



# CLOSING THE LITHIUM CONVERSION GAP





# THE LITHIUM CONVERSION GAP

## MINE SUPPLY

+40 companies Quebec  
>500Mt +1%  $\text{Li}_2\text{O}$  resource  
Canada, Brazil, Africa

No current lithium converters  
Only 100 Ktpa planned  
No lithium refining experience

## DEMAND

+20 battery manufacturers  
1,000GW by 2028  
850,000t LCE per year





UM SUPPLY

AMERICA

CANADA

UNITED STATES

MEXICO

VENEZUELA

COLOMBIA

ECUADOR

PERU

BRAZIL

BOLIVIA

GREENLAND (DENMARK)

NORWAY

SWEDEN

FINLAND

UKRAINE

FRANCE

GERMANY

ITALY

SPAIN

NETHERLANDS

UK

IRELAND

ALGERIA

LIBYA

EGYPT

SAUDI ARABIA

IRAN

OMAN

MAURITANIA

MALI

NIGER

CHAD

SUDAN

YEMEN

NIGERIA

ETHIOPIA

DEMOCRATIC REPUBLIC OF THE CONGO

REPUBLIC OF THE CONGO

ANGOLA

ZAMBIA

NAMIBIA

SOUTH AFRICA

TANZANIA

KENYA

INDIA

CHINA

RUSSIA

KAZAKHSTAN

MONGOLIA

INDIA

CHINA

PROCESSING

CHINA

AUSTRALIA



# DOWNSTREAM | REGULATION

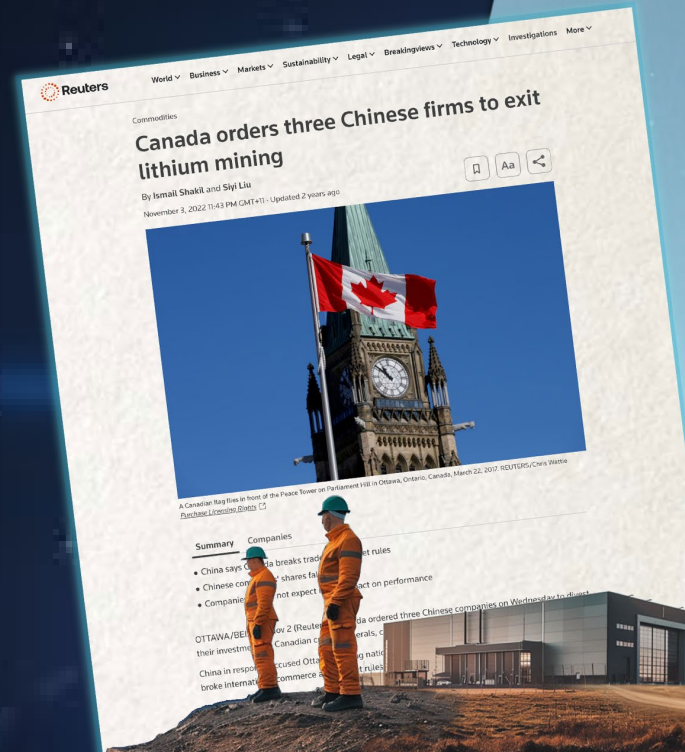
- Cut Chinese battery material reliance
- Chinese firms ordered to exit
- Trade war with US
- Canada on-shoring objective hasn't changed

SOURCE / ECONOMY

## Planned lithium export curbs aim to 'safeguard China's core technology': deputy head of industry body

By Qi Xijia

Published: Jan 08, 2025 12:05 AM







# PROBLEMS FILLING THE GAP

- Many failures, technical difficulties
- Existing Lithium producers
- Relative young industry
- Complex chemical business



**Experienced Operators**



**Proven Technology**





# CHALLENGES WITH LITHIUM CONVERSION PLANTS TODAY





# FAILED CANADIAN Li PROJECTS



## North American Lithium

- Shutdown 2015
- Spent circa CAD 250m
- Produced 109 t LC



## Nemaska Lithium

- DFS completed 2018
- Spent CAD 411 m
- Failed to start up 2019

THE COMPETITION





# TROUBLED LiOH PLANTS



## Tianqi Kwinana LiOH

- 8 Years so far
- Capital Cost Blowout
- > A\$1 billion
- Care and Maintenance



## Albemarle Kemerton LiOH

- 5 years so far
- Still <20% of design rate
- Shut trains 2,3,4
- Write down US\$1.5 billion



## Alkaline Pressure Leach

- New Technology
- Unproven
- 1995 Greenbushes 5Ktpa
- Failed due to scaling

THE COMPETITION





# WHY HAVE THESE PROJECTS FAILED?

- Nearly all the expertise is in China
- Lack of operating supervision – design
- Cultural transfer a problem
- Chinese batch → Western continuous

