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# ioneer

## Investor Presentation

Ord Minnett East Coast Mining Conference, 22 March 2023

*Providing Material in the USA for a Sustainable Planet*

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## Competent Persons Statement

In respect of Mineral Resources and Ore Reserves referred to in this presentation and previously reported by the Company in accordance with JORC Code 2012, the Company confirms that it is not aware of any new information or data that materially affects the information included in the public report titled "Rhyolite Ridge Ore Reserve Increased 280% to 60 million tonnes" dated 30 April 2020 and released on ASX. Further information regarding the Mineral Resource estimate can be found in that report. All material assumptions and technical parameters underpinning the estimates in the report continue to apply and have not materially changed.

In respect of production targets referred to in this presentation, the Company confirms that it is not aware of any new information or data that materially affects the information included in the public report titled "ioneer Delivers Definitive Feasibility that Confirms Rhyolite Ridge as a World-Class Lithium and Boron Project" dated 30 April 2020. Further information regarding the production estimates can be found in that report. All material assumptions and technical parameters underpinning the estimates in the report continue to apply and have not materially changed.

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## Lithium Carbonate Equivalent

The formula used for the Lithium Carbonate Equivalent (LCE) values quoted in this presentation is:  $LCE = (\text{lithium carbonate tonnes produced} + \text{lithium hydroxide tonnes produced} * 0.880)$

## Note

All \$'s in this presentation are US\$'s except where otherwise noted.

# Positioned to be the cornerstone of lithium production in the USA



**PERMITTING:** Two of three key permits awarded



**PERMITTING:** Final stage of federal permitting process (NEPA) started in December 2022. Public scoping in progress, draft EIS expected August 2023 and final Record of Decision (ROD) expected in Q1 2024



**BINDING OFFTAKE AGREEMENTS:** Completed for boron and lithium



**FUNDING:** Equity capital funded through Sibanye-Stillwater JV - US\$490 million conditional investment



**DEBT:** U.S. Dept of Energy Loan Programs Office Conditional Commitment offer for a loan of up to US\$700m



**ENGINEERING:** Completed DFS, full simulation Pilot Plant, awarded key contracts. Ontrack to be construction ready inline with full permitting



**UPSIDE:** World Class Asset with multiple organic growth opportunities

# Corporate Snapshot

## Capital Structure (As at March 2023)

SHARES OUTSTANDING	2.10B
PERFORMANCE RIGHTS AND OPTIONS OUTSTANDING	34.0M
CASH BALANCE (US) – 1 Jan 2023	A\$100.3m (US\$69.4M)
SHARE PRICE ASX	A\$0.360
ADR PRICE NASDAQ (1 ADR = 40 ASX shares)	US\$10.10
MARKET CAPITALISATION (US)	A\$757m (US\$530.2m)

## ASX Share Price



## Shareholders (March 2022)

Insider Ownership <b>5.6%</b>	Top 50 Ownership <b>~63.2%</b>	Substantial Holders Centaurus 12.1% Sibanye-Stillwater 7.0%	Institutional holders <b>24.3%</b> (Excl. Centaurus & SSW)
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## Research Coverage

Source: Source: Company Data, FactSet, Nasdaq, Ipreo and CapIQ

# Proven, Experienced Team

## Board of Directors



**JAMES D. CALAWAY**  
Executive Chairman  
**FORMER:**  
Non-exec chairman of  
Orocobre Ltd  
US



**ALAN DAVIES**  
Non-executive Director  
**FORMER:**  
Chief Executive, Energy &  
Minerals of Rio Tinto  
AU



**BERNARD ROWE**  
Managing Director  
**IONEER:**  
Managing Director, CEO,  
Founder  
AU



**ROSE MCKINNEY-JAMES**  
Non-executive Director  
**FORMER:**  
President and CEO of  
Corporation for Solar Tech  
& Renewable Resources  
US



**MARGARET WALKER**  
Non-executive Director  
**FORMER:**  
VP Engineering and  
Technology Centers, Dow  
Chemical  
US



**STEPHEN GARDINER**  
Non-executive Director  
**FORMER:**  
CFO Oil Search  
AU

## Management Team



**JAMES D. CALAWAY**  
Executive Chairman  
US



**BERNARD ROWE**  
Managing Director  
AU



**IAN BUCKNELL**  
CFO & Company  
Secretary  
AU



**MATT WEAVER**  
Snr VP Engineering  
& Operations  
US



**KEN COON**  
VP Human  
Resources  
US

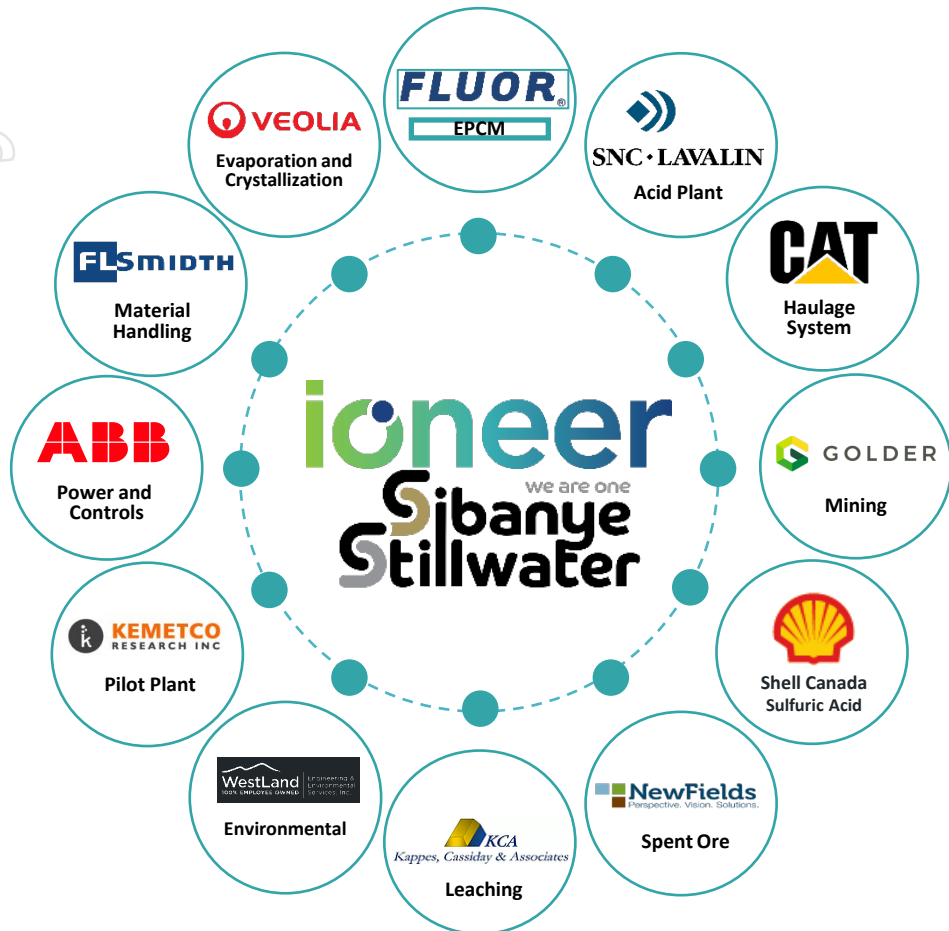


**YOSHIO NAGAI**  
VP Commercial Sales  
& Marketing  
JPKR



**CHAD YEFTICH**  
VP Corporate  
Development &  
External Affairs  
US

# Best in Class Partners



We have invested >US\$120m to date appraising & developing the Project

We have sought best in class advisors

Fluor led the DFS work and is EPCM on the Project

Binding Lithium Offtake Agreements with Ford, Toyota / Panasonic (PPES) and EcoPro

