

Commitment to the Future

# Quality Chemicals for the Clean Energy Revolution

Corporate Update – 121 Mining Investment Africa

February 2021



**LEPIDICO**

# Developing New Sustainable Lithium Chemical Supply Sources

- Lepidico's (ASX: LPD) strategic objective is to develop a sustainable vertically integrated lithium business that commercialises its proprietary technologies and provides above average returns from mine to battery grade lithium chemical production.
- Phase 1 Project Definitive Feasibility Study completed May 2020 for:
  - redevelopment of two mines within the 80% owned Karibib Project in Namibia and the design of a new flotation plant to produce a lepidolite concentrate for export to...
  - ...the chemical conversion plant in Abu Dhabi that employs Lepidico's clean-tech process technologies, L-Max<sup>®</sup> and LOH-Max<sup>®</sup>, which together manufacture c. 5,000tpa lithium hydroxide along with valuable by-products; and
  - which provide attractive economics from a 14 year production life.
  - strategic caesium and rubidium high value products plus bulk by-products collectively give aggregate production on a total lithium equivalent basis of +7,000tpa LCE.
- First technology licence revenue from the Cornish Lithium strategic collaboration, December 2020
- Market capitalisation A\$166 million; A\$3.1M cash and no debt at 31 December 2020.



ESG



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# Asset Overview

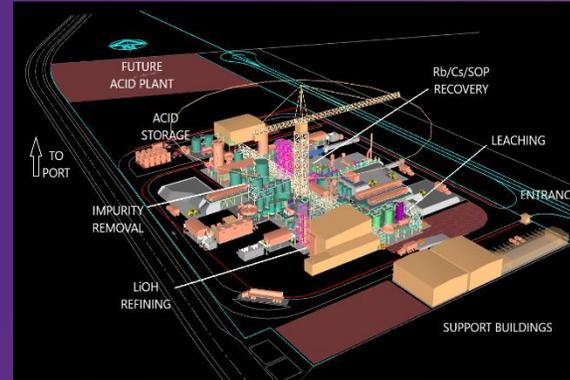
## Cornish Lithium, UK

Strategic collaboration to commercialise L-Max<sup>®</sup> and LOH-Max<sup>®</sup> technologies on zinnwaldite and polyolithionite

## Karibib Project, Namibia

DFS completed for mine redevelopments & a new flotation plant

Concentrate exported to Abu Dhabi



## Phase 1 Chemical Plant, Abu Dhabi

DFS completed for hydrometallurgical plant employing L-Max<sup>®</sup> & LOH-Max<sup>®</sup> proprietary technologies

