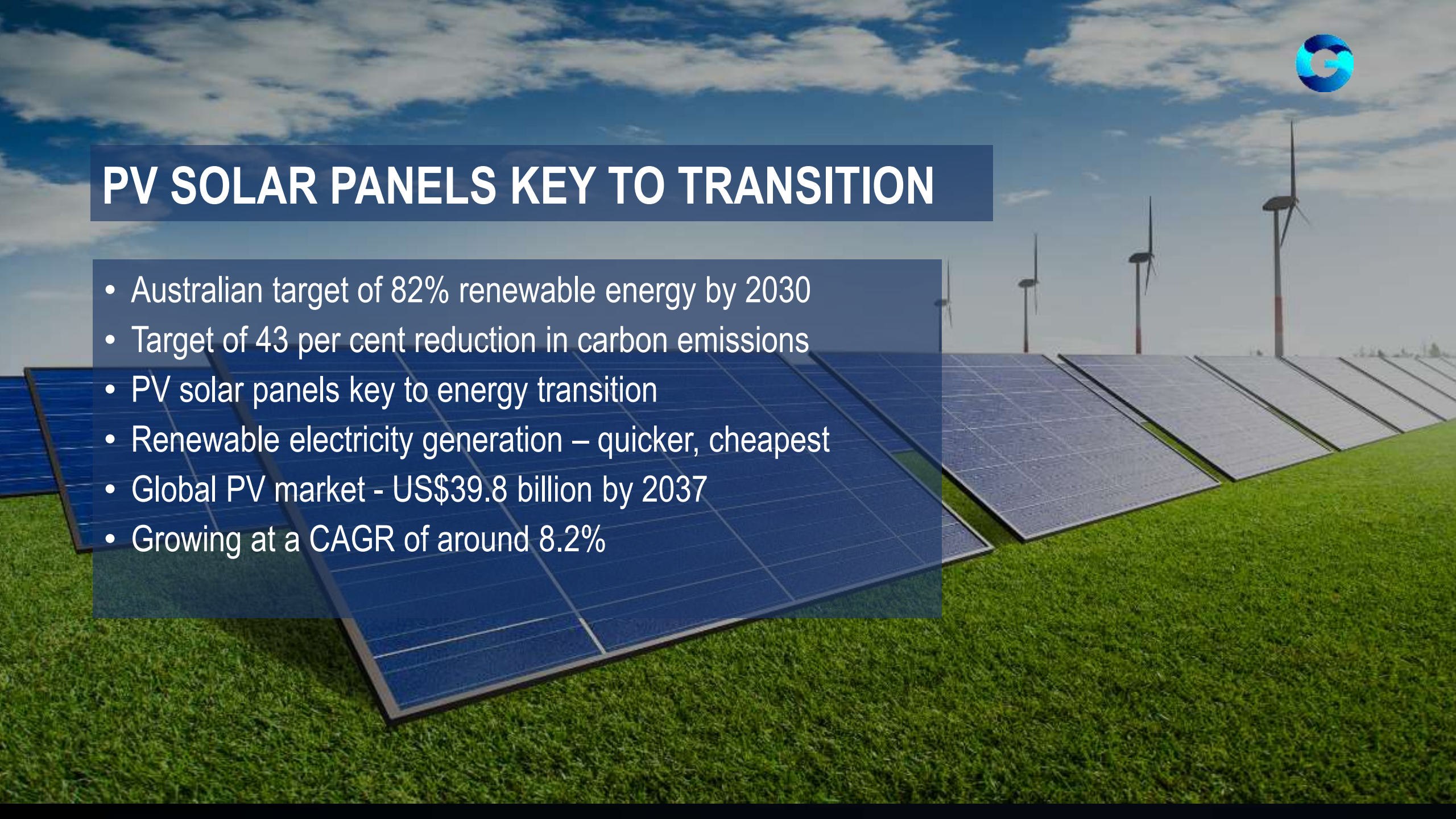
Lithium Universe
LIMITED

PV SOLAR CELL RECYCLING TECHNOLOGY

EXCITING OPPORTUNITY WHILE WE WAIT FOR LI MARKET TO RECOVER

- Achieved key areas of lithium business
- Completed Bécancour Lithium Refinery DFS
- Bécancour land option, supply partnerships etc.
- Finalizing spodumene offtake, then OEM Li Carbonate offtake
- Ready for a lithium price recovery - Counter-cyclical strategy
- Presented with exciting PV recycling opportunity
- Can add value while we wait for the lithium market to recover

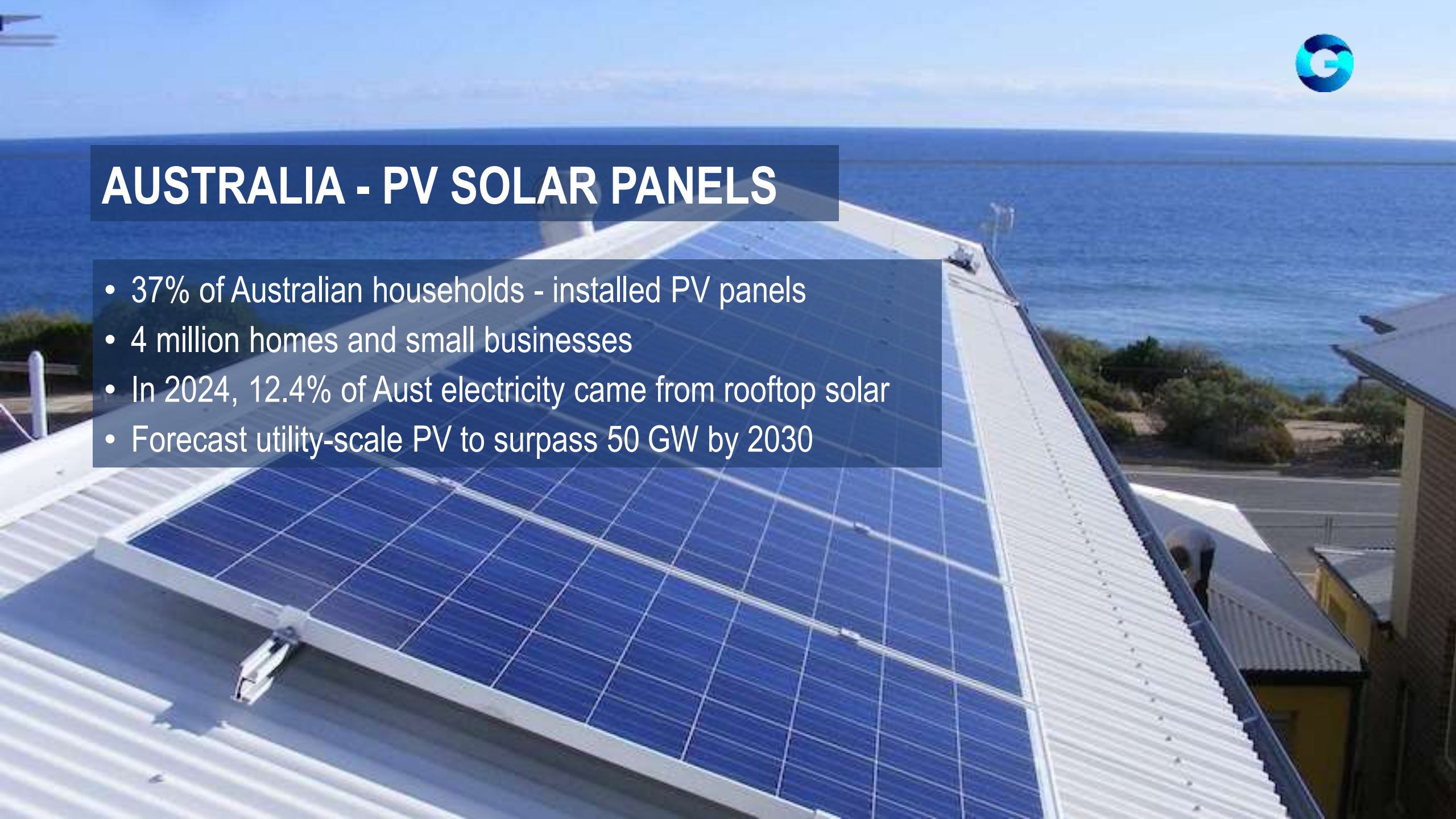


PV SOLAR PANELS KEY TO TRANSITION

- Australian target of 82% renewable energy by 2030
- Target of 43 per cent reduction in carbon emissions
- PV solar panels key to energy transition
- Renewable electricity generation – quicker, cheapest
- Global PV market - US$39.8 billion by 2037
- Growing at a CAGR of around 8.2%

