

**CRIT PRESENTATION**

**PATH TO PRODUCTION**

April 23<sup>rd</sup>, 2025



# COMPANY OVERVIEW



## DEVELOPING TWO LARGE NORTH AMERICAN LITHIUM PROJECTS

- ASX Code: **AZL**, OTCQB Code: **AZLAF**
- Combined resources of **Lithium Brine and Sedimentary**

### PRAIRIE LITHIUM PROJECT

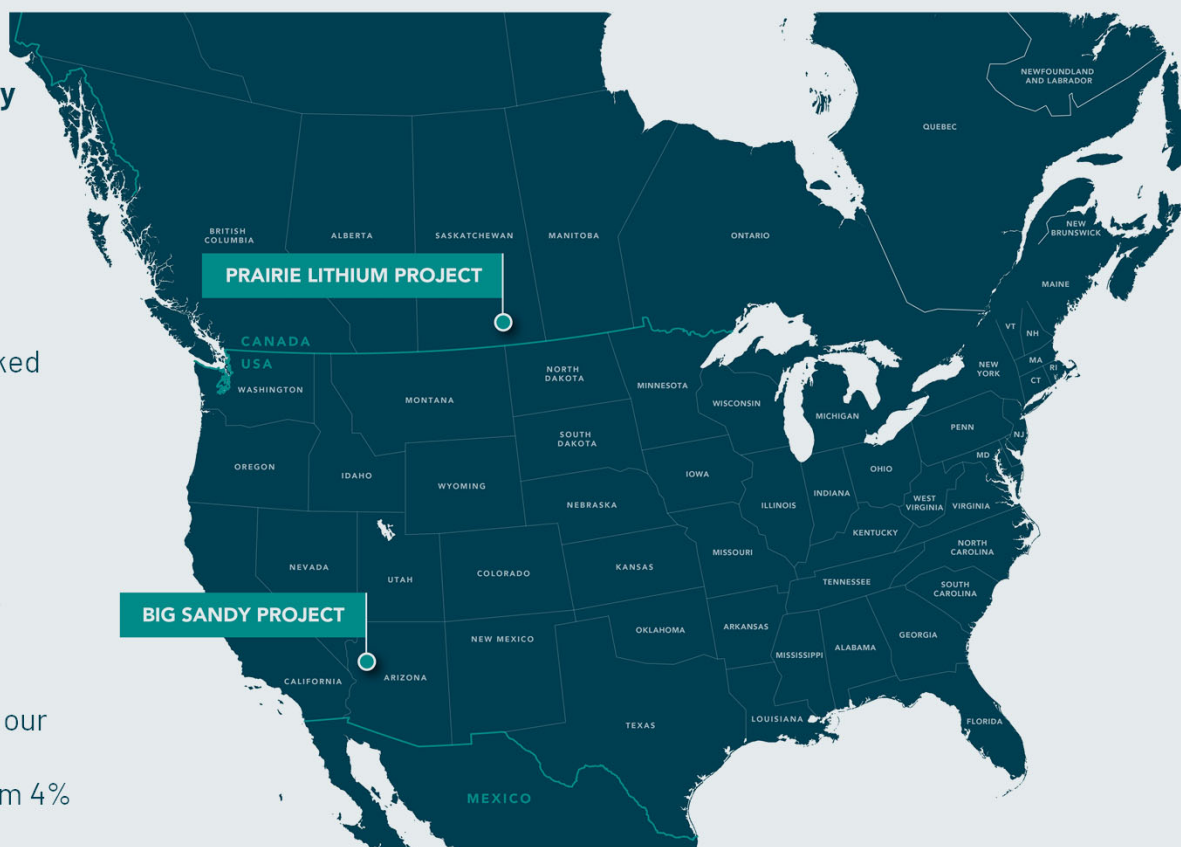
*Saskatchewan, Canada*

- Brine resource
- **345,000 acres** of subsurface mineral rights
- Located in Saskatchewan, Canada, one of the top ranked mining friendly jurisdictions in the world

### BIG SANDY PROJECT

*Arizona, USA*

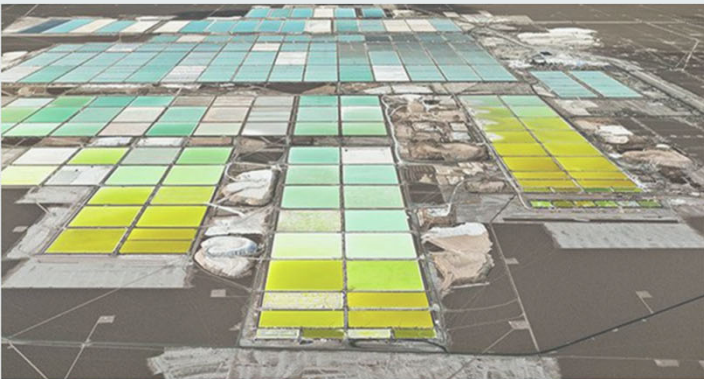
- Strategic Partnership with Navajo Transitional Energy Corporation (NTEC)
- Sedimentary resource
- Located just two hours north of Phoenix, Arizona, and our Lithium Research Centre (LRC)
- Expandable resource with **320,800 tons<sup>(1)</sup> of LCE<sup>(2)</sup>** from 4% of the landholding



(1) See AZL's maiden resource update in announcement "Big Sandy Lithium Project (Arizona, USA) Maiden Mineral Resource" – 26 September 2019  
(2) Lithium Carbonate Equivalent (LCE).

