VULCAN ENERGY
ZERO CARBON LITHIUM™

BRIDGING ENGINEERING STUDY RESULTS

PHASE ONE FINANCING LAUNCH EDITION

Q4 2023

DISCLAIMER[1]

Disclaimer, Acknowledgement and Agreement. Vulcan, to the maximum extent permitted by law, expressly excludes and disclaims all liability (including, without limitation, any liability arising out of fault or negligence on the part of any person) for any direct, indirect, consequential or contingent loss or damage, or any costs or expenses, arising from the use of this Presentation or its contents, or otherwise arising in connection with it. By attending an investor presentation or briefing, or accepting, accessing or reviewing this Presentation, you acknowledge and agree to the terms set out in the "Disclaimer" sections of the Presentation.

No investment or financial product advice. This Presentation, and the information provided in it, does not constitute, and is not intended to constitute, financial product or investment advice, or a recommendation to acquire Vulcan Shares, nor does it constitute, and is not intended to constitute, accounting, legal or tax advice. This Presentation does not, and will not, form any part of any contract for the acquisition of Vulcan Shares. This Presentation has been prepared without taking into account the objectives, financial or tax situation or particular needs of any individual. Before making an investment decision (including any investment in Vulcan Shares or Vulcan generally), prospective investors should consider the appropriateness of the information having regard to their own objectives, financial and tax situation and needs, and seek professional advice from their legal, financial, taxation or other independent adviser (having regard to the requirements of all relevant jurisdictions).

Forward-looking statements. This Presentation contains certain forward-looking statements. Often, but not always, forward-looking statements may be identified by the use of forward-looking words such as "may", "will", "expect", "intend", "plan", "estimate", "target", "propose", "anticipate", "continue", "outlook" and "guidance", or other similar words. By their nature, forward-looking statements inherently involve known and unknown risks, uncertainties and other factors that may cause actual results, performance and achievements to be materially greater or less than estimated, including those generally associated with the lithium industry and/or resources exploration companies. Any such forward-looking statements, opinions and estimates in this Presentation (including any statements about market and industry trends) are based on assumptions and contingencies, all of which are subject to change without notice, and may ultimately prove to be materially incorrect. Forward-looking statements are provided as a general guide only and should not be relied upon as, and are not, an indication or guarantee of future performance. Neither Vulcan nor any of its directors, officers, agents, consultants, employees or advisors give any representation or warranty, express or implied, as to the fairness, accuracy, completeness or correctness of the information, opinions, forward looking statements and conclusions contained in this Presentation.

Investment Risks. As previously noted, an investment in Vulcan is subject to both known and unknown risks, some of which are beyond the control of Vulcan. Vulcan does not guarantee any particular return or its performance, nor does it guarantee any particular tax treatment. Prospective investors should have regard to the previously disclosed risks, particularly the May 2023 Prospectus and April 2023 Corporate Presentation, when making their investment decision, and should make their own enquires and investigations regarding all information in this Presentation, including, but not limited to, the assumptions, uncertainties and contingencies that may affect Vulcan's future operations, and the impact that different future outcomes may have on Vulcan.

Ore Reserves and Mineral Resources Reporting. It is a requirement of the ASX Listing Rules that the reporting of ore reserves and mineral resources in Australia comply with the Joint Ore Reserves Committee's Australasian Code for Reporting of Mineral Resources and Ore Reserves ("JORC Code"). Investors outside Australia should note that while ore reserve and mineral resource estimates of the Company in this document comply with the JORC Code (such JORC Code-compliant ore reserves and mineral resources being "Ore Reserves" and "Mineral Resources" respectively), they may not comply with the relevant guidelines in other countries and, in particular, do not comply with (i) National Instrument 43-101 (Standards of Disclosure for Mineral Projects) of the Canadian Securities Administrators (the "Canadian NI 43-101 Standards"); or (ii) subpart 1300 of Regulation S-K under the US Securities Act of 1933, as amended (the "Securities Act"), which governs disclosures of mineral reserves in registration statements filed with the US Securities and Exchange Commission ("SEC"). Information contained in this Presentation describing mineral deposits may not be comparable to similar information made public by companies subject to the reporting and disclosure requirements of Canadian or US securities laws and investors are cautioned that there can be no assurance that the reserves and resources reported by the Company under the JORC Code would be the same had it prepared its reserve or resource estimates under the standards adopted under subpart 1300 of Regulation S-K.

Technical information. Vulcan has carried out a definitive feasibility study and bridging study for Phase One of its Zero Carbon Lithium™ Project ('Project'), the results of which were announced to the ASX in the announcement "Zero Carbon Lithium Project Phase 1 DFS Results" dated 13 February 2023 ('DFS'), ('DFS Announcement') and the Bridging Study Announcement on 16 November 2023 ("Bridging Study"). This presentation may include certain information relating to the DFS and the Bridging Study. The DFS and Bridging Study are based on the material assumptions and parameters outlined in their respective announcements. While Vulcan considers all of the material assumptions to be based on reasonable grounds, there is no certainty that they will prove to be correct of that the range of outcomes indicated by the Bridging Study will be achieved. This presentation may also include certain information relating to Phase 2 of its Project, Vulcan has not yet carried out a definitive feasibility study for Phase Two of its Project.

Funding Strategy. To achieve the range of outcomes indicated in the Bridging Study, additional funding will be required. Investors should note that there is no certainty that Vulcan will be able to raise the amount of funding when needed. It is also possible that such funding may only be available on terms that may be dilutive to or otherwise affect the value of Vulcan's existing shares. It is also possible that Vulcan could pursue other financing strategies such as a partial sale or joint venture of the Project. If it does, this could materially reduce Vulcan's proportionate ownership of the Project.

Competent Person Statement. Please see the Competent Person Statement slide in the Appendices.

[1] This slide contains a summary of the applicable disclaimers, the full disclaimer in relation to this Presentation is contained in Appendix 1.

OUR TARGETS

We are aiming to become the world's first integrated lithium chemicals and renewable energy producer with net zero greenhouse gas emissions.

Vulcan's unique **Zero Carbon Lithium™** Project aims to produce both renewable geothermal energy, and lithium hydroxide for Electric Vehicle (EV) batteries, from the same deep brine source in the Upper Rhine Valley, Germany.

Renewable heat production for more than **1 million** people by 2030[1]

Enough **lithium hydroxide** production for **1 million** EVs per annum[2]

1 million tonnes of CO_2 emissions avoided per annum[3]

[1]*Based on average per capita heat consumption in Germany of 6,200 kWh (https://www.destatis.de/).and the estimated capacity for heat production from Vulcan's long term development areas, in a pure heat (no power) scenario.* [2]*Based on Phase One production target capacity of 24ktpa from Bridging Engineering Study announcement of 16 November 2023, Phase Two production target capacity of approx. similar figure from PFS (refer to Technical Information statement in Disclaimer), and Vulcan internal estimated average EV battery size and chemistry in Europe.* [3]*CO_2 emissions avoidance target based on Minviro LCA data on Vulcan project and lithium industry peer averages in the same LCA.*

Purpose

We will empower a net zero-carbon future

Mission

Becoming Europe`s leading Zero Carbon Lithium™ business & enabling energy security through geothermal energy

PHASE ONE BRIDGING STUDY RESULTS

MEETING EU'S BATTERY ELECTRIC VEHICLE CRITICAL RAW MATERIAL NEEDS:

Lithium Hydroxide

- Targeting approximately **24,000 tonnes lithium hydroxide** (LHM) production capacity per annum planned from Phase One, enough for ca. 500,000 **Battery Electric Vehicles (BEVs)**. [1,2,3]
- **Fully aligned** with EU and German policy towards **greater vertical integration of battery supply chain**, and **onshoring of Critical Raw Materials**, including the Green Deal Industrial Plan and Critical Raw Materials Act.

PROVIDING AFFORDABLE, BASELOAD RENEWABLE ENERGY, AND EMPLOYMENT, FOR LOCAL COMMUNITIES:

Renewable Energy

- Target co-production of up to 560 GWh/a of **baseload renewable heat for local community district heating** and internal consumption.[1, 3]
- Targeted co-production of up to 275 GWh/a of baseload renewable power, to be sold to grid at **Feed-in Tariff rates**. [1, 3]
- **Thousands of direct and indirect jobs** estimated to be created, linked to the energy transition, decarbonisation and electrification of transport. [1,3]

[1] Refer to Project Assumptions on Appendix 3. [2] Phase Two production target of approx. similar figure from PFS (refer to technical information statement), and Vulcan internal estimated average EV battery size and chemistry in Europe. [3] These are targets and may not be achieved. Please refer to the forward-looking statement disclaimer in Appendix 1.

PHASE ONE BRIDGING STUDY RESULTS
5 KEY OUTCOMES

1. REDUCED RISK

Streamlining into **one core production area** that is **already commercially producing** brine, with increased lithium reserves.

2. REDUCED CAPEX

~€100m reduction down to est. €1,399m, combining assets, whilst moving to higher project definition.

3. LOW COST

Further decline in OPEX to est. €4,022/t LHM, one of the lowest on the industry cost curve, while maintaining green credentials.

4. ROBUST FINANCIALS

Maintained est. NPV at €3.9Bn (A$6.5Bn) pre-tax and **€2.6Bn (A$4.3Bn) post-tax**, and €705m target annual revenues. 4.2y payback, despite drop in lithium prices.

5. EXECUTION READY

- **Class 2 cost** estimate, ready to award key **EPC(m) contracts.**
- 10,000s of hours of **successful in-house A-DLE piloting** completed.
- €50m **Optimisation Plants starting up.**
- **Launching** project level debt and equity **financing with strong support.**

PHASE ONE BRIDGING STUDY RESULTS
5 KEY OUTCOMES

1. REDUCED RISK

Streamlining into **one core production area** that is **already commercially producing** brine, with increased lithium reserves.

ONE CORE PRODUCTION AREA:

- **Improved** Field Development Plan (FDP), from two production areas down to **one core production area** that is already commercially producing brine.
- Reduction of two upstream lithium plants to one central plant.
- Simplified upstream design enabling **easier operation and maintenance**.

INCREASE IN RESERVES:

- State-of-the-art data acquisition results in **increase** of Phase One Lionheart Proved and Probable **Reserves** to 0.57 Mt Lithium Carbonate Equivalent (LCE) @ 181 mg/l Li in the core "Lionheart" area, centred around current production wells in core of the URVBF field.[1]
- Resource of 4.16 Mt LCE @ 181mg/l Li in the Phase One Lionheart area, of which 2.11 Mt LCE is in the Measured category.[1]
- Large global Resource of 27.7 Mt LCE @ 175 mg/l Li, the **largest lithium Resource in Europe**[2] shows significant scope for **pipeline of further phased development**, with a modular approach to further plant build.[1]

1. Refer to Competent Person Statement in Appendix 2
2. According to public, JORC-compliant data.

PHASE ONE BRIDGING STUDY RESULTS
5 KEY OUTCOMES

2. **REDUCED EST. CAPEX**

~€100m reduction down to est. €1,399m, combining assets, whilst moving to higher project definition.

3. **LOW COST**

Further decline in OPEX to est. €4,022/t LHM, one of the lowest on the industry cost curve, while maintaining green credentials.

IN A VOLATILE WORLD, LOW-COST PROJECT AND STABLE PRICING:

- **Very low OPEX** estimated at **€4,022/t lithium hydroxide**, due to smart use of waste heat to drive the process. Combined with offtake agreements with Tier One customers, **supports stability** during payback period, and protection from lithium price fluctuations.

PEERLESS ENVIRONMENTAL CREDENTIALS:

- Use of **integrated renewable energy** to enable **net zero carbon footprint** in process.
- Determined as a low environmental and social impact project due to small land requirements and being situated in industrial and agricultural areas.
- Vastly reduces transport distance of lithium supply chain.
- Usage of modern adsorbent technology requires low reagents.
- Integration of water recycle streams to enable very low net water consumption.
- Net energy positive operation, produces more renewable energy than it consumes, a world first.

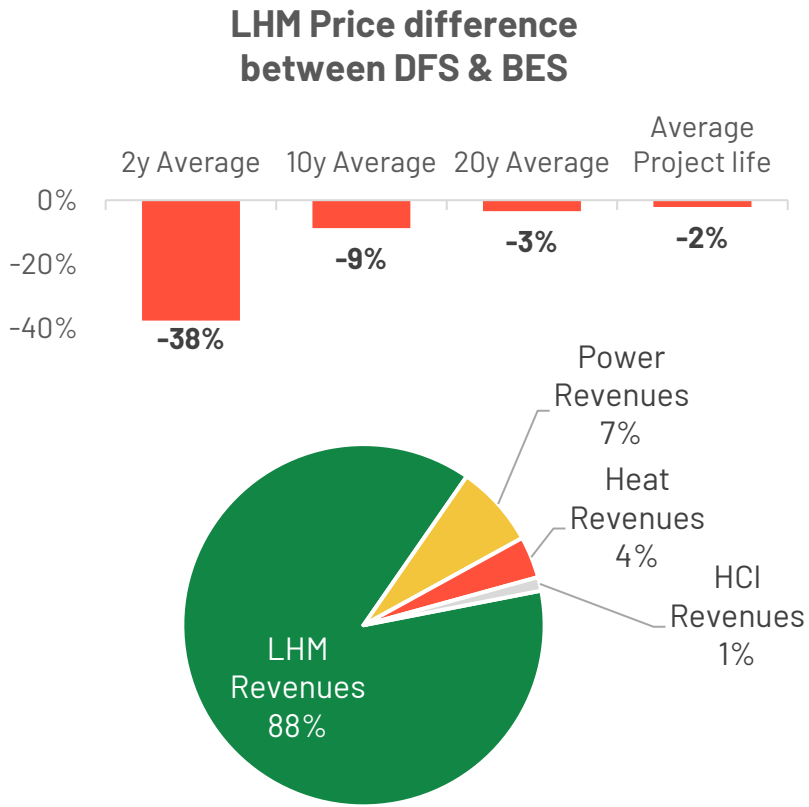
PHASE ONE BRIDGING STUDY RESULTS
5 KEY OUTCOMES

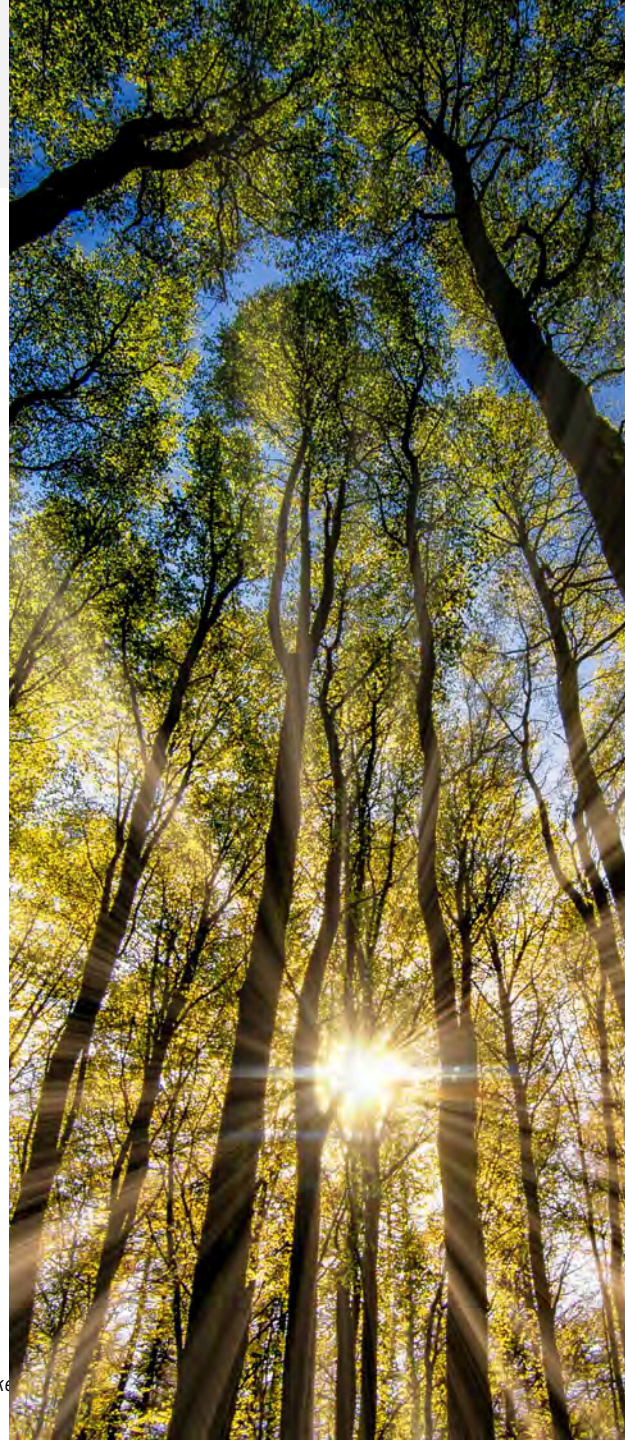
4.

ROBUST FINANCIALS[4]

Maintained est. NPV at €3.9Bn (A$6.5Bn) pre-tax, €2.6Bn (A$4.3Bn) post-tax, and €705m target annual revenues. 4 year payback, despite drop in lithium prices.