AUSTRALIA - PV SOLAR PANELS

- 37% of Australian households - installed PV panels
- 4 million homes and small businesses
- In 2024, 12.4% of Aust electricity came from rooftop solar
- Forecast utility-scale PV to surpass 50 GW by 2030



THE PROBLEM TODAY

- Globally 60-78mt accumulated waste PV by 2050
- Australia 1 Mt end-of-life PV worth $1B by 2045
- Only 15% of PV cells today are recycled
- Rest ends up in LAND FILL
- Valuable silicon, silver, gallium & indium

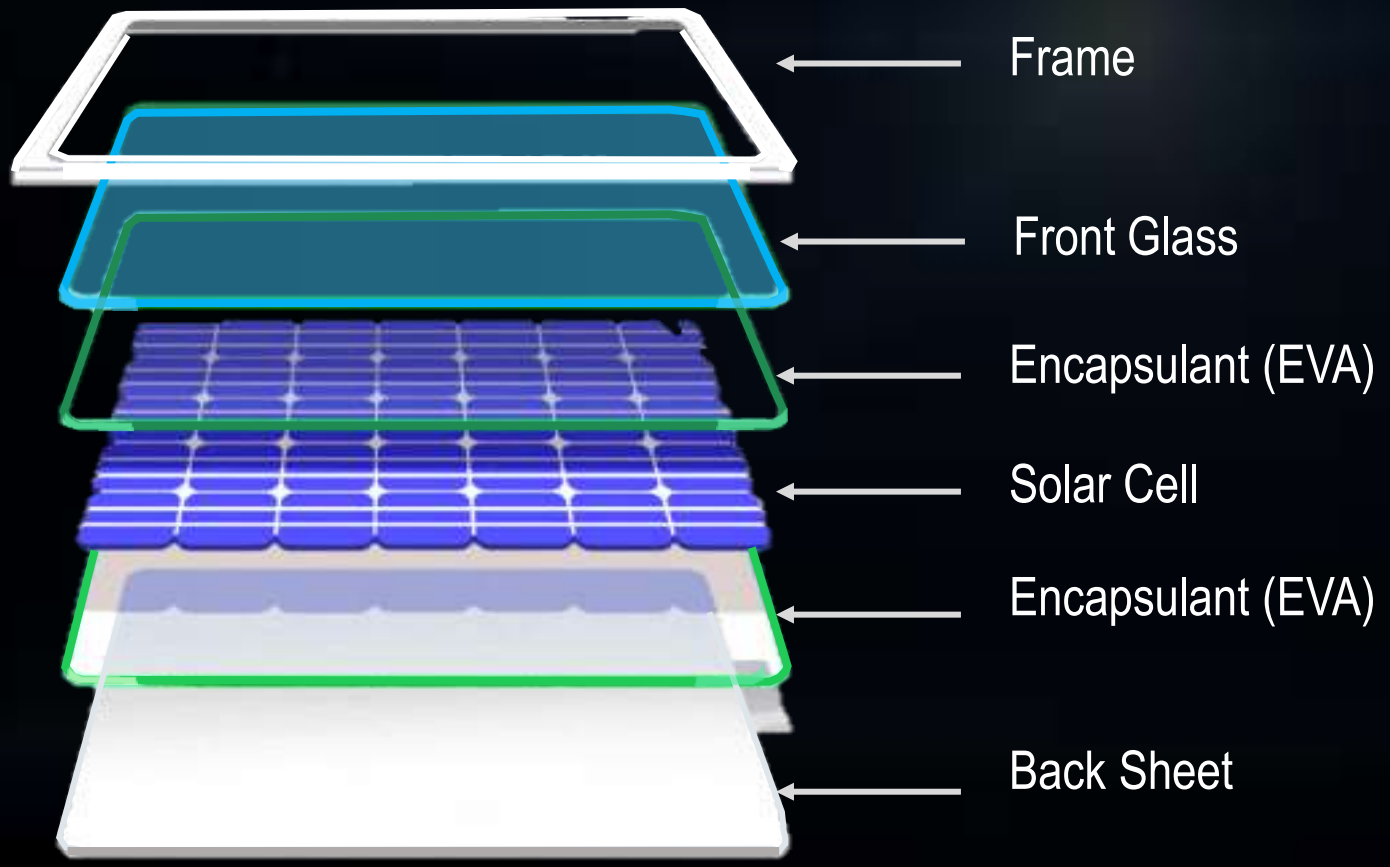
15%

SCRAPING VALUABLE SILVER

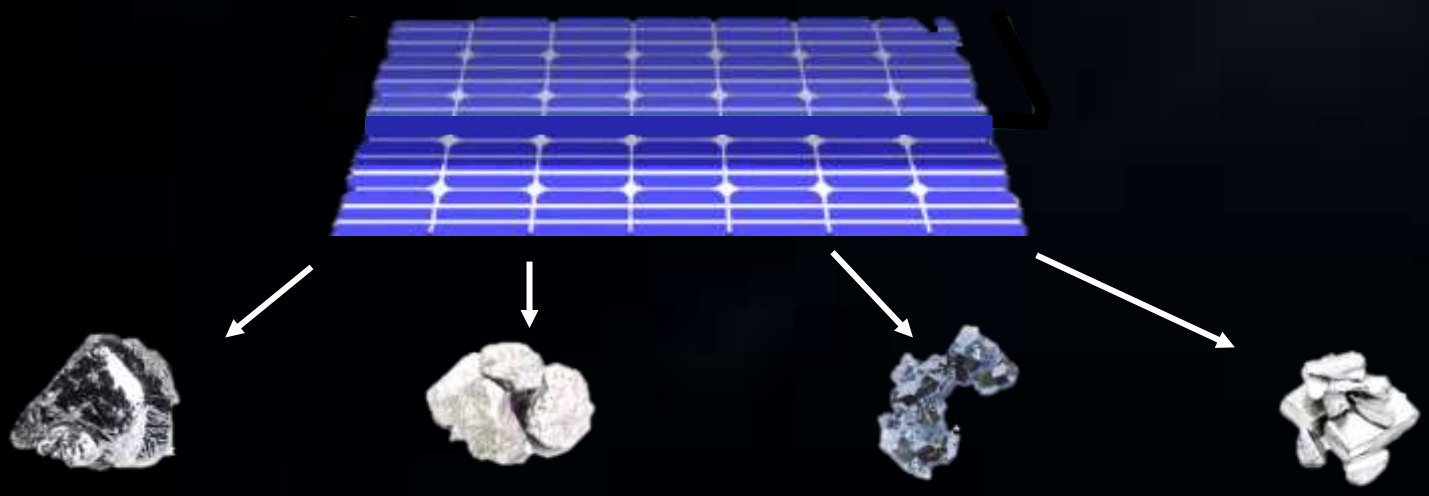
- About 20 grams of Silver – each PV panel
- Electrical contacts – flow of electricity
- “Fingers" (thin lines) and "busbars" (thicker lines)
- A$36 of Silver in every panel


“Australia is about to be hit by a Tsunami of Solar Waste”
(International Energy Agency)

PV SOLAR CELL



CRITICAL METALS LOST FROM INEFFICIENT RECYCLING



Silicon
(Semiconductor)

Silver
(Electrical Conductivity)

Gallium
(Energy Efficiency)