# HOW LITHIUM IS MINED

ON THE CUSP OF DISRUPTION



## **BRINE:** EVAPORATION POND

*South America*



## **HARDROCK:** SPODUMENE

*Australia*

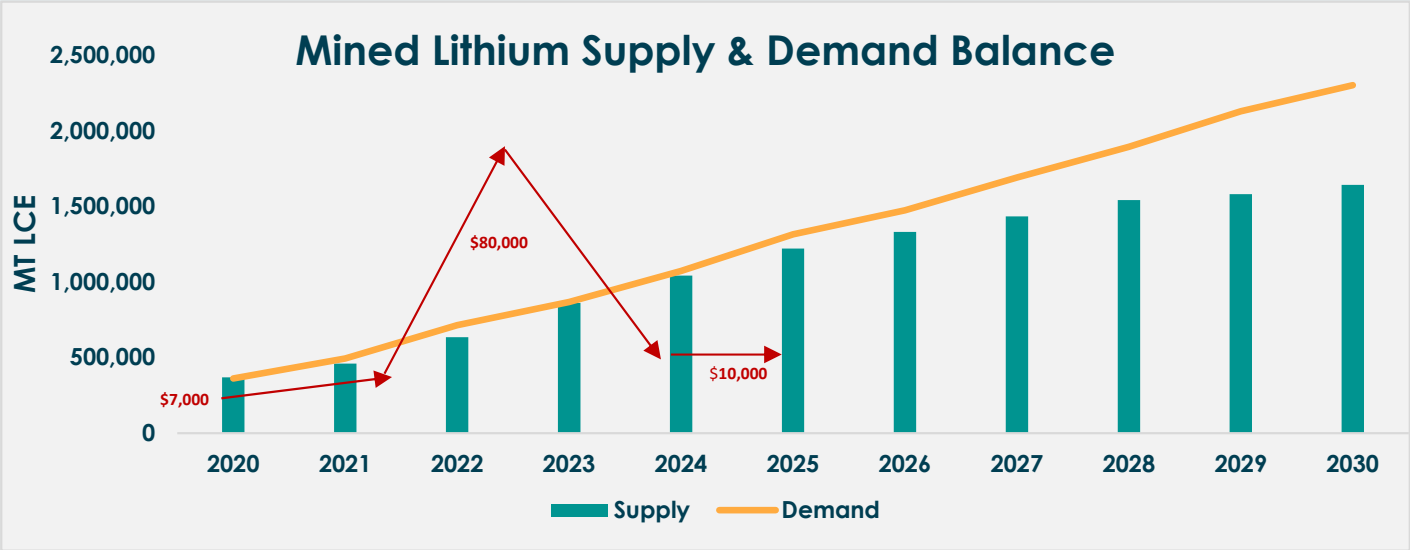


## **BRINE:** DIRECT LITHIUM EXTRACTION (DLE)

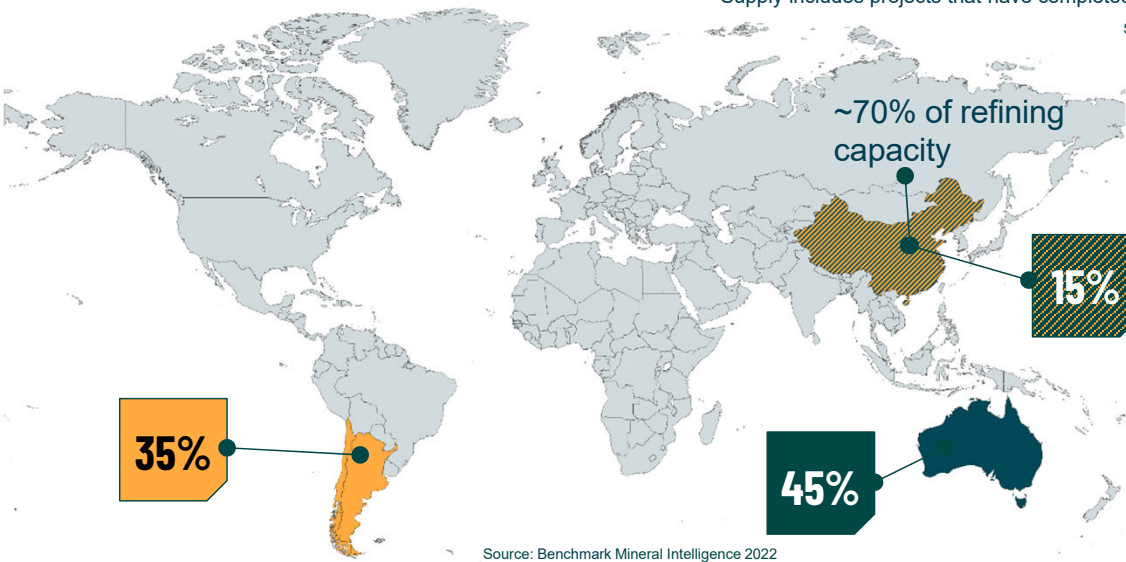
*Saskatchewan, Canada*

# Lithium Supply & Demand Dynamics Support Price Appreciation

Lithium supply has struggled to keep pace with demand.