Sibanye-Stillwater to be a 50% JV partner in Rhyolite Ridge for US\$490m<sup>1</sup>

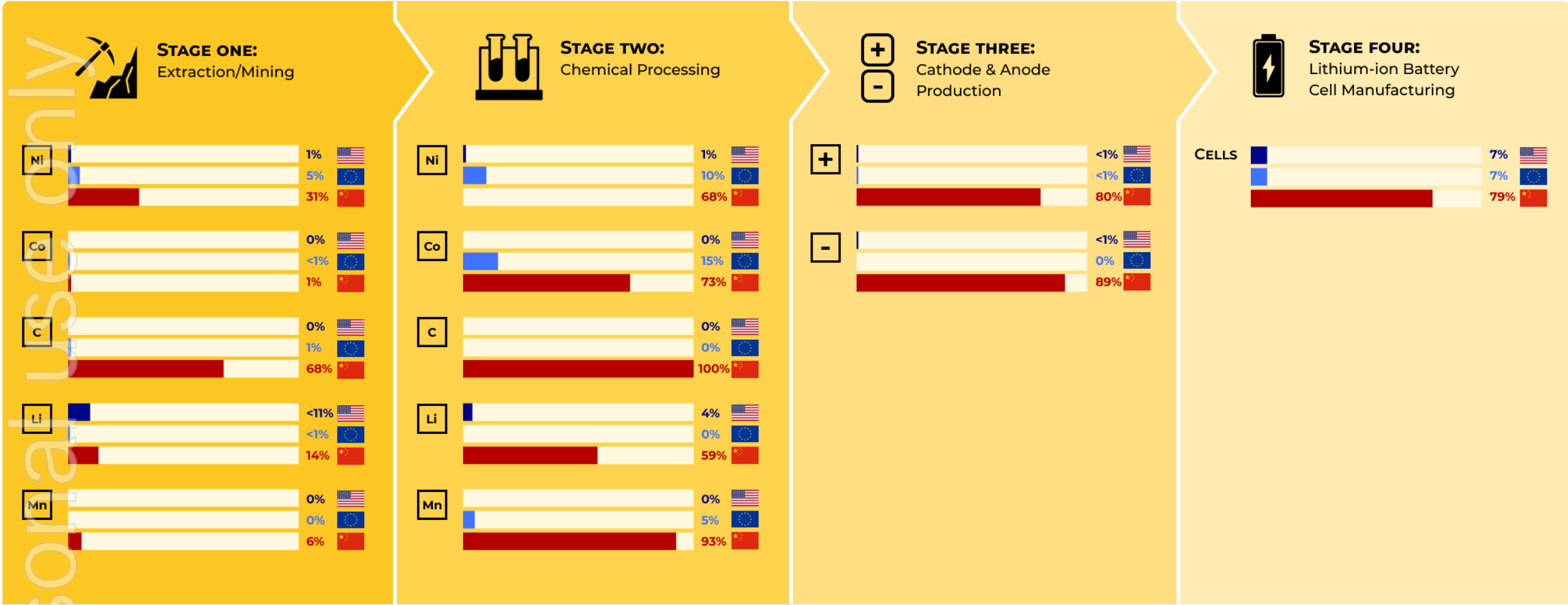
U.S. Dept of Energy Loan Programs Office Conditional Commitment offer for a loan of up to US\$700m

<sup>1</sup>Subject to closing conditions as outlined in the 16 September 2021 announcement "Sibanye-Stillwater to Invest US\$490 Million to Advance Rhyolite Ridge to Production"



# The Four Stages of Lithium-ion Battery Production

## Rhyolite Ridge



Source: Benchmark Mineral Intelligence

# Supportive Political Narrative

“Biden signs Inflation Reduction Act into law”  
(CNN Politics 16/08/2022)

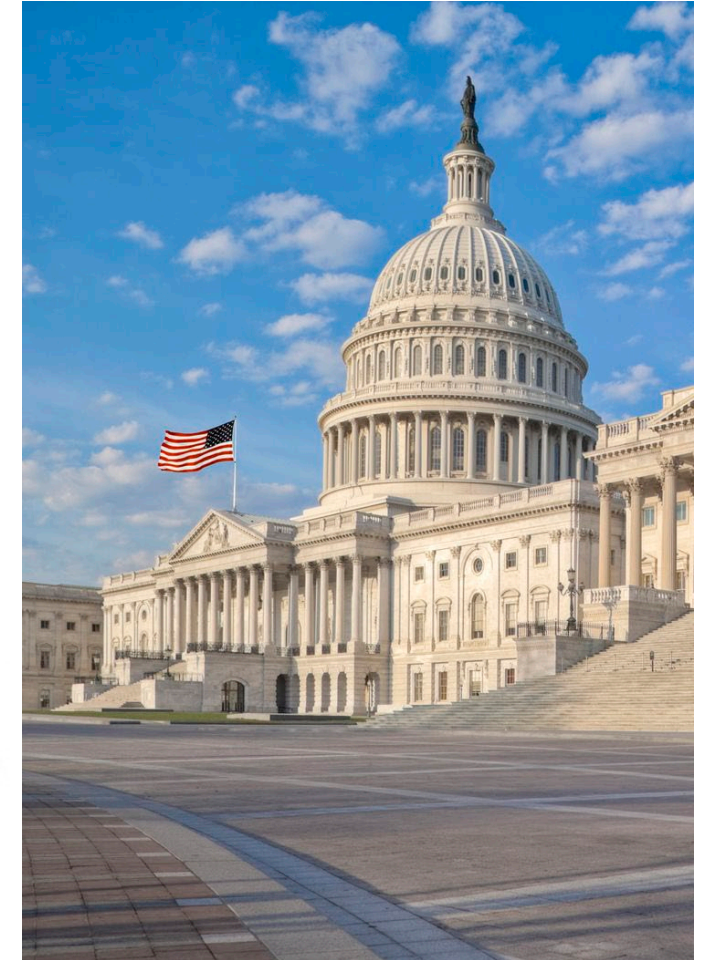
<https://www.cnn.com/2022/08/16/politics>

“The Future of Vehicles is Electric”: President Biden Touts EVs in remarks on Infrastructure  
(Forbes breaking News 22/10/2022)

<https://www.youtube.co/watch?v=Rdz2K1HHUc>

“... another example of what has come from the Bipartisan Infrastructure Law and the Inflation Reduction Act is that the Loan Programs Office inside the Department of Energy gave a \$700 million commitment to a company that will be doing sustainable extraction of lithium...” (Jennifer Granholm, U.S. Secretary of Energy 13/1/2023)