Production of Lithium Hydroxide, Caesium Formate & Rubidium Sulphate



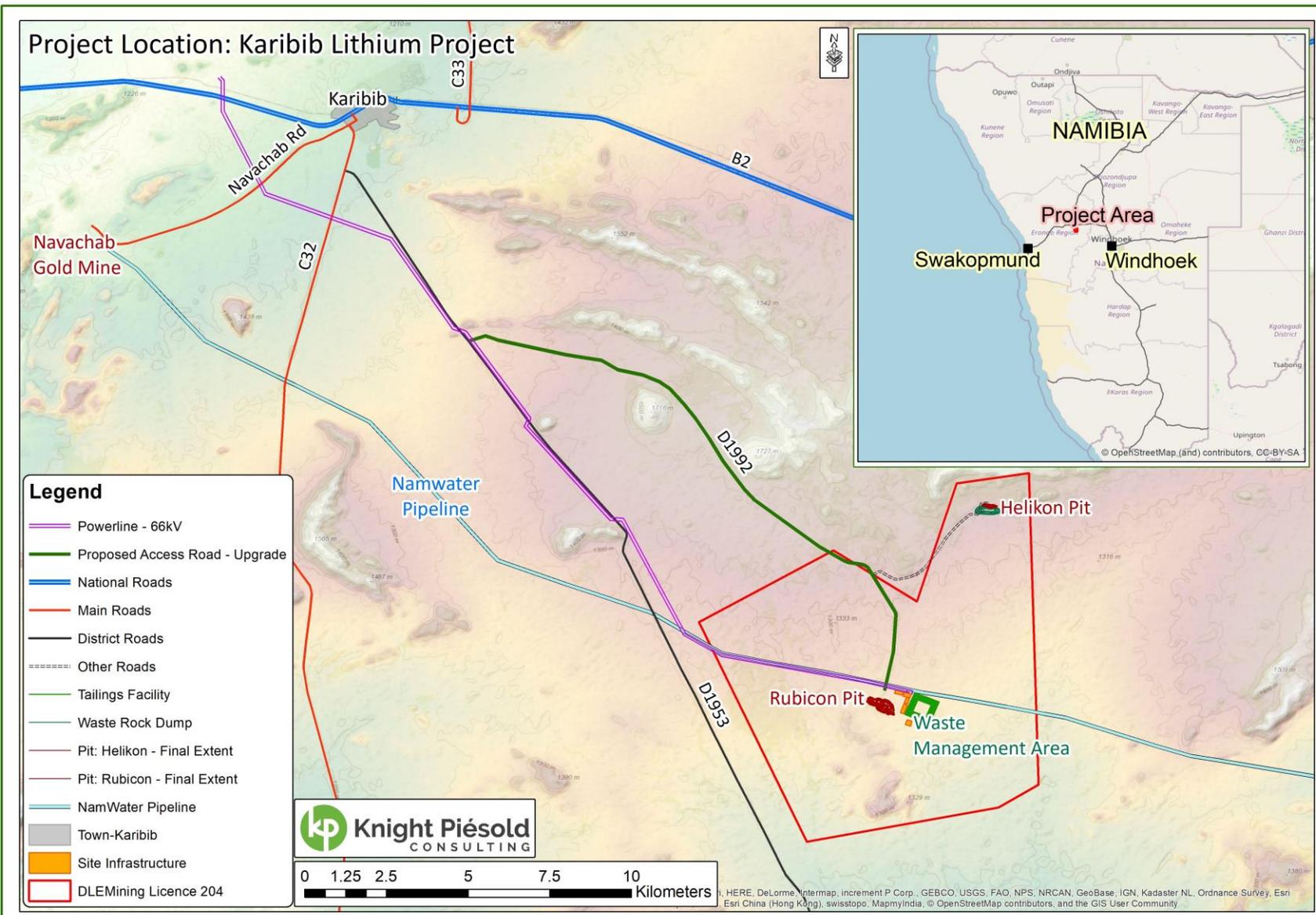
Corporate Office, Toronto

Lepidico  
Registered Office  
& Technical  
Capability, Perth



L-Max<sup>®</sup> Pilot  
Plant operational

# Karibib Project, Namibia: Overview



Fully permitted Project under  
Granted 68km<sup>2</sup> Mining Licence

Water extraction licence & 85%  
recycling of process water

Brownfield redevelopment of  
Rubicon & Helikon mines

Construction of new small scale  
60,000tpa concentrator

Direct access to excellent existing  
regional infrastructure

New 25km line for grid power

+1,000km<sup>2</sup> land position  
prospective for lithium, caesium,  
rubidium & gold

# Reserves & Resources

## Ore Reserve Estimate<sup>1</sup> Rubicon & Helikon 1 deposits

Ore Category	Mt	Li <sub>2</sub> O %	Rb %	Cs ppm	Ta ppm	K %
Proved	1.93	0.59	0.28	410	50	2.10
Probable	4.79	0.41	0.21	290	40	1.99
<b>Total Ore</b>	<b>6.72</b>	<b>0.46</b>	<b>0.23</b>	<b>320</b>	<b>50</b>	<b>2.02</b>

## Mineral Resource Estimate<sup>1</sup> 0.15% cut-off for Rubicon & Helikon 1

Deposit	Resource Category	Tonnes (M)	Li <sub>2</sub> O (%)	Rb (%)	Cs (ppm)	Ta (ppm)	K (%)
Rubicon + Helikon 1	Measured	2.20	0.57	0.27	389	51	2.14
	Indicated	6.66	0.38	0.22	274	42	2.06
	Inferred	0.17	0.70	0.29	1100	150	2.18
	<b>Total</b>	<b>9.04</b>	<b>0.43</b>	<b>0.23</b>	<b>318</b>	<b>46</b>	<b>2.08</b>
Helikon2 <sup>#</sup>	Inferred	0.216	0.56				
Helikon3 <sup>#</sup>	Inferred	0.295	0.48				
Helikon4 <sup>#</sup>	Inferred	1.510	0.38				
Helikon5 <sup>#</sup>	Inferred	0.179	0.31				
Global	Measured	2.20	0.57	0.27	389	51	2.14
	Indicated	6.66	0.38	0.22	274	42	2.06
	Inferred	2.37	0.43				
	<b>Total</b>	<b>11.24</b>	<b>0.43</b>				

## Unique source of Critical Minerals

JORC Code (2012) compliant Ore Reserve estimate for lithium, rubidium, caesium & potassium

76% conversion of M&I Resources to Reserves for a 14-year project life

Inferred Resource potential supports expansion potential or Phase 2 Project development