	Base Case Financials Bridging Engineering
Revenues €m/a	705
EBITDA €m/a	521
EBITDA margin %	74%
NPV pre-tax €m	**3,906**
NPV post-tax €Mm	**2,566**
IRR pre-tax %	**27.8%**
IRR post-tax %	**22.5%**
Payback in years	4.2
Total Capex €m	**1,399**
Avg Opex[2] €/t LHM	**4,022**
Avg LHM price 10y forecast[3] €/t	**€23,865**
Avg LHM price forecast[3] €/t	€32,050





[1] Vulcan Energy's Phase One Bridging Engineering Study .These are targets and may not be achieved. Please refer to the Forward-Looking Statement disclaimer in Appendix 1.
[2] OPEX is based on a production at designed capacity at 24,600t, excluding inflation, LHM and including an average power price over the project life.
[3] The average forecast realised price per tonne of LHM is taking into consideration Fastmarkets long term price forecast (min 57.5% LiOH)($/kg, EU & US) and combining it with Vulcan's pricing concluded in offtake ceilings, fix prices, and price indexed on indexes like Fastmarkets. [4] Please see assumptions in Appendix 3.

PHASE ONE BRIDGING STUDY RESULTS
5 KEY OUTCOMES

5. EXECUTION READY

- **Class 2 cost** estimate, ready to award key **ECP(m) contracts.**
- 10,000s of hours of **successful in-house A-DLE piloting** completed.

HIGHER PROJECT DEFINITION:

- Reduced uncertainty **provides Class 2 cost estimate**, ready to award key contracts.
- **Key land parcels acquired** for initial execution phase. Preparatory works conducted on first site.
- **EPCM tender** process very advanced, contractor to be named in Q1/Q2.
- **Key permits are on track**, having been received or have been submitted.

PROVEN COMMERCIAL TECHNOLOGY | UNIQUE IN-HOUSE EXPERTISE:

- Adsorption-type Direct Lithium Extraction (**A-DLE**) used in process, which constitutes **10% of lithium production today**, and set to increase to 15% of market share in the next 10 years due to its cost, purity and sustainability advantages.
- Vulcan using its own proprietary in-house adsorbent, **VULSORB®**, which has shown a high performance relative to "off the shelf" products.
- **10,000s of hours of successful in-house pilot plant** performance conducted, showing >90% lithium recoveries, and 1000s of cycles of sorbent life with no loss of capacity, reducing OPEX.

PHASE ONE BRIDGING STUDY RESULTS
5 KEY OUTCOMES

5. EXECUTION READY

- €50m **Optimisation Plants starting up.**
- **Launching** project level debt and equity **financing with strong support.**

PRODUCTION TEAM IN TRAINING:

- **Lithium Extraction Optimisation Plant (LEOP)** in final stages of commissioning, opening scheduled for next week; **Central Lithium Electrolysis Optimisation Plant (CLEOP)** progressing well.
- Together these represent a ca. **€50m investment** by the Company, towards optimisation, operational training and product qualification facilities to enable commercial operational readiness.
- These will produce the **first tonnes of lithium chemicals ever fully domestically produced in Europe**.
- Optimisation plant built to start sending volume of product to off takers for pre-qualifications testing.

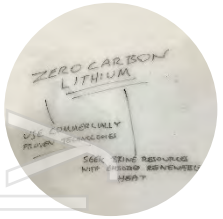
SIGNIFICANT PROGRESS ON FINANCING:

- Debt-financing market sounding successfully completed, led by BNP Paribas. Commercial and development banks under NDA expressed **strong interest**, awaiting formal start of process.
- **Substantial in-principle financing support** received from government-backed Export Credit Agencies (ECAs) for financing, from France, Italy, Canada and Australia.
- Financing process with strategic and institutional investors for equity at the **project level** commencing.
- Financing and project execution timeline adjusted and **aligned to coincide** with **public grant funding** application processes.

CONTENTS

I.INTRODUCTION

OUR ACHIEVEMENTS TO DATE



Vulcan Energy Resources Ltd. Founded privately as Zero Carbon Lithium Company by Dr. Francis Wedin and Dr. Horst Kreuter, starting from a "whiteboard idea"

2018

ASX Listing May 2018

SS
Scoping Study completed

Estimation of largest Lithium resource in Europe - Globally significant

Lithium extraction test work commences

2021

Two institutional capital raises for a total of $320m

PFS
Released

Acquisition of German engineering companies to create larger in-house team

Acquisition of two electric drill rigs

Five binding lithium hydroxide agreements signed

STELLANTIS
VOLKSWAGEN
RENAULT GROUP
umicore
LG Energy Solution

Became a commercial renewable energy producer

2022

First renewable heat offtake signed with MVV

FSE Prime Standard Dual Listing successfully completed

Stellantis becomes first automaker to invest equity in a lithium company: $76m investment into Vulcan

High grade, lowest impurity LHM produced from pilot plant

Construction of Vulcan's Lithium Extraction Optimisation Plant commences

Successful in-house development of VULSORB®

Successful completion of lithium extraction pilot test work

Completion of Positive Phase One DFS

DFS

2023

$109m institutional equity raise

Second joint project signed with Stellantis to decarbonise energy supply for their operations

Commissioning of LEOP after three years of DLE test works

Project level debt and equity financing kick off

BES
Bridging Engineering Study completed

ZERO CARBON LITHIUM™ PROJECT

EXPERIENCED TEAM READY TO DELIVER

Executive Chair
Dr. Francis Wedin

Founder of Zero Carbon Lithium™ Project.
Extensive lithium and climate tech industry executive experience

Managing Director & CEO
Cris Moreno

20+ years' major energy and chemicals project execution experience

ZERO CARBON LITHIUM™ PROJECT

Cris Moreno

Managing Director & CEO

Cris has over 20 years' global experience in successfully delivering major, unique and challenging capital projects, including in the lithium chemicals, cathode and LNG sectors. In the LNG sector, Cris held leadership roles with Santos, Woodside, and Shell, including working on the Browse, Gorgon and Prelude LNG projects.

Mark Skelton

Non-Executive Director

Mr Skelton has more than 35 years' experience including a 29-year tenure at BP and then at Fortescue Metals Group (Fortescue) in Project Development and general management. A senior leader and advisor with a proven record in delivering major projects, business transformation and developing organisational capability within the mining, energy and oil and gas industries, Mr Skelton has extensive project experience in Australia and internationally.

Annie Liu

Non-Executive Director

Annie was the Executive Director of Purchasing for the Ford Model e Line, for all electric products and technology. Annie started her 20+ year career as an engineer at Microsoft before moving to Tesla where she progressed to Head of Supply Chain, Battery and Energy at Tesla. Annie is experienced in building and leading teams from product incubation stage to scale up and mature market bringing a unique blend of entrepreneurial initiative and ability to meet organisation and market growth needs.

BOARD OF DIRECTORS

Dr. Francis Wedin

Executive Chair

Founder of Vulcan's Zero Carbon Lithium™ Project and has extensive experience in battery materials and renewable energy. Previously Executive Director of ASX-listed Exore Resources Ltd where he developed two new lithium resources, on two continents. PhD in Geology, MBA in Renewable Energy.

Josephine Bush

Non-Executive Director

Ms Bush is a qualified solicitor and chartered tax advisor, as well as earning the CFA ESG investing qualification and a sustainable finance certification. She has an MA in Law from Cambridge University. She built and led the UK and Ireland Renewables Tax Practice and developed latterly the EY global renewables business plan. She was a member of the Ernst & Young Power and Utilities Board and UK&I Governance Board and was a senior partner at EY for 14 years.

Dr. Günter Hilken

Non-Executive Director

Dr. Hilken has over 35 years' experience in and a deep understanding of the German chemicals, renewables and infrastructure investment sectors and, through leading industry advocacy associations, the German Government at the State and Federal level. Dr. Hilken is a Senior Advisor to Macquarie Asset Management, Director of Currenta and President and Chairman of the Board of the German Federation of Industrial Energy Consumers (VIK).

Gavin Rezos

Deputy Chair

Executive Chair/CEO positions of three companies that grew from start-ups to the ASX 300. Extensive international investment banking and project finance experience. Former Investment Banking Director of HSBC with senior multi-regional roles in investment banking, legal and compliance functions. Formerly a Director of Iluka Resources Limited. Currently principal of Viaticus Capital, Non-Executive Chair of Kuniko Limited.

Ranya Alkadamani

Non-Executive Director

Founder of Impact Group International. A communications strategist, focused on amplifying the work of companies that have a positive social or environmental impact. Experience in working across media markets and for high profile people, including one of Australia's leading philanthropists, Andrew Forrest and Australia's former Foreign Minister and former Prime Minister, Kevin Rudd.

Dr. Heidi Grön

Non-Executive Director

Dr. Grön is a chemical engineer by background and an accomplished business leader with over 22 years' experience in the chemicals industry. Since 2007, Dr. Grön has been a senior executive with Evonik, one of the largest specialty chemicals companies in the world, with a market capitalization of €14B and 32,000 employees.

Dr. Horst Kreuter

Board Advisor & Chief Representative Germany

Dr. Horst Kreuter is a highly experienced businessman and engineering geologist, with a distinguished record of project development and consulting in the geothermal sector. He worked successfully in geothermal project development and permitting in Germany and worldwide and he is Co-Founder of Vulcan Zero Carbon Lithium™ Project, as well as Ex-CEO of Geothermal Group Germany GmbH and GeoThermal Engineering GmbH (GeoT).

SEASONED, HIGHLY EXPERIENCED LEADERSHIP TEAM TO ENSURE SUCCESSFUL EXECUTION OF PHASE ONE

Team overview

Vincent Pedailles

Chief Commercial Officer

Commercial team lead with 10+ years' experience in the lithium industry and successfully executing binding lithium offtake agreements and raising capital.

Markus Ritzauer

Chief Financial Officer Germany

German finance operations lead with 20+ years' experience in finance roles within the chemicals industry.

Thorsten Weimann

Chief Development Officer

Relevant regional experience (subsurface & surface). Extensive drilling and permit expertise in the geothermal industry in Germany.

Dr. Stefan Brand

Chief Technology Officer

Lithium technical team lead, former Head of process innovation at Clariant, a leading specialty and sustainable chemical solutions company.

Carsten Bachg

Vice President Project Execution

20+ years' experience working on capital projects in the petrochemical and chemical industry for engineering contractors.

Daniel Tydde

Company Secretary &In-house legal Counsel

20 years' experience in corporate law in resources and energy industry.

Christian Tragut

Vice President Production

30+ years' chemical engineering and production experience across Europe and Asia.

Christian Freitag

Vice President Supply Chain

20 years' experience in project engineering in oil and gas, Hydrogen plants as well as battery materials investments and engineering.

Dr. Kerstin Mueller

Vice President Subsurface

Geoscientist and E&P Upstream O&G professional with broad international experience. Also has experience in the field of Geothermal Energy.

Annabel Roedhammer

Vice President Communications

18 years' marketing and communication experience in chemicals and renewable energy across Australia and Europe.

370 FTEs as of November 2023 with 100% of the team allocated to Phase One

WHY DO WE NEED LITHIUM IN EUROPE?

The market

- EU targets new cars to be **100%** electric by 2035[1].
- **1,400GWh** li-ion battery manufacturing estimated capacity by 2030[2] for EV transition.
- Predictions indicate Europe will see a **57-fold** increase in lithium demand.[3]

The crisis

- **Zero** local supply of lithium hydroxide. **80%** reliant on China.[4]
- Current supply of lithium is **CO_2** intensive. Western automakers want low carbon sources.[5]

The solution

- Vulcan is developing the only **CO_2 neutral**, zero fossil fuel lithium project in the world, producing lithium **from Europe, for Europe.**[6]
- Vulcan's Zero Carbon Lithium™ Project is the largest lithium resource in Europe.[7]

Vulcan has offtake agreements with some of the largest battery, cathode and EV producers in Europe.

STELLANTIS

VOLKSWAGEN GROUP

LG Energy Solution

umicore

RENAULT GROUP

[1] https://ec.europa.eu/commission/presscorner/detail/en/ip_22_6462
[2] https://www.spglobal.com/marketintelligence/en/news-insights/research/investment-in-lithium-ion-batteries-could-deliver-5-point-9-twh-capacity-by-2030
[3] https://www.euractiv.com/section/economy-jobs/news/eu-unveils-critical-raw-materials-act-aiming-to-lessen-dependence-on-china/
[4] https://www.bloomberg.com/news/articles/2020-12-03/eu-aims-to-have-30-million-electric-cars-on-the-road-by-2030?leadSource=uverify%20wall
[5] *Refer to next slide.* [6] *Vulcan is not aware of any other such projects either in development or operation*
[7] *According to public, JORC-compliant data*

WHY DO WE NEED GEOTHERMAL RENEWABLE ENERGY IN EUROPE?

The market

- EU to be climate neutral by 2050. Germany to be fully renewable by 2035.[1]
- EU wants to develop local sources of energy.[2]

The crisis

- Dual crises: Ukraine war and climate crisis.
- EU is now sourcing gas from Norway and other areas in the EU. Domestic energy sources are key.[3]
- 55% of Germany's gas came from Russia pre-Ukraine invasion.[4]
- European emissions need to fall dramatically to avoid climate breakdown and meet carbon neutral by 2050.[5]

The solution

- Fraunhofer: Geothermal renewable energy can meet a quarter of Germany's heating needs.[6]
- German Govt. announced in November '22 the need for 100 new Geothermal projects targeting 10 TWh of geothermal output by 2030.[7]
- The Upper Rhine Valley Brine Field has the hottest geothermal resource in central Europe.
- Vulcan is already commercially producing geothermal, baseload energy in Germany.
- Vulcan is ramping up with the aim to supply a million households with renewable energy by 2030.[8]

[1] https://www.reuters.com/business/sustainable-business/germany-aims-get-100-energy-renewable-sources-by-2035-2022-02-28/
[2] https://commission.europa.eu/strategy-and-policy/priorities-2019-2024/european-green-deal/repowereu-affordable-secure-and-sustainable-energy-europe_en
[3] https://www.consilium.europa.eu/en/infographics/eu-gas-supply/
[4] https://www.cleanenergywire.org/factsheets/germanys-dependence-imported-fossil-fuels#:~:text=Germany%20%2D%20GAS,imports%2C%20according%20to%20the%20BGR.%E2%80%8B
[5] https://climate.ec.europa.eu/eu-action/climate-strategies-targets/2050-long-term-strategy_en
[6] *Roadmap deep geothermal energy for Germany – recommendations for action for politics, business and science for a successful heat transition.*
[7] https://www.thinkgeoenergy.com/germany-aims-for-100-new-geothermal-projects-by-2030/
[8] *Based on average per capita heat consumption in Germany of 6,200 kWh (https://www.destatis.de/).and the estimated capacity for heat production from Vulcan's long term development areas, in a pure heat (no power) scenario.*

POLICY TAILWINDS IN VULCAN'S FAVOUR

The recently released Critical Raw Materials[1] and Net Zero Industry Acts[2] present a strong focus on fast-tracking the permitting process and funding for technologies of relevance to the strategic autonomy of the EU economy

	Critical Raw Materials Act - Proposed Framework	**Net Zero Industry Act** - Proposed Framework	**Implications for Vulcan**
Overview	• Establishing a framework for ensuring a secure and sustainable supply of critical raw materials • **"Strategic project" status, indicating the status of the highest national significance possible** • **UPDATE: CRMA now agreed by member states**	• Establishing a framework for strengthening Europe's net-zero technology products manufacturing ecosystem • **Net Zero Resilience Projects shall get the status of the highest national significance possible**	• **Should it be granted, Strategic Project and Net Zero Resilience Project status could significantly streamline project progress**
Permitting	• **One stop-shop for permitting** handled by one national authority, with all permitting documentation to be sent out to a centralised system • Permit granting process shall **not exceed 24 months** for Strategic Projects	• Limit to permit granting procedures for Net Zero Resilience Projects are set to 12 months for the construction or expansion of Net Zero Resilience Projects, with a yearly production output of more than 1 GW. • Environmental impact assessments to not exceed a period of 30 days from the date of project submission.	• **Potentially fast track and streamline the permitting process**
Funding	• Better coordination and synergy creation between the existing funding programmes at Union and national level as well as ensuring better coordination and collaboration with industry and key private sector stakeholders. • Potential public funding support, in the form of guarantees, loans or equity and quasi-equity investments.	• Member States to provide financial support to address financing gaps in the form of: a) guarantees to decrease borrowing costs b) off-take guarantees for tech made in Europe • Innovation Fund auctions to allocate grants to Net Zero industry projects	• **Potential EU & State grant/subsidies** • **Assistance with other financing alternatives**

[1] https://ec.europa.eu/commission/presscorner/detail/en/ip_23_1661
[2] https://single-market-economy.ec.europa.eu/publications/net-zero-industry-act_en