## Current Lithium Supply



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

Source: Benchmark Mineral Intelligence 2022

### MAIN DEPOSIT TYPE

- Brine
- Hardrock
- Brine/Hardrock

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



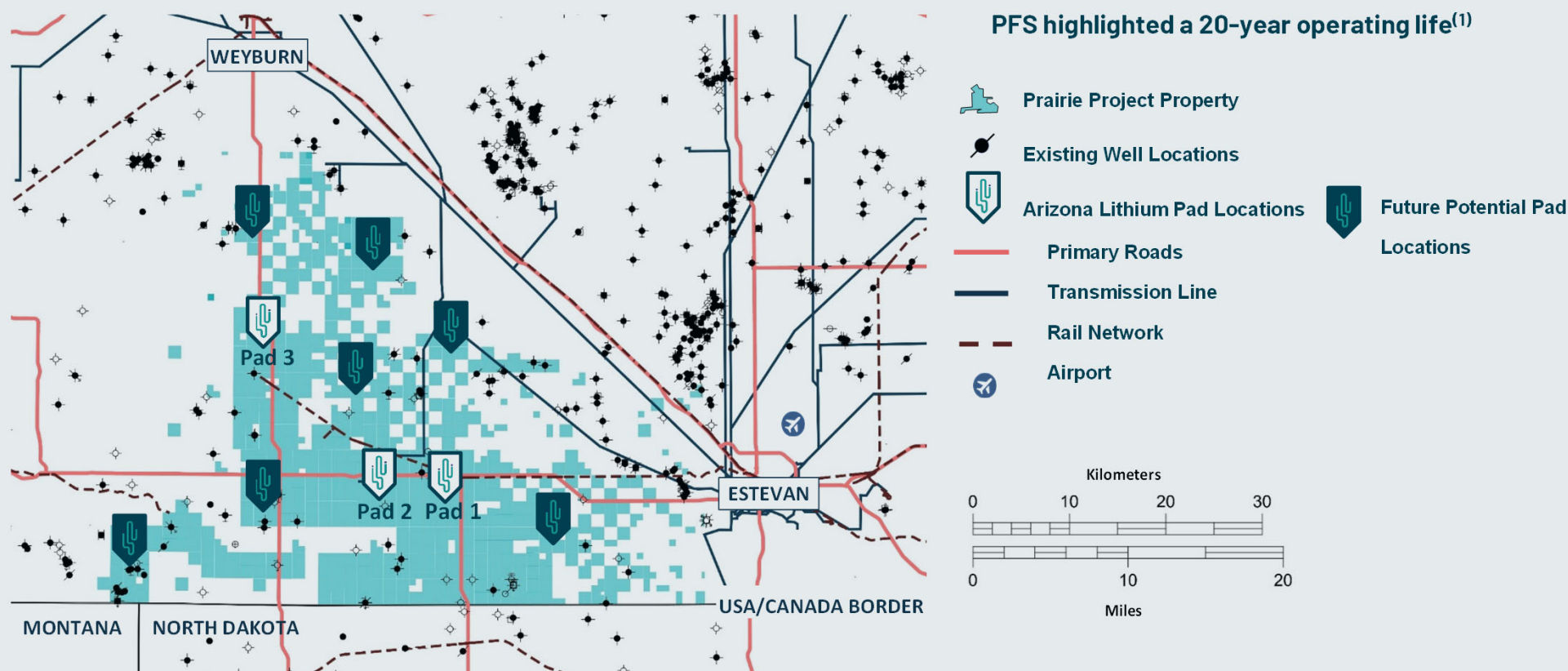
# ARIZONA LITHIUM

# PRAIRIE LITHIUM PROJECT



345,000 ACRES OF SUBSURFACE MINERAL PERMITS ENCOMPASSED BY INFRASTRUCTURE

PFS highlighted a 20-year operating life<sup>(1)</sup>



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

# PRAIRIE LITHIUM PROJECT

## 2024 DRILLING & COMPLETIONS PROGRAM



### PAD #1

- 3 WELLS DRILLED
  - Duperow Production
  - Disposal
  - Brackish Water Source
- Explored Souris River and Dawson Bay
- Pump tested Duperow & Souris River
- Tested disposal formations
- Facility Construction of Commercial Scale DLE in 2025



### PAD #2

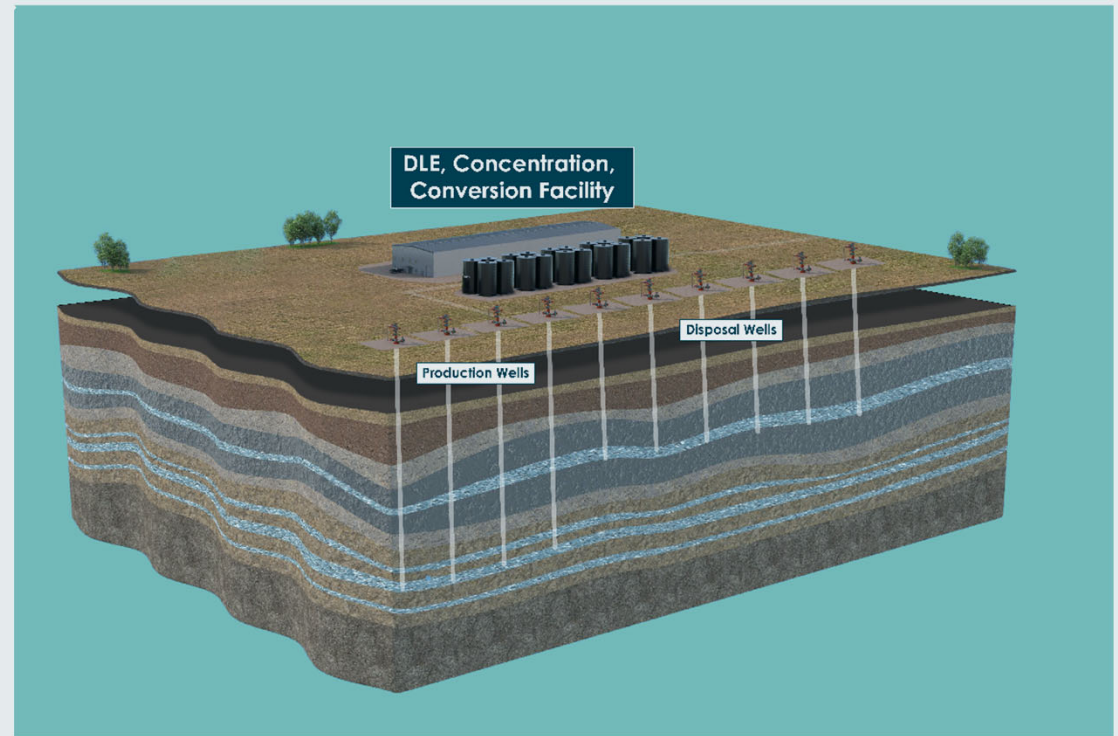
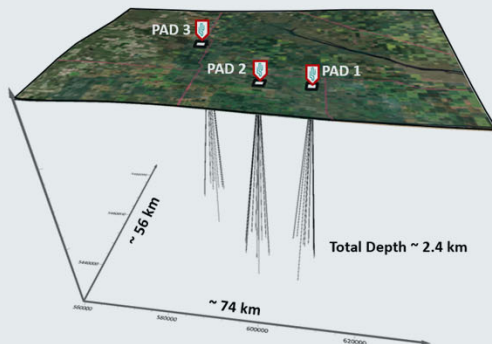
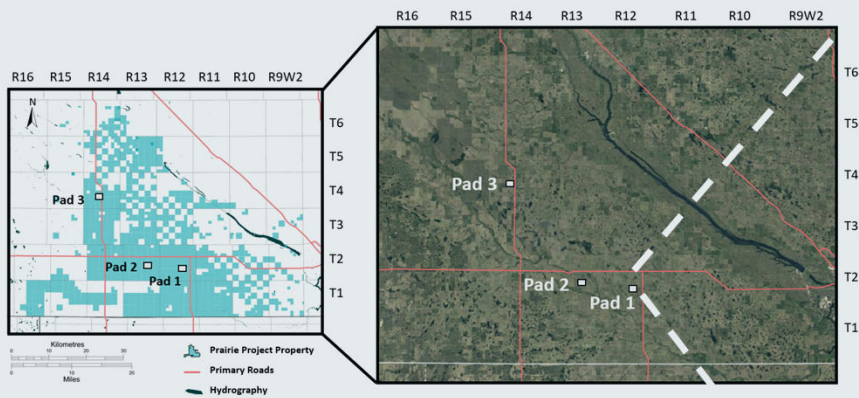
- 2 WELLS DRILLED
  - Future production & disposal wells
- Explored Souris River and Dawson Bay



### PAD #3

- 1 WELL DRILLED
  - Future Production or Disposal well
- Explored Souris River, Dawson Bay and Duperow