<https://twitter.com/SecGranholm/status/1614724219702546433>



**Growing political will in the U.S. to support the domestic battery materials supply chain**





# Boron – A Climate Transition Super Material<sup>1</sup>

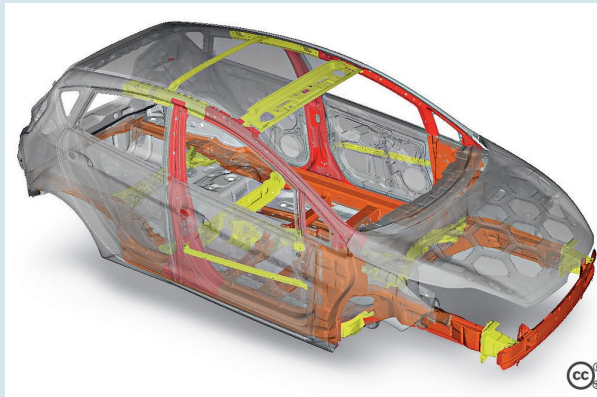
## The 5<sup>th</sup> Element of Decarbonisation<sup>1</sup>

- **Boron has exposure to several key climate technologies**

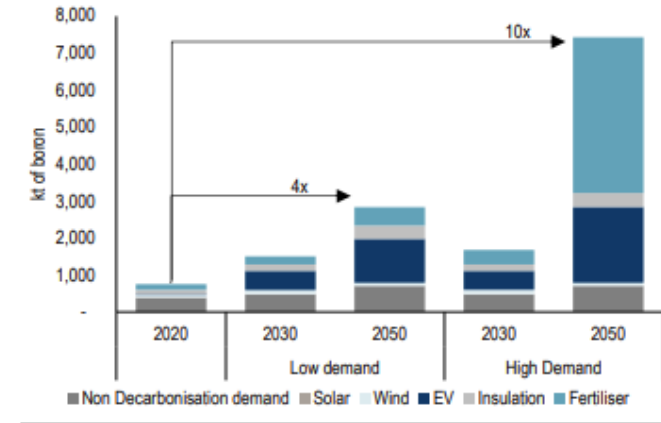
- HEV and EVs
- Insulation Materials that reduce energy use
- Agriculture as a micronutrient supporting sustainable farming
- Wind Turbine drive trains and blades
- Glass in Solar PV modules
- Nuclear Reactors
- Hydrogen fuel cells

- **Uses of boron in EVs:**

- Permanent magnet motors
- Chassis for light weight strength
- Brakes
- Glass
- Batteries
- Airbags

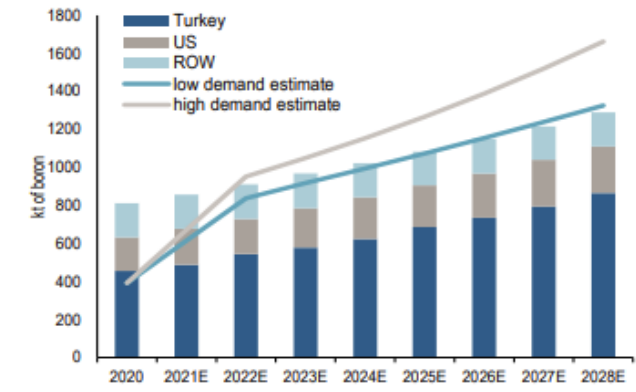


### Estimated Growth in Annual Boron Demand



Source: Credit Suisse estimates

### Estimated Demand Vs Supply



Source: ABR, Roskill, Rio Tinto, Eti Maden, Credit Suisse estimates

<sup>1</sup>Source: Credit Suisse ESG Report – Climate Transition Super Materials, December 2021

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## Rhyolite Ridge Project





# Rhyolite Ridge Lithium-Boron Project – A Rare Sedimentary Deposit

**INR**

## Fact Sheet<sup>1</sup>

Location	Nevada, USA
Project Stage	Bankable Feasibility Study (April, 2020)
Products	Lithium Carbonate, Boric Acid
Reserves <sup>2</sup>	60Mt
Production	Li 22,000 tpa B 174,400 tpa
Binding Offtakes	80% of Li production
All in sustaining cash cost	US\$2,510/t of LCE
EBITDA	US\$288M (LOM)
After-tax NPV <sub>8</sub>	US\$1.265B
After-tax IRR	20.8%
Price assumptions	Li Carb – US\$11,740/t Boric Acid – US\$710/t

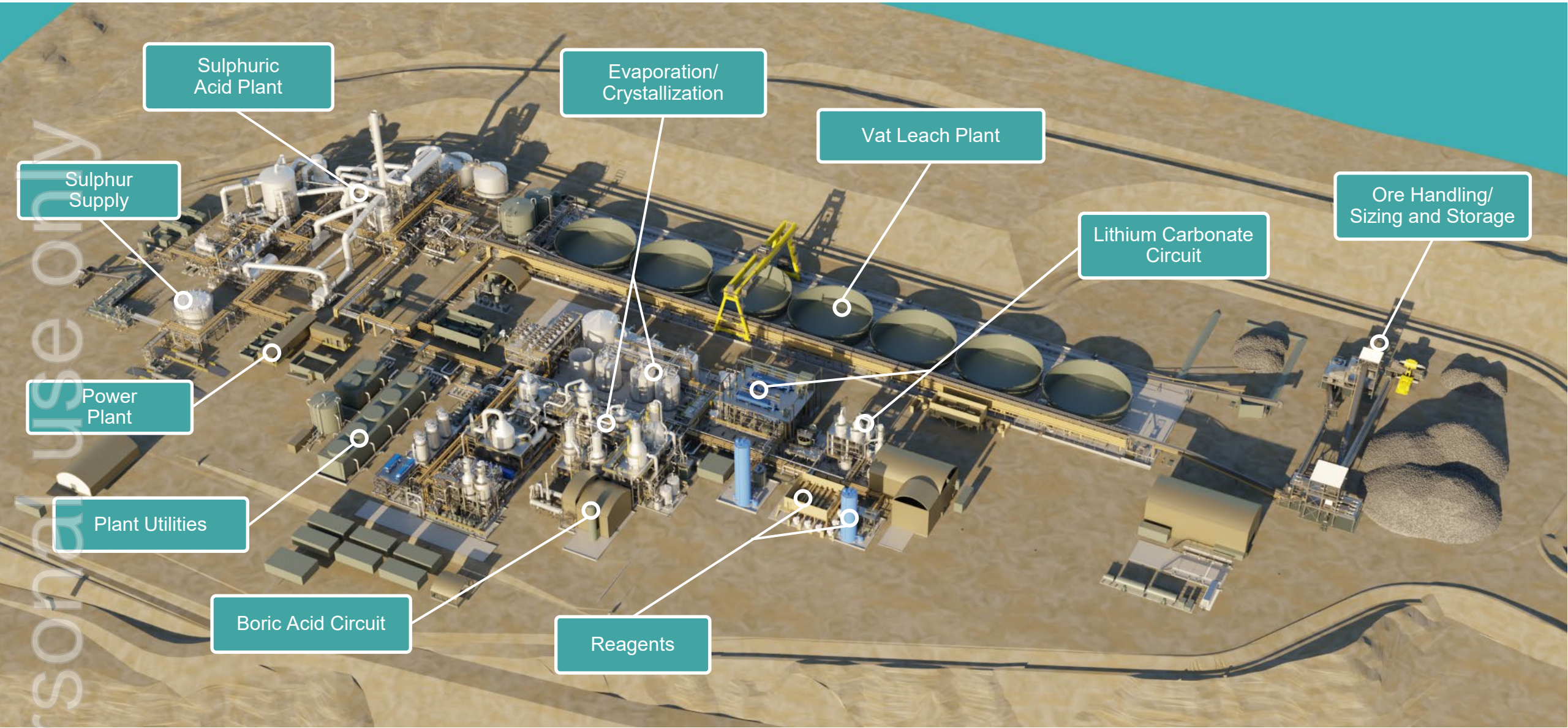


1. See Company announcement titled "Ioneer delivers DFS that confirms Rhyolite Ridge as a world-class lithium-boron Project" dated 30 April 2020  
2. See Company announcement titled "Rhyolite Ridge Ore Reserve Increased 280% to 60 million tonnes" dated 30 April 2020.