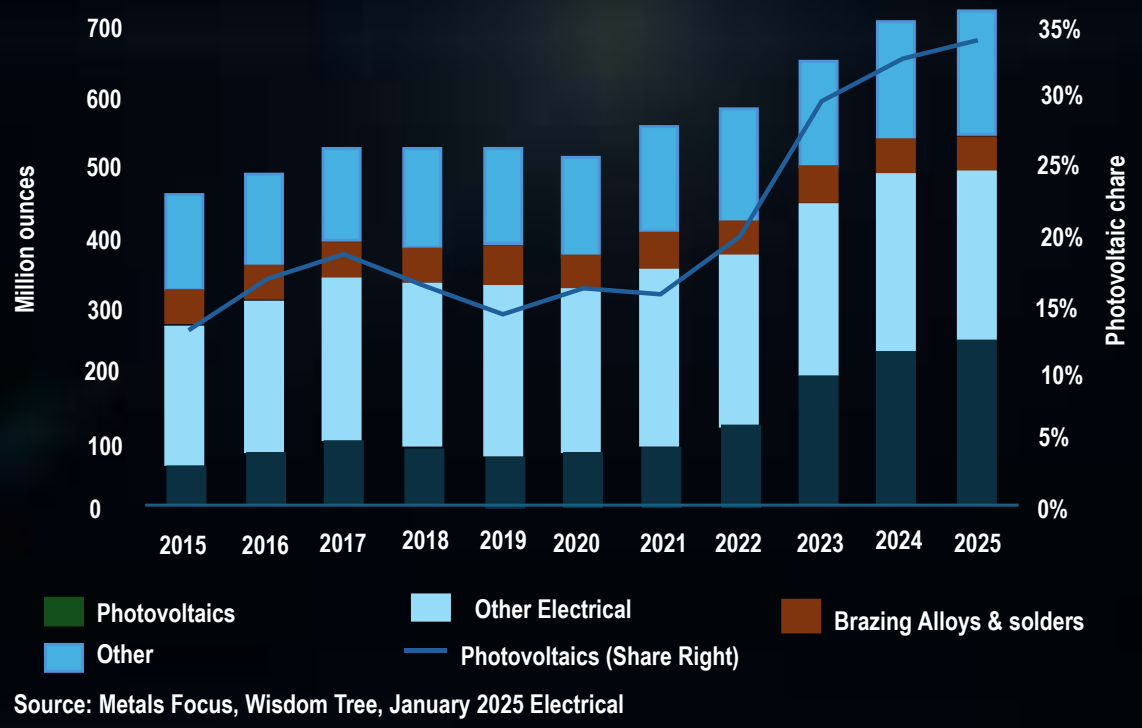
Indium
(Energy Absorption)

In Fact, the Silver that's contained inside Solar Modules equates to in its totality, Australia's Biggest Silver Mine"

(Australia Smart Energy Council)

SILVER MARKET

- Record demand 680 million ounces in 2024
- Industrial demand surged by 7%
- Growth is expected to carry beyond 2025
- Photovoltaics and AI as the fastest-growing drivers



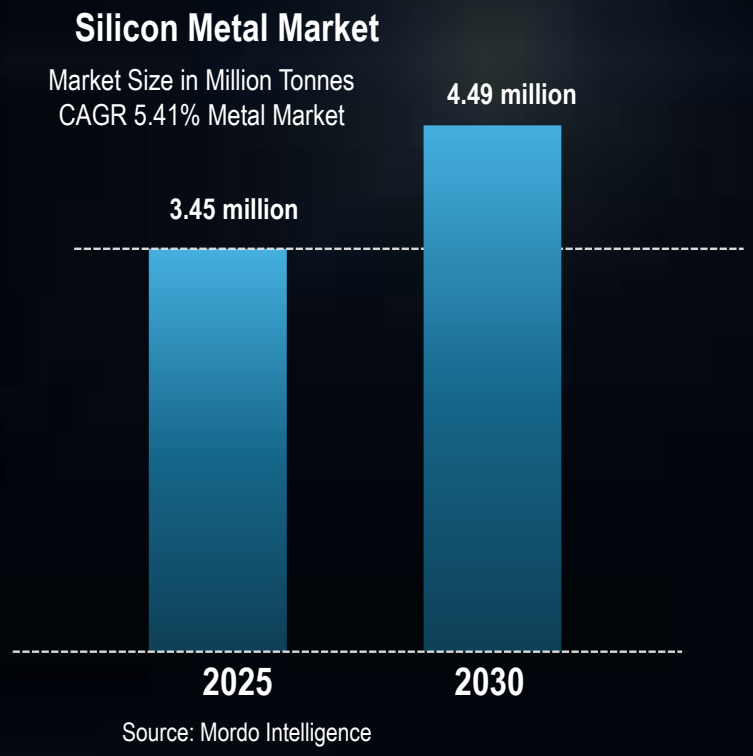
Source: Metals Focus, Wisdom Tree, January 2025 Electrical

SILVER MARKET

- Demand has started to outstrip supply
- Market deficit 118 mil oz
- Significant silver price increase
- US$15/oz in 2018 to US$38/oz 2025
- 153% increase since 2018
- Silver recovery from recycling will become increasing important

SILICON MARKET

- 3.45 million tonnes in 2025
- 4.49 million tonnes by 2030 growing at CAGR 5.41% pa
- Solar panels projected highest growth rate of 7% til 2029
- Silicon dominance in semi-conductor material in solar cells



TRADITIONAL PV RECYCLING

- Shredding and grinding PV cells
- EVA (binder) is removed by high temperatures
- EVA removed by toxic acid chemicals
- Low value glass applications – insulation, buildings
- Low silicon and silver recovery
- Due to complexity, high cost, poor yields

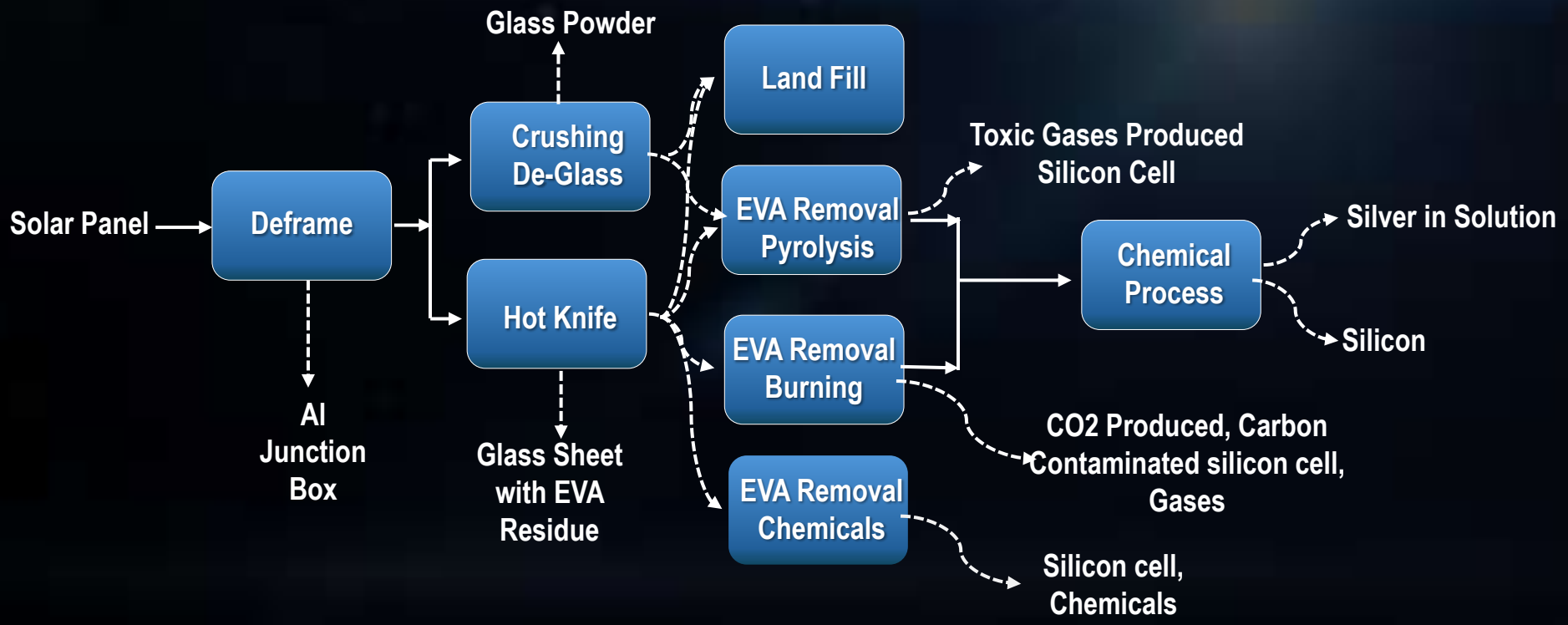
Initial
Dismantling

Mechanical
Breakdown

Material
Extraction

TRADITIONAL PV RECYCLING

END WITH FINE UN-USEABLE POWDER



LU7 PV RECYCLING TECHNOLOGY

- Acquired global rights from Macquarie University
- Photovoltaic (PV) solar panel recycling technology
  1) Microwave Joule Heating Technology (MJHT)
  2) Jet Electrochemical Silver Extraction (JESE)
- Layer by layer separation
- Preserves materials in cleaner separable form
- High value products instead of waste