Our Lithium Dream Team are Operators



**DESIGN**





# THE LITHIUM DREAM TEAM



**Terry Stark**  
Head of Mining  
Ex Galaxy GM Operations

**Roger Pover**  
Head of Processing  
Ex Galaxy Plant Manager

**John Loxton**  
Head of Li Refinery  
Ex Hatch Li Carb Plant

**John Sobolewski**  
Chief Financial Officer  
Ex Galaxy CFO & Co Sec





# DREAM TEAM TRACK RECORD

## Jiangsu Li Carbonate Plant



- Capital Cost – US\$120 m
- At design rate 20,000 tpa
- Highest quality LC worldwide





**Jiangsu Lithium Carbonate Plant**





# CLOSING THE LITHIUM CONVERSION GAP





CLOSING THE **LITHIUM GAP**

# BÉCANCOUR LITHIUM REFINERY

- Replicate the success at Jiangsu
- 18,270 tpa green BG lithium carbonate plant
- Bécancour, Quebec's Battery Hub
- Same flow sheet, same equipment, same suppliers

**HATCH**





RAILWAY

BECANCOUR  
LITHIUM  
REFINERY

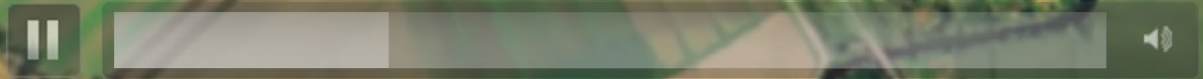
ASX: LD7

PORT FACILITIES

HIGHWAY

**GOOD  
LOCATION**

CLOSE TO  
INFRASTRUCTURE





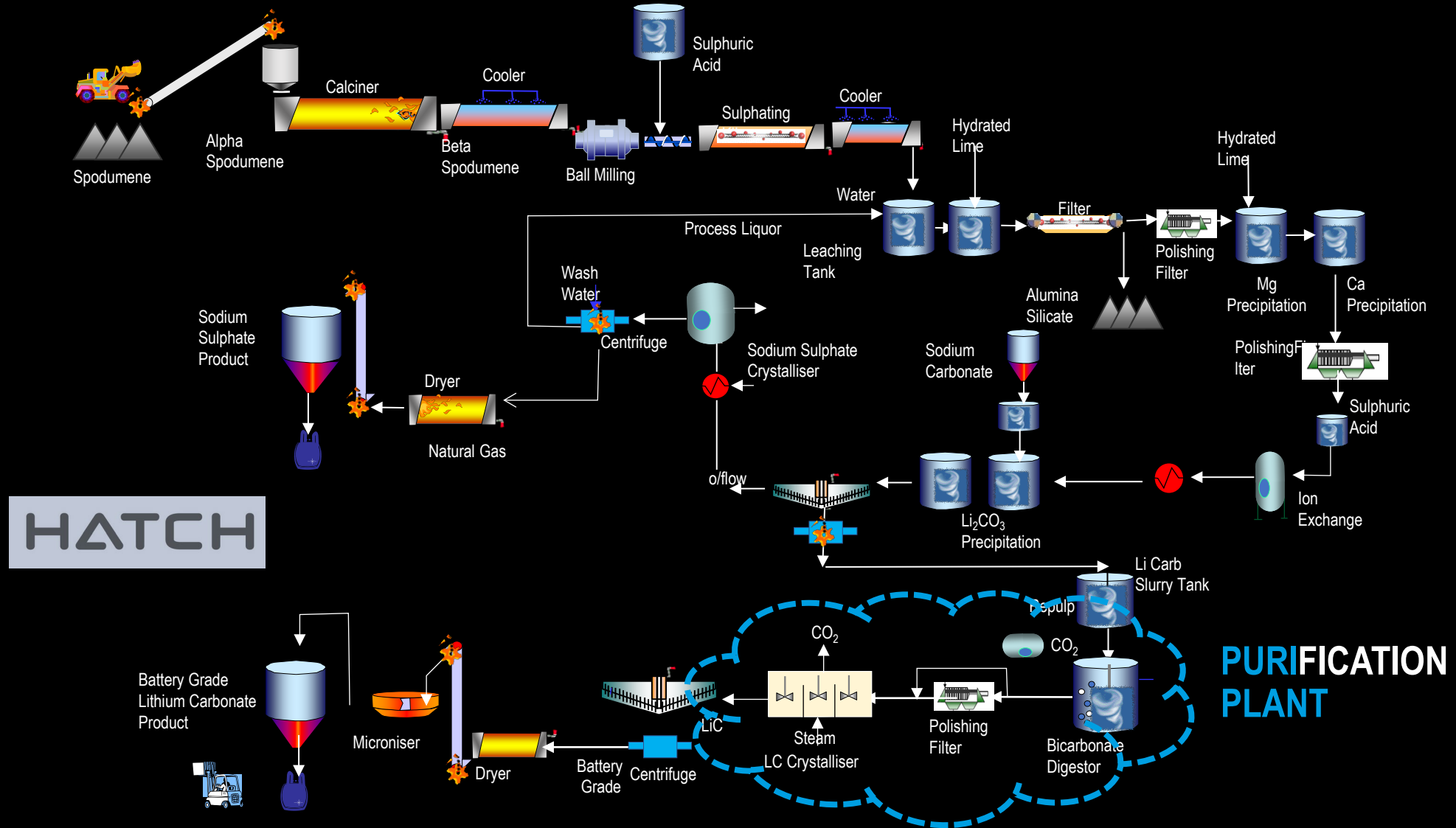


# GOOD LOCATION



# THE LITHIUM REFINERY

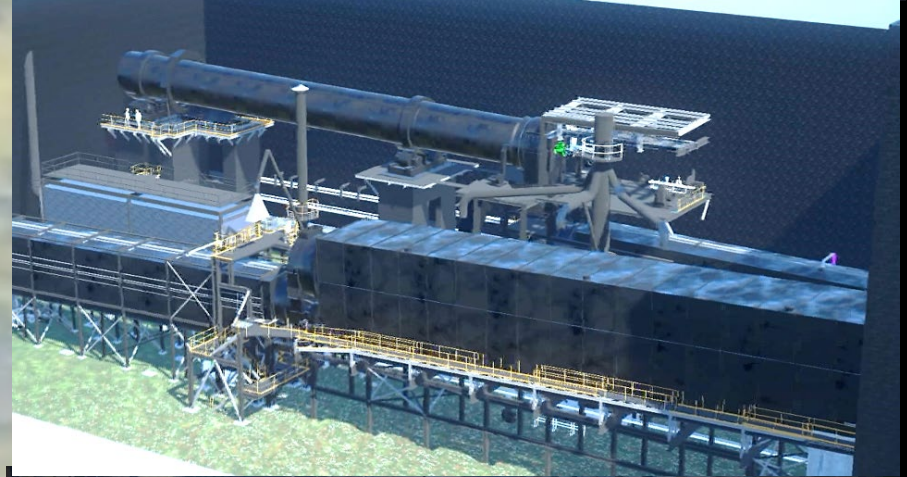
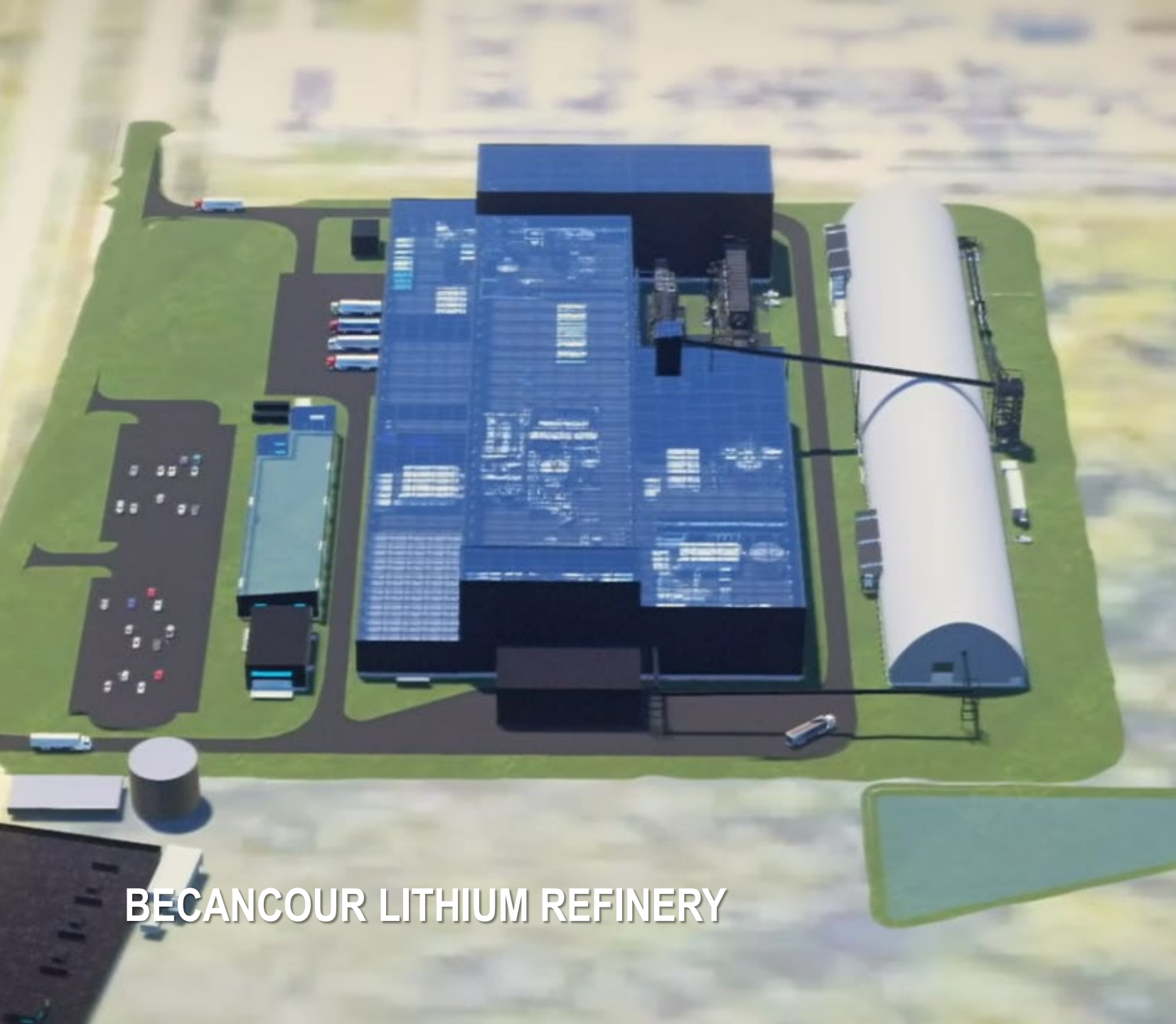
# LITHIUM REFINERY FLOW SHEET