II. ZERO CARBON LITHIUM™ PROJECT

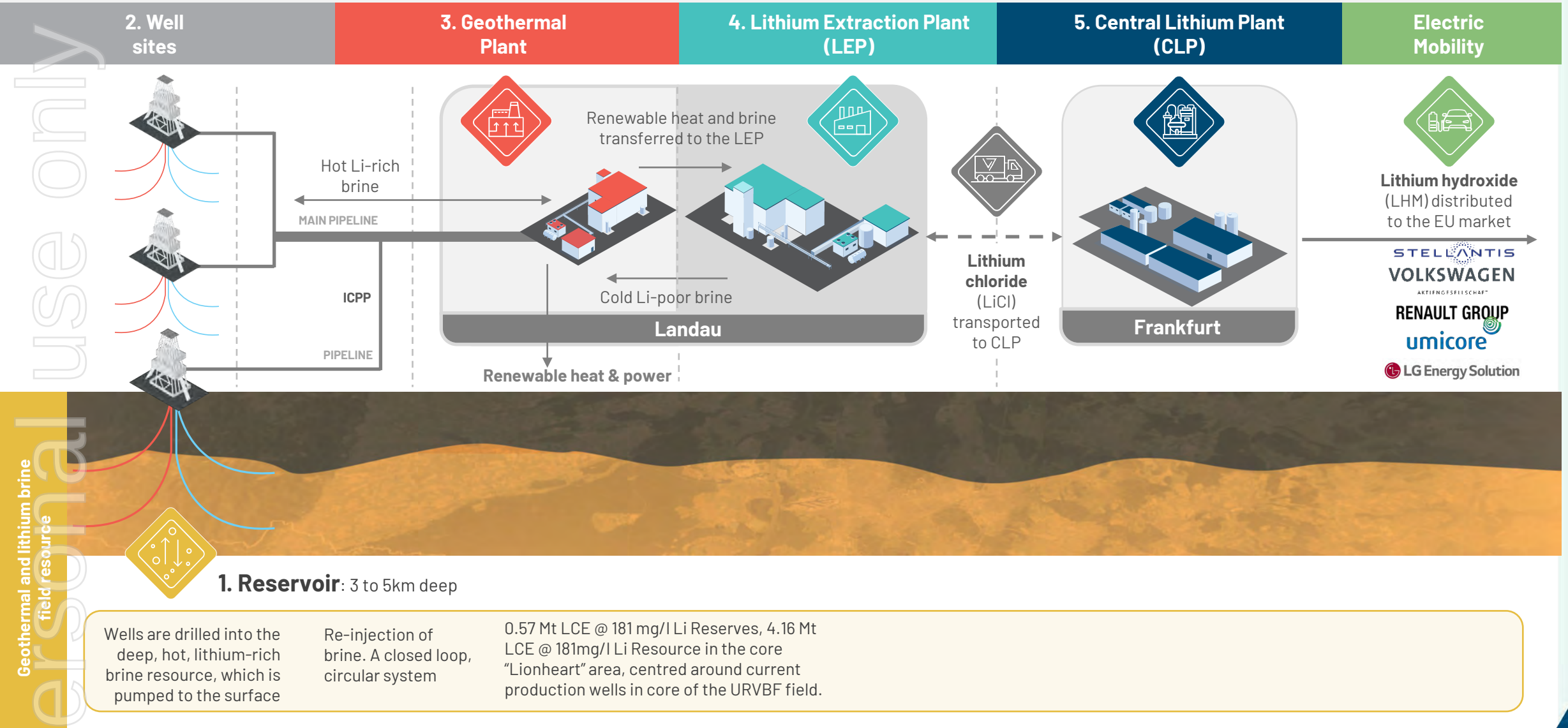
BUILDING RENEWABLE ENERGY AND LITHIUM CHEMICALS PRODUCTION

Phase one

270 GWh power p.a.
Up to 560 GWh heat p.a.

LiCl concentrate for
24,000tpa LHM equivalent

24,000tpa
LHM (capacity)



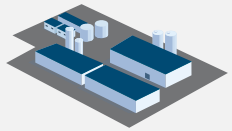
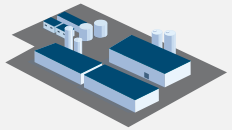
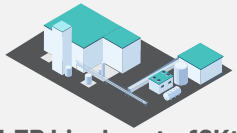
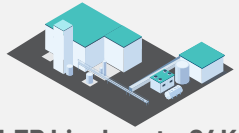
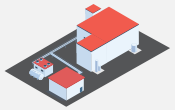
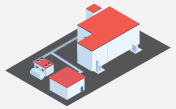
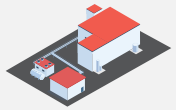
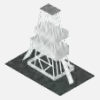
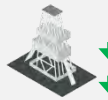
1. Reservoir: 3 to 5km deep

Wells are drilled into the deep, hot, lithium-rich brine resource, which is pumped to the surface

Re-injection of brine. A closed loop, circular system

0.57 Mt LCE @ 181 mg/l Li Reserves, 4.16 Mt LCE @ 181mg/l Li Resource in the core "Lionheart" area, centred around current production wells in core of the URVBF field.

IMPROVEMENT IN OUR PHASE ONE PROJECT STRUCTURE

	PHASE ONE DFS PUBLICATION €1,496m CAPEX	PHASE ONE BRIDGING STUDY PUBLICATION €1,399m CAPEX
Central Lithium Plant (CLP)	 Central Lithium Plant Phase 1: 24ktLHM	 Central Lithium Plant Phase 1: 24ktLHM
Lithium Extraction Plant (LEP)	 LEP Lionheart – 16Kt  LEP Taro – 8Kt	 LEP Lionheart – 24Kt
Geothermal Plant	 Geothermal Insheim OPERATING  Geothermal Plant Lionheart DEVELOPMENT  Geothermal Plant Taro DEVELOPMENT	 Geothermal Insheim OPERATING  Geothermal Plant Lionheart DEVELOPMENT
Well sites	 23 New Wells + 4 Existing Wells 7 New Well Pads + 2 existing 21.4 km of ICPP	 24 New Wells + 4 Existing Wells 5 New Well Pads + 2 existing 16.4 km of ICPP
Reservoir	PROVEN RESERVE | PROBABLE RESERVE	PROVEN RESERVE for first 15 years, Probable Reserve 15-30 yrs

WHY CHANGE THE DEVELOPMENT OF PHASE ONE?

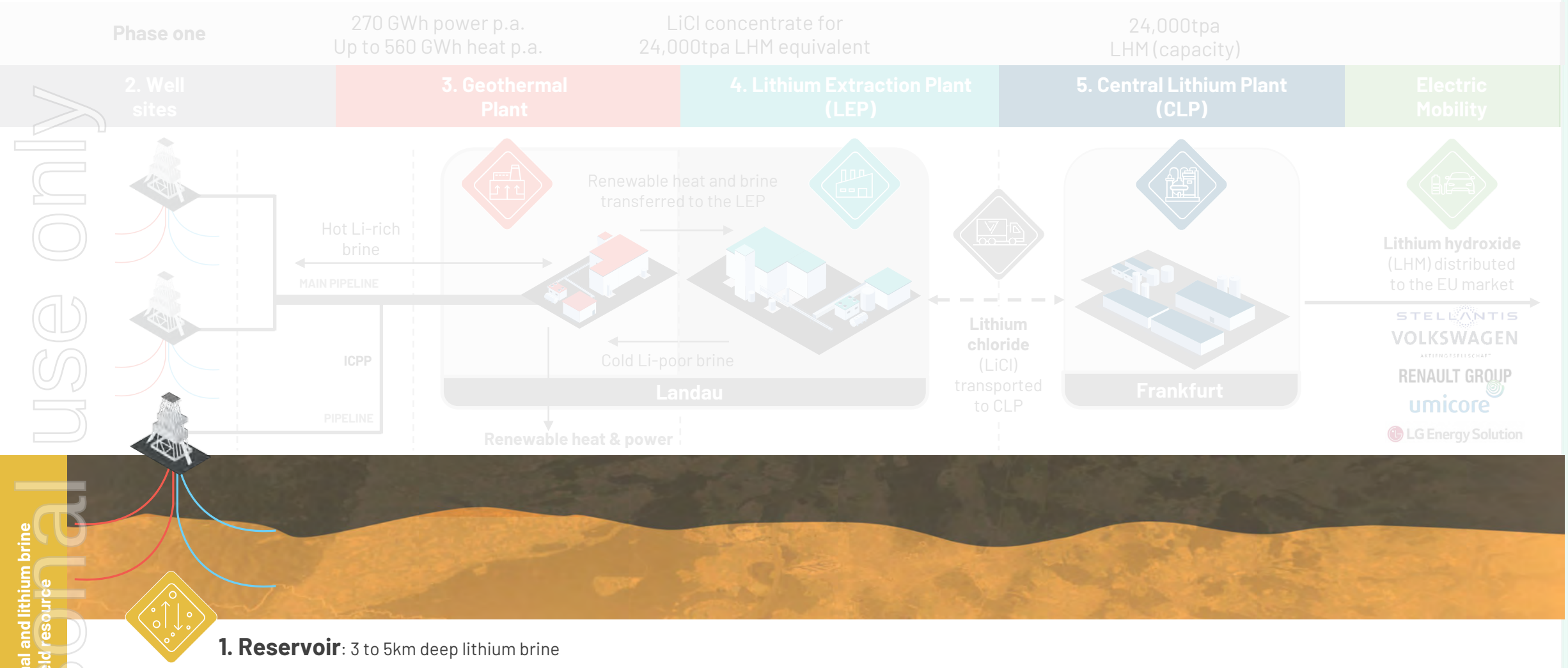
TO REDUCE RISK & INCREASE VALUE

Improved Field Development Plan	• Phase One FDP now only focused on mainly Proved Reserves in the core, producing "brownfields" Lionheart development area, i.e. reduced risk. • **Improved Resources and Reserves outcome from Lionheart alone** (196kt to 318kt LCE)[1]. Improved production plateau, **higher revenue.** • Case map implemented **showing positive economic results** across all outcomes, **even under low case conditions**. • Hybrid injection model allows an optimised FDP and can manage risk during Lionheart execution.
Simpler execution and operation	• **Reducing the number of lithium extraction plants** (LEP) from two to one and geothermal (ORC) plants from two to one. • **Reducing overall distance for interconnecting** pipelines & power (ICPP) system, and number of new well sites from seven to five. • **Reduced owner's team and more focused efforts on less sites** during execution and production.
Simpler permitting	• Reduction of the number of assets means a **simpler, and potentially faster, permitting process.** • Infraserv, the chemical park operator, as well as the City of Landau and Insheim are already working closely with Vulcan to permit the Project.
CAPEX improvement	• Bridging Study shows **drop in CAPEX of ~€100m linked to the reduction of the numbers of assets** but **keeping the same capacity.** • **Economies of scale achieved through larger LEP plant.**
Schedule aligned with public funding	• Improved robustness of schedule with key risks now better understood (land acquisition, permitting approach) and key opportunities captured. • Alignment of Phase One execution schedule with Public Funding schemes to maximise chance to receive government funds. • **Clear plan to move from end of Bridging phase, through validation period to award of major (EPC, EPCM) contracts in Q2 2024.**
What doesn't change?	• No change in the output: **same LHM capacity targeted.** • **Overall Project execution & contracting strategy.**

[1]. Refer to Competent Person Statement in Appendix 2

A . OUR PROCESS: USING THE BEST FROM THE INDUSTRY

1. STARTING WITH THE RESOURCE...



1. Reservoir: 3 to 5km deep lithium brine

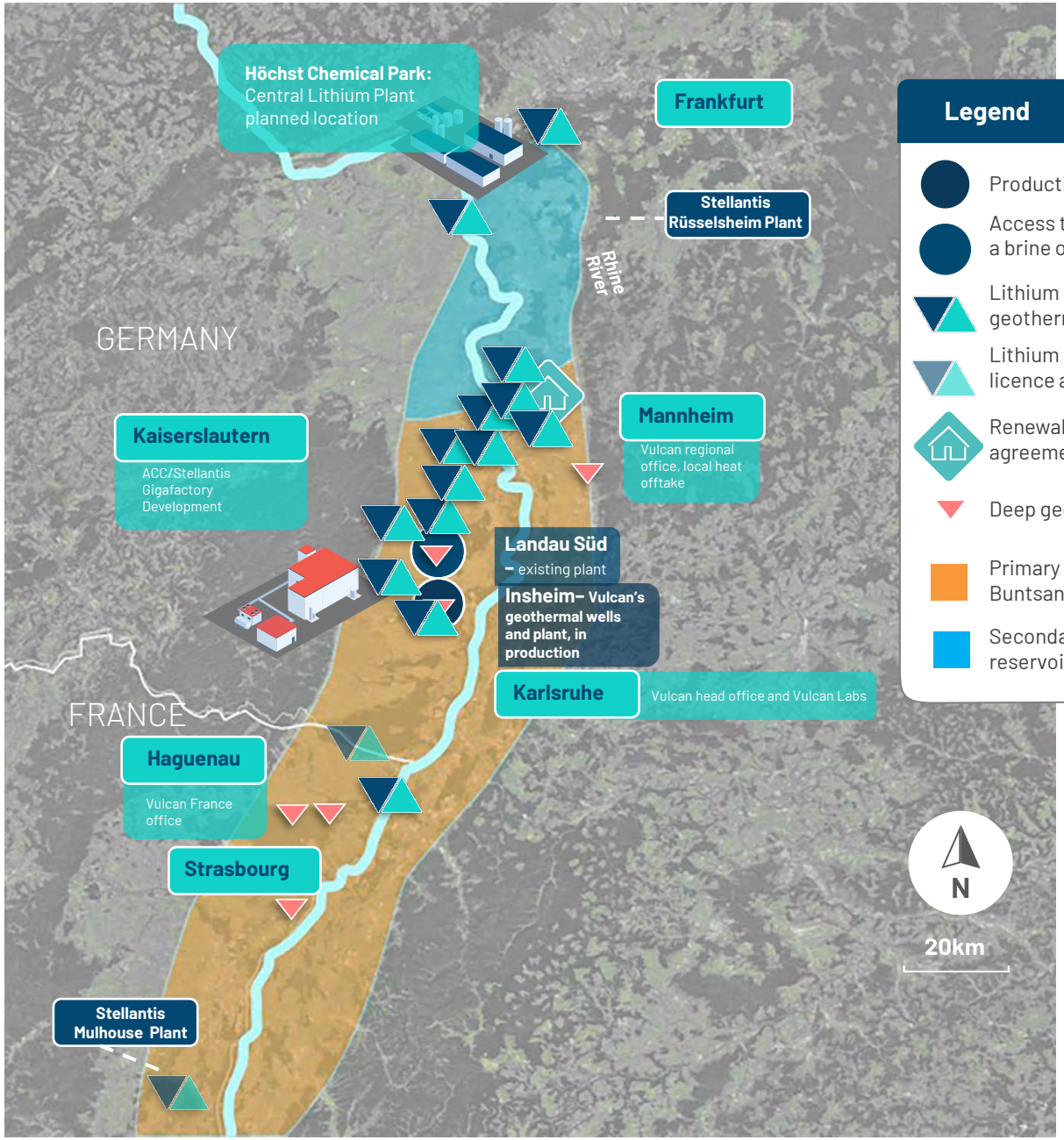
Wells are drilled into the deep, hot, lithium-rich brine resource, which is pumped to the surface	Re-injection of brine. A closed loop, circular system	0.57 Mt LCE @ 181 mg/l Li Reserves, 4.16 Mt LCE @ 181mg/l Li Resource in the core "Lionheart" area, centred around current production wells in core of the URVBF field.

