL's maiden resource update in announcement "Big Sandy Lithium Project (Arizona, USA) Maiden Mineral Resource" – 26 September 2019.

# Advantage

## Why Big Sandy's sedimentary lithium works

- The lithium mineralisation is interpreted to exist within an upper and lower clay zone, separated by a distinct marker horizon of altered tuff<sup>(1)</sup>
- Lithium mineralisation extends to a maximum of approximately 110 metres below surface<sup>(1)</sup>



# Research & Development

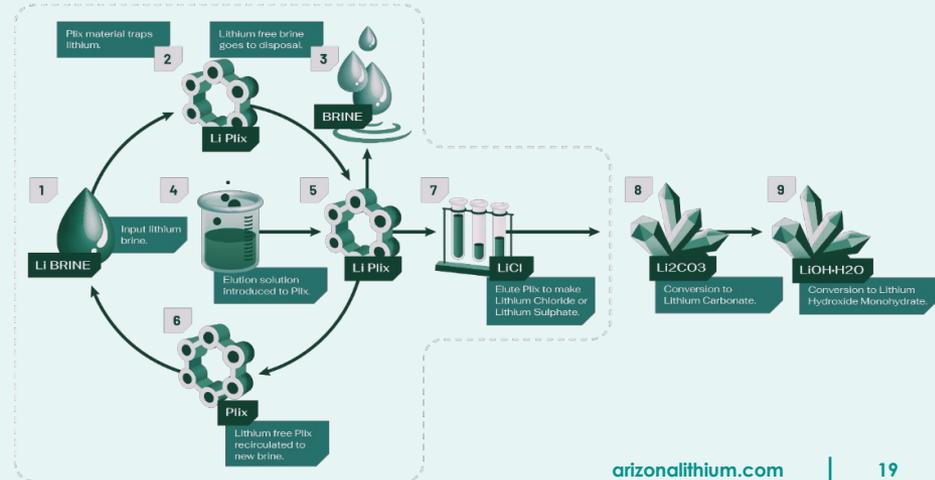
## Lithium Research Centre (LRC)

- AZL has developed a world class LRC on a 9,700m<sup>2</sup> property approximately 15km from Phoenix airport
- The facility includes a 1,900m<sup>2</sup> building for R&D and a 3,000m<sup>2</sup> secure lot for the fabrication and storage of processing equipment
- The LRC will function as a technology incubator focused on the extraction of lithium and produce battery grade lithium chemicals for current and future battery chemicals



## Direct Lithium Extraction (DLE) Technology

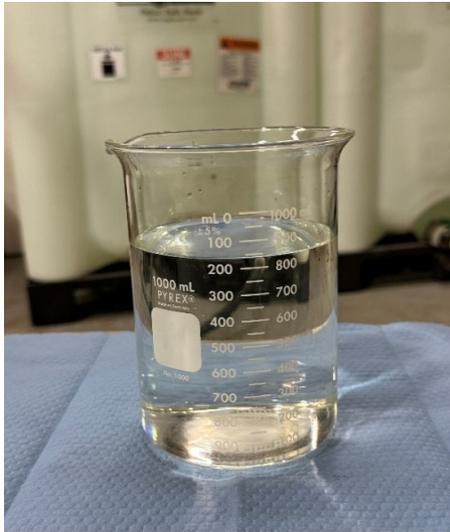
- Lithium extraction technology that selectively removes lithium from brine
- Opportunity to produce battery grade lithium out of the lithium chloride or sulphate solution produced
- Has been tested successfully on the Big Sandy ore



# Research & Development

## Pilot Plant at Prairie Project

- Lithium concentrate produced at Pilot Facility in Emerald Park, Saskatchewan
- Pilot data will allow the company to finalize the engineering and design of the first commercial facility



## Lithium Research Centre (LRC)

- Lithium concentrate being further refined into high-purity lithium end products, such as lithium carbonate
- Lithium samples to be sent to potential off-takers



# Board of Directors



**Paul Lloyd**  
Managing Director

- Chartered Accountant with over thirty-five years' commercial experience.
- One of the vendors of the Big Sandy Lithium project and has been the Managing Director since September 2018.
- Oversaw the acquisition of the Prairie Lithium Project in Saskatchewan.
- Has been responsible for a significant number of IPOs, RTOs, project acquisitions and capital raisings for ASX listed public companies.