**HATCH**

**PURIFICATION PLANT**









## ROBUST PROCESS

- Refinery to process all types of spodumene
- Sampled - international sources of spodumene
- Imports while Canadian Li industry develops
- Achieve battery grade specs 99.5%  $\text{Li}_2\text{CO}_3$

1. LU7 ASX Announcement 30 Sept 24 – “Strong Preliminary Feasibility for Becancour Lithium Refinery”

THE **LITHIUM** REFINERY







**BECANCOUR LITHIUM REFINERY**

# **STRONG POSITIVE ROBUST DFS**



1. LU7 ASX Announcement 30 Sept 24 – “Strong Preliminary Feasibility for Becancour Lithium Refinery”

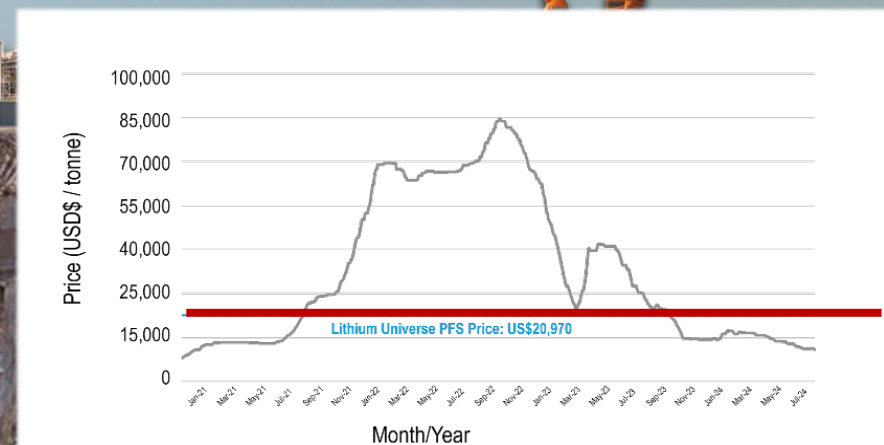
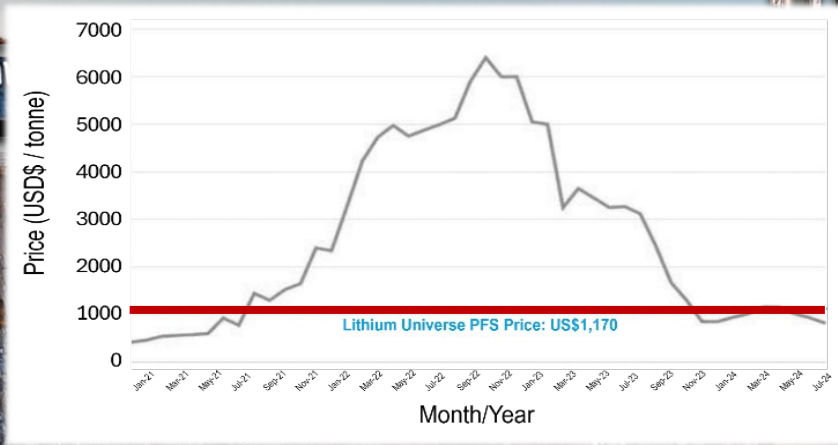