**Economics based on 2020 DFS and 26 YR (64Mt) Mine Plan**



# Rhyolite Ridge Process Plant



Sulphuric Acid Plant

Evaporation/  
Crystallization

Vat Leach Plant

Ore Handling/  
Sizing and Storage

Lithium Carbonate  
Circuit

Sulphur  
Supply

Power  
Plant

Plant Utilities

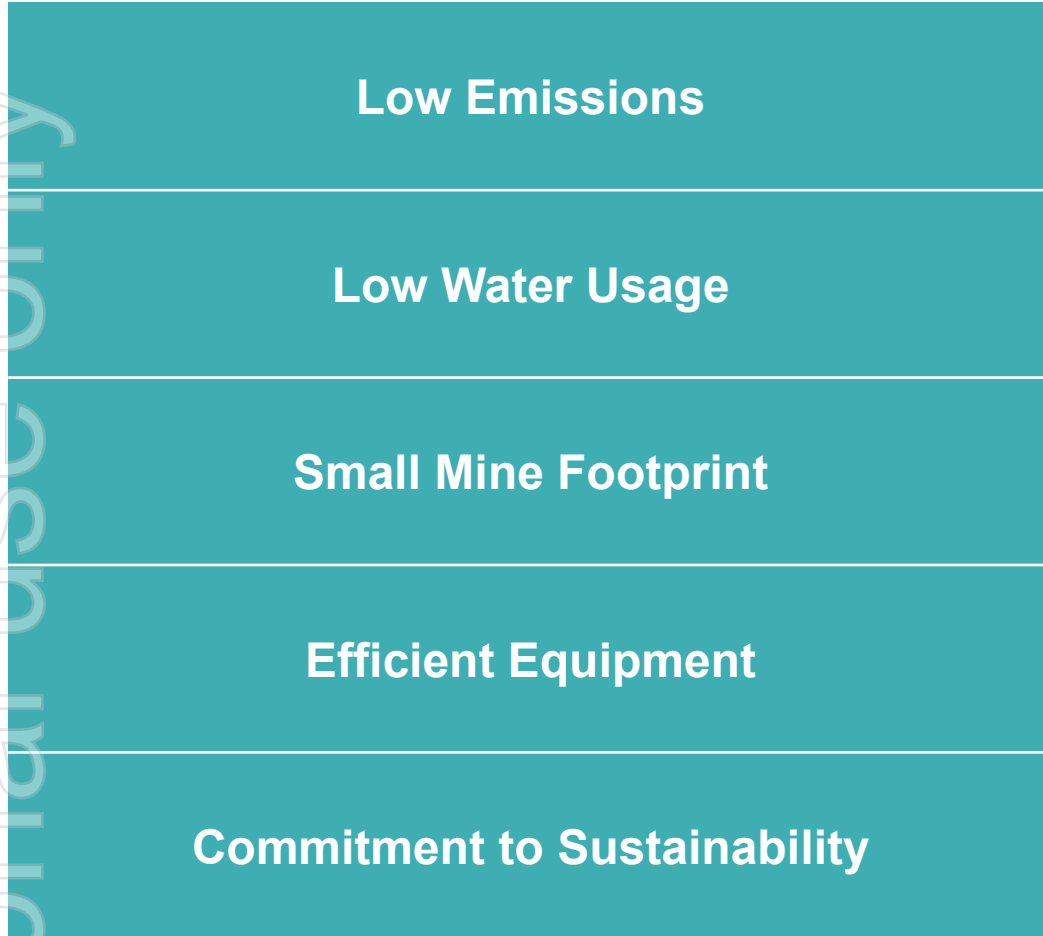
Boric Acid Circuit

Reagents



# Commitment to Sustainability

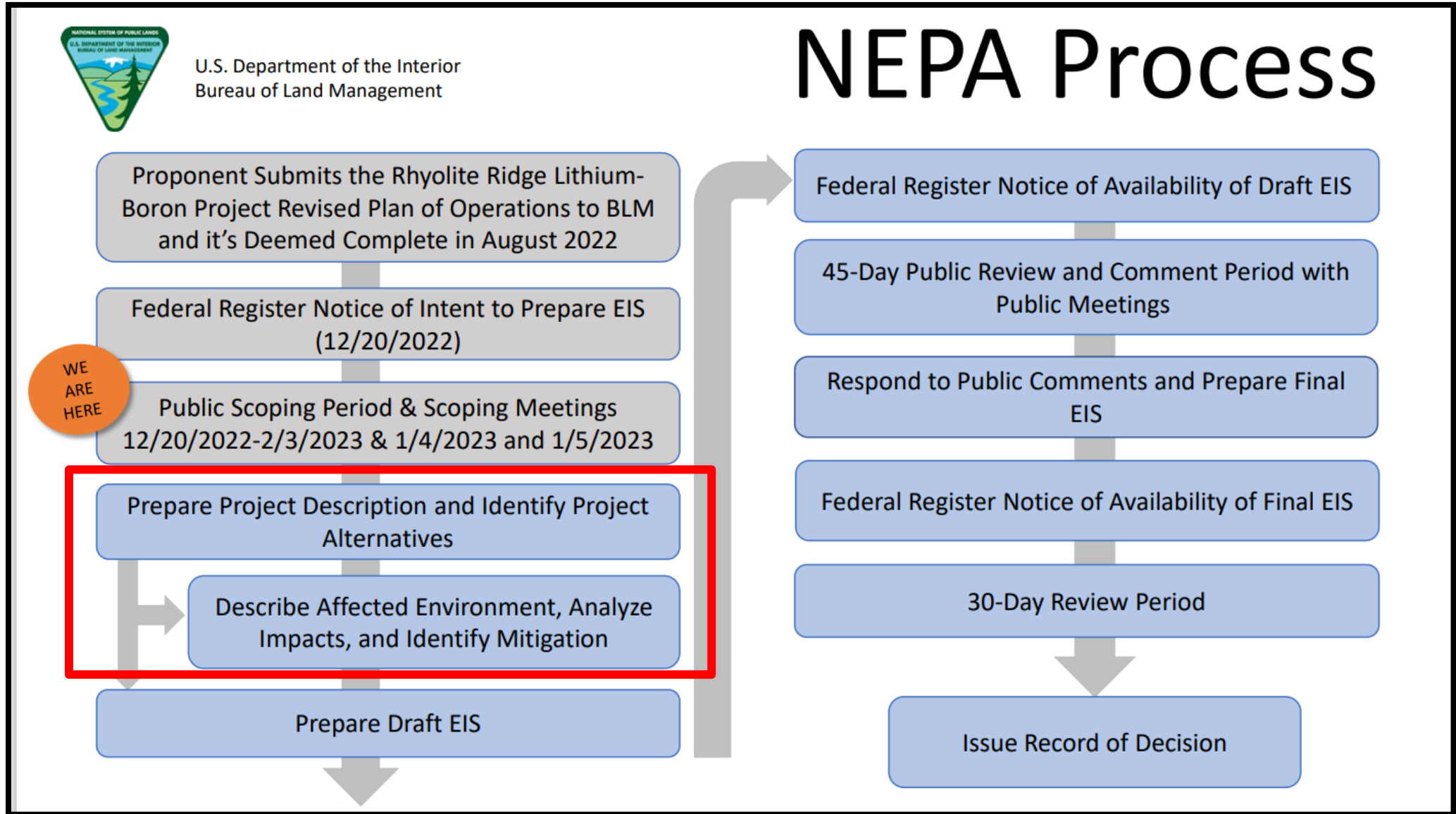
Position close to end markets creates an ESG benefit due to shorter supply chains