Geothermal and lithium brine field resource

ZERO CARBON LITHIUM™ PROJECT

THE UPSTREAM LITHIUM RESOURCE: THE LARGEST IN EUROPE

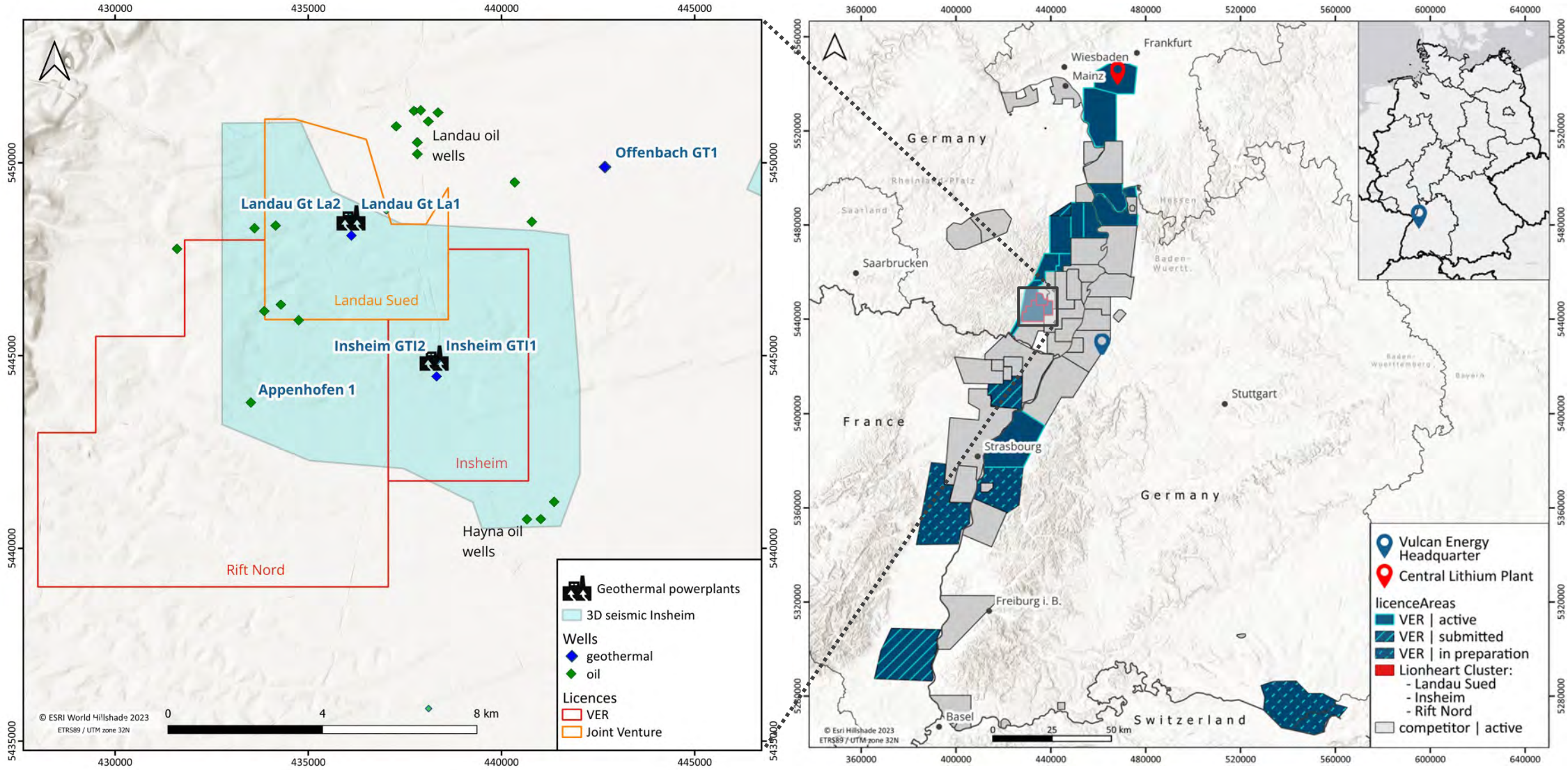
- ✓ Vulcan's Upper Rhine Valley Brine Field (URVBF), consisting of 16 licences for a total area of 1,790 km^2, represents **Europe's largest lithium resource[1], with 27.7Mt contained LCE from 10 of its 16 German licences.[4]**
- ✓ Large, **300km-long** graben system containing consistent sedimentary-hosted geothermal-lithium reservoir.
- ✓ There are currently **36 geothermal plants** operating in Germany and **42 active projects[2]**. The Federal Government targets to reach 100 plants by 2030.[3]
- ✓ URVBF area is a **mature, producing field**, with **>1,000 oil & gas and 24 deep geothermal wells** already drilled in the URV.



[1] *According to public, JORC-compliant data*
[2] *Bundesverband Geothermie*
[3] *Geothermie_Eckpunktepapier_ressortabgestimmt (bmwk.de);*
[4] *Refer to Competent Person Statement in Appendix 2*

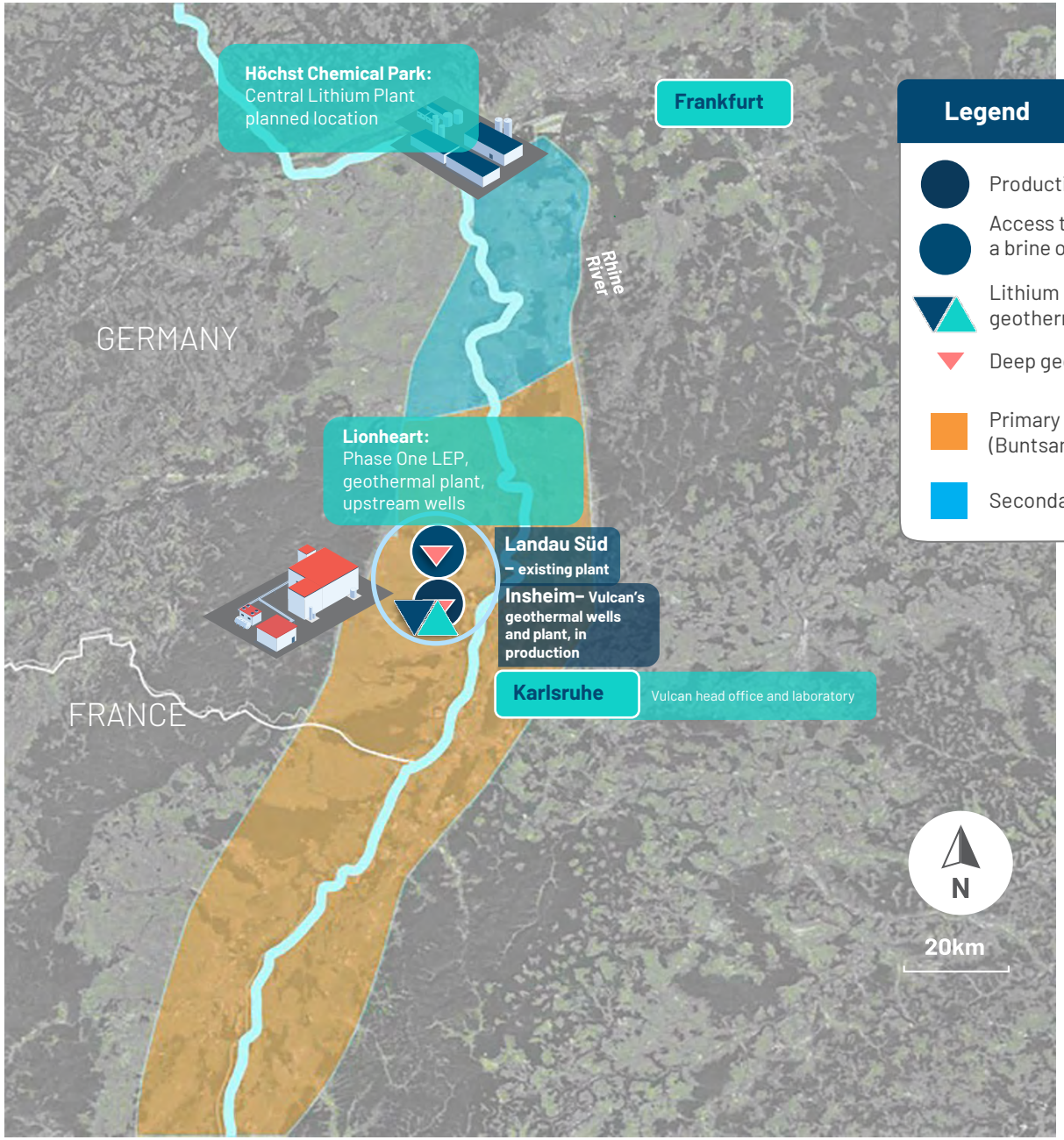
PHASE ONE AREA

Upper Rhine Valley Brine Field: Europe's largest, and a globally significant, lithium resource and reserve



PHASE ONE AREA

- ✓ Phased growth approach, Phase One starting from core of field where Vulcan **already owns production/re-injection wells in operation**.
- ✓ Phase One focuses on **Proved Reserves** of 318kt LCE for years 0-15 of production, then Probable Reserves of 252kt LCE for years 16-30.[1]
- ✓ **Brownfields development area around existing production only.**
- ✓ Integrated renewable energy and lithium battery chemicals operation, close to lithium offtake customers and renewable heat customers.



[1] Refer to Competent Person Statement in Appendix 2

WORLD-CLASS LITHIUM AND RENEWABLE ENERGY OPPORTUNITY

Key parameters

- Phase One is focused on Vulcan's **proven, brine-producing Lionheart** (LIO) development area.
- Improved Field Development Plan aims to produce and reinject up to a target rate of 950l/s of lithium rich brine over 30 years from Phase One.
- Expected lithium production at well head is **647kt LHM (570kt LCE) over 30 years** from Proved and Probable Reserves.[1]

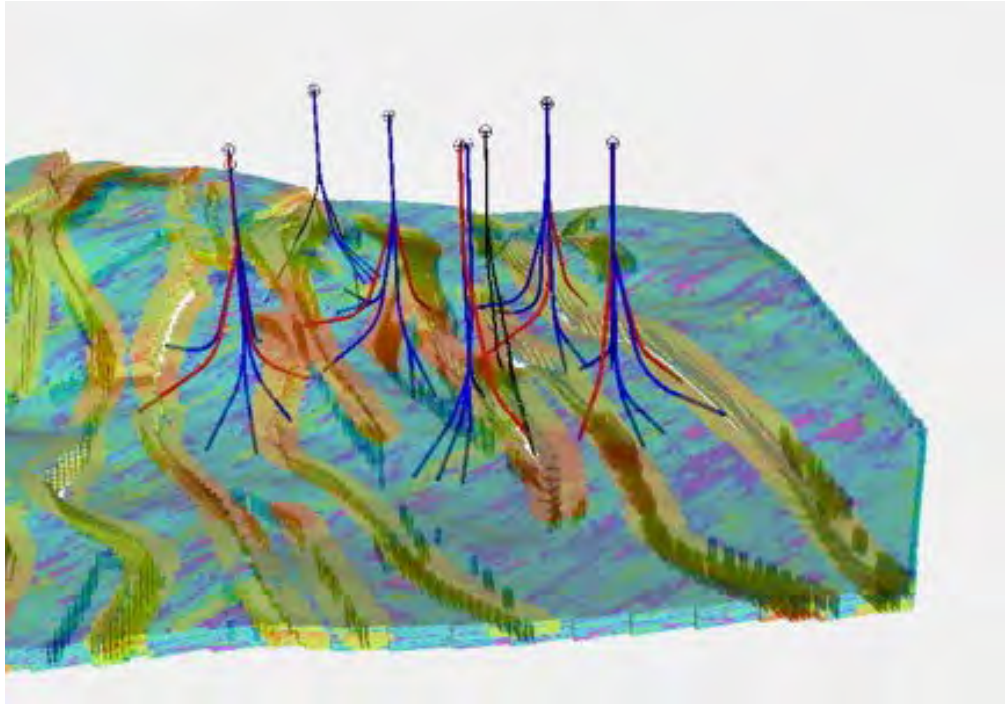
Key strengths

Excellent 10+ years' track record from Vulcan's existing production/re-injection wells, (65-70l/s production rate with well tests showing ability to produce >100l/s).

- **Hundreds of measurements of lithium** concentration over the project area, very consistent over space and time.
- **Pilot plants successfully operated** at multiple well locations to de-risk lithium production process.
- **Flexible field development** to cater for different risk and opportunities as they become apparent as part of the FDP execution.
- Case map implemented showing results across all geological outcomes:
  - Positive economic results under low case conditions.
  - Significant upside from formations adjacent to primary target or expansion into adjacent licences.

Key uncertainties and risks

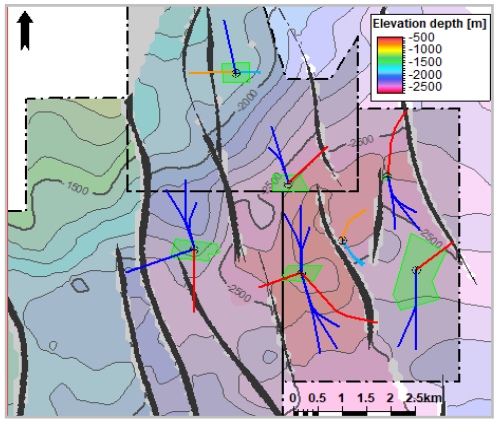
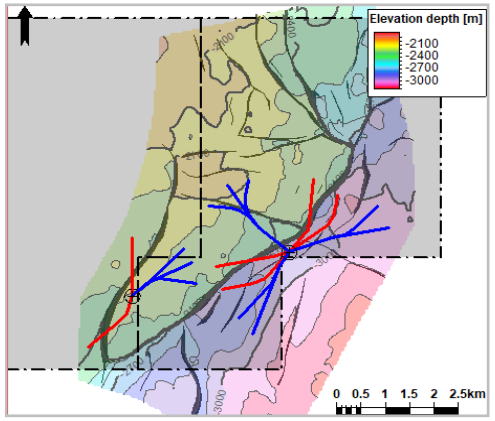
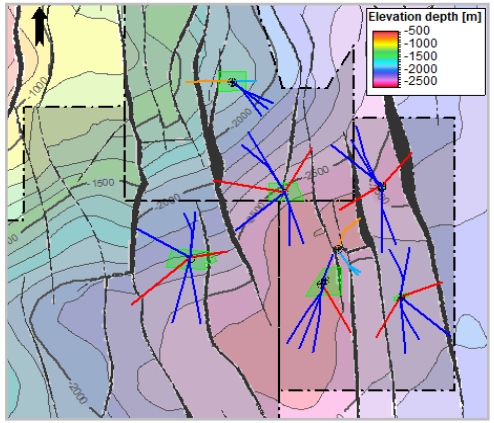
- Reservoir matrix properties – mitigation in place: agile field development plan.
- Dilution management – mitigation in place: agile field development plan.



Lionheart development area and well locations

[1] Refer to the production target assumptions on Appendix 3.

FIELD DEVELOPMENT PLAN IMPROVEMENTS

	PHASE 1 Definitive Feasibility Study		PHASE 1 Bridging Engineering Study
Area(s)	 Lionheart (Insheim, Landau Sued, Rift North)	 Taro (incl. Kerner East)	 Lionheart (Insheim, Landau Sued, Rift North)
Well Sites	9 (incl. 2 existing)		7 (incl. 2 existing)
Wells	14 + 4 (existing)	9	24 + 4 (existing)
Reserves [kt] LCE/LHM[1]	196 / 223 proved; 154 / 175 probable	0 proved; 189 / 215 probable	318 / 361 proved; 252 / 286 probable
+ΔBHP [bar]	Up to 170		Up to 70

[1] *Refer to Competent Person Statement in Appendix 2*

**Wellhead/LEP-inlet as reference point*

EVOLUTION OF THE FIELD DEVELOPMENT PLAN

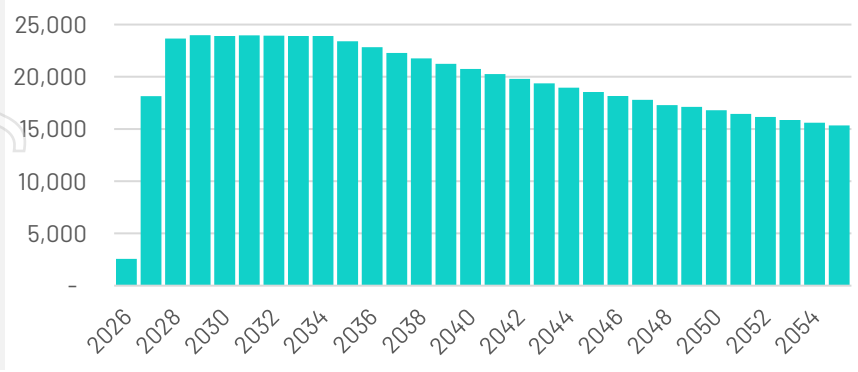
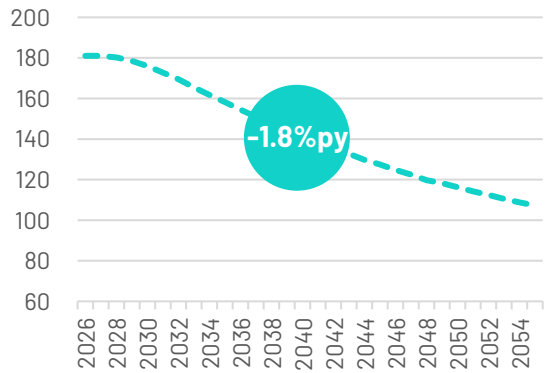
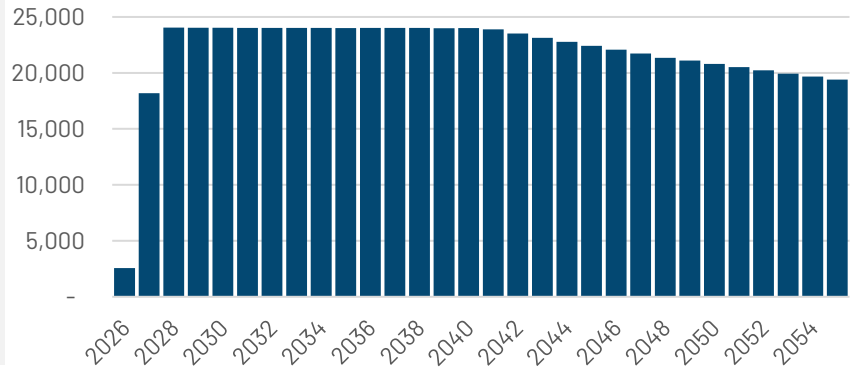
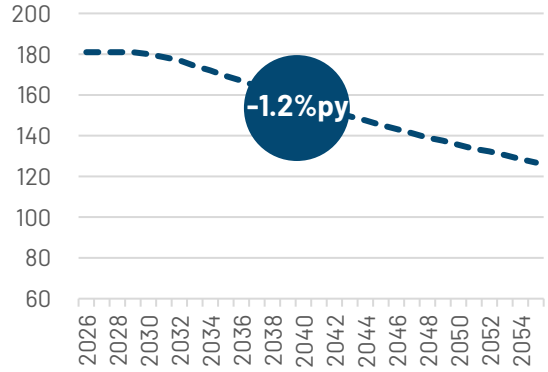
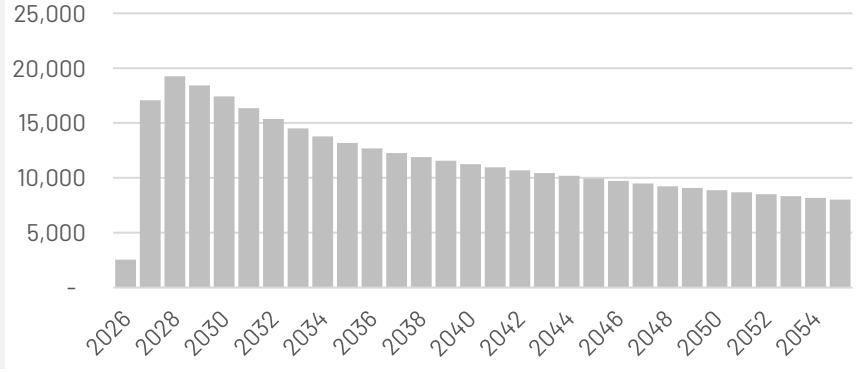
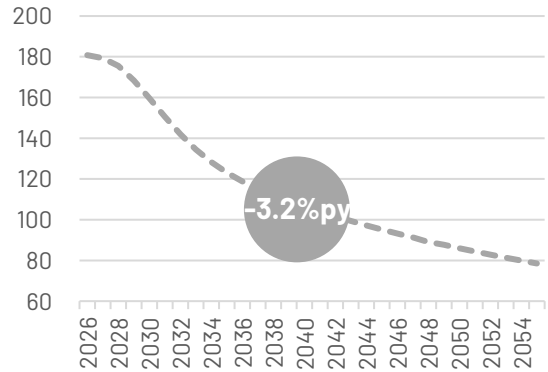
DFS

- Strong Reserves & Resource outcome from Lionheart & Taro.
- For maximum Li recovery, matrix injection plan.
- Matrix injection led to increased injection pressure.