MACQUARIE University
SYDNEY · AUSTRALIA

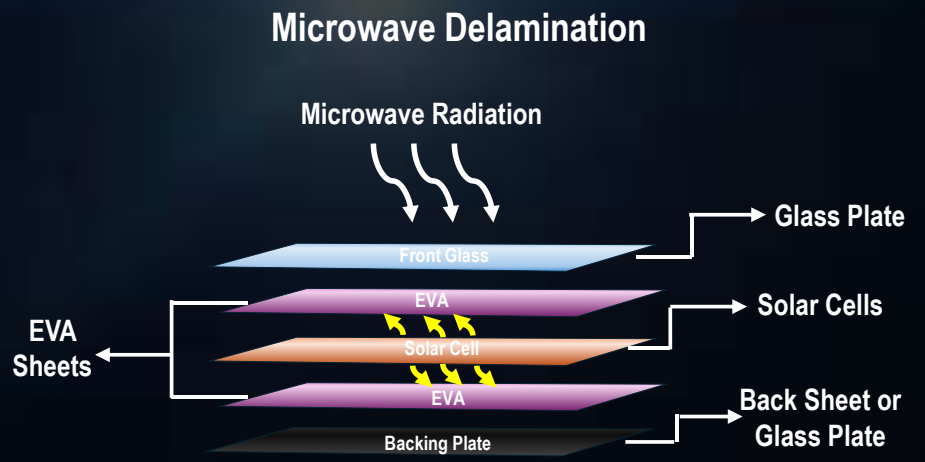
AUSTRALIAN TECHNOLOGY

- Led by Dr. Binesh Puthen Veettil (School of Engineering)
- School of Photovoltaics at UNSW and the Australian Centre for Advanced Photovoltaics
- Patent registered and pending
- License agreement with LU7

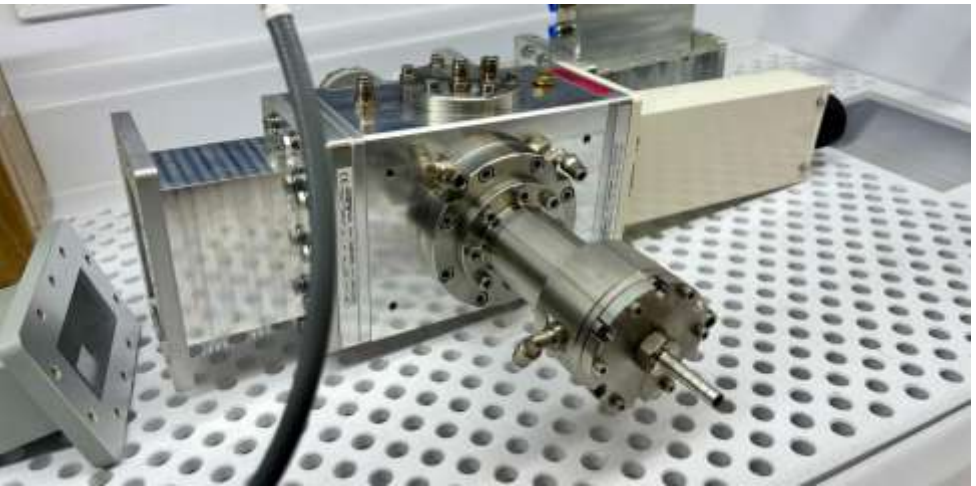
MACQUARIE University
SYDNEY·AUSTRALIA

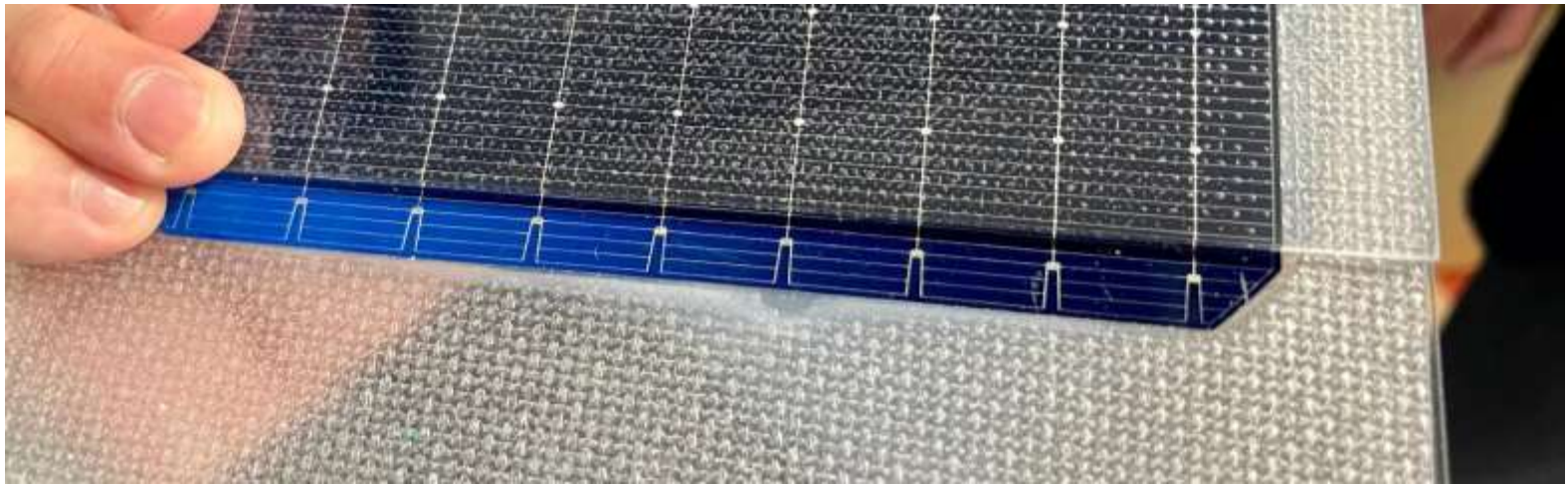
MICROWAVE DELAMINATION

- Utilizes Microwave Technology
- Selectively heat and delaminates PV cells
- Layer by layer separation
- Preserves materials in cleaner separable form
- High value products instead of waste