Mineral Resource estimates in progress for lepidolite surface stockpiles

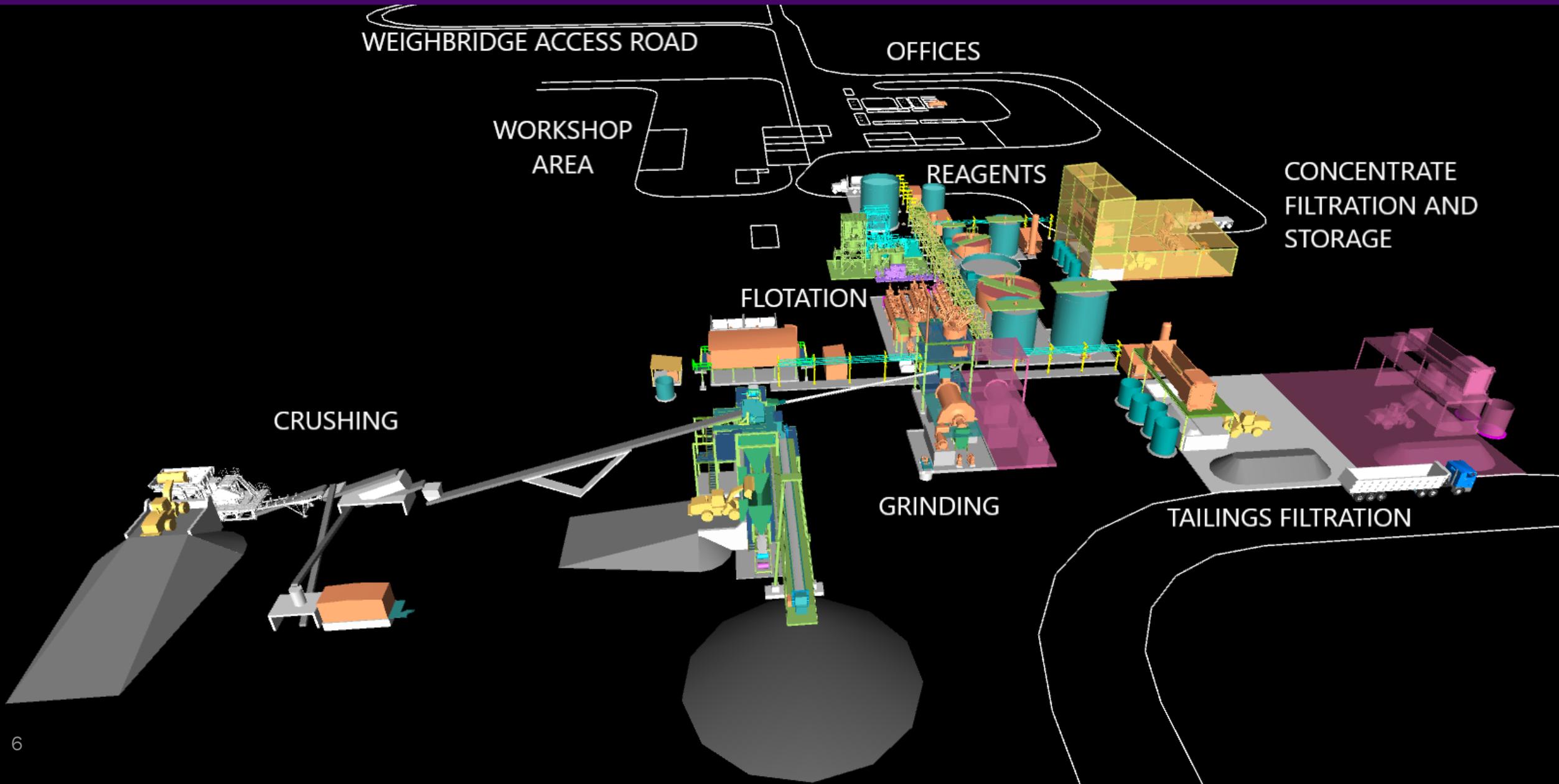
Ore exposed at surface and deposits pre-stripped by historical mining

Strip ratio just 0.5 to 1 for the first 2 years and 3.8 to 1 LoM

Most mine development work complete including haul road to Helikon 1 & water supply

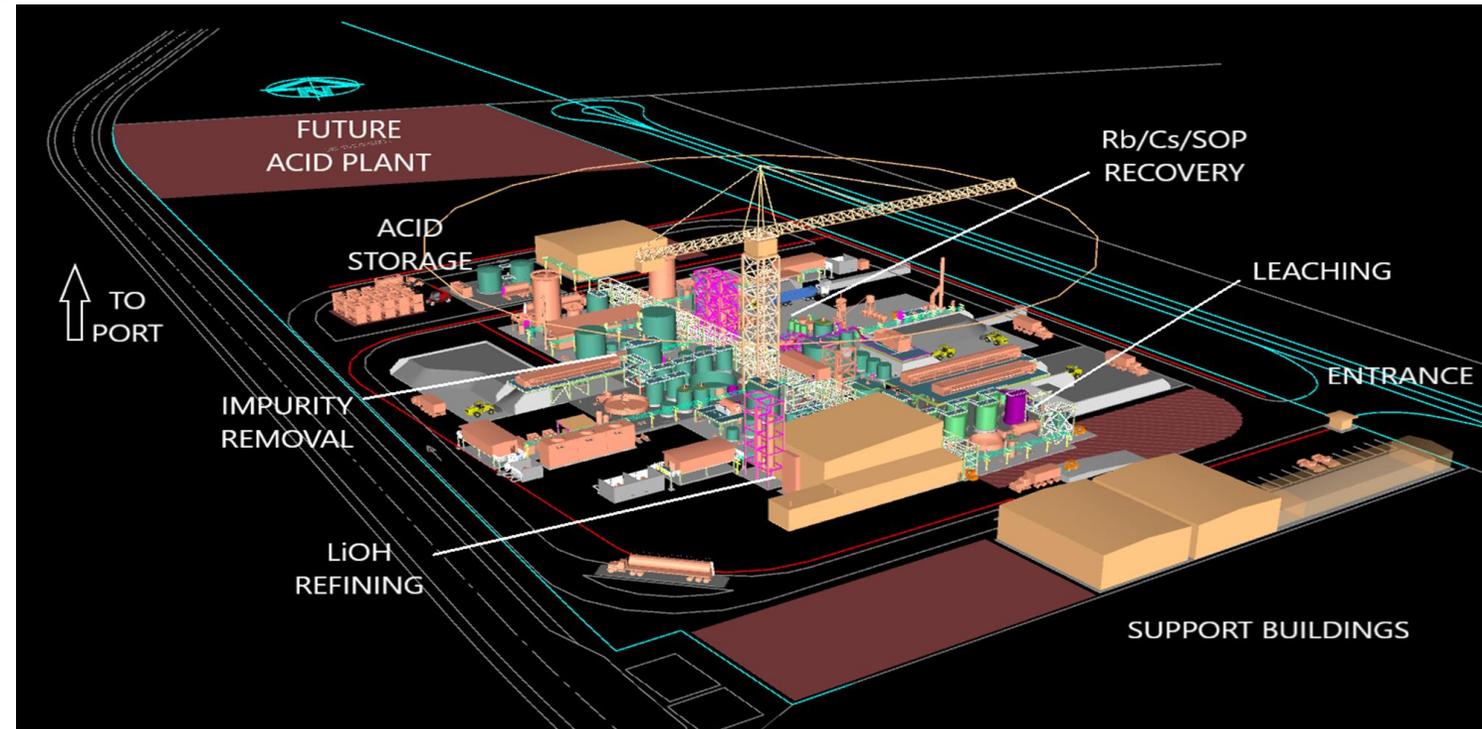
<sup>5</sup> <sup>1</sup> ASX Announcement: Definitive Feasibility Study Delivers Compelling Phase 1 Project Results, 28 May 2020