Bridging Engineering Study

- **Improved Reserves Outcome** from Lionheart.
- **Brownfields production area only. Reduction of risk.**
- Case map implemented showing results across all geological outcomes and under low case conditions still positive economical results.
- Update model shows moving to **fault zone injection still provides good Li recovery.**
- Reduction of injection pressure with some fault zone injection.
- **Hybrid injection model allows for optimised FDP and can manage risk** as we execute on Lionheart FDP.

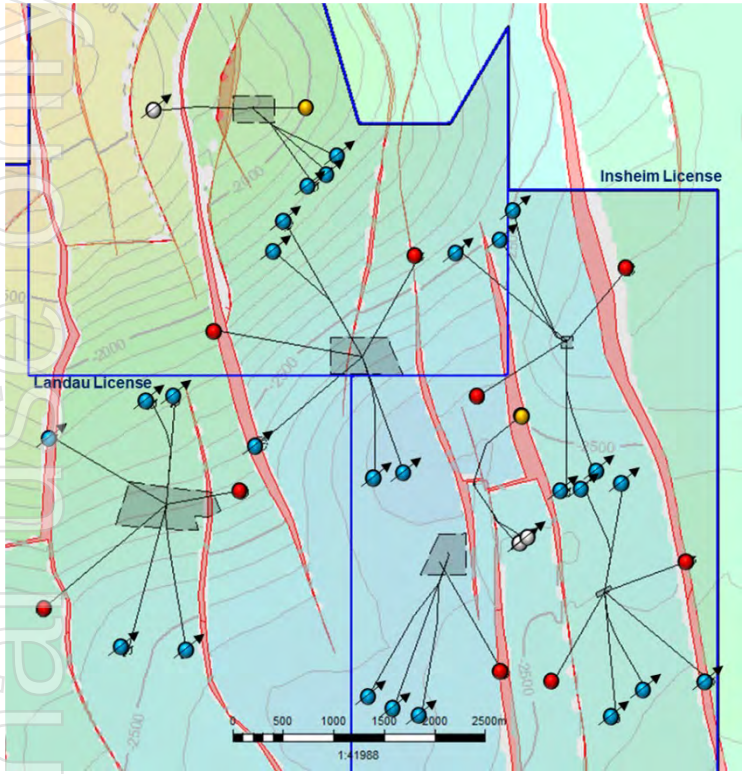
THREE ROBUST LHM PRODUCTION SCENARIOS

	LHM production (tpy)	Lithium dilution (mg/L)	Parameters
BASE CASE			• **950 l/s** production target • 24 new wells, 4 existing • 11 producers (86l/s per producer) • **Hybrid re-injection** • Up to 70 bar pressure • **20,000 tpy LHM production average** • **7-year plateau at 23,900 tpy LHM** • 595kt* LHM production over project life
HIGH CASE			• **1,000l/s** production target • 26 wells total • 12 producers (79l/s per producer) • **Matrix re-injection** • Up to 100 bar pressure • **22,200tpy LHM production average** • **14-year plateau at 24,000 tpy LHM** • 671kt* LHM production over project life
LOW CASE			• **700 l/s** production target • 23 wells total • 11 producers (63l/s per producer) • **Fault re-injection** • Up to 45 bar pressure • **12,000 tpy LHM production average** • 235kt* initial LHM production over project life • 117kt* additional production (total 352kt) contingent on CLP turndown *CLP-outlet as reference point*

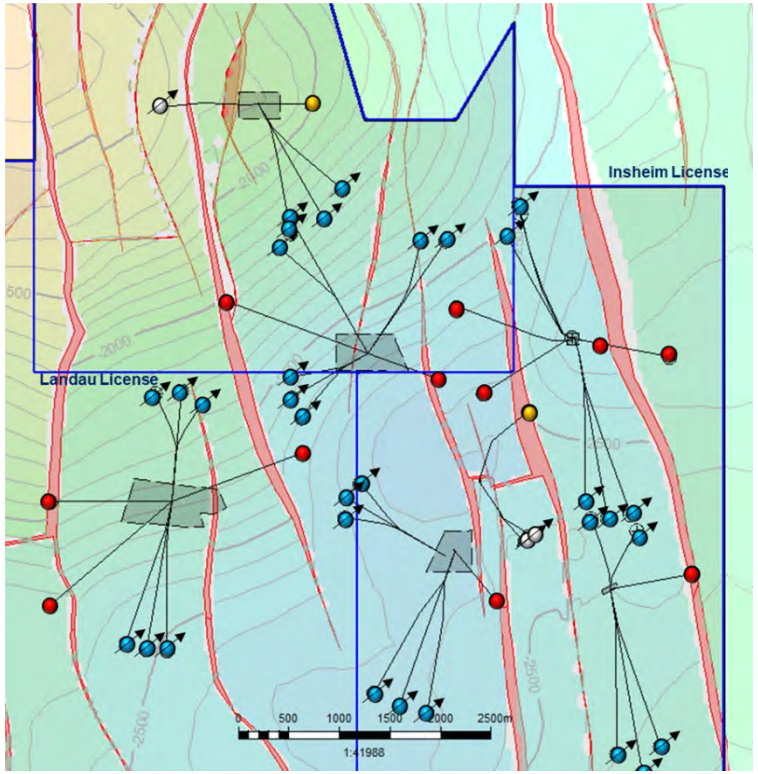
ZERO CARBON LITHIUM™ PROJECT

THREE ROBUST LHM PRODUCTION SCENARIOS

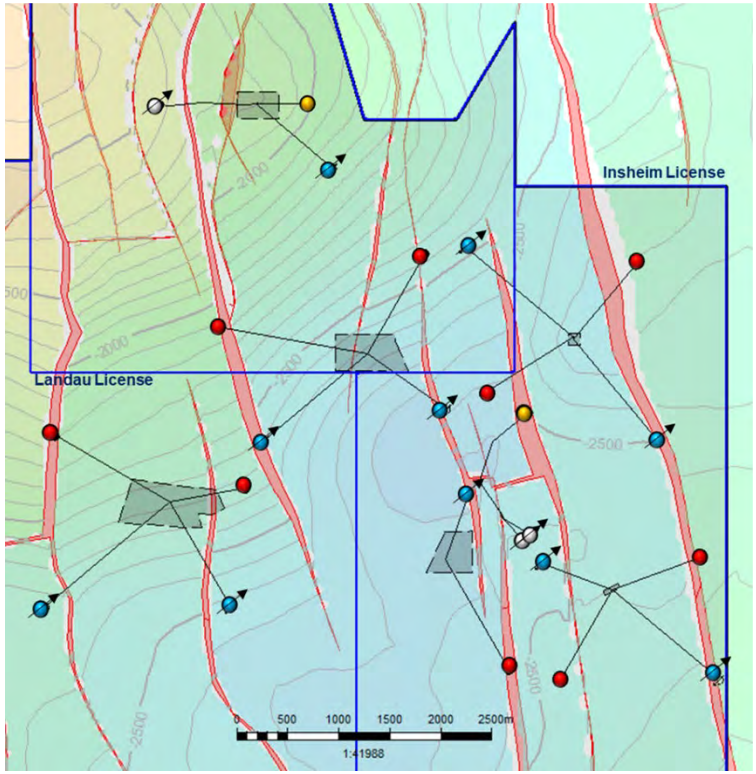
BASE CASE

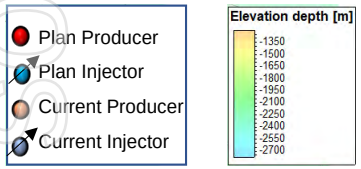


HIGH CASE

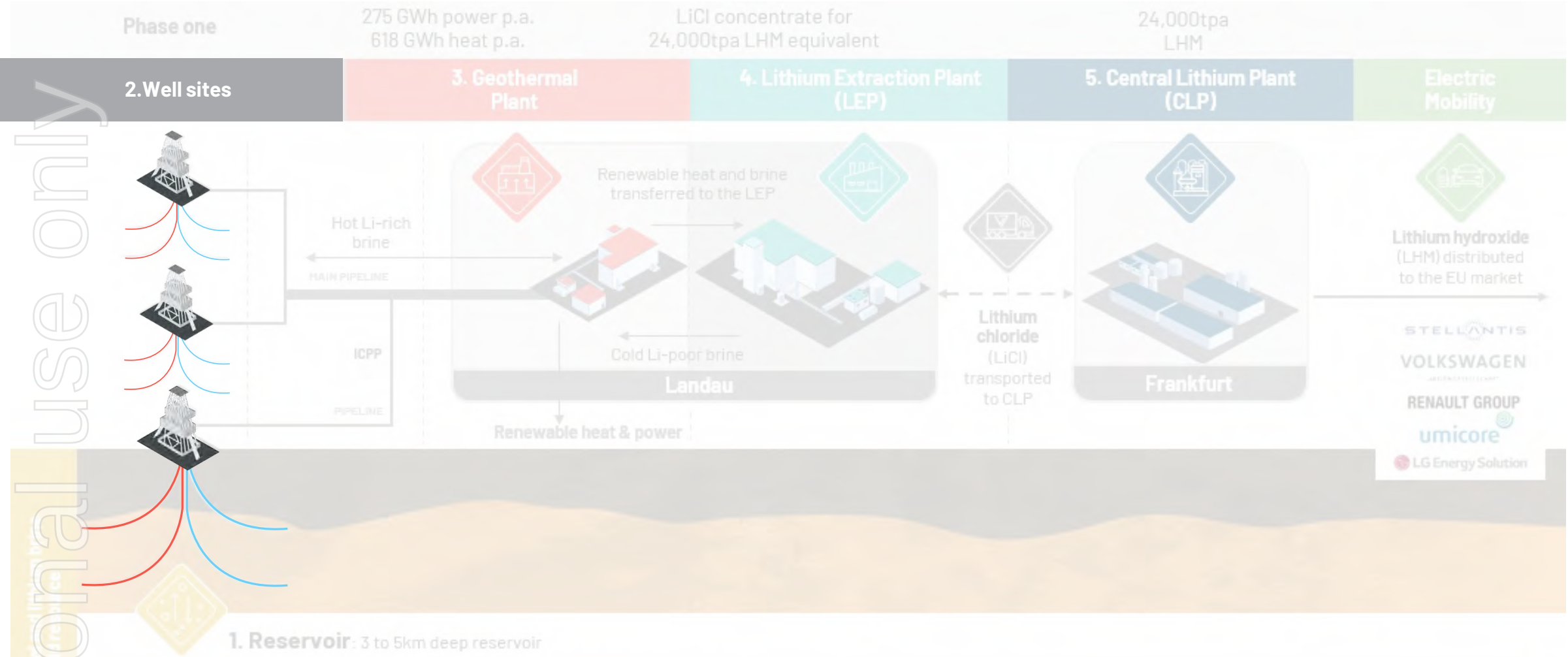


LOW CASE





2. PRODUCING FROM THE BRINE RESOURCE VIA INTERCONNECTED WELL SITES



ZERO CARBON LITHIUM™ PROJECT

PHASE ONE UPSTREAM-DOWNSTREAM PRODUCTION STRUCTURE

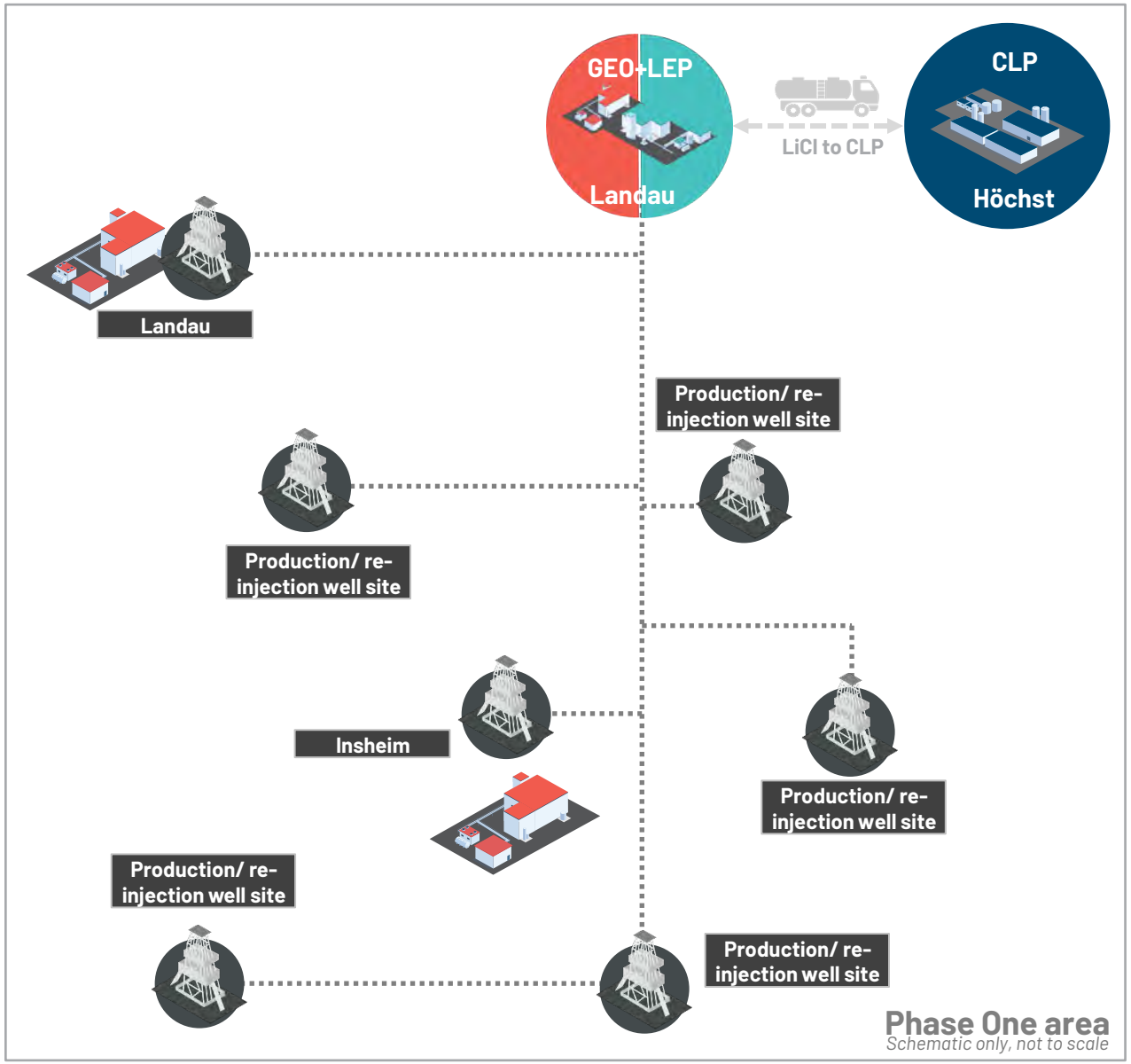
Phase One:
expanding upstream capacity, building downstream.