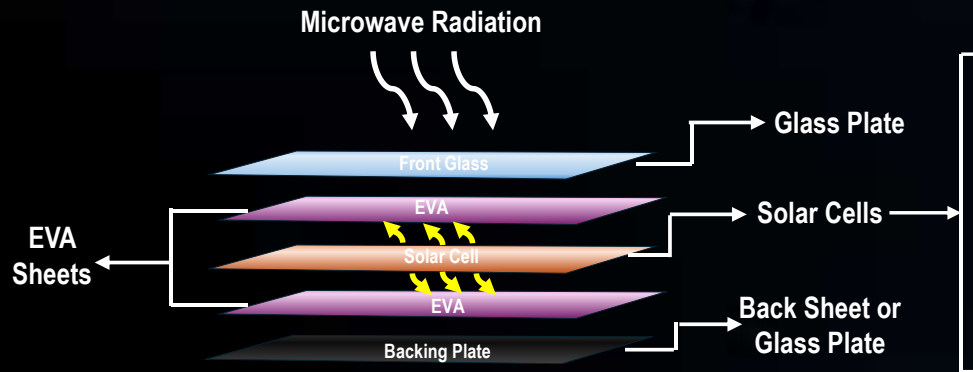

Dinesh



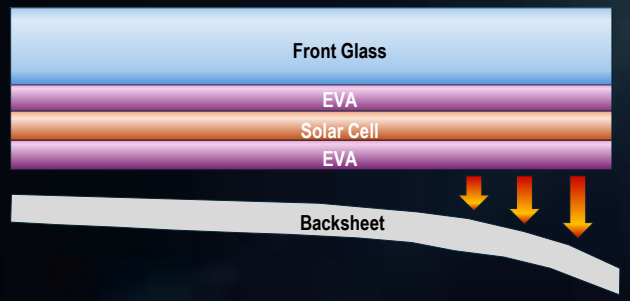


MJHT SELECTIVE DELAMINATION

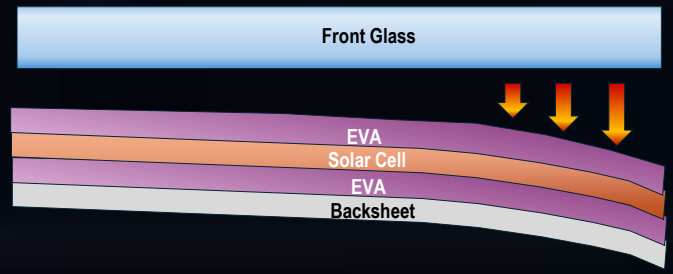
Microwave Delamination



Back Sheet Delamination



Front Glass Delamination



Clean Glass Sheet to be Reused

Silicon Wafer for Silver Extraction & Silicon Recycling

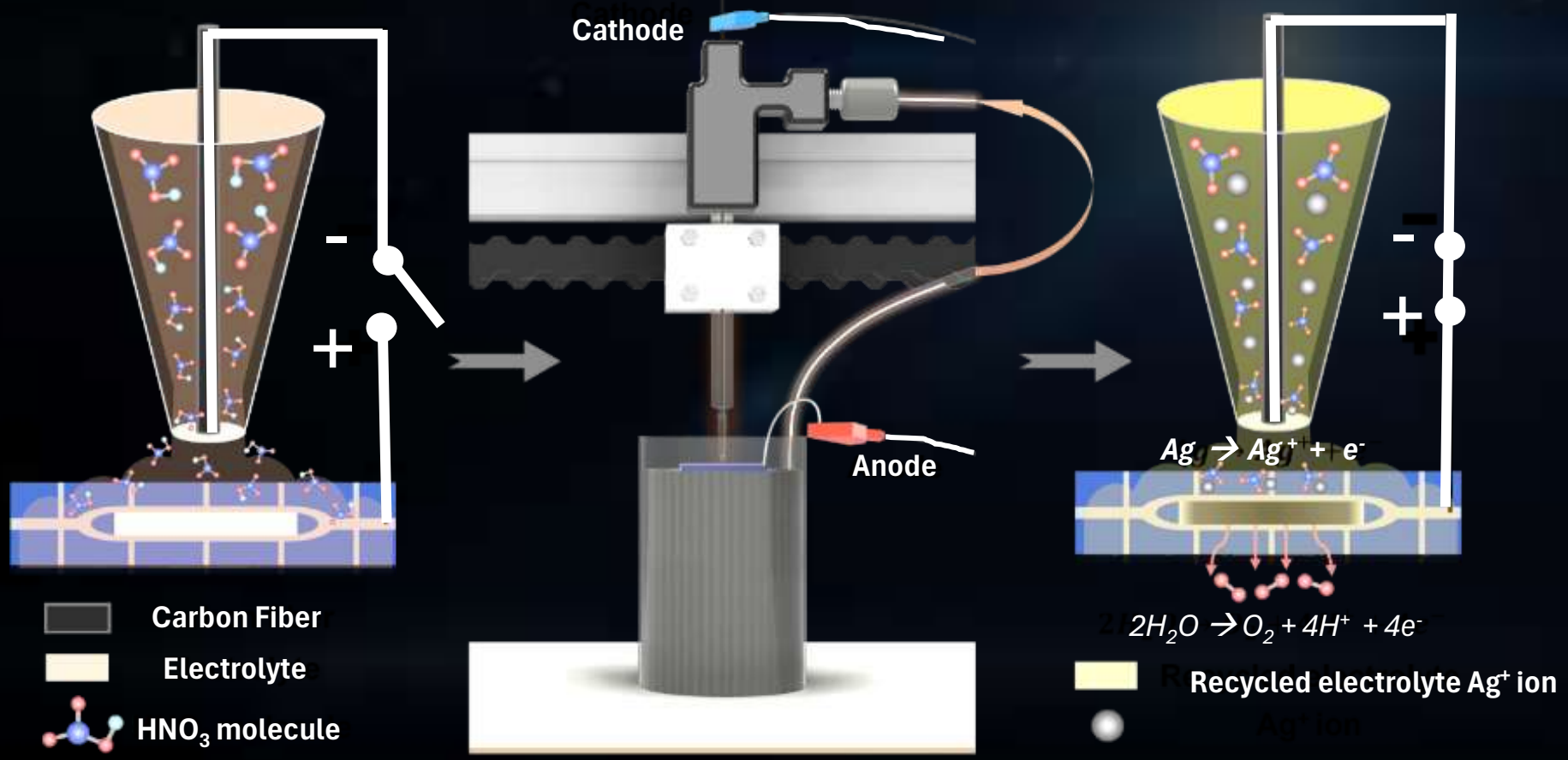
Silver (High Purity)

Silicon (High Purity)

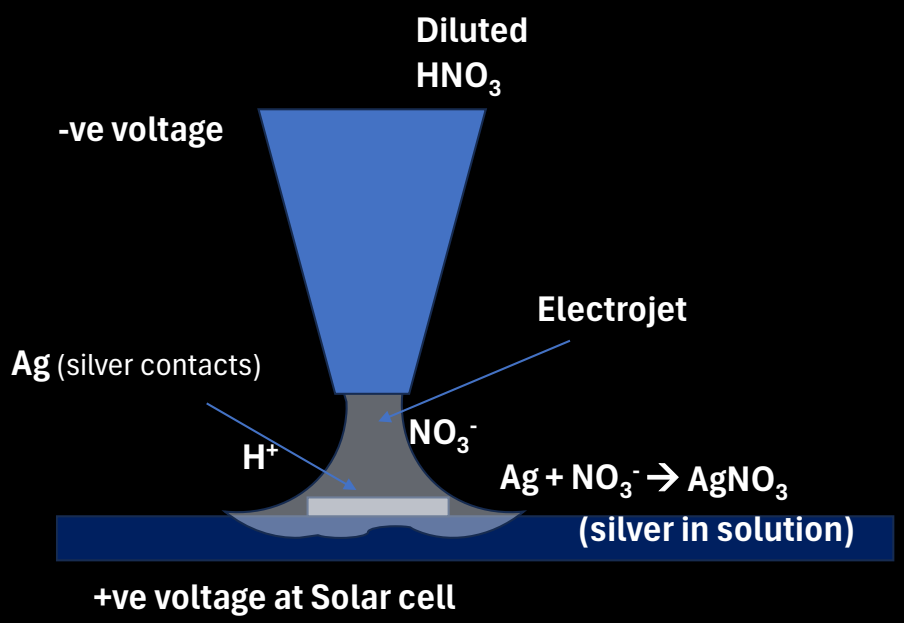
SILVER EXTRACTION TECHNOLOGY

- Silver Extraction (JESE) Technology
- JESE uses electrochemical low-voltage jet to selectively extract silver
- Anodic oxidation of silver - dissolves into dilute nitric acid electrolyte
- Leaves aluminum and other impurities
- High purity silver metal recovered from electrolyte via electrochemical deposition
- Process preserves silicon wafers which minimises contamination for silicon recycling
- High-purity silicon is critical for semiconductor manufacturing