# WHAT DOES IT LOOK LIKE?

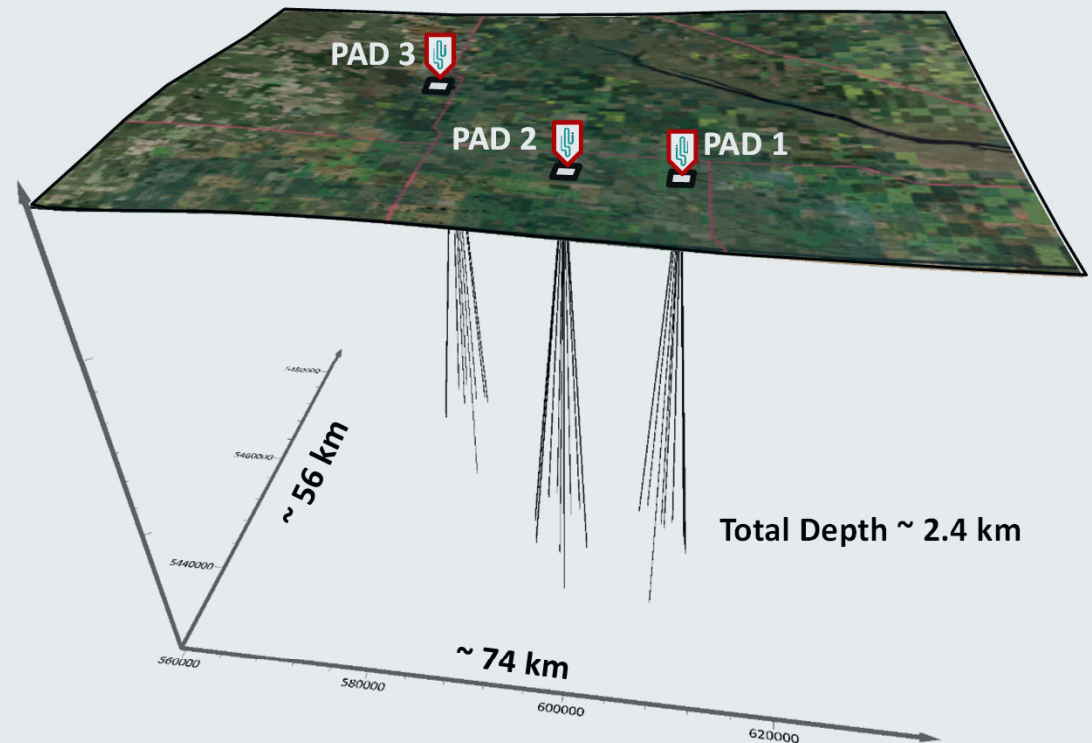


- Well pad's can be replicated across our land to increase production
- Disposing of waste brine into different formation then production brine

# PRAIRIE LITHIUM PROJECT

## EXPANDABLE PRODUCTION BY PADS

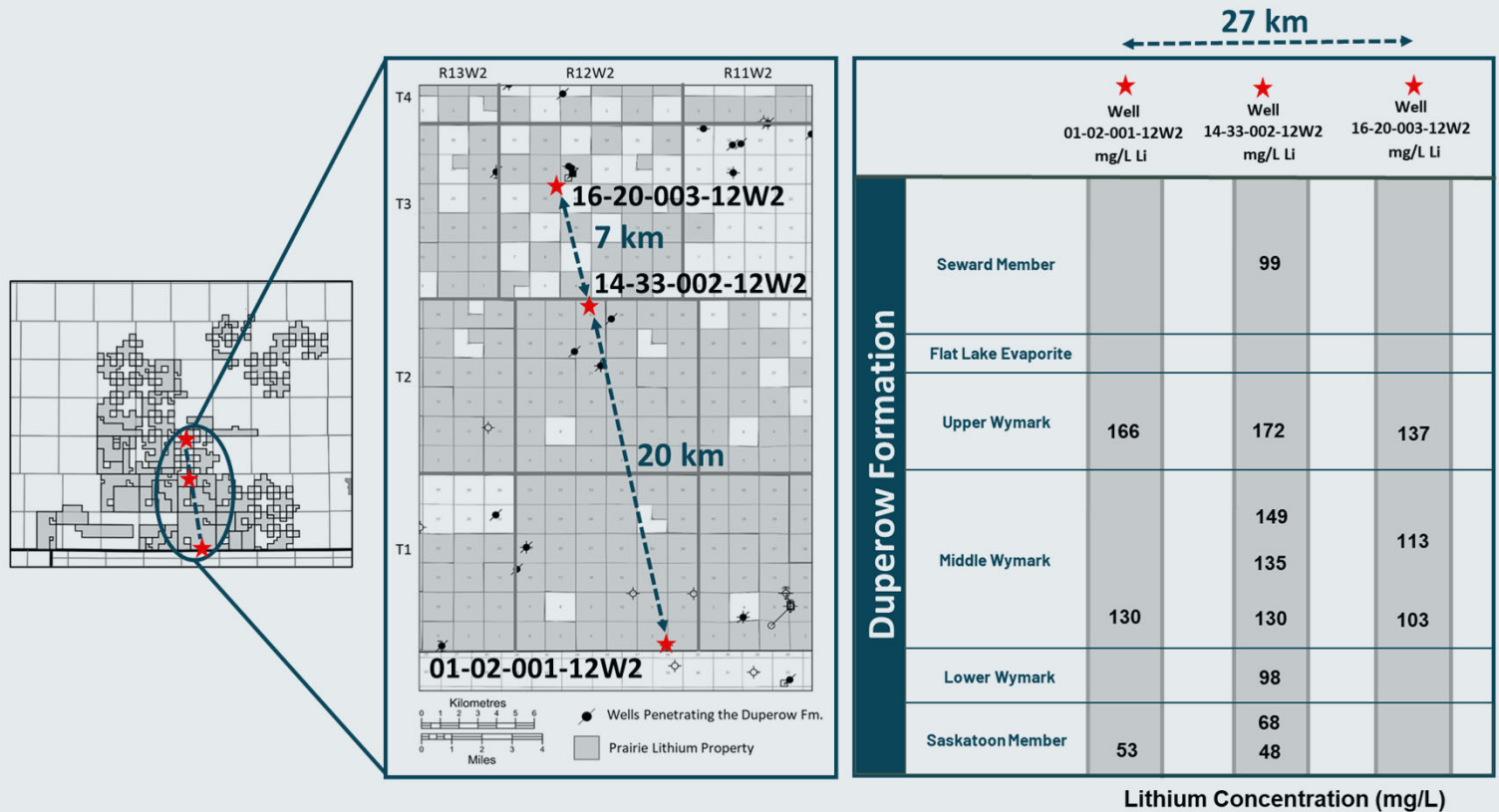
- Resource is developed on a Pad-by-Pad basis
- Each Pad being designed to produce ~2,000 TPA LCE<sup>(1)</sup>
- The Pad's function independent of one another
- The first 3 Pad locations have been built
- Additional Pads are being planned



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

# Contiguous Resource

- Devonian, Duperow Formation
  - ~2,400m depth
  - ~140m thick
- Five wells tested
- Consistent grade over 27km N-S
- **345,000+ acres** of sub surface mineral rights



Source: (1) Announcement of Prairie Lithium Acquisition by AZL (21/12/22). (2) 6.3 Million Tonne Lithium Resource At Prairie – ASX Announcement by AZL (13/12/23)