Increasing the number of production/re-injection well sites from two to seven.

Building new, larger geothermal plant near existing one.

Building new Lithium Extraction Plant.

Building new Central Lithium Plant.



INCREASING UPSTREAM BRINE PRODUCTION

Well-known area

- >1,000 oil & gas and 24 deep geothermal wells already completed in the URVBF.
- In our Phase One project area, four deep geothermal wells have been in operation for more than 10 years.

In-house expertise, team and assets

Vulcan has established its own in-house geothermal drilling company, **Vercana,** due to a high demand for geothermal renewable energy projects.

- Two electric rigs acquired in-house with refurbishment nearly complete
- Contract labour company acquired.

Conservative approach

- Targeting brine production from sandstone only, where seismicity risks are very low, in line with industry best-practice.
- Using conservative flow rates estimates, with an average flow rate (85l/s), below demonstrated well performance in the area (>100l/s), leaving room for upside.
- Brownfield development, Vulcan is increasing the number of its existing production well sites from two to seven during Phase One project build.

VERCANA

IN-HOUSE WELL EXECUTION COMPANY

- Highly experienced and integrated well construction and operations team from oil and gas and geothermal industry.
- Full scale well delivery process capability: fully aligned towards VULCAN's field development plan.
- Experience in onshore operations, HPHT drilling, German regulatory requirements with a strong QHSE culture.

V10 and V20 Drill Rigs: Inhouse full electric drill rigs and teams

- Full scale rig refurbishment nearly complete
- Hookload capability of up to 550 tonnes
- Drilling capability up to 10,000m
- Triple derrick system
- 3 mud mumps – up to 8,000LPM
- Solid controls equipment grade
- Skidding system for cluster well sites.

ONGOING SITE ACTIVITIES

CONNECTING THE HEAT AND LITHIUM TO THE G-LEP

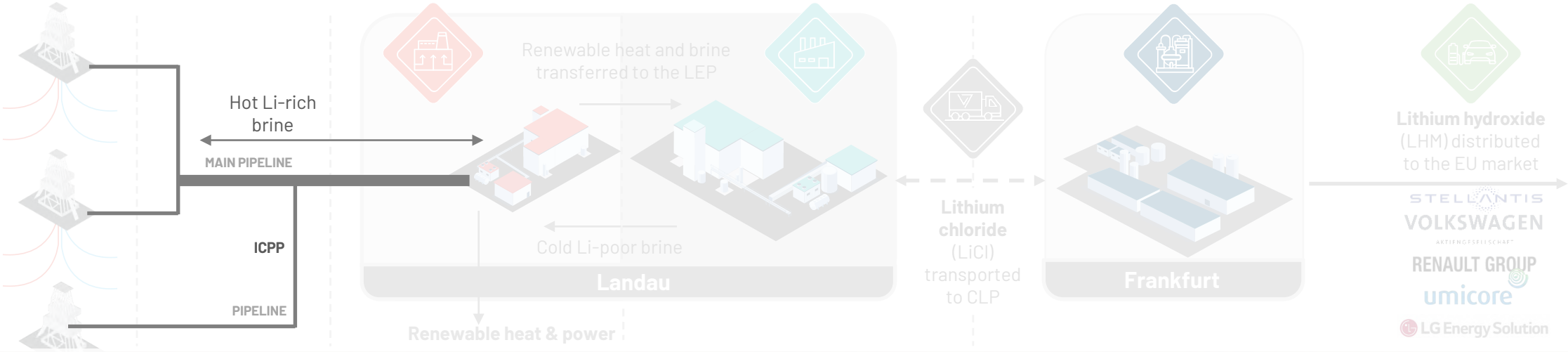
Phase one

270 GWh power p.a.
Up to 560 GWh heat p.a.

LiCl concentrate for
24,000tpa LHM equivalent

24,000tpa
LHM (capacity)

2. Well sites	3. Geothermal Plant	4. Lithium Extraction Plant (LEP)	5. Central Lithium Plant (CLP)	Electric Mobility



1. Reservoir: 3 to 5km deep

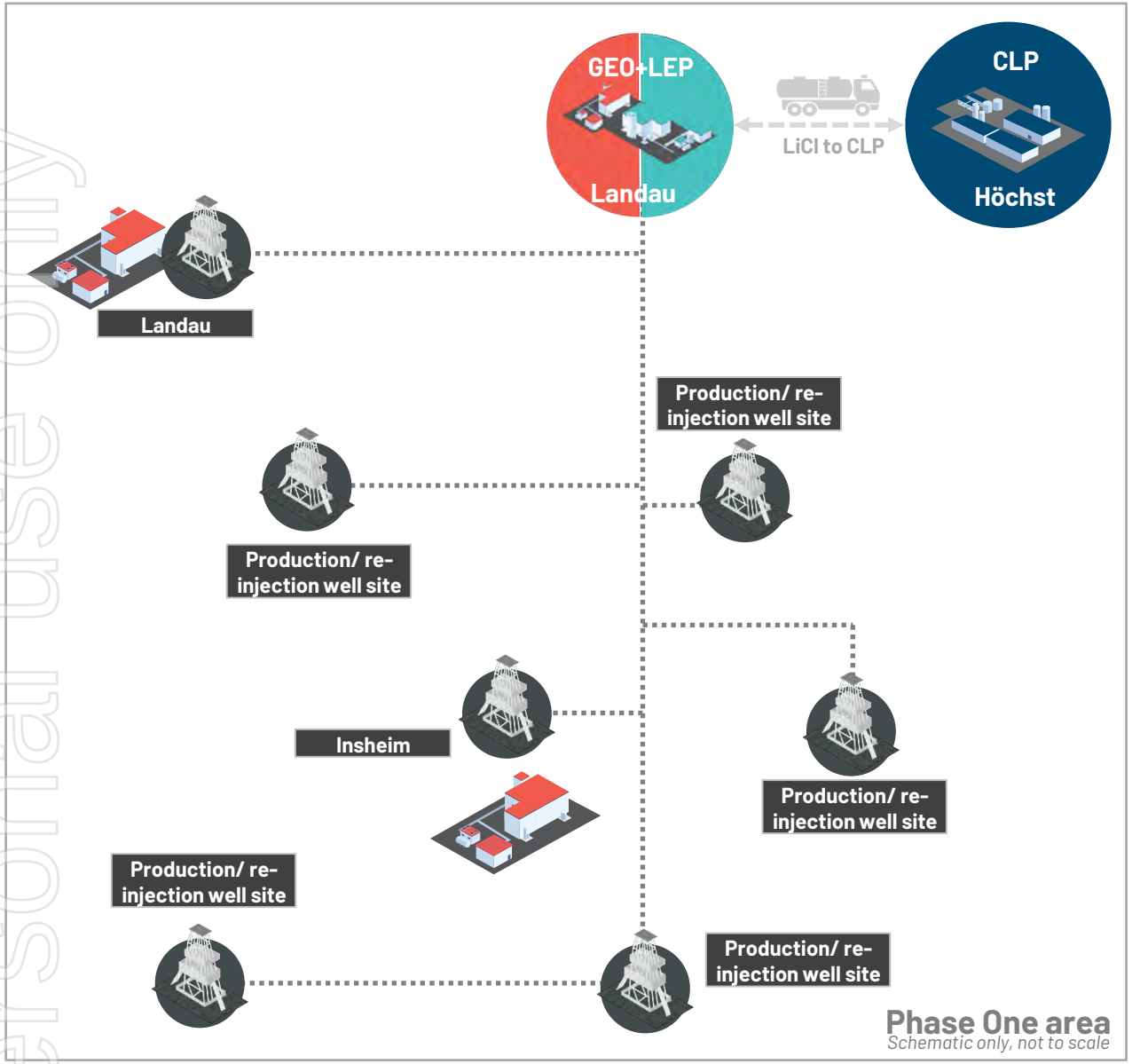
Wells are drilled into the deep, hot, lithium-rich brine resource, which is pumped to the surface

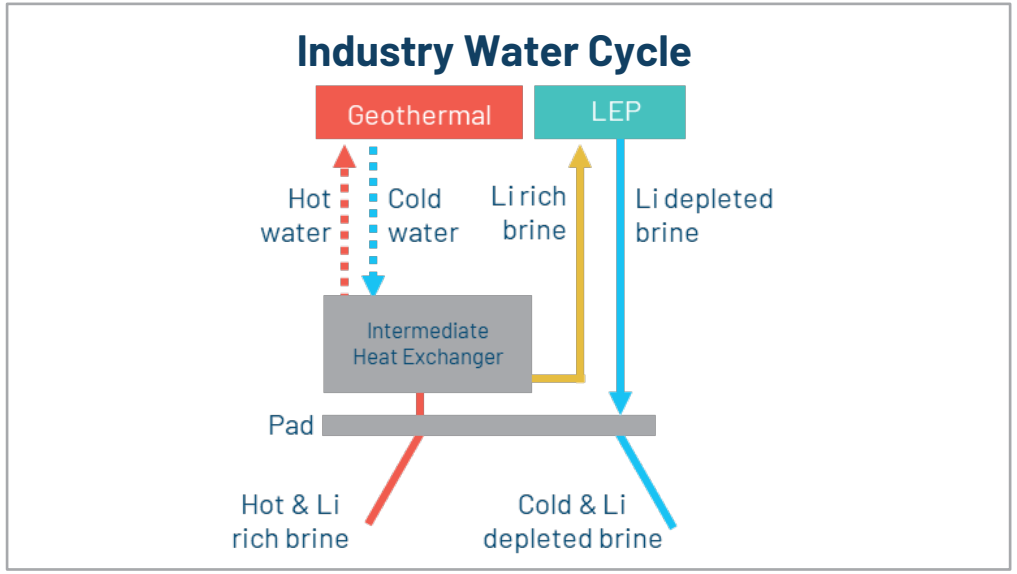
Re-injection of brine. A closed loop, circular system

0.57 Mt LCE @ 181 mg/l Li Reserves, 4.16 Mt LCE @ 181mg/l Li Resource in the core "Lionheart" area, centred around current production wells in core of the URVBF field.

ZERO CARBON LITHIUM™ PROJECT

SITE INFRASTRUCTURE: INDUSTRIAL WATER & BRINE CYCLES



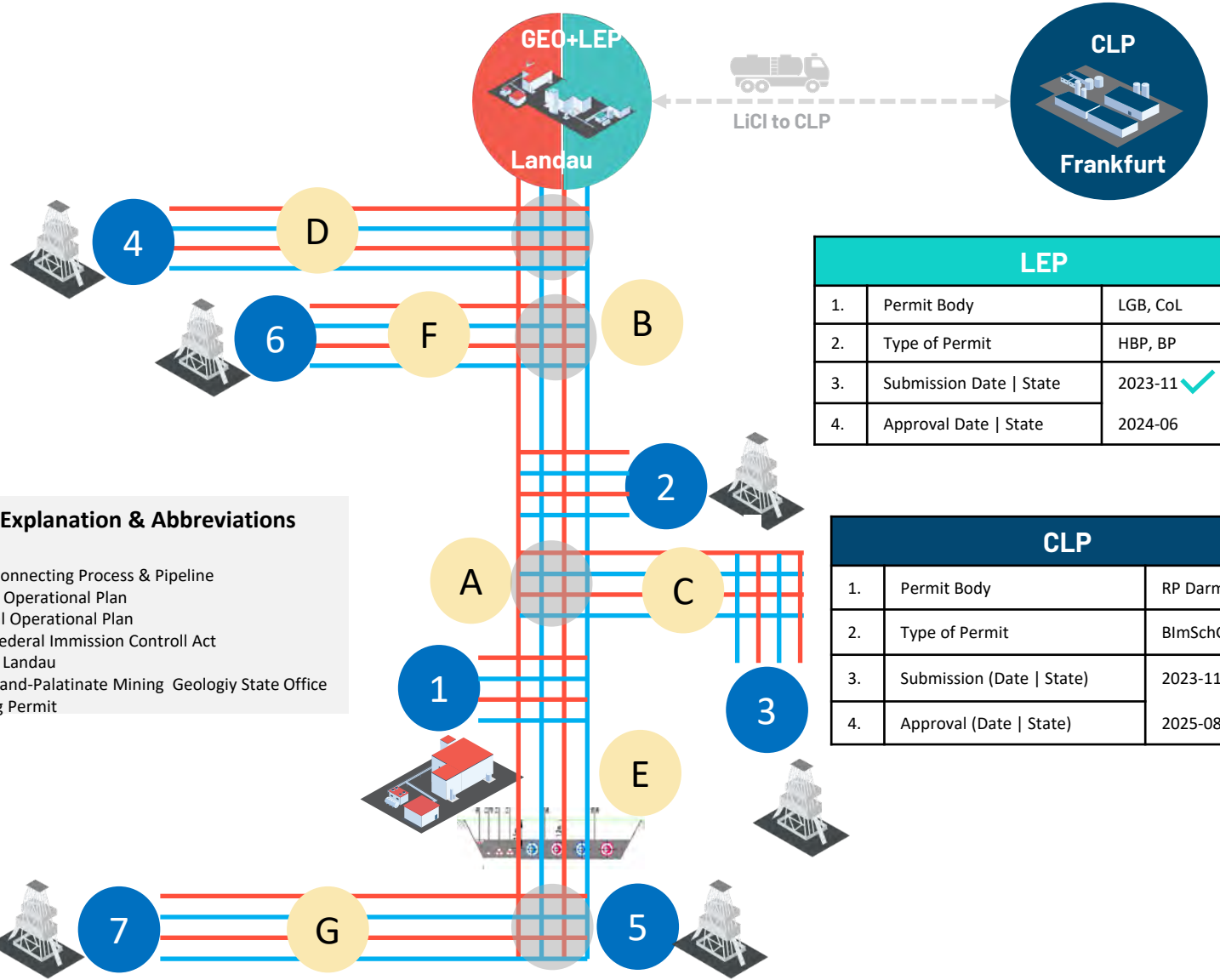


- Vulcan will use an **intermediate heat exchangers** at each well sites to **transfer the heat** from the geothermal brine into a closed loop industrial water cycle, which will send **hot water** by pipe to the district heating building and ORC facilities. Once the heat has been used at the district heating building and ORC, the then **cold water** is sent back to the heat exchanger.
- The **cooled Li-rich brine** is sent from the intermediate heat exchanger to the LEP for lithium extraction to occur and then the **Li-depleted brine** pumped back to the well site for injection into the reservoir.
- This approach has **major operational advantages**, mainly that the hot industrial water feeding the district heating and ORC system uses **clean water** and therefore there **is no risk of scaling**, and seeing as the **brine is cooled** at the intermediate heat exchanger then this **significantly reduces** the potential for scale in the pipeline and LEP.