## BECANCOUR LITHIUM REFINERY

# CONSERVATIVE PRICE FORECAST

SC6 US\$1,170/t LC \$20,970/t







## BECANCOUR LITHIUM REFINERY

**8% NET PRESENT VALUE**  
**US\$ 718 MILLION**







**BECANCOUR LITHIUM REFINERY**

**IRR PAYBACK  
21% 3.9 YEARS**



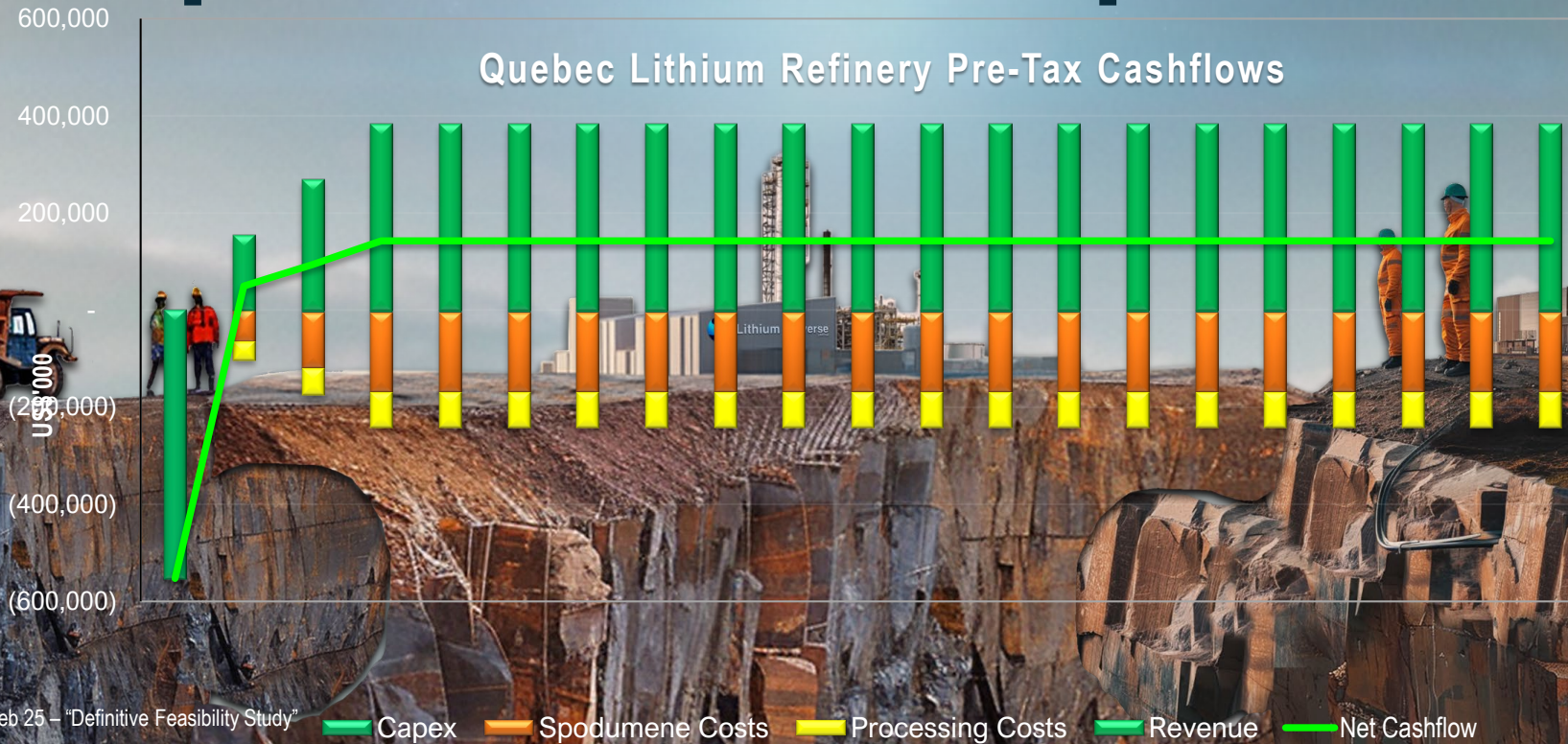




# BECAINCOUR LITHIUM REFINERY

# EBITDA CAPEX

# US\$ 148M US\$ 549M

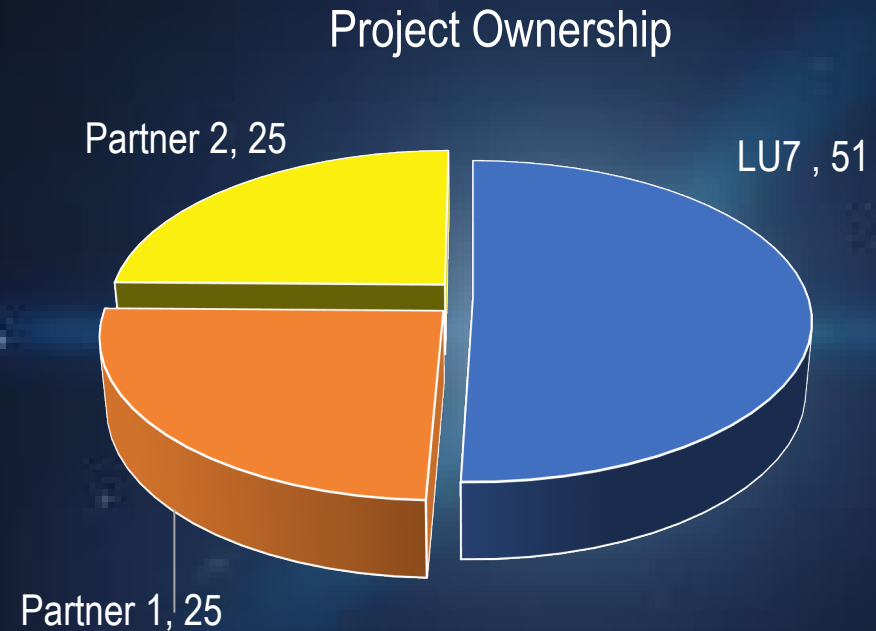


1. LU7 ASX Announcement Feb 25 – “Definitive Feasibility Study”



# FUNDING STRATEGY

- Sell 49% project to 1-2 strategic partners
- Target OEM with spodumene offtake
- Equity from sale injected to project
- Debt and Equity of 50/50