# PRAIRIE LITHIUM PROJECT

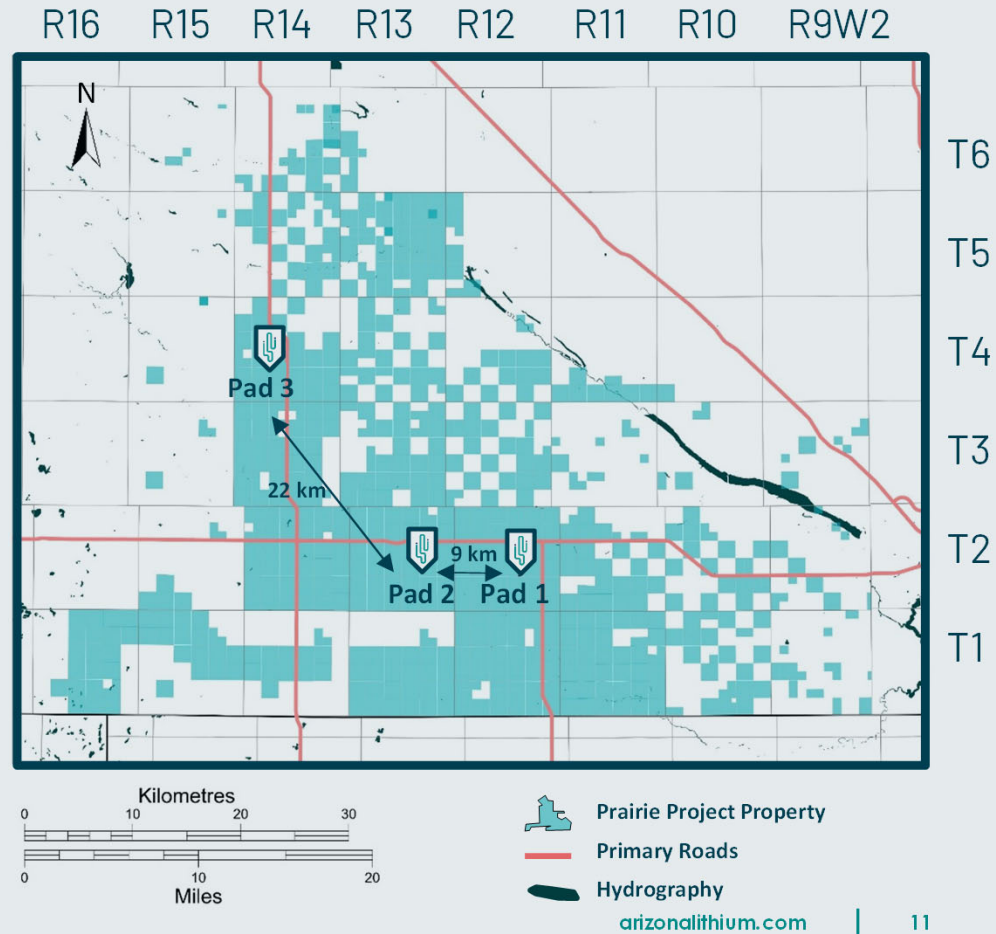
SIMPLE INFRASTRUCTURE, LOW ENVIRONMENTAL FOOTPRINT



Pad #1



- 3 Pad locations have been drilled
- Additional Pads are being planned
- Commercial scale DLE planned for Pad #1 in 2025

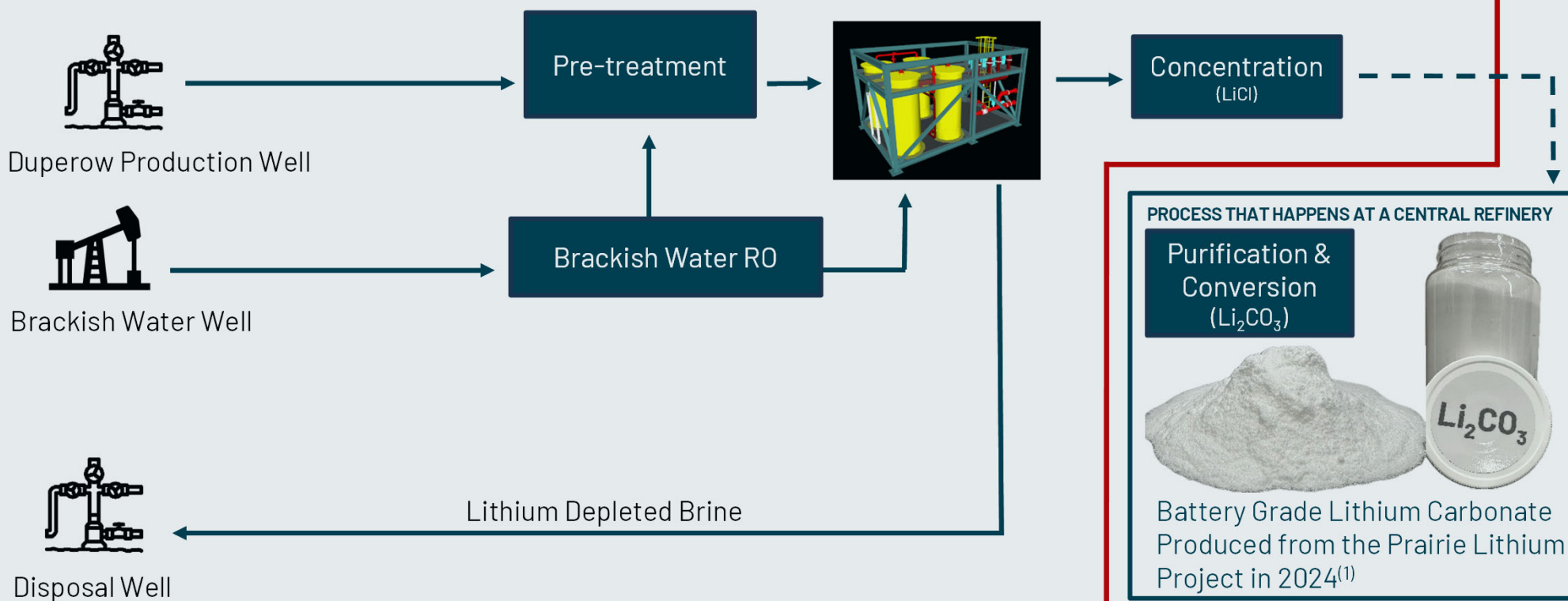


# PRAIRIE LITHIUM PROJECT

INNOVATIVE & LOW-COST FLOWSHEET



## PROCESS THAT HAPPENS AT EACH PAD



(1) ASX Announcement – “Battery Grade Lithium Carbonate Produced From Prairie” – 6 August 2024