PHASE ONE – PERMITS EITHER ALREADY GRANTED OR ON TRACK WITH TIMELINE

		1. Permit Body	2. Permit Type & Approval Date		
			➢P-EIA	➢MOP	➢SOP
WELL SITES	1 >> Existing wells 1	LGB	Existing	2025-10	
	2 >> Well site 1		2023-02	2023-07	2023-10
	3 >> Well site 2		2023-11	2024-03	2024-06
	4 >> Existing wells 2		existing	_	2025
	5 >> Well site 3		2023-02	2023-11	2024-02
	6 >> Well site 4		2025-04	2025-08	2025-08
	7 >> Well site 5		2025-11	2026-03	2026-03
ICPP	A Section 1	LGB	2024-03	existing	2024-06
	B Section 2		2024-06	2024-09	_
	C Section 4		2024-10	2025-02	_
	D Section 5		2024-10	2025-02	_
	F Section 6		2025-03	2025-07	_
	G Section 7		2025-07	2025-11	_

GEO (ORC)		
1.	Permit Body	CoL, (SGD Süd)
2.	Type of Permit	BP (BImSchG)
3.	Submission Date / State	2023-12
4.	Approval Date / State	2024-06



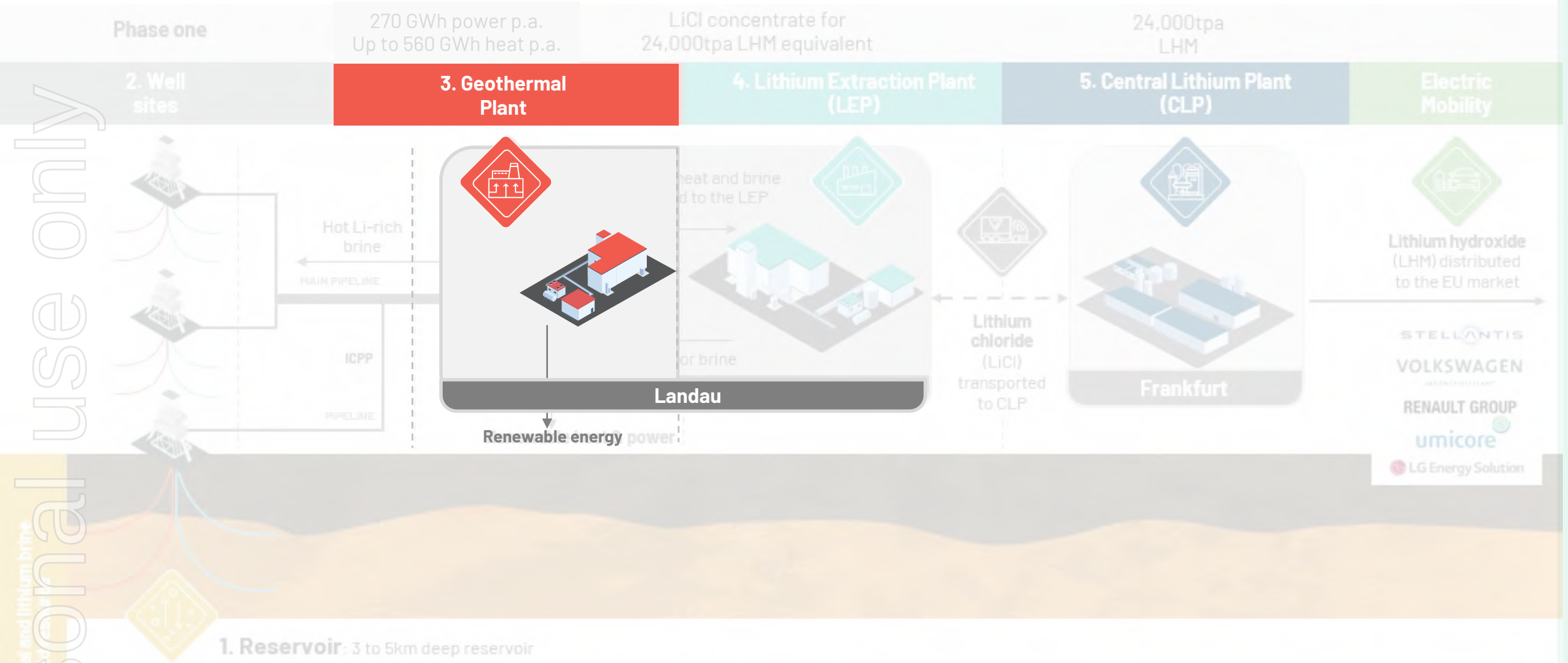
LEP		
1.	Permit Body	LGB, CoL
2.	Type of Permit	HBP, BP
3.	Submission Date | State	2023-11
4.	Approval Date | State	2024-06

Drawing Explanation & Abbreviations

ICPP _ Interconnecting Process & Pipeline
MOP _ Main Operational Plan
SOP _ Special Operational Plan
BImSchG _ Federal Immission Controll Act
CoL _ City of Landau
LGB _ Rhineland-Palatinate Mining Geologiy State Office
BP _ Building Permit

CLP		
1.	Permit Body	RP Darmstadt
2.	Type of Permit	BImSchG
3.	Submission (Date | State)	2023-11
4.	Approval (Date | State)	2025-08

3. HARVESTING RENEWABLE ENERGY FROM THE BRINE



INCREASING OUR CURRENT RENEWABLE ENERGY PRODUCTION

Long established industry with strong growth

- Geothermal energy: 16GW of power & 107GW of heat capacity deployed worldwide[1].
- There are currently 36 geothermal plants operating in Germany, 42 active projects (c. 84 wells), and the Federal Government is targeting to reach new 100 projects by 2030[2].
- Vulcan owns an existing geothermal renewable energy plant with over 10 years of successful production.
- This plant is supplying ~6,500 households with renewable power.
- Extensive operational experience in-house.
- Plants are simple and "off the shelf" from vendors.

With more wells comes more geothermal renewable energy

Phase One will utilise Vulcan's existing operational capacity, and increase geothermal renewable energy production by an estimated:

- Insheim: 4.2MW power capacity.
- Additional total planned energy generation capacity: 27.5 MW power capacity.
- Annual target renewable energy generation: 560 GWh/a heat, 270 GWh/a power.

[1] Global geothermal market and technology assessment (irena.org);

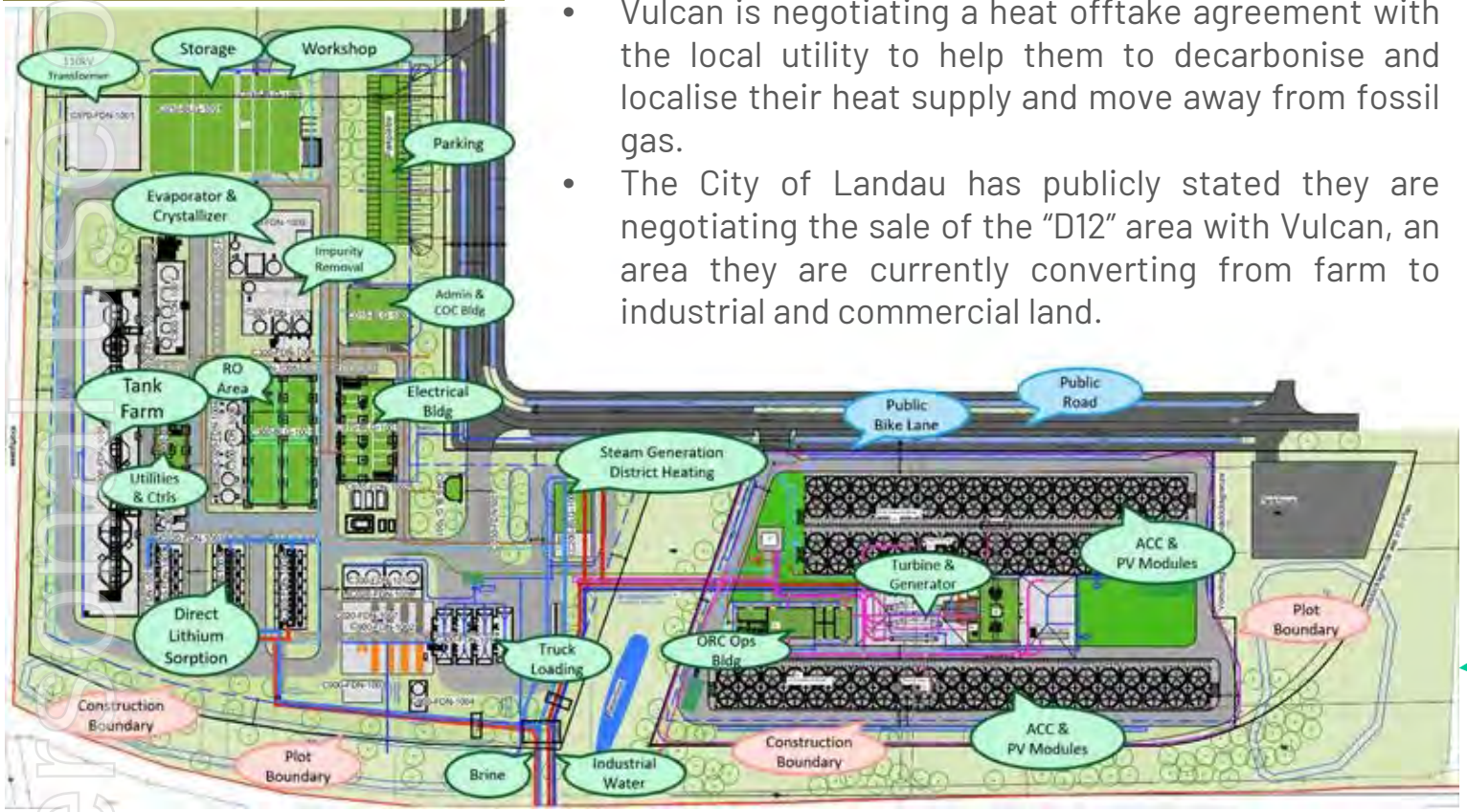
[2] Geothermie_Eckpunktepapier_ressortabgestimmt (bmwk.de);

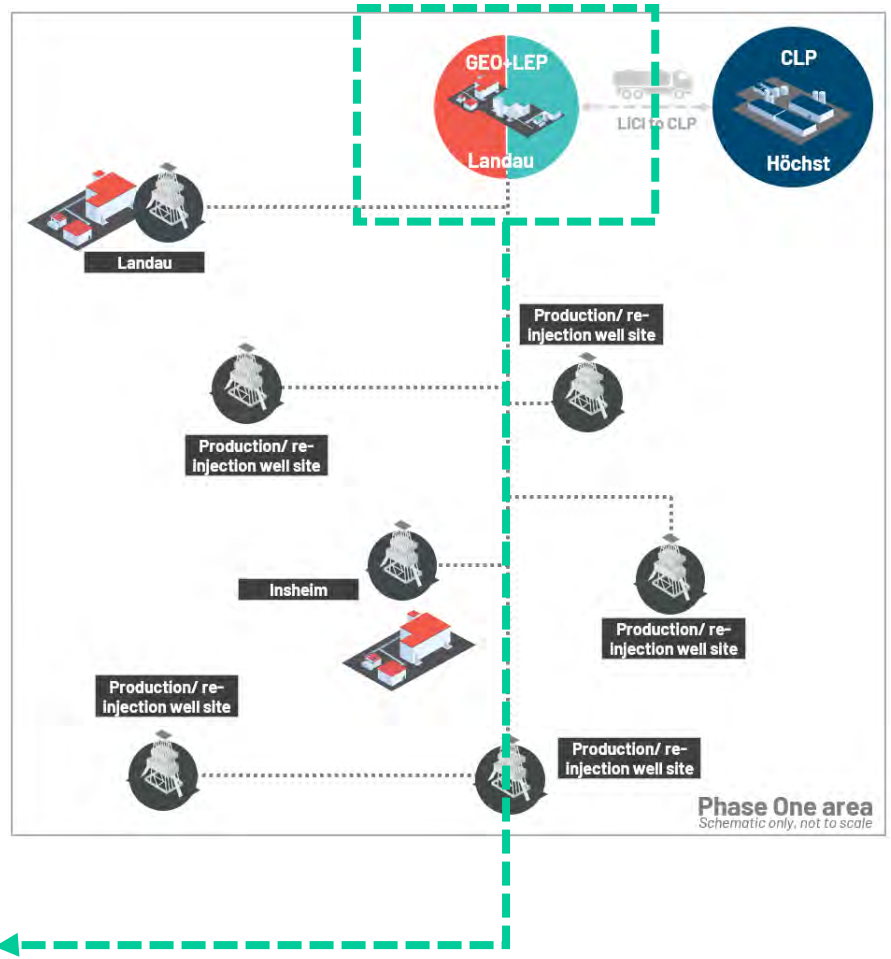
CURRENT GEOTHERMAL ASSETS

RENEWABLE ENERGY PLANT TO BE BUILT IN LANDAU INDUSTRIAL PARK

Geothermal renewable energy plant to be built to supply the local community

- Initially planned to produce mostly power, Vulcan's new geothermal plant will increase district heat production over time for local communities.
- Vulcan is negotiating a heat offtake agreement with the local utility to help them to decarbonise and localise their heat supply and move away from fossil gas.
- The City of Landau has publicly stated they are negotiating the sale of the "D12" area with Vulcan, an area they are currently converting from farm to industrial and commercial land.

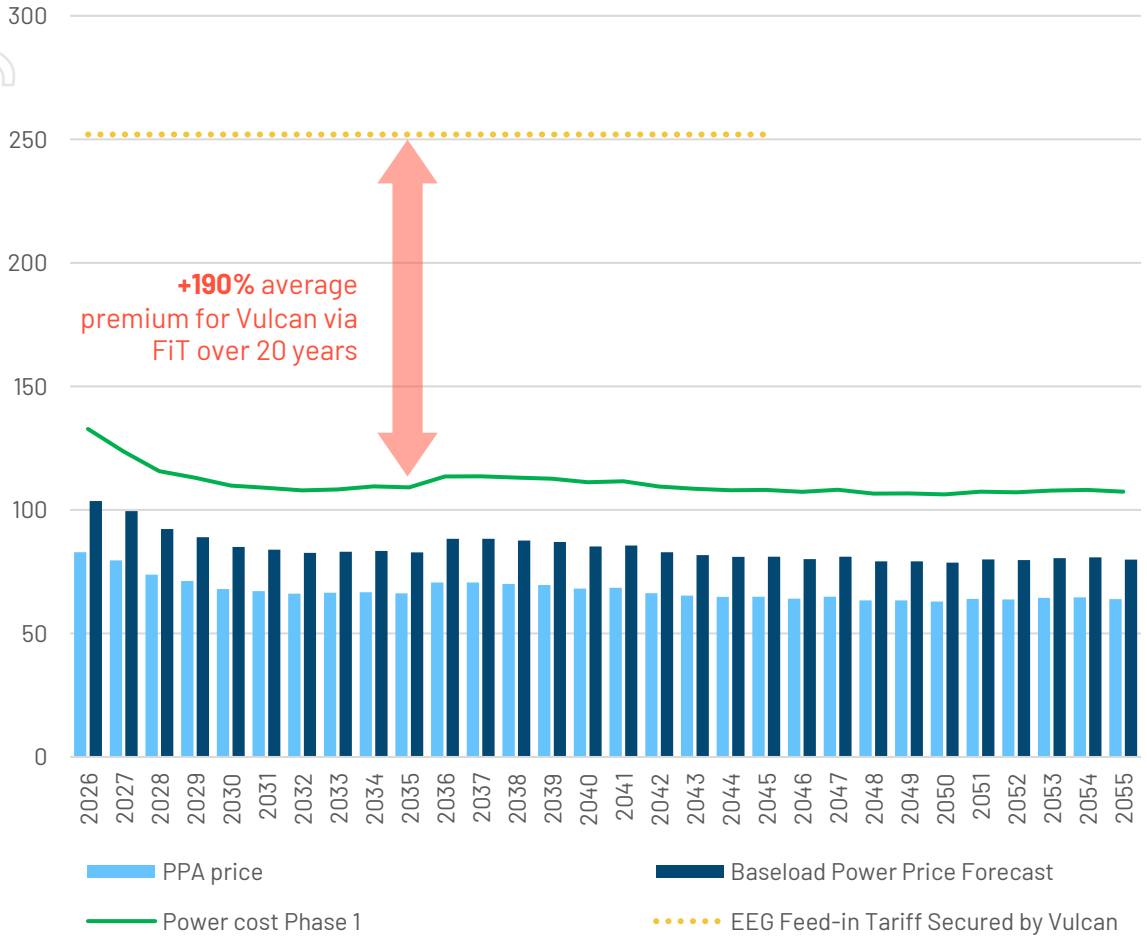




ZERO CARBON LITHIUM™ PROJECT

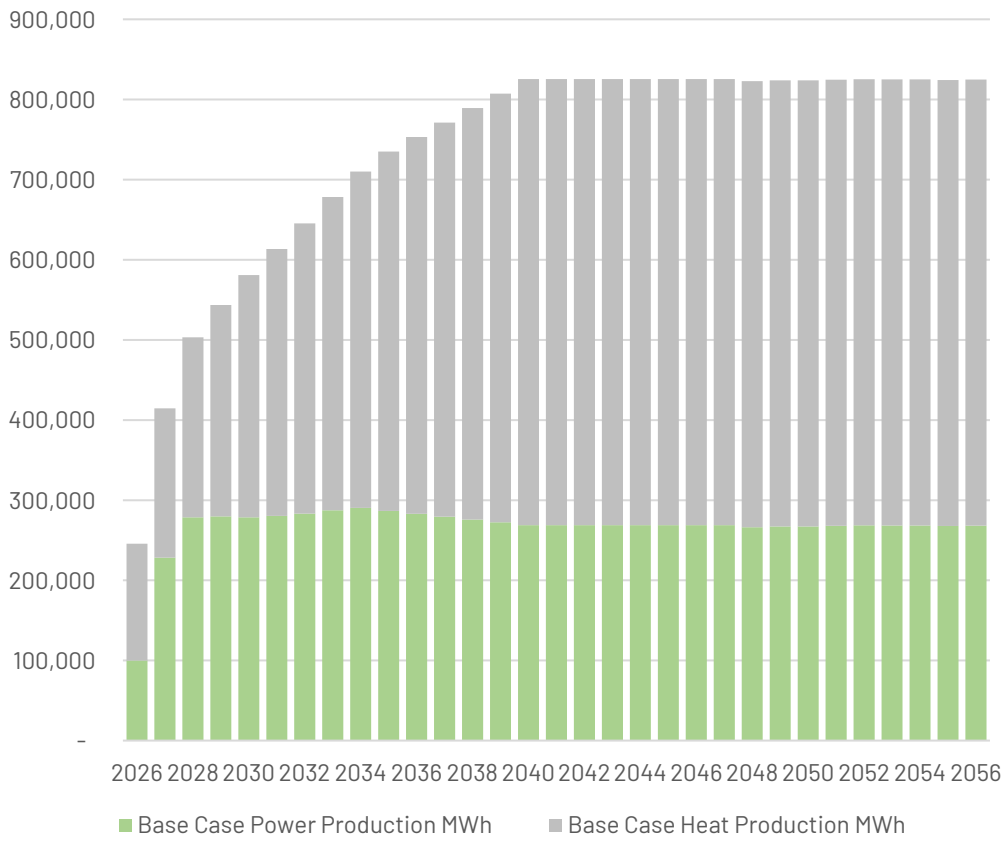
RENEWABLE ENERGY PRODUCTION TARGET AND TARIFF

Power price forecast - (€/MWh, Germany)