- Appointment of debt adviser
- Discussions with various banks







## THE BIG WHY's

WHY?

- build a plant – low price environment?
- build a plant - others closing theirs?
- can you compete with China?
- lithium carbonate not hydroxide?



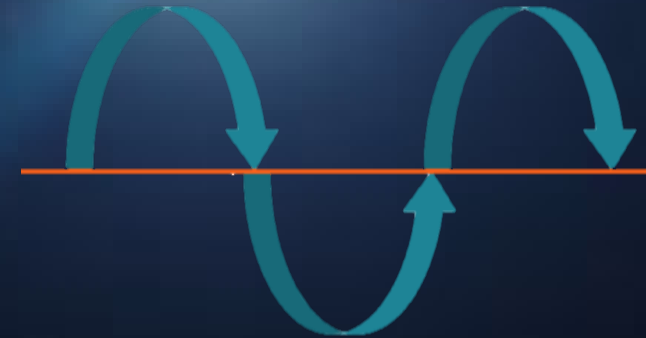
WHY?



# COUNTER CYCLICAL STRATEGY

Why build a plant in a depressed-price environment?

- Been through 3-4 lithium cycles
- Prices have and will always recover
- Li demand from EVs and BESS growth strong
- Develop a project ready for price recovery



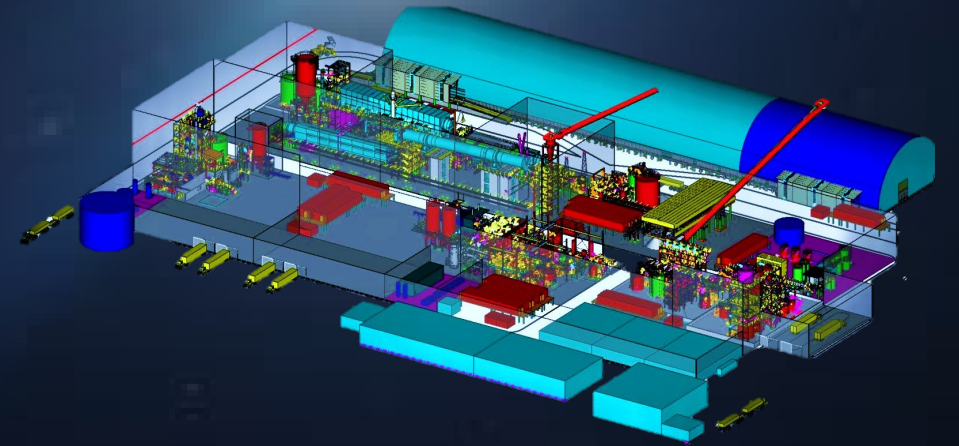




# NEW CAPACITY IS REQUIRED

Why build a plant when others are closing theirs?