SILVER EXTRACTION TECHNOLOGY

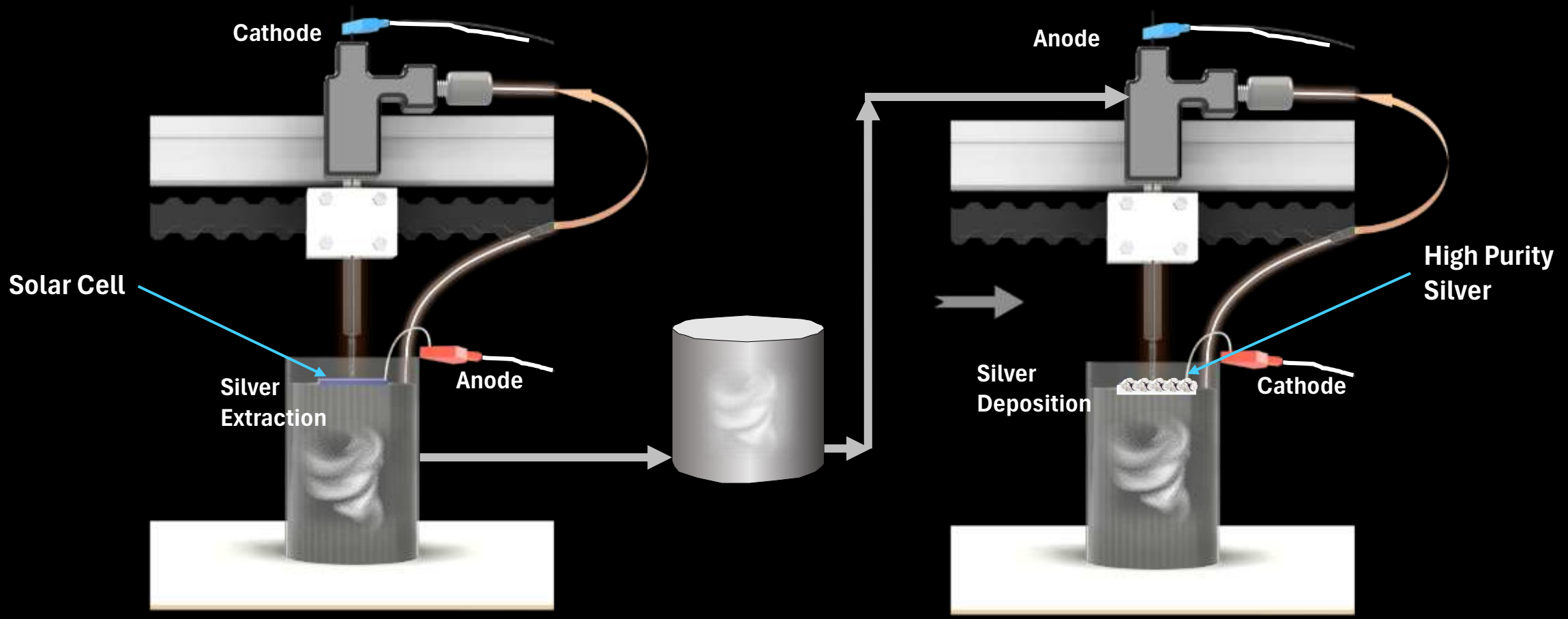


ELECTROJET NOZZLE



SILVER EXTRACTION

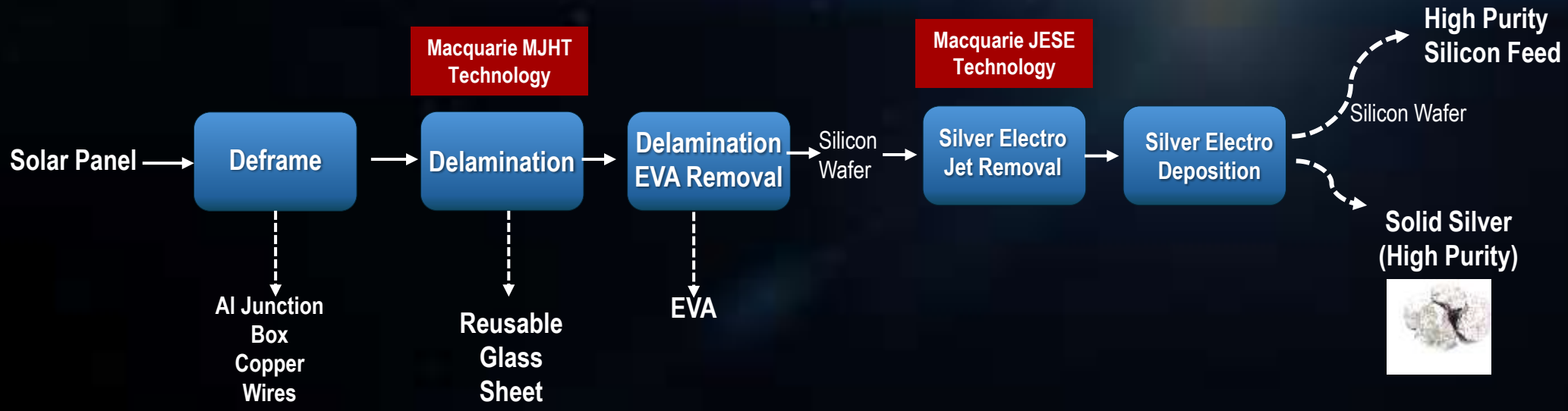
SILVER DEPOSITION



ADVANTAGES OF TECHNOLOGY

- Silver removal leaves impurities – adjust voltage
- Silver deposited at the same process
- Recoveries better than 95%
- High purity of silver deposited
- Dopants can be cleaned off silicon wafer
- Silicon wafer high purity for direct reuse
- All high value separate products

RECYCLING TECHNOLOGY



PROCESS STEPS

- Remove the aluminum frame
- Remove copper wires and connectors
- PV cell in Microwave Heating
- Softens the ethylene vinyl acetate (EVA) encapsulant
- Separates glass from EVA / Si wafer / back sheet
- Separates Si wafer from back sheet
- Silver extraction process
- Resulting silicon wafer is buffed to remove dopants
- Silicon wafer is high purity → feed directly wafer manufacturers

ADVANTAGES OF TECHNOLOGY

- Negates the fine unusable powder – conventional recycling
- Layer by layer separation
- Preserves material in cleaner separable form
- Low energy heating – Microwave Technology
- Glass sheet can be reused to make PV cells again
- Glass, Silver, Silicon – all at high purity
- Higher recoveries, less waste
- 3-4 times Value Recovery

PV RECYCLING GROWTH FUTURE

The need for PV recycling is Compelling

TECHNOLOGY IS KEY

Macquarie Microwave Heating Delamination Technology

CHEMICAL EXPERTISE

LU7 Team has Chemical Experience to develop Technology

INVESTOR HIGHLIGHTS


CLOSING
THE LITHIUM
CONVERSION
GAP

Lithium Universe LIMITED

THE LITHIUM CONVERSION GAP

MINE SUPPLY

+40 companies Quebec

>500Mt +1% Li_2O resource

Canada, Brazil, Africa

No current lithium converters

Only 100 Ktpa planned

No lithium refining experience

DEMAND

+20 battery manufacturers

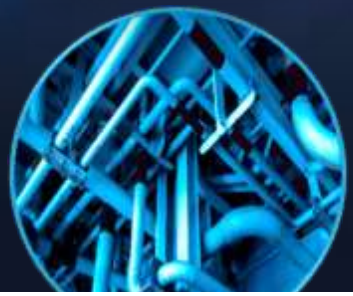
1,000GW by 2028

850,000t LCE per year

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

TROUBLED LiOH PLANTS

Tianqi Kwinana LiOH

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

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

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

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

HATCH

DREAM TEAM TRACK RECORD

Jiangsu Li Carbonate Plant

2 Years to Commercial Production

Ground Breaking	Start of Construction	Project Completion	
21 Feb 2010	1 May 2010	6 Dec 2011 (19 months)	6 May 2012 (6 months Commissioning)

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


Jiangsu Lithium Carbonate Plant
GALAXY
GALAXY
GALAXY
Galaxy Lithium (Jiangsu)
Company Limited
银河锂业(江苏)有限公司

CLOSING THE LITHIUM CONVERSION GAP

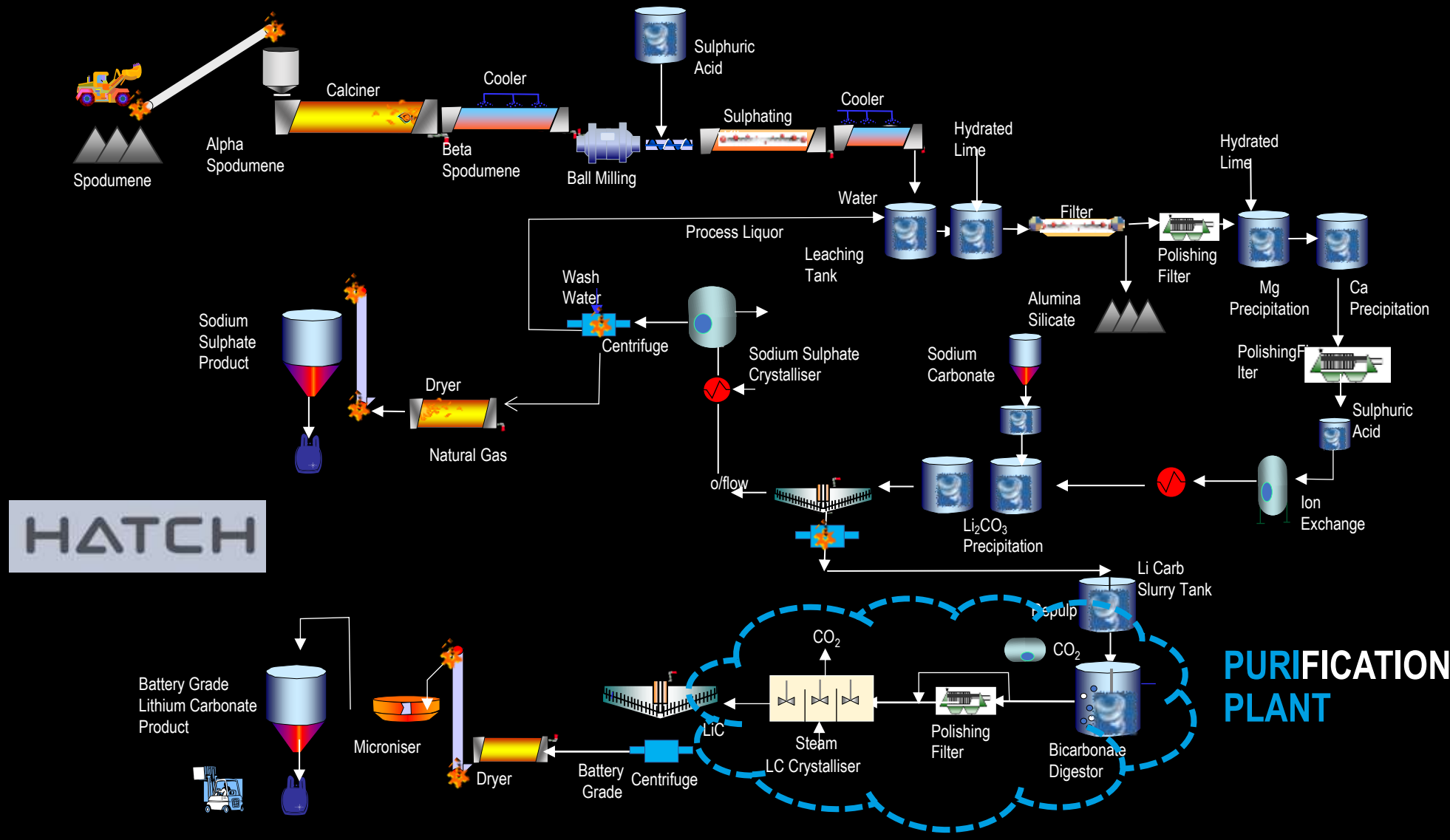

UM SUPPLY
CANADA
UNITED STATES
BATTERY D
PROCESSI
CHINA
RUSSIA
KAZAKHSTAN
INDIA
MEXICO
BRAZIL
GREENLAND
(DENMARK)