# Karibib Concentrator – conventional flotation



# L-Max<sup>®</sup> - chemical conversion solution for Li-mica minerals

- ✓ Patents – Australia, Europe, Japan & US patent protection received; The Australian Patent Office declared L-Max<sup>®</sup> to be “novel, inventive, industry applicable and patentable”
- ✓ L-Max<sup>®</sup> efficiently leaches and refines lithium from less contested mineral sources, lithium micas and phosphates
- ✓ L-Max<sup>®</sup> utilises common use, inexpensive reagents, is energy efficient & has straightforward OH&S characteristics



- ✓ L-Max<sup>®</sup> utilises conventional equipment & operates at atmospheric pressure and modest temperature
- ✓ High value by-products, Cs and Rb; and bulk by-products potassium sulphate fertiliser (SOP), amorphous silica and gypsum residue; with zero-waste potential
- ✓ Scalable technology: scoping study design parameters for a larger Phase 2 Plant indicates significant reduction in already competitive capital intensity<sup>1</sup>: US\$10,500/t after credits @ 20,000tpa LCE

7 <sup>1</sup> Capital intensity is the measure of pre-production capital per tonne of annual lithium carbonate equivalent plus by-products adjusted to lithium hydroxide equivalent

# Phase 1 Project Definitive Feasibility Study

Key Results	Unit	Value
Post-Tax NPV <sub>8</sub>	US\$M	221
Post-Tax NPV <sub>0</sub>	US\$M	521
Project IRR (Real terms)	%	31
Project Payback (from start of production)	Years	3
Lithium Hydroxide <sup>1</sup>	tpa	4,879
Rubidium Sulphate <sup>1</sup>	tpa	1,542
Caesium Formate <sup>1</sup>	tpa	246
C1 cash cost (by-product LCE basis)	US\$/t LCE	1,656
AISC (by-product LCE basis)	US\$/t LCE	3,221
Average Annual Free Cash Flow (post ramp-up) <sup>2</sup>	US\$M	49
Lithium Hydroxide Price: average/long term	US\$/t	13,669 / 12,910