- Higher costs operations being closed
- Operations not performing, shutting down
- New efficient capacity is required for the growth
- World needs non-Chinese conversion
- Build “off the shelf” conversion that works

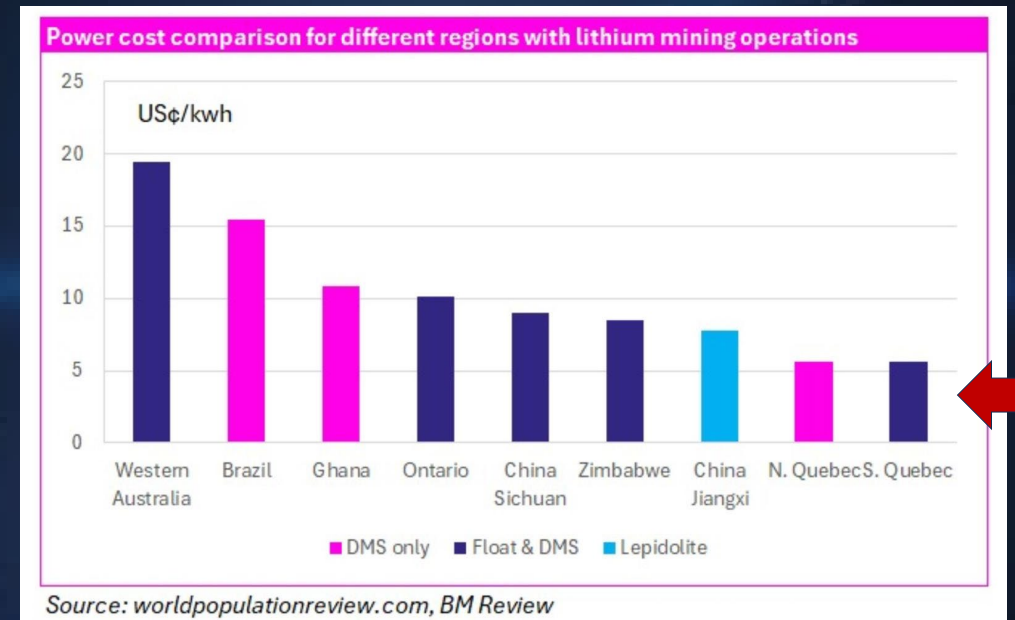




# QUEBEC LITHIUM CONVERSION

Why can you compete with China?

- Access to Cheap Green Power
- Nearby feedstock - Canada, Brazil and Africa
- Decrease in transport costs of spodumene
- End market North America





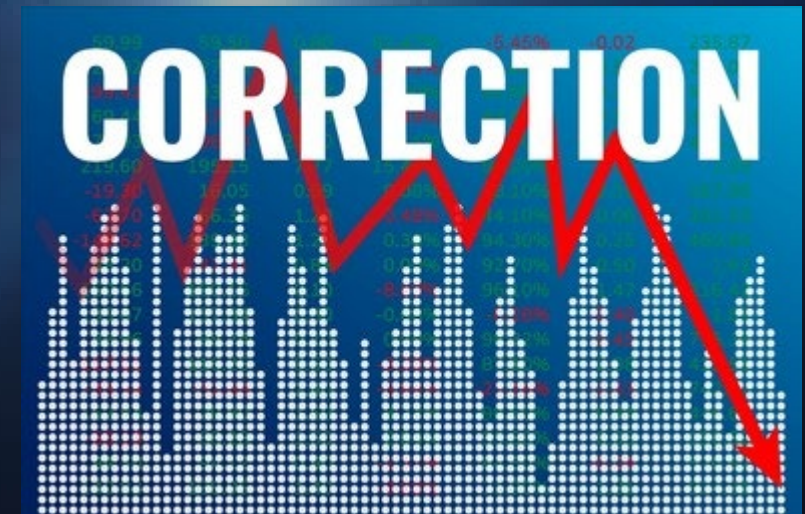


**RECOVERY NOT IF BUT WHEN**



## DOUBLE WHARMMY

- Impact of supply reduction under-estimated
- Dramatic reduction 17%, 21% next year
- Demand is severely under-estimated
- Focus on EV's only, BESS dark horse
- 1.8 TWh of batteries - 600 GWh solar plants



PRICES WILL RECOVER QUICKER THAN EXPECTED



# LITHIUM CARBONATE

Lithium feedstock of choice

- LFP batteries technology got better
- Range and performance improved
- Much safer and cheaper
- Li Carb feed for LFP lithium batteries
- Majority of EVs have switched to LFP batteries
- BESS batteries are all LFP batteries
- LFP 67% of EVs, 87% of BESS

LU7 LITHIUM STRATEGY





## PROJECT ADVANCEMENTS

- Application 22.5 MW electricity, Hydro Quebec
- Environmental survey – no showstoppers
- Co-operation with W8banaki First Nation
- Previous farm land
- Permitting should be straight forward