- Majority of on-site power will be met with CO<sup>2</sup>-free energy production, low greenhouse gas emissions.
- Mobile equipment meets Tier 4 EPA standards
- Project design implements best-in-class water utilization while recycling the majority of water usage.
- Expected to use 30x less water per tonne than existing U.S. production
- No evaporation ponds or tailings dam
- Generating all power on-site.
- Automation of mine haulage equipment
- All baseline studies for EIS completed over 2 years.
- Ongoing commitment to the environment and the protection and conservation of Tiehm's buckwheat
- Implementation of TSM<sup>1</sup> ESG program

<sup>1</sup>Towards Sustainable Mining

This is what sets Rhyolite Ridge apart from other sources of lithium



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# Key Milestones

Milestone	Estimated Timing <sup>1</sup>
US Listing on Nasdaq	Completed ✓
Binding Lithium offtake agreements	Completed ✓
Resubmission of the Mine Plan of Operations	Completed ✓
NOI Publication	Completed ✓
Conclude DOE Loan Application Process (Due Diligence Stage and Term Sheet Negotiation)	Completed ✓
Resource Update – South Basin	March Qtr 2023
Anticipated ROD <sup>2</sup>	1Q 2024
Construction Period	24 months
First Production	2026



<sup>1</sup> Note: all dates are estimates only and are subject to change.

<sup>2</sup> The Record of Decision (ROD) for the key federal permit is assumed to occur 12 months after the registering of the Mine Plan of Operations in the federal register



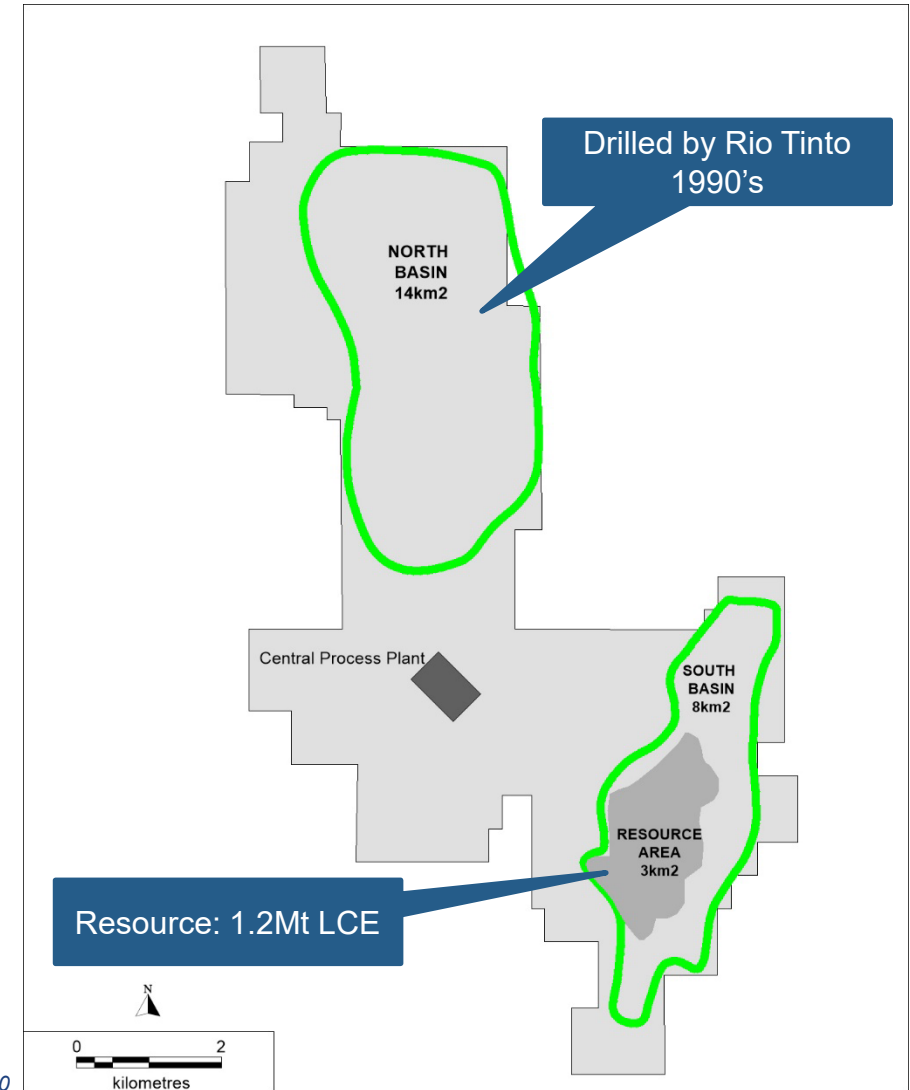


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## Growth Opportunities

# Rhyolite Ridge Lithium-Boron Project

- 100% interest in two sedimentary basins known to host lithium-boron mineralisation, both located within the Silver Peak Range
- The two basins are approx. 5km apart with a total prospective area covering approx. 22km<sup>2</sup>
- Only 3km<sup>2</sup> have been drilled to date – South Basin only
- Current Mineral Resource<sup>1</sup> of **146.5Mt** containing **1.2Mt of lithium carbonate** and **11.9Mt of boric acid** - exclusively high boron layers
- Our focus over past five years has been on delivering stage one of the project:
  - **22ktpa lithium carbonate** and **174ktpa boric acid**
  - **26 years** initial mine life
  - Based on our **2020 DFS** and **60Mt Reserve**
- Rhyolite Ridge has potential to produce substantially more over time and we are now expanding focus to evaluate future growth options