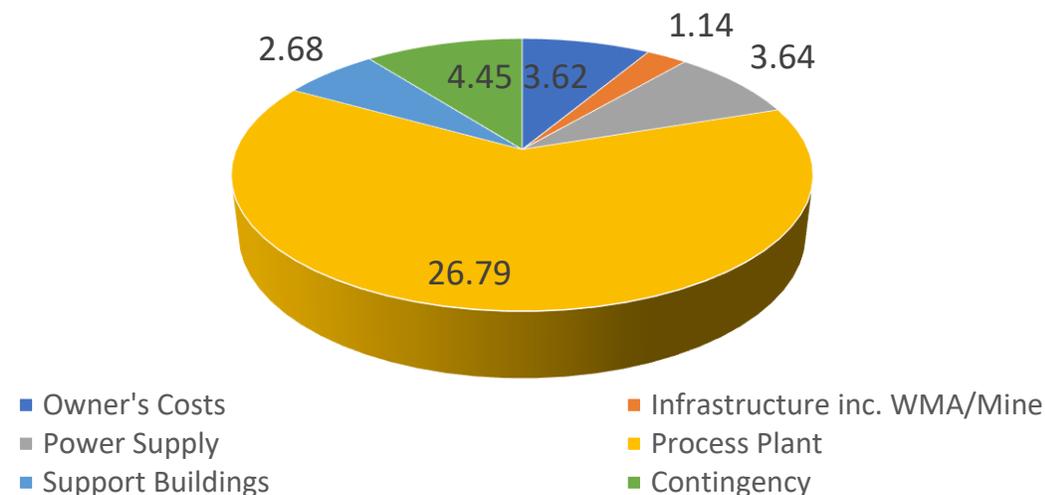


# Capital Cost Summary

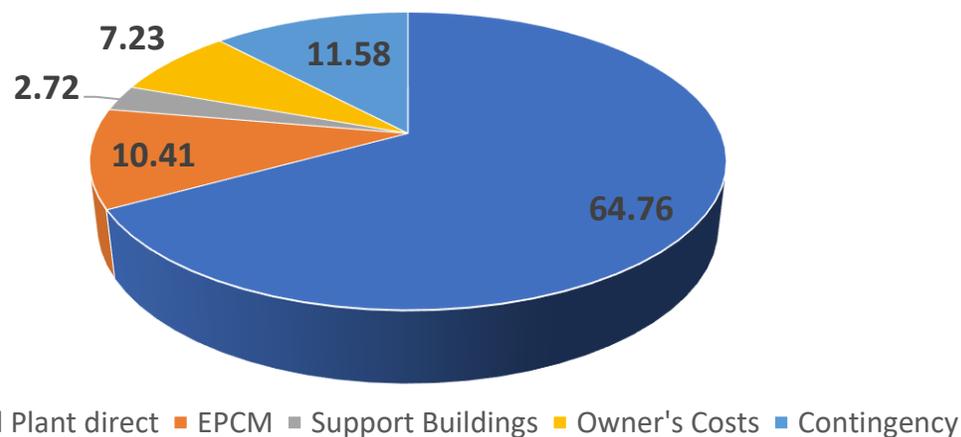
Competitive capital intensity: US\$17,400/t LCE after by-product credits; US\$27,900/t before credits

Pre-production Capital	\$M
Karibib Project	37.9
Chemical Plant	85.1
Contingency (13%)	16.0
<b>Total Pre-production</b>	<b>139.0</b>
Working capital	16.0
Leasing value	5.5