**Zach Maurer**  
Executive Director

- Over 10 years of experience in North America's energy sector, with experience spanning production, environmental and hydrogeologic projects in Canada and the United States.
- In 2019, he founded and incorporated Prairie Lithium. In 2023, he led Prairie Lithium through the acquisition by Arizona Lithium.
- In 2023, in recognition of his contributions to business in Saskatchewan, he was awarded the Queen Elizabeth II Platinum Jubilee Medal.
- Holds a B.Sc. in Geology from the University of Regina and a Diploma in Exploration Information Technology from the South Alberta Institute of Technology (SAIT).



**Barnaby Egerton-Warburton**  
Non-Executive Chairman

- Over 25 years of trading, investment banking, international investment and market experience with positions at JP Morgan, BNP Equities (New York) and Prudential Securities (New York).
- An experienced Investment Banker and corporate advisor, having held managing director and non-executive director positions in the investment banking, oil & gas and resource sectors.
- Holds a degree in economics, is a graduate of the Australian Institute of Company Directors.



**Matthew Blumberg**  
Executive Director

- Currently based in New York and is a Director at Private Equity firm ALJ, focusing on Strategy, Mergers & Acquisitions. Matthew has previously worked in investment roles in New York and Sydney.
- Holds a Master of Business Administration (MBA) from Yale University and a double degree in Engineering (First Class Honours) and Commerce from The University of Western Australia.

# An Experienced Management Team

With a proven track record



**Wendy Alaniz**

Chief Financial Officer (USA)

- Certified Public Accountant with over 20 years' experience leading accounting and finance teams at public companies, predominantly Nestlé, with extensive experience in manufacturing, cost accounting, internal controls and audit.
- Holds a Master of Business Administration (MBA) and a Bachelor of Science (BSc) from California State University San Bernardino, where she also spent 3 years as Adjunct Faculty, Department of Accounting and Finance, College of Business & Public Administration.
- Certified Internal Auditor (CIA) and Certified Fraud Examiner (CFE).



**Brett Rabe**

Chief Technical Officer

- Worked for Lithium Americas Corp as VP of Engineering and Project Manager for the Thacker Pass Project in Nevada.
- Has been involved in the design, development, and management of lithium projects for 10 years dating back to the geothermal brine project developed by Simbol Materials, Inc where he was Sr. Process Engineer and Plant Manager.
- Hold EPC/CM experience (3 years) with Jacobs Engineering where he held process engineering and project management roles for mineral processing, infrastructure, and US Government projects.
- Other roles include various plant manager and process engineering roles with Elementis Global, Potash Corp, Chemical Products Corp, and Barrick Gold Corp. Brett completed a Master's Degree in Metallurgical Engineering (Hydrometallurgy) from the University of Nevada-Reno in 2000 and a Bachelor's Degree in Metallurgical Engineering in 1994.



**Chelsey Hillier**

Senior Vice President of Exploration

- Holds a Bachelor of Science Geology Honours from the University of Regina.
- Before joining the Prairie Project in 2021 she worked in technical and management roles with Nexen and CNOOC Intl for 14 years.
- Responsible for managing the Technical Reporting, Subsurface Development and Reservoir Characterization Teams; and she plays an integral part in the researching, planning and execution of projects.