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


THE LITHIUM REFINERY
BECANCOUR LITHIUM REFINERY


GOOD LOCATION
Sept-Iles
Havre-Saint-Pierre
Natashquan
Chibougamau
Baie-Comeau
Saguenay
Rimouski
Carleton-sur-mer
Rivière-du-Loup
Bathurst
Edmundston
Québec City
30,000 Spodumene Shipments
Trois-Rivières
Bécancour
Lithium
Refinery
Montreal
Fredericton
Moncton
Summerside
PRINCE EDWARD ISLAND
Cape Breton Island
Saint John
Truro
Antigonish
MAINE
Bangor
NOVA SCOTIA
Gulf of St Lawrence
THE LITHIUM REFINERY

LITHIUM REFINERY FLOW SHEET



HATCH

PURIFICATION PLANT

BECANCOUR LITHIUM REFINERY

ROBUST PROCESS

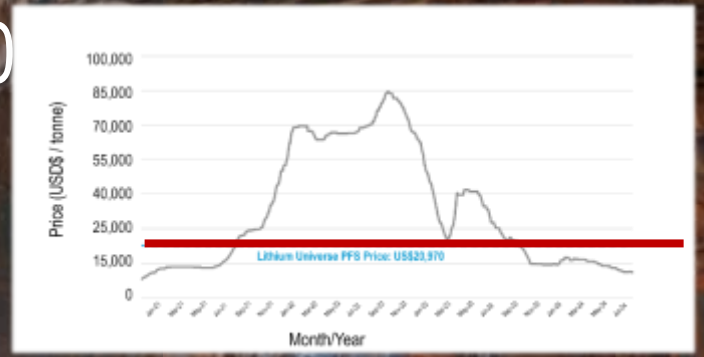
- Refinery to process all types of spodumene
- Sampled - international sources of spodumene
- Imports while Canadian Li industry develops
- Achieve battery grade specs 99.5% Li_2CO_3

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

CLOSING THE LITHIUM GAP

BÉCANCOUR LITHIUM DFS

- SC6 US$1,170/t LC $20,970
- Capex US$ 549 million
- NPV8 US$ 718 million
- IRR 21% Payback 3.9 years
- EBITDA US$ 148 million



MARGINS OF A REFINERY

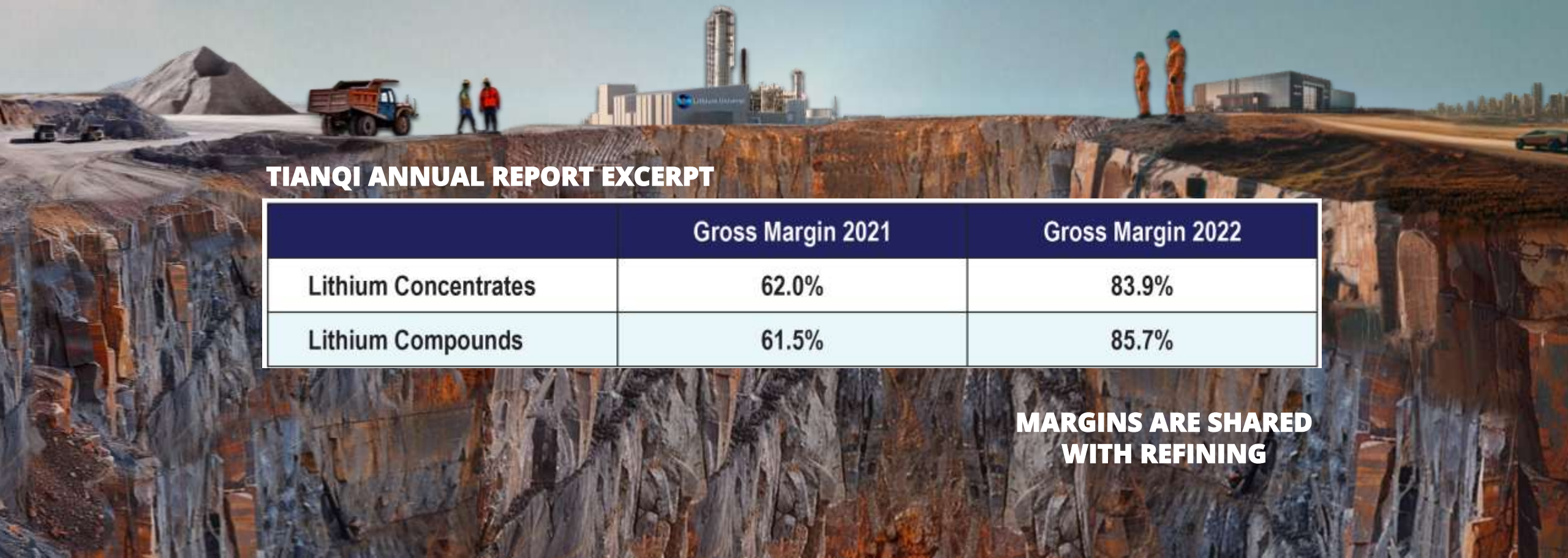
BÉCANCOUR EBITDA AT HISTORICAL SC6 & LC PRICES

EVEN AT LOW PRICES THE EBITDA IS POSITIVE

MARGIN IMPROVES DRASTICALLY WITH SOARING PRICES
(US 0.5B EBITDA)

MARGINS OF A REFINERY

TIANQI GREENBUSHES & REFINERY



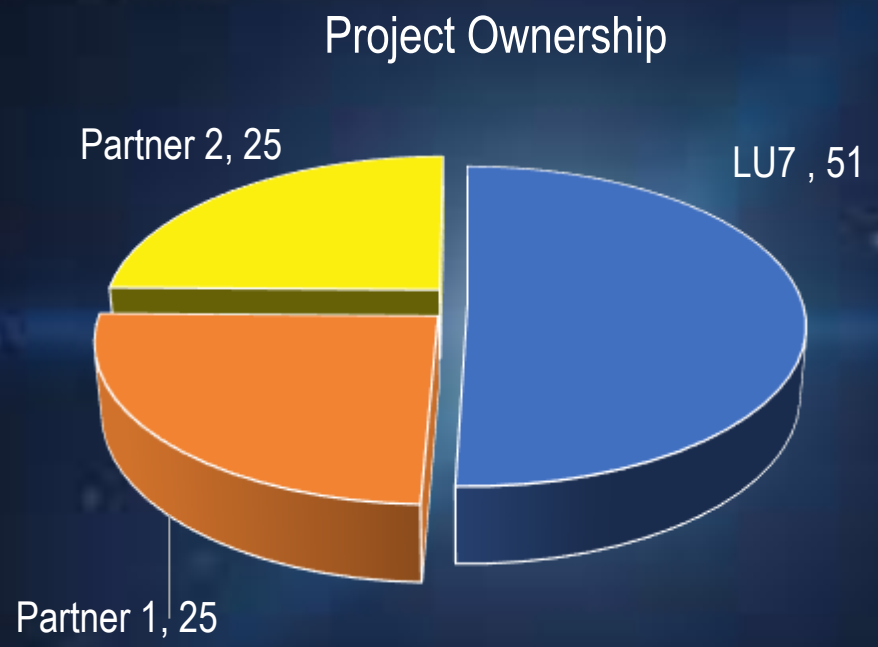
TIANQI ANNUAL REPORT EXCERPT

	Gross Margin 2021	Gross Margin 2022
Lithium Concentrates	62.0%	83.9%
Lithium Compounds	61.5%	85.7%

MARGINS ARE SHARED WITH REFINING

FUNDING STRATEGY

- Sell 49% project to 1-2 strategic partners
- Target OEM with final LC 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?