Karibib Project Pre-production Capital

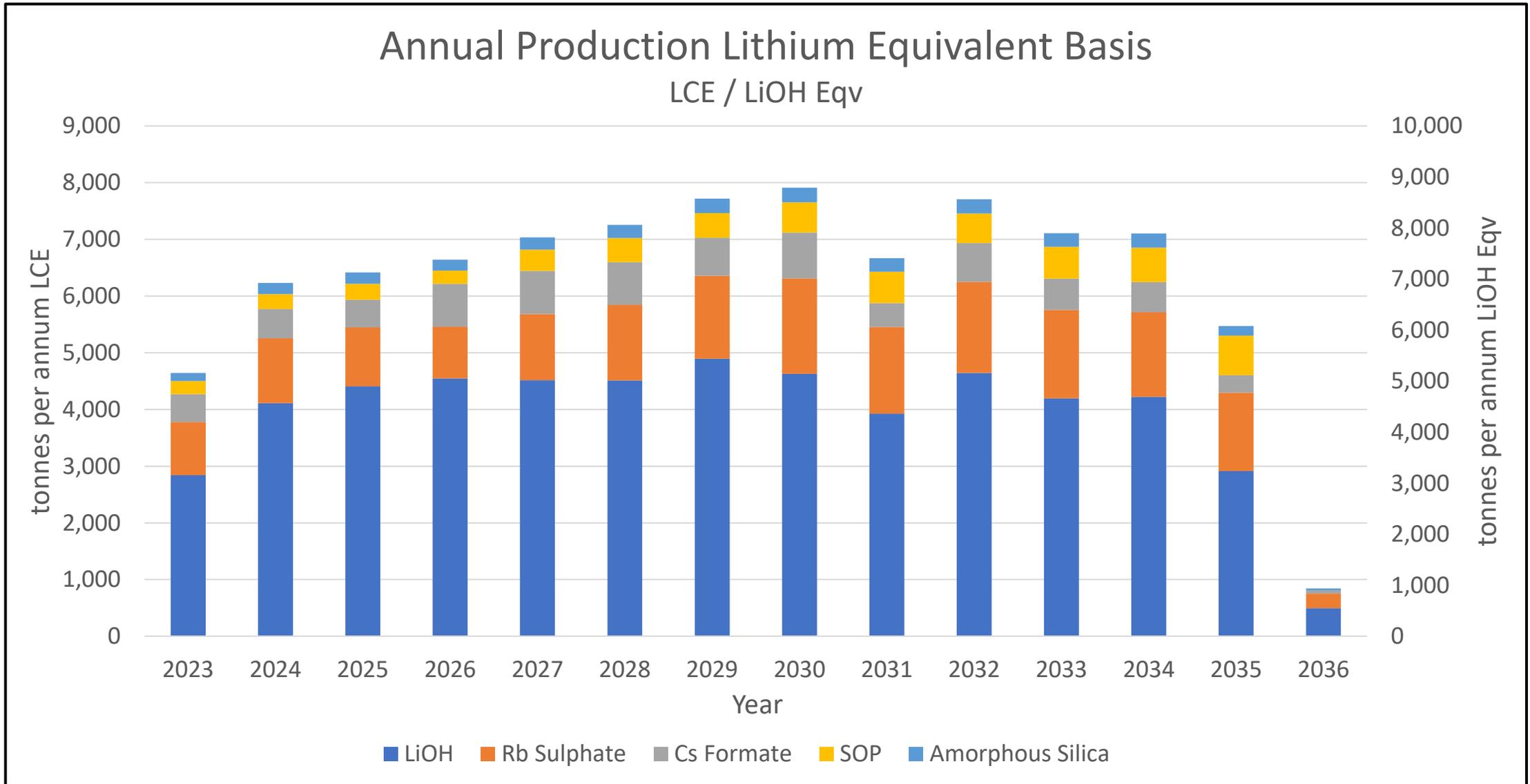


Chemical Plant Pre-production Capital

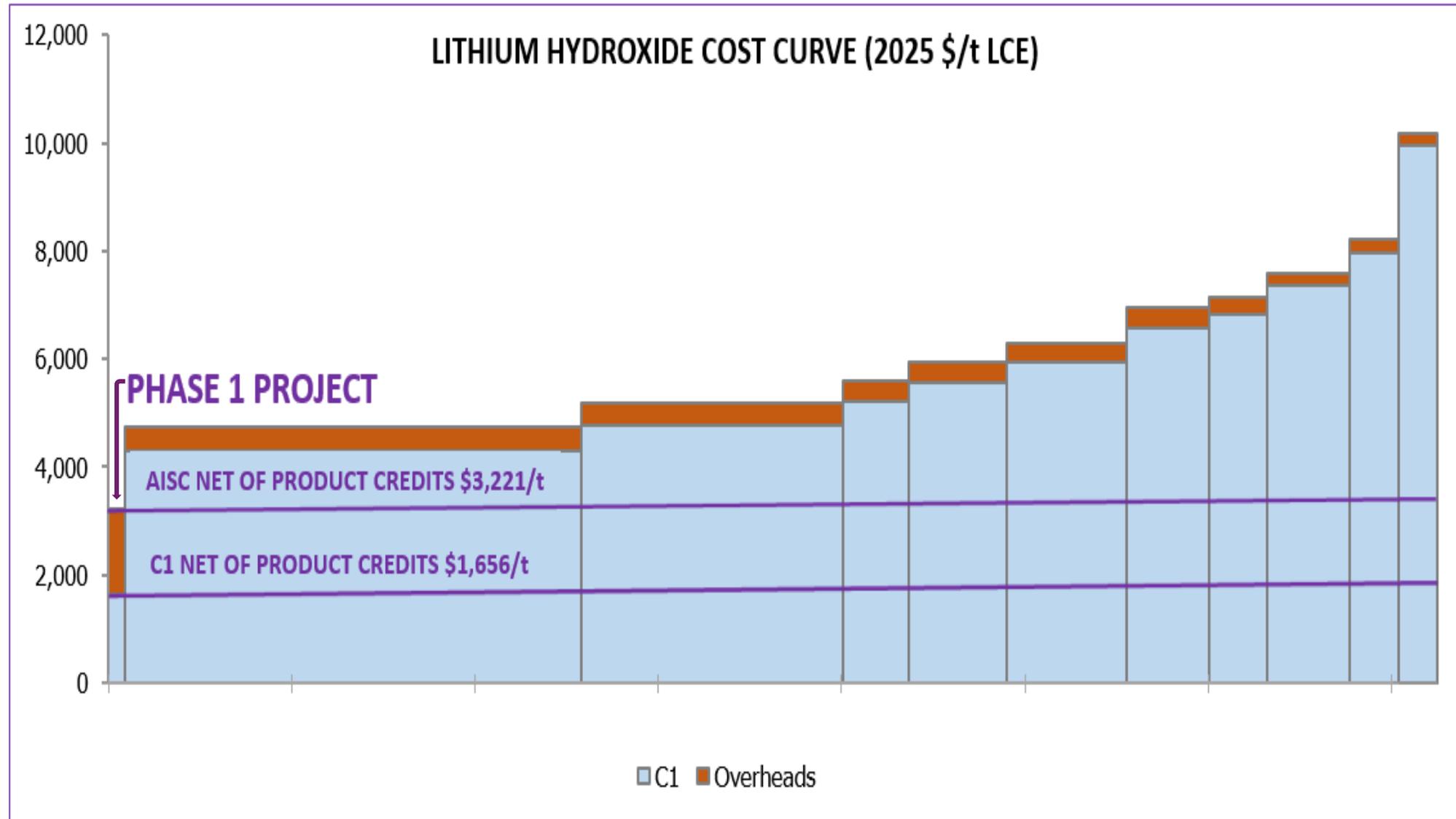


Sustaining Capital – Life of Project	\$M
Karibib Project	14.2
Chemical Plant	8.7
Acid Plant	15.6
<b>Total Sustaining</b>	<b>38.5</b>