# The path forward

Exciting upcoming milestones for the company

## Timeline

## News Flow

Q4 2023

Commence **construction of commercial plant** at Prairie project via **building well pad (Complete)**

Q4 2023

**DLE Pilot Plant** operations at Prairie Project to confirm exceptional third party DLE results **(Complete)**

Q4 2023

Completion of **Preliminary Feasibility Study (PFS)** on the Prairie Project **(Complete)**

H1 2024

**Distribution of Lithium** produced from pilot to potential offtakers and/or strategic investors

H1 2024

**Commence drilling** exploration, production and disposal wells at Prairie project

H1 2024

**Commence facility construction** at Prairie project

H2 2024

Secure funding for **Prairie Project expansion** from customers or strategic investors

H1 2025

**Commercial production from first well pad** at Prairie project

## Disclaimer

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### COMPETENT PERSON STATEMENT

The information in this report regarding exploration results, exploration targets and the mineral resources is based on and fairly represents information compiled by Mr Gregory Smith, a Competent Person who is a Member of the Australasian Institute of Mining and Metallurgy. Mr Smith has sufficient experience that is relevant to the style of mineralisation and type of deposit under consideration and to the activity being undertaken to qualify as a Competent Person as defined in the 2012 Edition of the 'Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves'. The Company confirms that the form and context in which the Competent Person's findings are presented have not been materially modified from The original market announcements and that the material assumptions and technical parameters underpinning the Resource estimate continue to apply.

### COMPETENT PERSONS STATEMENT FOR PRAIRIE AND REGISTERED OVERSEAS PROFESSIONAL ORGANISATION (ROPO) AND JORC TABLES

Gordon MacMillan P.Geol., Principal Hydrogeologist of Fluid Domains, who is an independent consulting geologist of a number of brine mineral exploration companies and oil and gas development companies, reviewed and approves the technical information pertaining to the resource provided in the PFS release and JORC Code – Table 1 attached to the PFS release. Mr. MacMillan is a member of the Association of Professional Engineers and Geoscientists of Alberta (APEGA), which is ROPO accepted for the purpose of reporting in accordance with the ASX listing rules. Mr. MacMillan has been practicing as a professional in hydrogeology since 2000 and has 23 years of experience in mining, water supply, water injection, and the construction and calibration of numerical models of subsurface flow and solute migration. Mr. MacMillan is also a Qualified Person as defined by NI 43-101 rules for mineral deposit disclosure.

Kyle Gramly PE, Sr. Process Engineer for Samuel Engineering, reviewed and approves the technical information pertaining to DLE test work and processing provided in the PFS release and JORC Code – Table 1 attached to the PFS release. He is a registered Professional Engineer (Chemical) with the Colorado Department of Regulatory Agencies (No. 0058009) since 2020 and has worked in the engineering field on a variety of mining projects for 15 years since graduating from Colorado School of Mines. Mr. Gramly is a Qualified Person as defined by 17 CFR § 229.1302 - (Item 1302) and has been involved in several pilot test programs and engineering design studies regarding the commodity discussed in this release.



## For further information:

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# Mineral Resource Summary

## BIG SANDY PROJECT

Resource Classification	Tonnes (Mt)	Li Grade (ppm)	Contained Li Metal (t)	Contained LCE (kt)
Indicated Resource	14.6	1,940	28,400	151
Inferred Resource	17.9	1,780	31,900	170
<b>Total Resource</b>	<b>32.5</b>	<b>1,850</b>	<b>60,300</b>	<b>320.8</b>

BIG SANDY LITHIUM PROJECT (ARIZONA, USA) MAIDEN MINERAL RESOURCE – ASX Announcement (September 26, 2019)

## PRAIRIE LITHIUM PROJECT

	Indicated & Measured		Inferred		Total	
	Resource (tonnes LCE)	Li Concentration (mg/L)	Resource (tonnes LCE)	Li Concentration (mg/L)	Resource (tonnes LCE)	Li Concentration (mg/L)
Prairie Project	4,500,000	106	1,800,000	101	6,300,000	105

6.3 Million Tonne Lithium Resource At Prairie – ASX Announcement by AZL (13/12/23)