# WHAT IS DIRECT LITHIUM EXTRACTION “DLE”

- Selectively remove lithium from impurities in solution
- Four Main types
  - Ion Exchange
    - Acid / Base
  - Absorption
    - Strip with RO
  - Solvent Extraction
  - Membranes
- Every resource is unique, and therefore the DLE process and flowsheet for that resource will be unique



Source: <https://www.arizonalithium.com/research-tech/lrc/>

# WHAT IS DIRECT LITHIUM EXTRACTION “DLE”

The objective of DLE is to create a purified LiCl or  $\text{Li}_2\text{SO}_4$  eluate

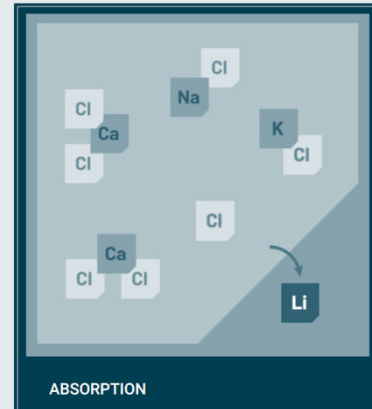
## Brine:

- 104 mg/L Li
- >99% of cations & anions are NOT Li

## DLE Eluate:

- 200-2,000+ mg/L Li
- >50% of cations & anions are Li

The eluate can then be converted into a battery grade lithium carbonate or lithium hydroxide

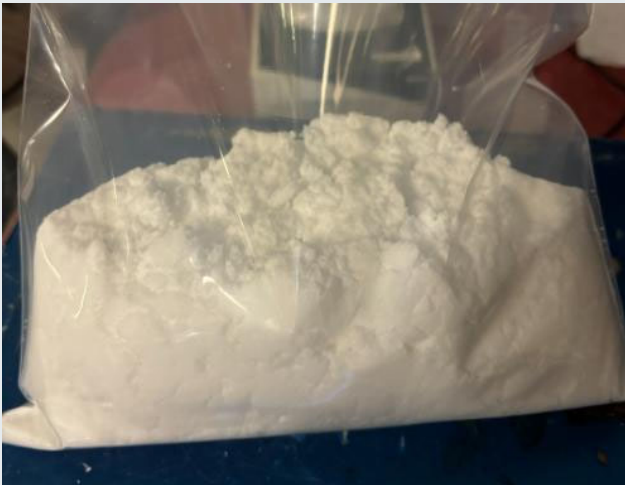


Source: <https://www.arizonalithium.com/research-tech/lrc/>



# WHAT IS DIRECT LITHIUM EXTRACTION “DLE”

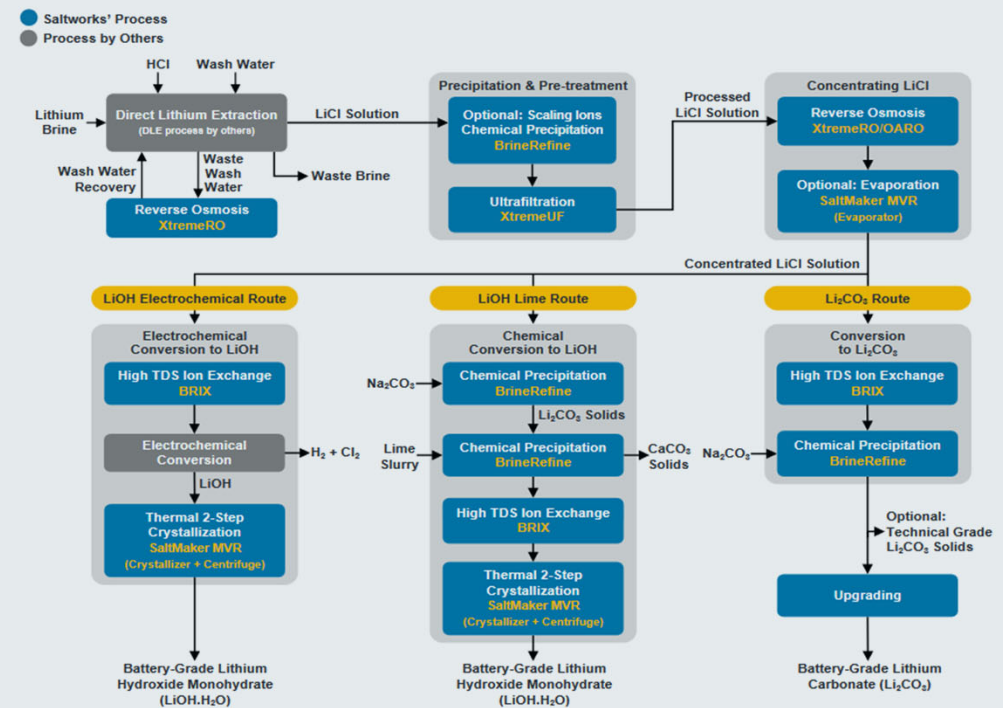
Converting a DLE eluate into a battery grade lithium carbonate / hydroxide