COUNTER CYCLICAL STRATEGY

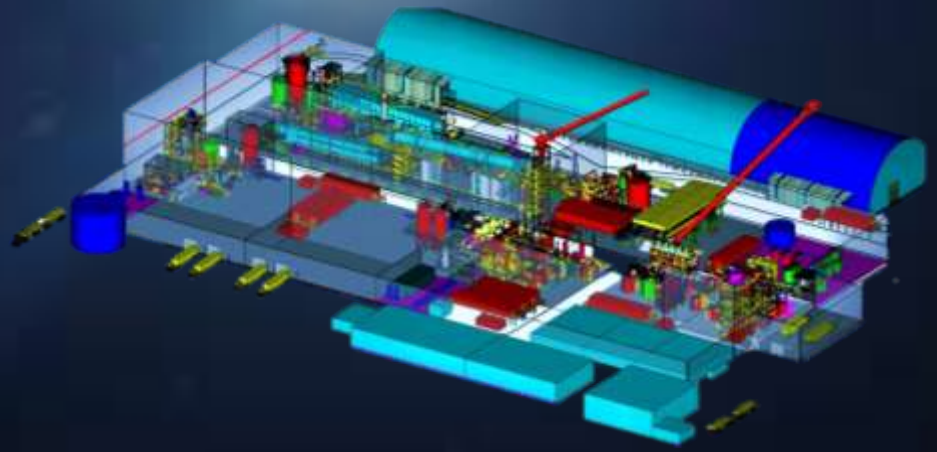
Why build a plant in a depressed-price environment?

- 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?

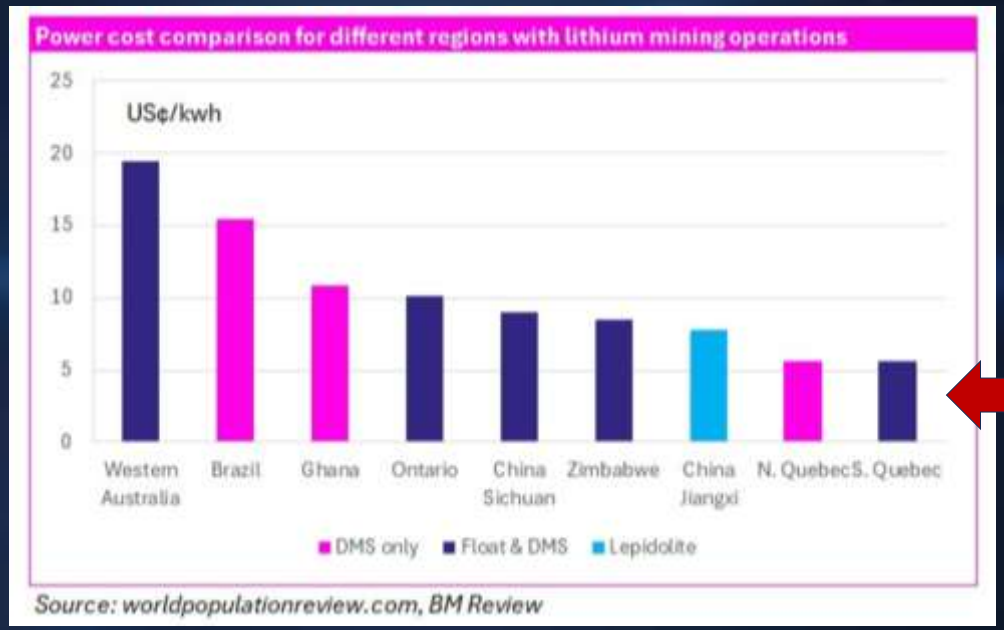
- Higher costs operations being closed
- Operations not performing, shutting down
- New efficient capacity is required for the growth
- World needs non-Chinese conversion
- Build “off the shelf” conversion that works



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



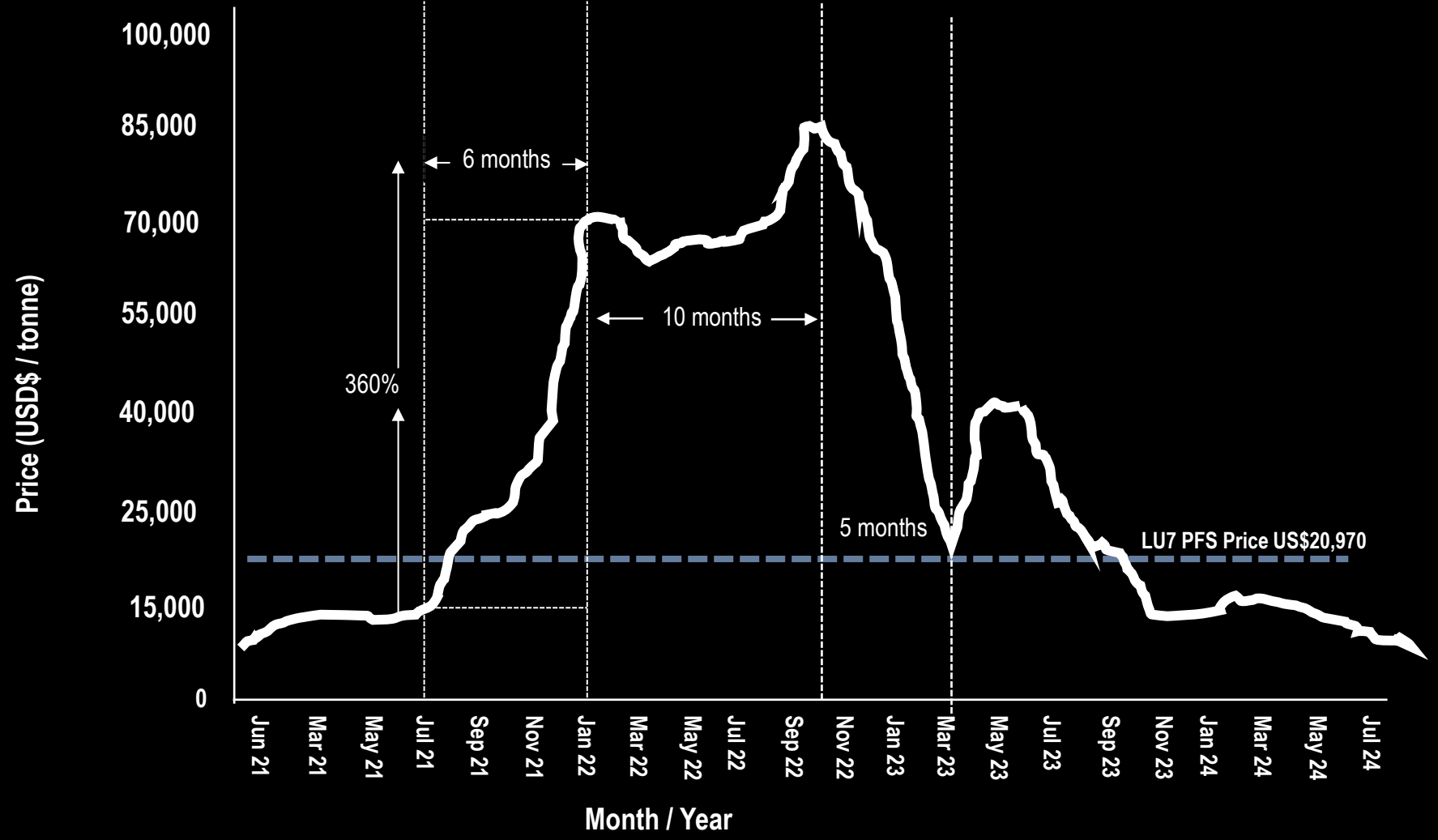
RECOVERY NOT IF BUT WHEN

DOUBLE WHAMMY

- Impact of supply reduction under-estimated
- Dramatic reduction 17%, 21% next year
- Delayed project development (low prices)
- 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 PRICE



LU7 LITHIUM STRATEGY

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

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

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 MONTRÉAL
TECHNOLOGICAL UNIVERSITY

LITHIUM DREAM TEAM

Proven Lithium Track Record

PROVEN TECHNOLOGY

Derisking Lithium Conversion Technology

BÉCANCOUR LITHIUM REFINERY

Competitive & Closing the Conversion Gap

INVESTOR HIGHLIGHTS

Lithium Universe LIMITED

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