# Life of Mine Production



# Low All in Sustaining Costs

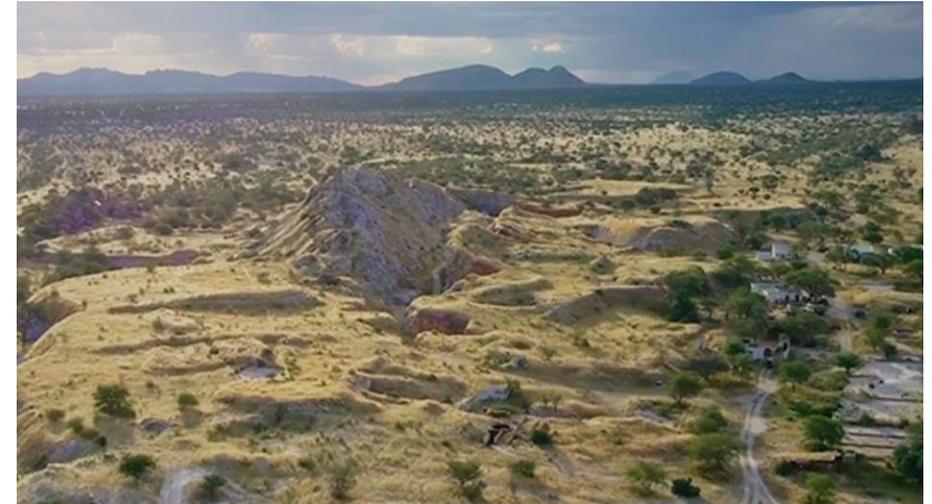


Source: Benchmark Mineral Intelligence for industry data; Lepidico for Phase 1 Project data

# Lepidico's LiOH to satisfy supply chain ESG needs

## Battery chemical sustainability & traceability drive to intensify

- ✓ **Carbon intensity** – 5-7t/t CO<sub>2</sub>/LiOH.H<sub>2</sub>O (Scope 1 & 2 est) similar to brine & lower than spodumene sourced chemicals
- ✓ **Other emissions & pollutants** – negligible; main emission low grade steam
- ✓ **Water intensity** – 50-60L/kg, 30% Namibia/70% UAE, with 85% of concentrator water recycled
- ✓ **Land use intensity** – c. 800 Ha on predominantly industrial land; mine closure plan to return land to agricultural use
- ✓ **Biodiversity** – ESIA identifies no material impacts at Karibib; UAE operations located within designated industrial park
- ✓ **Industrial waste generation** – no TSF required, benign mine and concentrator waste co-disposed, no sodium sulphate generated from converter, opportunity for zero-waste chemical plant
- ✓ **Social impacts** – creation of 115 direct jobs and +800 indirect in Namibia; 119 jobs in UAE; no relocation requirement



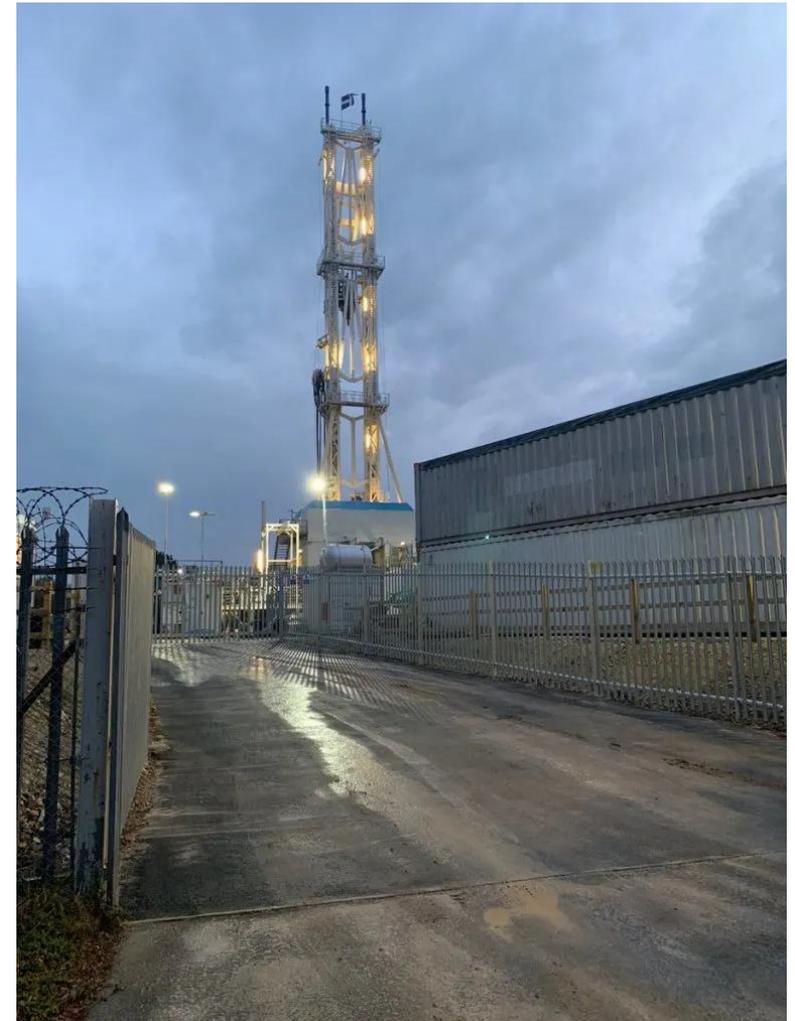
## Enhanced solution for LiOH.H<sub>2</sub>O from mined sources<sup>1</sup>