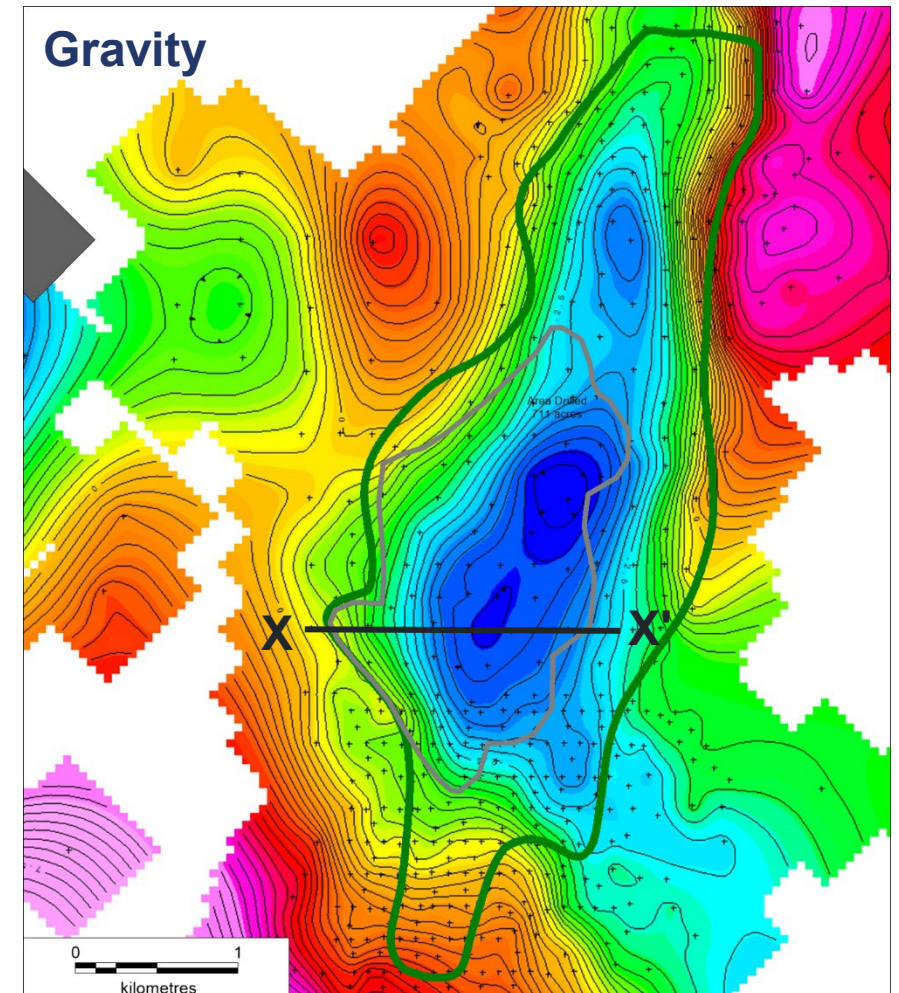
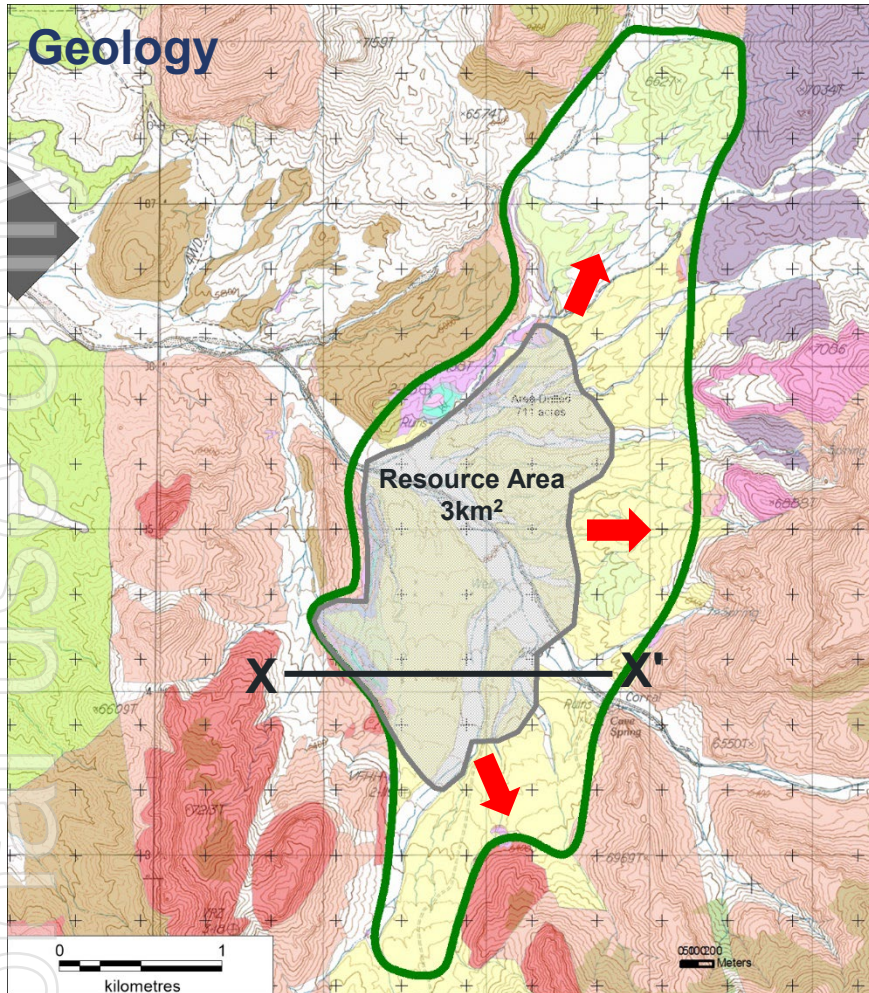


1. See Company announcement titled "Ioneer delivers DFS that confirms Rhyolite Ridge as a world-class lithium-boron Project" dated 30 April 2020

**A unique world class deposit with multi-generational scale potential**



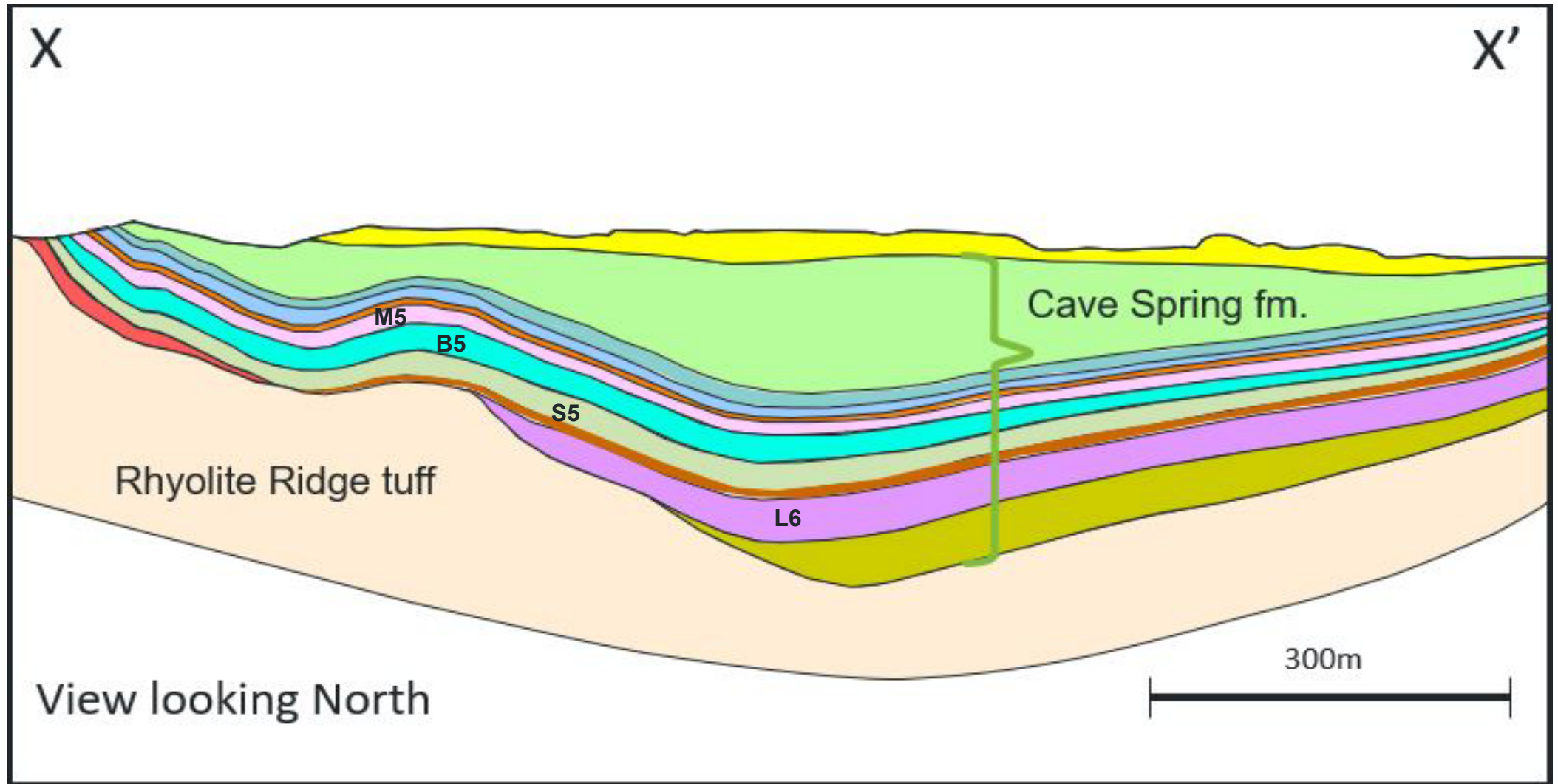
# South Basin – Significant growth opportunity