THE LITHIUM REFINERY







## PROJECT MOU'S

- Exclusive supply alumina silicate to Lafarge
- Canada's largest cement producer
- Supply of sodium sulphate to Africa
- MOU with Polytechnique for training



POLYTECHNIQUE  
MONTREAL

TECHNOLOGICAL  
UNIVERSITY



THE LITHIUM REFINERY



## LITHIUM DREAM TEAM

Proven Lithium Track Record

## PROVEN TECHNOLOGY

Derisking Lithium Conversion Technology

## BÉCANCOUR LITHIUM REFINERY

Competitive & Closing the Conversion Gap



INVESTOR HIGHLIGHTS





## CAUTIONARY STATEMENTS

### Information Required by Listing Rules

The Becancour Lithium Refinery Definitive Feasibility Study (PFS) does not rely upon estimated ore reserves / and or mineral resources. The spodumene concentrate feedstock for the proposed refinery has been assumed to have been purchased directly from spodumene miners currently producing spodumene concentrates or marketing agents or traders currently purchasing spodumene concentrate and selling to the downstream processors. Accordingly, the JORC Code is not relevant to this study nor are Listing Rules 5.16 and 5.17 to the extent to which they relate to matters concerning JORC.

### Forward Looking Statements

This release contains "forward-looking information" that is based on the Company's expectations, estimates and projections as of the date on which the statements were made. This forward-looking information includes, among other things, statements with respect to studies, the Company's business strategy, plan, development, objectives, performance, outlook, growth, cash flow, projections, targets and expectations. Generally, this forward looking information can be identified by the use of forward-looking terminology such as 'outlook', 'anticipate', 'project', 'target', 'likely', 'believe', 'estimate', 'expect', 'intend', 'may', 'would', 'could', 'should', 'scheduled', 'will', 'plan', 'forecast', 'evolve' and similar expressions. Persons reading this news release are cautioned that such statements are only predictions, and that the Company's actual future results or performance may be materially different. Forward-looking information is subject to known and unknown risks, uncertainties and other factors that may cause the Company's actual results, level of activity, performance or achievements to be materially different from those expressed or implied by such forward-looking information. Forward-looking information is developed based on assumptions about such risks, uncertainties and other factors set out herein, including but not limited to general business, economic, competitive, political and social uncertainties; the actual results of current development activities; conclusions of economic evaluations; changes in project parameters as plans continue to be refined; future prices of metals; failure of plant, equipment or processes to operate as anticipated; accident, labour disputes and other risks of the chemical industry; and delays in obtaining governmental approvals or financing or in the completion of development or construction activities. This list is not exhaustive of the factors that may affect our forward-looking information. These and other factors should be considered carefully, and readers should not place undue reliance on such forward-looking information. Neither the Company, nor any other person, gives any representation, warranty, assurance or guarantee that the occurrence of the events expressed or implied in any forward-looking statement will actually occur. Except as required by law, and only to the extent so required, none of the Company, its subsidiaries or its or their directors, officers, employees, advisors or agents or any other person shall in any way be liable to any person or body for any loss, claim, demand, damages, costs or expenses of whatever nature arising in any way out of, or in connection with, the information contained in this document. The Company disclaims any intent or obligations to or revise any forward-looking statements whether as a result of new information, estimates, or options, future events or results or otherwise, unless required to do so by law.

### Cautionary Statement

The DFS is based on the material assumptions outlined including that it has been completed in accordance with AACE Principles to a Class 5 level with a nominal level of accuracy of  $\pm 35\%$ , that the financial forecasts rely upon the purchase of third party spodumene concentrate as the feedstock for the plant. The DFS referred to in this announcement has been undertaken to assess the potential technical feasibility and economic viability of constructing and operating facilities capable of producing battery grade lithium carbonate for use in lithium-ion batteries from those units of operations and provide baseline financial metrics to consider future investment decisions.

The Definitive Feasibility Study (PFS) is based on the material assumptions. These include assumptions about the availability of funding. While Lithium Universe considers all of the material assumptions to be based on reasonable grounds, there is no certainty that they will prove to be correct or that the range of outcomes indicated by the DFS will be achieved. To achieve the range of outcomes indicated in the DFS, funding of in the order of US\$600 million will likely be required. Investors should note that there is no certainty that Lithium Universe will be able to raise that amount of funding when needed. It is also likely that such funding may only be available on terms that may be dilutive to or otherwise affect the value of Lithium Universe's existing shares. It is also possible that Lithium Universe could pursue other 'value realisation' strategies such as a sale, partial sale or joint venture of the project. If it does, this could materially reduce the Company's proportionate ownership of the project. Given the uncertainties involved, investors should not make any investment decisions based solely on the results of the DFS