- ✓ **Patent** – provisional patent lodged early 2019; national patent phase started August 2020
- ✓ **Application** – in mined lithium sources that employ sulfur-based chemistry in conversion; includes Spodumene
- ✓ **Recovery** – +4% to c. 91% versus conventional Spodumene process; +1,000tpa LiOH at nominal 20,000tpa rate
- ✓ **CapEx** – US\$52M reduction (14%) on 20,000tpa LCE reference case Spodumene converter on simplified flowsheet
- ✓ **OpEx** – reduced by US\$8M pa versus reference Spodumene converter case on lower power and reagent consumption
- ✓ **CO<sub>2</sub> intensity** – reduced on lower energy intensity and lower logistics CO<sub>2</sub> footprint
- ✓ **Value** – enhanced by +US\$100M per 20,000tpa LiOH.H<sub>2</sub>O over 10-years
- ✓ **Waste** – benign gypsum/alunite waste
- ✓ **Risk** – reduced as sodium sulphate not produced; a potential fatal flaw for conventional plants if disposal required
- ✓ **Ownership** – 100% owned by Lepidico; royalty sharing arrangement with original developers for third party licenses

# Technology Business Unit

## Lepidico's clean-tech processes have broader application within the lithium industry

- Strategic collaboration with Cornish Lithium Ltd to commercialise the L-Max<sup>®</sup> and LOH-Max<sup>®</sup> technologies on zinnwaldite and polyolithionite mica mineralisations sourced from the St Austell granite, UK
- Geothermal power generation in Cornwall coupled with the benefits of Lepidico's technologies should allow for the production of some of the lowest environmental impact chemical products in the industry
- Cornish Lithium acquired a process technology licence in December 2020, including a pilot plant design package and certain technical plant data for the consideration of C\$4 million
- Cornish lithium transaction represents Lepidico's first meaningful technology licence revenue
- Lepidico expects to negotiate further technology licences in calendar 2021, with a focus on LOH-Max<sup>®</sup> for application in spodumene converters



Geothermal power, Cornwall

# Transitioning to Development & Implementation

- ✓ Karibib Project ESIA completed; aligned with Equator Principles & IFC Performance Standards
- ✓ Karibib Project fully permitted
- ✓ Abu Dhabi ESIA complete; permitting including land lease due for completion Q1 2021
- ✓ Lithium hydroxide monohydrate offtake; discussions with 6 prospective customers; samples being analysed
- ✓ NDAs with 3 prospective customers of caesium and rubidium; constructive discussions progressing
- ✓ Mandate letter signed with the United States International Development Finance Corporation (DFC); due diligence commencing to evaluate for DFC debt financing of the Phase 1 Namibian operations and working capital
- ✓ Consideration of non-equity based funding for a Phase 1 early works program with the objective of bringing the Project onto a fast track; early service and FEED programmes
- ✓ Lion's Head Global Partners (LHGP) advising on debt finance from other Development Financing Institutions (DFIs) and commercial lenders; due diligences ongoing
- ✓ EPCM tender process closed January 2021 for both the Karibib concentrator and Abu Dhabi chemical plant: award of EPCM contract scheduled for March 2021 quarter

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All statements other than statements of historical fact included in this release including, without limitation, statements regarding future plans and objectives of Lepidico, are forward-looking statements. Forward-looking statements can be identified by words such as "anticipate", "believe", "could", "estimate", "expect", "future", "intend", "may", "opportunity", "plan", "potential", "project", "seek", "will" and other similar words that involve risks and uncertainties. These statements are based on an assessment of present economic and operating conditions, and on a number of assumptions regarding future events and actions that are expected to take place. Such forward-looking statements are not guarantees of future performance and involve known and unknown risks, uncertainties, assumptions and other important factors, many of which are beyond the control of the Company, its directors and management of Lepidico that could cause Lepidico's actual results to differ materially from the results expressed or anticipated in these statements.

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## Competent Person Statement

The information in this report that relates to the Helikon 1 and Rubicon Ore Reserve estimates is extracted from an ASX Announcement dated 28 May 2020 ("Definitive Feasibility Study Delivers Compelling Phase 1 Project Results") and was completed in accordance with the guidelines of the 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 original market announcement and that all material assumptions and technical parameters underpinning the Mineral Resource estimates in the relevant market announcement continue to apply and have not materially changed. The Company confirms that the form and context in which the Competent Person's findings are represented have not been materially modified from the original market announcement.

The information in this report that relates to the Rubicon and Helikon 1 Mineral Resource estimates is extracted from an ASX Announcement dated 30 January 2020 ("Updated Mineral Resource Estimates for Helikon 1 and Rubicon") and was completed in accordance with the guidelines of the 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 original market announcement and that all material assumptions and technical parameters underpinning the Mineral Resource estimates in the relevant market announcement continue to apply and have not materially changed. The Company confirms that the form and context in which the Competent Person's findings are represented have not been materially modified from the original market announcement.

The information in this report that relates to the Helikon 2 - Helikon 5 Mineral Resource estimates is extracted from an ASX Announcement dated 16 July 2019 ("Drilling Starts at the Karibib Lithium Project") and was completed in accordance with the guidelines of the 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 original market announcement and that all material assumptions and technical parameters underpinning the Mineral Resource estimates in the relevant market announcement continue to apply and have not materially changed. The Company confirms that the form and context in which the Competent Person's findings are represented have not been materially modified from the original market announcement.

# Thank You



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Creative Resources Leadership

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