## Step 1: Direct Lithium Extraction (DLE)\* by Others

\*or other lithium brine-producing process

## Step 2: Concentrate, Refine, Convert by Saltworks



Source: <https://www.saltworkstech.com/brochures/lithium-brochure.pdf>

# BENIFITS OF DLE

LESS IS MORE



## BRINE: DIRECT LITHIUM EXTRACTION (DLE)

*Saskatchewan, Canada*

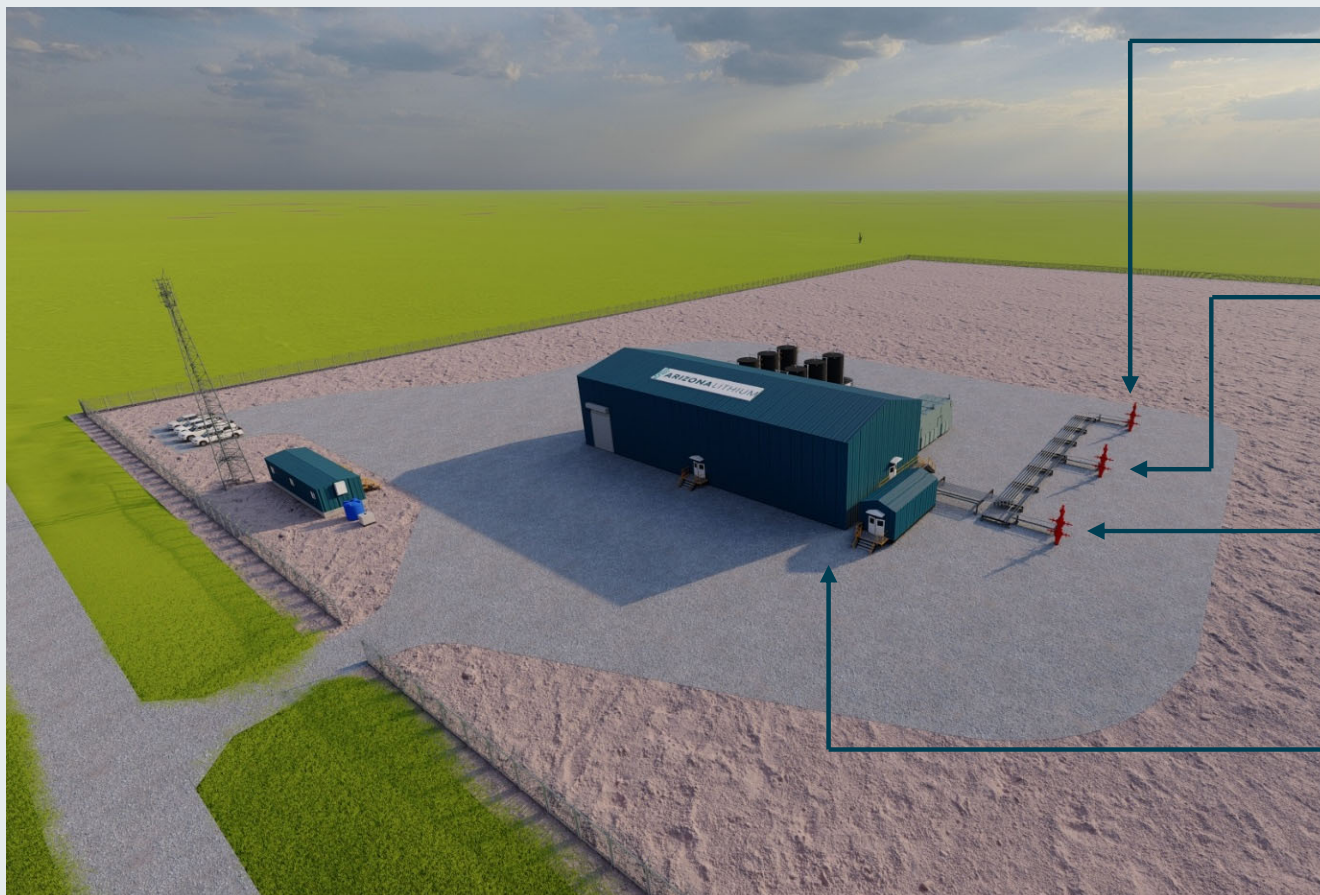
### DIRECT LITHIUM EXTRACTION:

- **AIM TO REDUCE PROCESSING TIME & OPEX**
  - Resources can be pumped and processed in hours instead of months to years.
  - PFS highlights OPEX of USD \$2,819 per tonne<sup>(1)</sup>
- **MODULARIZATION**
  - Producing and disposing into geologically isolated reservoirs allows for production wells and disposal wells to be placed at the surface side by side. Eliminating large long-distance pipelines to move brine reduces the economy of scale and allows for modularized scale-up.
- **AIM TO REDUCE SURFACE FOOTPRINT**
  - A Pad site is 15 acres
- **AIM TO REDUCE FRESHWATER INTENSITY**
  - Brackish water from 1km underground can be desalinated and used for process operations

<sup>(1)</sup> ASX Announcement – "Prairie Lithium PFS Confirms Extremely Low Operating Costs of \$2,819 USD per tonne" – 29 December 2023

# PRAIRIE LITHIUM PROJECT – PHASE 1

SIMPLE INFRASTRUCTURE, LOW ENVIRONMENTAL FOOTPRINT



## PRODUCTION WELL

**Drilled in 2024**

**Purpose:** Supply ~1,000m<sup>3</sup> per day of lithium enriched brine

## DISPOSAL WELL

**Drilled in 2024**

**Purpose:** Dispose of ~1,000m<sup>3</sup> per day of lithium depleted brine

## SOURCE WELL

**Drilled in 2024**

**Purpose:** Provide source water for operations

## FACILITY

**Construction 2025**

**Purpose:** De-risk DLE at a Commercial Scale, where additional DLE units can be replicated to scale up production

# PRAIRIE LITHIUM PROJECT – PHASE 1

PAD #1 – FALL 2024



## PRODUCTION WELL

**Drilled in 2024**

**Purpose:** Supply ~1,000m<sup>3</sup> per day of lithium enriched brine

## DISPOSAL WELL

**Drilled in 2024**

**Purpose:** Dispose of ~1,000m<sup>3</sup> per day of lithium depleted brine

## SOURCE WELL

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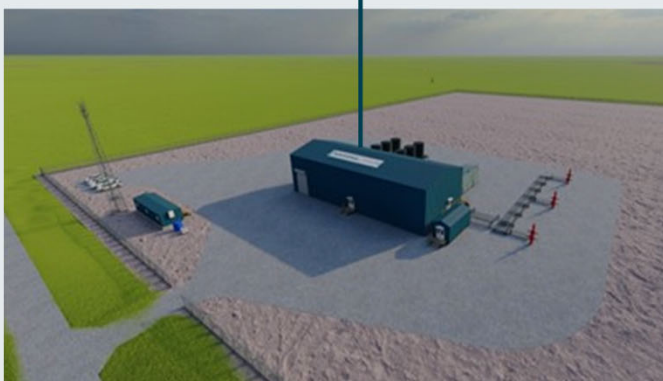
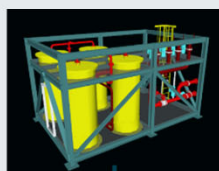
## FACILITY

**Construction 2025**

**Purpose:** De-risk DLE at a Commercial Scale, where additional DLE units can be replicated to scale up production

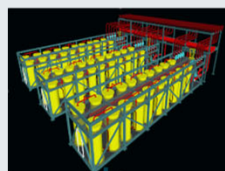
# HOW TO SCALE UP

## MODULAR DECENTRALIZED PRODUCTION



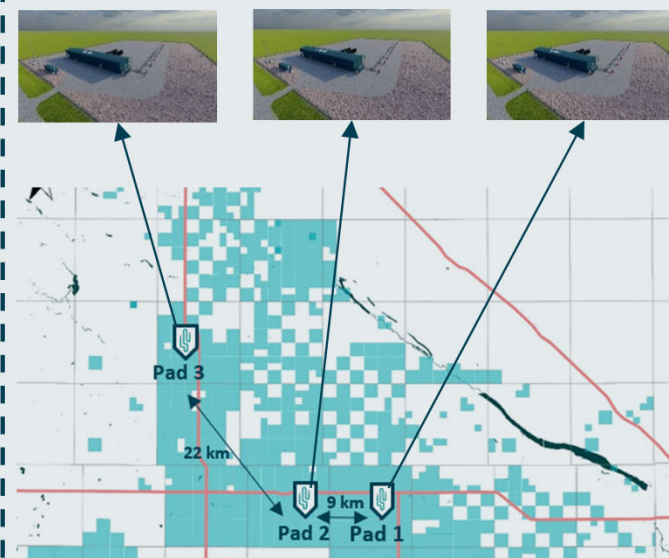
### PHASE 1:

**PAD 1:** Initial Production at 150 TPA LCE to de-risk commercial scale DLE operations



### PHASE 2:

**PAD 1:** Scale up to ~2,000 TPA LCE by drilling additional production and disposal wells, expanding the facility and deploying additional DLE units



### PHASE 3:

**PAD 2 & PAD 3:** Replicate the facility and design from Pad 1 to Pad 2 & Pad 3

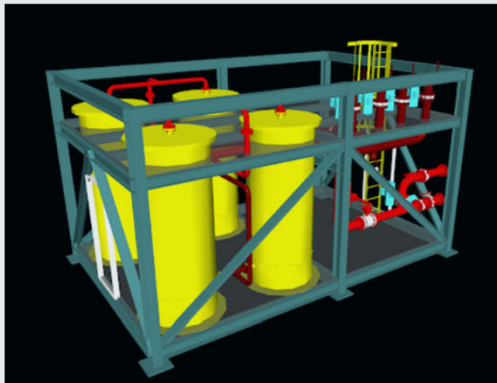
# STRATEGIC PARTNER

KOCH TECHNOLOGY SOLUTIONS

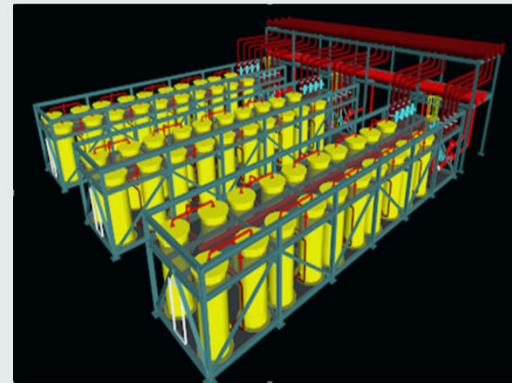
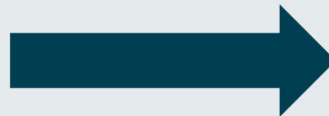


## HIGHLIGHTS

- This represents the largest Direct Lithium Extraction (DLE) process ever deployed by KTS.<sup>(1)</sup>
- Koch Technology Solutions is a subsidiary of Koch, Inc., the second-largest privately held company in the United States, based in Wichita, KS.<sup>(1)</sup>
- Duperow brine from Pad #1 was tested with KTS's Li-Pro technology and highlighted exceptional results with approximately 98% lithium retention and an average 99% rejection of impurities such as Calcium (Ca), Magnesium (Mg), Sodium (Na), and Potassium (K).<sup>(1)</sup>



HOW TO SCALE UP



(1) ASX Announcement – "Koch Commercial Scale DLE To BE Deployed At Prairie" – 11 February 2025

# PRAIRIE PROJECT PFS



## KEY PROJECT PARAMETERS<sup>(1)</sup>

TIMELINE	UNITS	PFS RESULT
Lithium Price	USD \$/tonne	<b>\$21,000</b>
Opex	USD \$/tonne	<b>\$2,819</b>
Total Capex (excluding contingency)	USD \$ millions	<b>\$290</b>
Average LCE Production	tonnes/year	<b>6,000</b>

## ECONOMIC EVALUATION<sup>(1)</sup>

PARAMETERS	UNITS	PFS RESULT
NPV <sub>8</sub> Pre-Tax	USD \$ millions	<b>\$448</b>
NPV <sub>8</sub> Post-Tax	USD \$ millions	<b>\$312</b>
IRR Pre-Tax	%	<b>23.9</b>
IRR Post-Tax	%	<b>20.4</b>
Payback Period	Years	<b>2.2</b>

Source: (1) ASX Announcement of Prairie Lithium PFS (28/12/23). Information in this announcement that relates to Net Present Value, IRR and Payback Period calculation and Key Project Parameters has been extracted from the Company's announcement released to ASX on 29 December 2023. The Company confirms that it is not aware of any new information or data that materially affects the information included in the original market announcement and, in the case of the estimate of the Net Present Value, IRR and Payback Period that all material assumptions and technical parameters underpinning the estimates in the relevant market announcement continue to apply and have not materially changed.

# PRAIRIE PROJECT PFS



## PFS Highlights:

- Global Lithium LLC estimates that large contract pricing could trade in a range from USD \$20's/kg to \$40/kg<sup>(1)</sup> (USD \$20,000 – \$40,000 / tonne LCE) through to 2030 based on limited supply.
- 6,000 TPA LCE from three Pads (total modelled production from wells for 20 years <3% of Indicated Resource)<sup>(1)</sup>
- Capex US\$290 million (plus contingency) → ~US\$70 million per pad<sup>(1)</sup>
- Opex US\$2,819 / tonne<sup>(1)</sup> → **one of the lowest projected cost projects globally**

Source: (1) ASX Announcement of Prairie Lithium PFS (28/12/23). Information in this announcement that relates to Net Present Value, IRR and Payback Period calculation and Key Project Parameters has been extracted from the Company's announcement released to ASX on 29 December 2023. The Company confirms that it is not aware of any new information or data that materially affects the information included in the original market announcement and, in the case of the estimate of the Net Present Value, IRR and Payback Period that all material assumptions and technical parameters underpinning the estimates in the relevant market announcement continue to apply and have not materially changed.

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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'. Mr Smith is a consultant of the Company. 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 within the 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 practising as a professional in hydrogeology since 2000 and has 24 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. He has sufficient experience relevant to qualify as a Competent Person as defined by the 'Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves – The JORC Code (2012).

Dean Quirk, P.Eng, President of Grey Owl Engineering Ltd., reviewed and approves the technical information within the release. He is a registered Professional Engineer in Saskatchewan, Canada, and has worked in the engineering field for 28 years. Mr. Quirk is a Qualified Person as defined by 17 CFR § 229.1302 - (Item 1302) and has been involved in several pilot test programs, engineering design studies, and full scale projects which include the commodity discussed in this release. He has sufficient experience relevant to qualify as a Competent Person as defined by the 'Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves – The JORC Code (2012).

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.



### **For further information:**

Paul Lloyd, Managing Director  
+61 419 945 395  
[paul@arizonalithium.com](mailto:paul@arizonalithium.com)

ASX:AZL, OTCQB: AZLAF  
W: [ArizonaLithium.com](http://ArizonaLithium.com)  
E: [info@arizonalithium.com](mailto:info@arizonalithium.com)

## Appendix

# 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)