Current 26-year mine plan based on 41% of Resource, significant growth potential

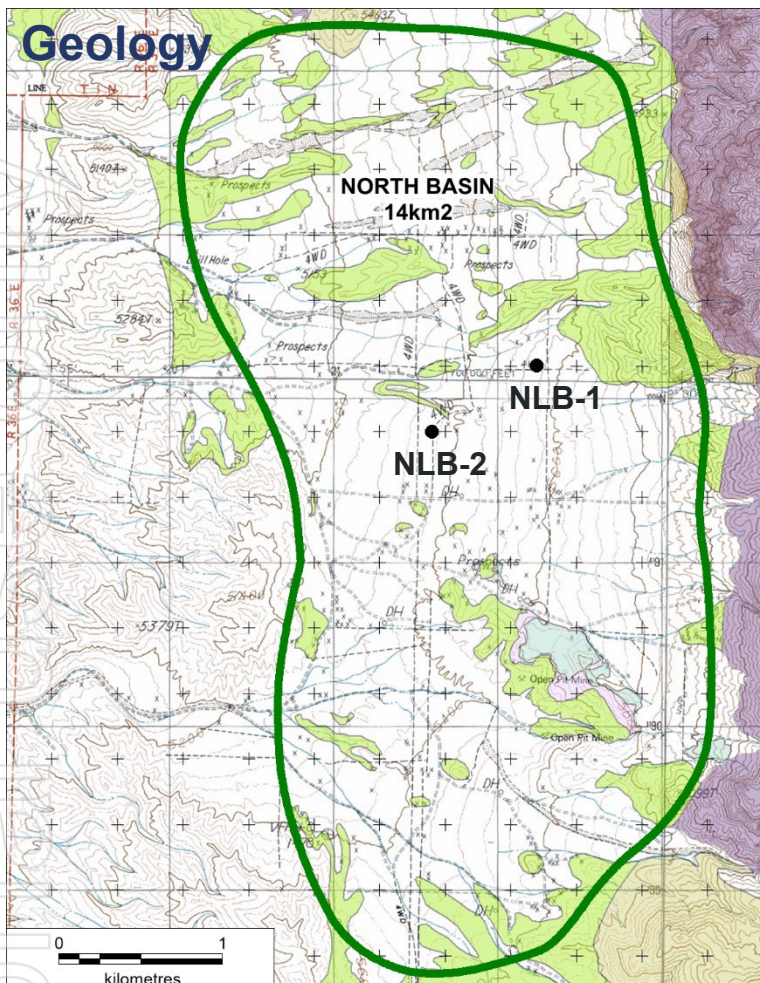


# Current Resource is exclusively high boron layers (B5 and L6)



All four mineralised layers provide upside and optionality

# North Basin – Another big growth opportunity



Prospective area of 14 sq km

Over 4x larger than footprint of South Basin Resource

US Borax (Rio) - >50 holes 1980-90s

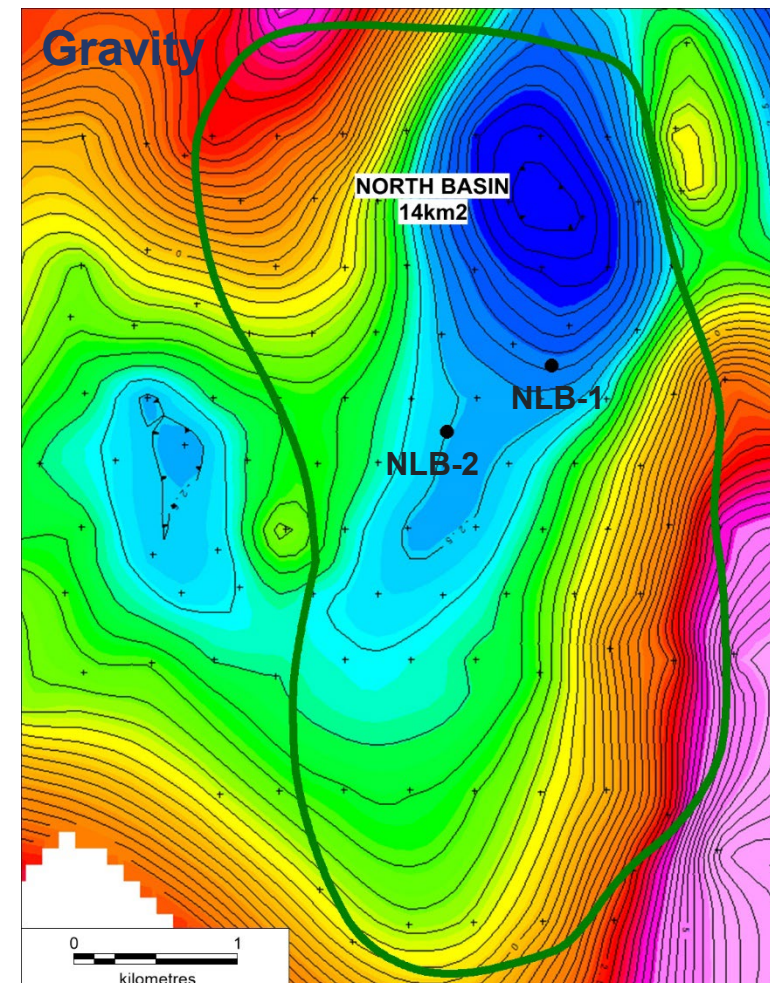
2 holes drilled by INR in 2016<sup>1</sup>

NLB-1 - 191m @ 1158ppm Li & 0.2% B from 23m

NLB-2 - 111m @ 1212ppm Li & 0.2% B from 3m

Gravity defines basin framework

Leach tests in progress



1. See Company announcement titled "Quarterly Activities Report, March Quarter, 2017" dated 28 April 2017

**Lithium and boron mineralisation similar to South Basin, thick and shallow**



# North Basin v's South Basin

	South	South Update	North
Total prospective area	8 km <sup>2</sup>		14 km <sup>2</sup>
Drilling	112 holes (24,385m)		2 holes – INR (394m)
Typical Lithium range	1,500 - 2,400ppm		1,100 – 1,500ppm
Typical Boron range	High: 0.5 – 2% Low: 0.1 – 0.2%		High: 0.1 – 0.5% Low: 0.01 – 0.05%
Acid Leachable	Yes		Yes
JORC Ore Reserve <sup>1</sup>	60Mt 0.6Mt LCE	??	???
JORC Mineral Resource <sup>1</sup>	146.5Mt 1.2Mt LCE	??	???
Net Present Value <sup>1</sup> (Based on 64Mt)	US\$1.265 billion (April 2020, 8% real)	??	???

1. See Company announcement titled "Ioneer delivers DFS that confirms Rhyolite Ridge as a world-class lithium-boron Project" dated 30 April 2020

## South Basin

Current DFS a 'starter pit' for mine

Multiple mineralised zones not in current Reserve and Resource estimate

Resource update due March quarter 2023

Extension potential - Open in three directions

## North Basin

Drilling to define Resource

Medium grade lithium, lower grade Boron

Mineralisation open in all directions

From surface, low strip ratio

**Both basins offer significant potential for Resource growth and mine life expansion**

# Why ioneer



## THE RIGHT COMMODITIES

Lithium carbonate and boric acid



## THE RIGHT LOCATION

Positioned to serve the U.S. EV battery supply chain



## AN EXPERIENCED TEAM

With a proven track record



## A UNIQUE WORLD CLASS DEPOSIT

With multi-generational scale potential



## THIRD PARTY VALIDATION

US DOE, Sibanye Stillwater, Ford Motor, PPES, EcoPro



## CLEAR PATH TO PRODUCTION

With significant organic growth potential



Plug in to the Future



# Contact Information

[www.ioneer.com](http://www.ioneer.com)  
[ir@ioneer.com](mailto:ir@ioneer.com)



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# History of Ioneer's Ownership of Rhyolite & Development Schedule

## Timing of permitting key driver to development time line

2016	2017	2018	2019	2020	2021	2022	2023	2024
<ul style="list-style-type: none"> <li>Acquired initial interest in Project                             <ul style="list-style-type: none"> <li>Maiden Resource</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Start drilling campaign</li> <li>Procure water rights</li> <li>Double Mineral Resource</li> <li>Discovery of heap leach Li-B extraction</li> <li>Completion of mining study</li> </ul>	<ul style="list-style-type: none"> <li>First production of Boric Acid                             <ul style="list-style-type: none"> <li>Release of PFS</li> </ul> </li> <li>Complete exploration drilling</li> <li>Maiden Reserve</li> </ul>	<ul style="list-style-type: none"> <li>Start Pilot Plant</li> <li>LiCO produced at Pilot Plant</li> <li>BA – Binding offtake</li> </ul>	<ul style="list-style-type: none"> <li>Reserves &amp; Resources upgrade</li> <li>Complete DFS</li> <li>Complete BA Sales &amp; Distribution</li> <li>Final Plan of Operation deemed complete by BLM</li> </ul>	<ul style="list-style-type: none"> <li>Production of battery grade LiOH</li> <li>Air Permit issued</li> <li>First Li offtake signed with EcoPro Innovation</li> <li>Water Control Permit issued</li> <li>JV with Sibanye-Stillwater</li> <li>DOE Loan submission accepted as complete</li> </ul>	<ul style="list-style-type: none"> <li>US Listing on Nasdaq</li> <li>Li offtakes signed with Ford Motor and PPES (Toyota/Panasonic JV)</li> <li>NOI Published</li> </ul>	<ul style="list-style-type: none"> <li>Receipt of conditional loan commitment from US Department of Energy</li> </ul>	<ul style="list-style-type: none"> <li>Anticipated Record of Decision (ROD)</li> <li>Construction ready                             <ul style="list-style-type: none"> <li>FID</li> </ul> </li> </ul>

Note: All future dates and times are indicative and subject to change.



## Conditional Commitment

### Key Terms

Amount	Up to US\$700m
Term	Approx. 10 years
Interest Rate	Applicable U.S. Treasury rates
Rate Type	Fixed from date of advancement
Purpose	Develop Rhyolite Ridge Li-B Project

### Highlights

Proposed loan of up to US\$700 million to develop the Rhyolite Ridge Project through the DOE Loan Programs Office’s (LPO) Advanced Technology Vehicles Manufacturing (ATVM) program

A term of approximately 10 years

Interest rate fixed from the date of each advance for the term of the loan at applicable U.S. Treasury rates.

Reflects continued strong and dedicated support under the Biden Administration to develop a U.S. domestic EV supply chain

Financial close of the loan is conditional on several achievements including a positive Record of Decision and Final Investment Decision

“New Conditional Commitment: **Rhyolite Ridge** is a major step towards bolstering domestic lithium production for clean energy technologies, and LPO is excited to further develop an environmentally responsible U.S. supply chain for critical materials.” -*Jigar Shah, Director of the DOE LPO 13/1/2023*

<https://twitter.com/JigarShahDC/Status/1613901652649738247>

\* See Company announcement titled “U.S Department of Energy Offers Conditional Commitment for a loan of Up to US \$700m for the Rhyolite Ridge Project” dated 16 January 2023

A conditional commitment is offered by DOE prior to issuing a loan and indicates that DOE expects to support the Rhyolite Ridge Project, subject to the satisfaction of certain conditions including fulfilling remaining legal, contractual, and financial requirements.

# Resources & Reserves

	Metric Tonnes (Mt)	Li Grade (ppm)	B Grade (ppm)	Equivalent Grade Li <sub>2</sub> CO <sub>3</sub> (%)	Equivalent Grade H <sub>3</sub> BO <sub>3</sub> (%)	Equivalent contained Tonnes Li <sub>2</sub> CO <sub>3</sub> (kt)	Equivalent contained Tonnes H <sub>3</sub> BO <sub>3</sub> (kt)
<b>Mineral Resources</b>							
Measured Resource	39.0	1,700	14,550	0.9	8.3	360	3,240
Indicated Resource	88.0	1,550	14,150	0.8	8.1	730	7,110
<b>Measured &amp; Indicated Resource</b>	<b>127.0</b>	<b>1,600</b>	<b>14,270</b>	<b>0.8</b>	<b>8.2</b>	<b>1,090</b>	<b>10,350</b>
Inferred Resource	19.5	1,600	13,800	0.9	7.9	170	1,530
<b>Total Mineral Resource</b>	<b>146.5</b>	<b>1,600</b>	<b>14,200</b>	<b>0.9</b>	<b>8.1</b>	<b>1,250</b>	<b>11,890</b>
<b>Ore Reserves</b>							
Proved Reserves	29.0	1,900	16,250	1.0	9.3	290	2,700
Probable Reserve	31.5	1,700	14,650	0.9	8.4	280	2,620
<b>Total Proved and Probable Ore Reserve</b>	<b>60.0</b>	<b>1,800</b>	<b>15,400</b>	<b>1.0</b>	<b>8.8</b>	<b>580</b>	<b>5,310</b>

- Approximately half of the Ore Reserve is classified as Proved
- Ore Reserve provides 94% of tonnes in current 26-year mine plan
- Total Mineral Resource of 146.5 mt containing a total of 1.2 mt of lithium carbonate and 11.9 mt of boric acid

Source: For further information on Resources and Reserves see ASX release titled Rhyolite Ridge Ore Reserve Increased 280% to 60 million tonnes dated 30 April 2020. Note, totals may differ due to rounding. Mineral Resources include Ore Reserves.