Source: Aurora Energy Research

Energy production (MWh/a)*



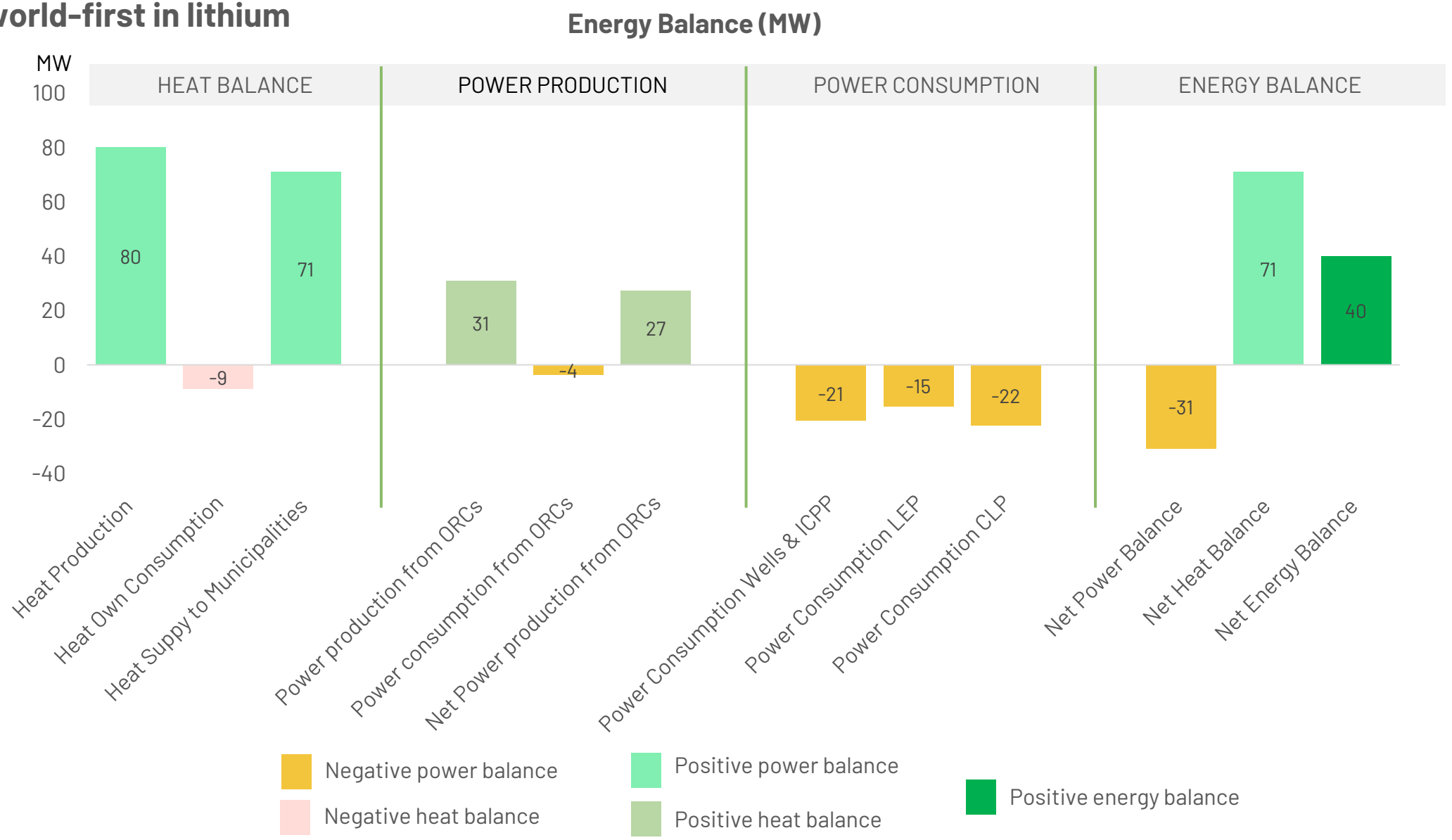
**Heat offtakes in advanced negotiations with local municipalities. Shown production and timeline is a target, and should be treated with caution*

Note: See the material assumptions in the Bridging Study Announcement released to the ASX 16 November 2023 and Appendix 3 of this presentation.
**Base Case scenario*

ZERO CARBON LITHIUM™ PROJECT

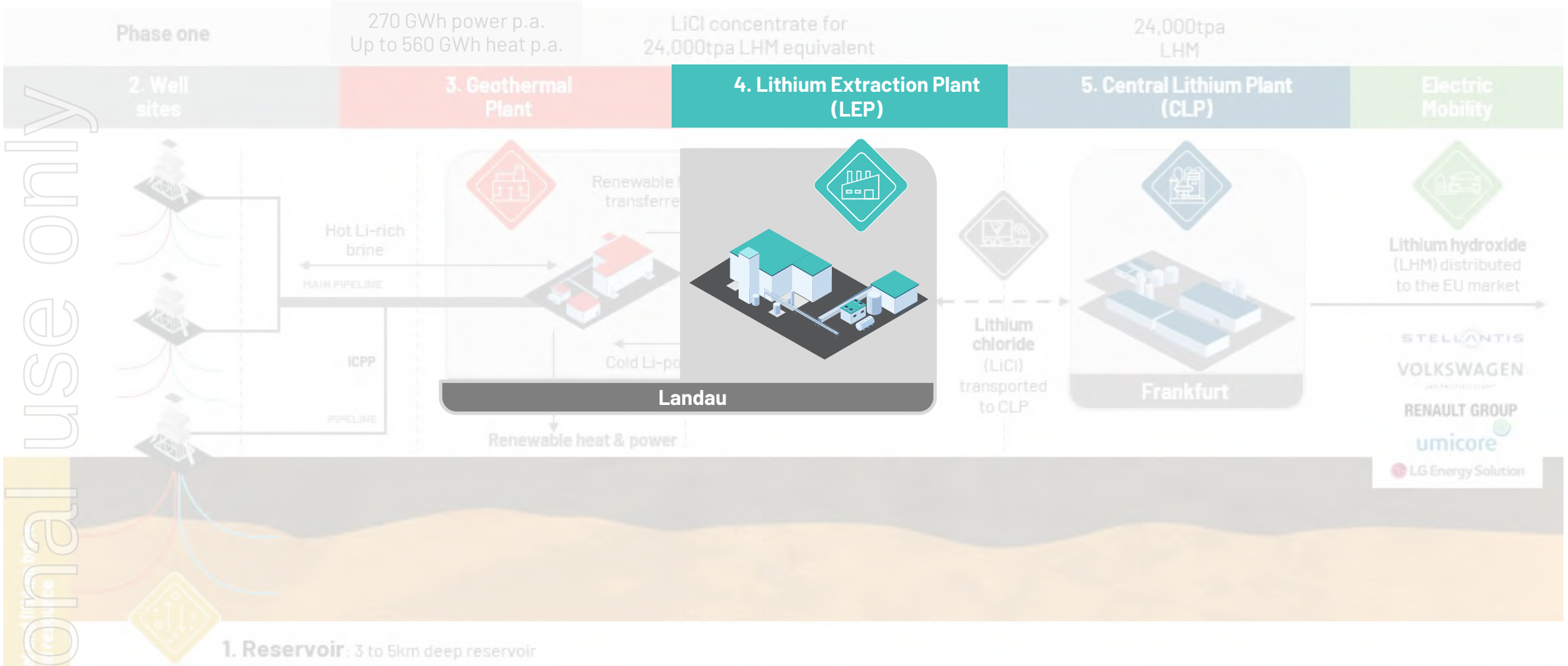
ENERGY BALANCE: NET POSITIVE PRODUCER OF RENEWABLE ENERGY[1]

A world-first in lithium



[1]*Vulcan's Phase One is a net consumer of power, and a net producer of heat. The overall positive energy balance is a net effect of these two different types of energy.*

4. ADDING FURTHER VALUE BY PRODUCING LITHIUM



GLOBAL LITHIUM SUPPLY TODAY

60% global lithium production

Hard rock mining

Sourcing lithium hydroxide from hard rock mines for lithium currently has a high CO_2 footprint. Once you mine it, the rock must be roasted with fossil fuels and using large volume of sulphuric acid to produce lithium hydroxide.

30% global lithium production

Brines: Reagent and evaporation pond usage
Use reagents to remove impurities from the brine

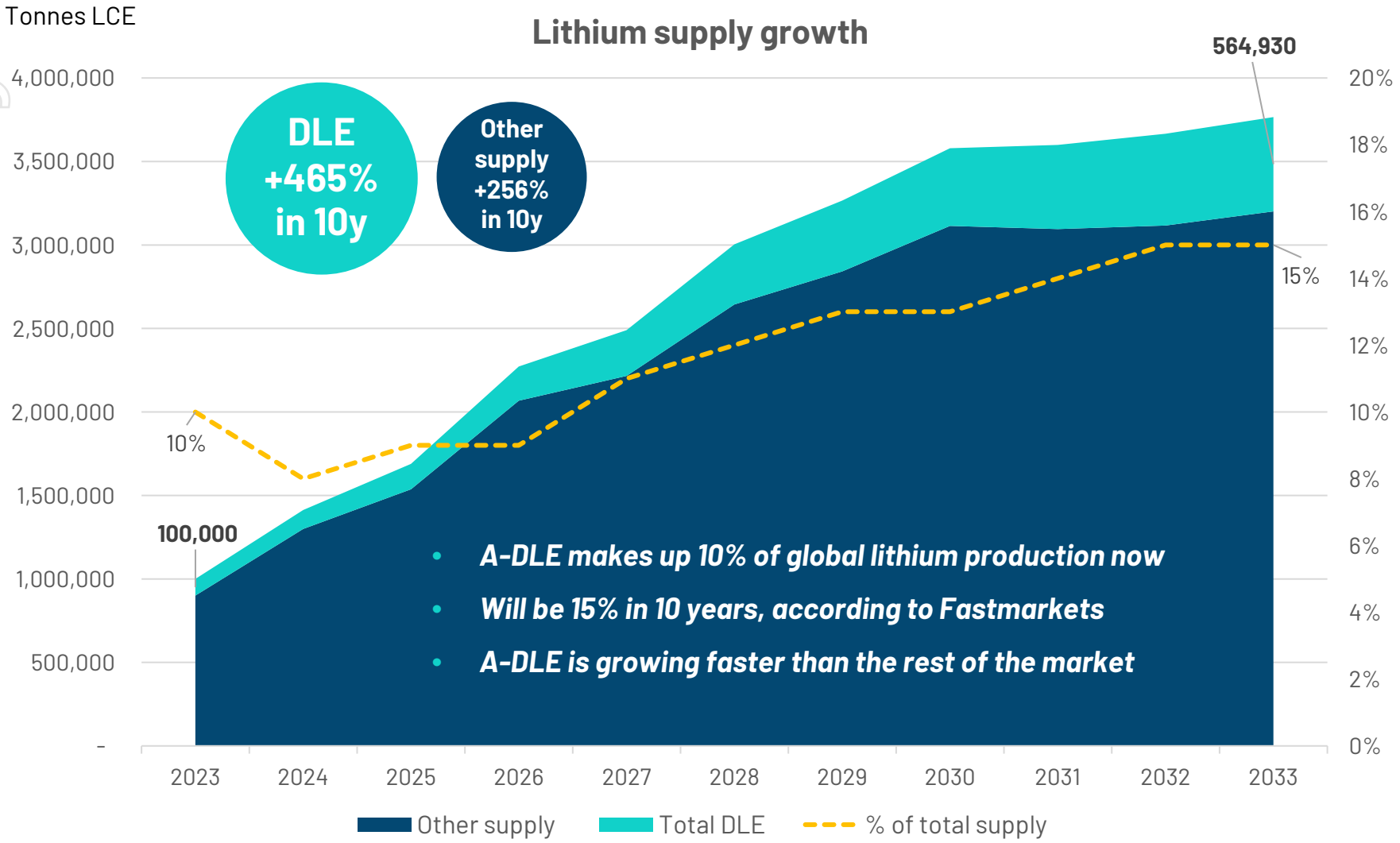
Lithium extraction from brines evaporates large quantities of water in some of the driest places on earth. It also has a significant CO_2 footprint, through large use of chemical reagents.

10% global lithium production

Brines: Adsorption-type Direct Lithium Extraction (A-DLE)
Extract only the lithium from the brine, leave everything else in it

Low or net zero CO_2 footprint, depending on how the brine is heated.
Very low reagent usage in A-DLE process.
Low water usage if recycling systems are built into process.

COMMERCIAL GROWTH OF DLE



Source: Fastmarkets

Fastmarkets

Fastmarkets is one of the most trusted cross-commodity price reporting agency (PRA) in the agriculture, forest products, metals and mining, and new generation energy markets.

LME An HKEX Company

ZERO CARBON LITHIUM™ PROJECT

ADVANTAGES OF ADSORPTION-TYPE DIRECT LITHIUM EXTRACTION (A-DLE)

Track record

- ✓ Global, multi-decade commercial precedent in the lithium industry.

Low operating cost

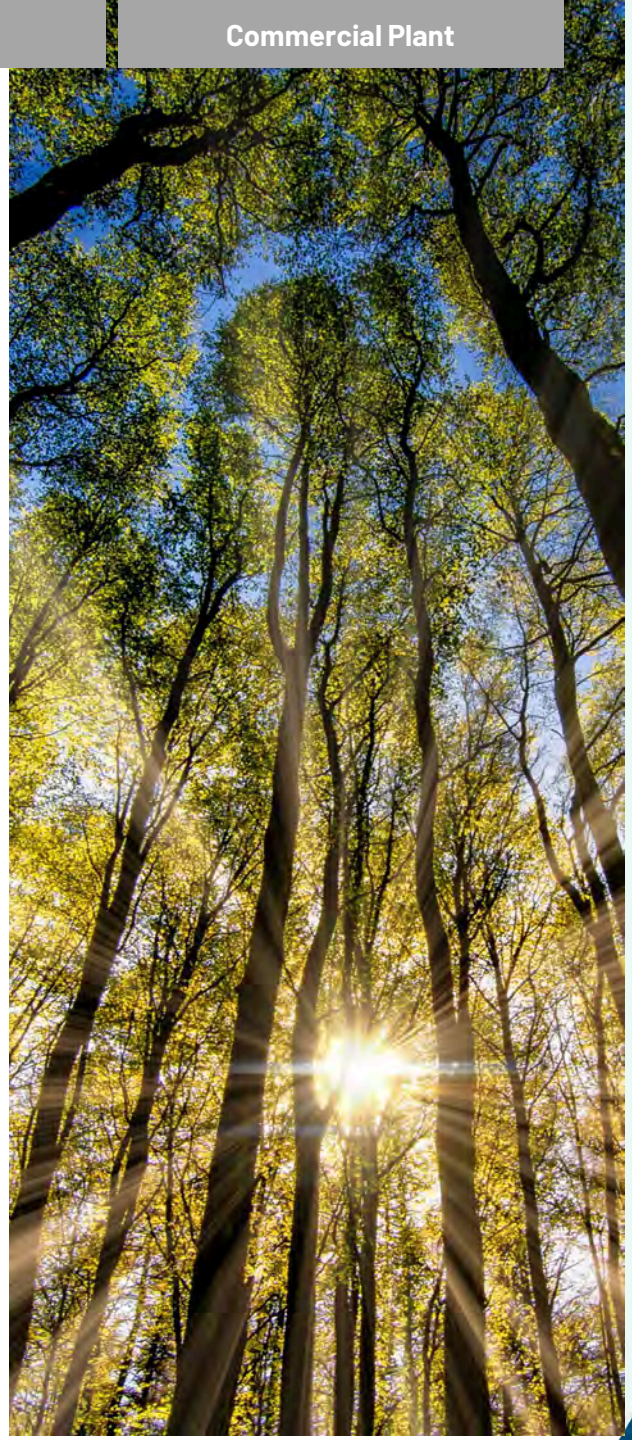
- ✓ Water is used to recover the lithium from the sorbent – no acid requirement means lower operating cost and less waste.
- ✓ Requires heat to work, so lowers operating cost and saves energy when applied to naturally heated sub-surface brines.

Reduces environmental impact

- ✓ Highly selective for Li with >90% extraction efficiency, reduces or removes the need for legacy-method large scale evaporation ponds.
- ✓ Salinity/heat and water driven process, reduces/removes the need for large quantities of chemical reagents used in legacy lithium production methods.

Product quality

- ✓ Produces very pure product relative to hard rock and evaporative lithium, an advantage in the battery electric vehicle industry, which has very high product quality standards.



A WAVE OF SUSTAINABLE LITHIUM SUPPLY IS BUILDING...

THE "NEW NORMAL"

A-DLE used commercially to produce lithium since 1996, rapidly increasing production

- ✓ **Livent**, formerly FMC, and a global Top 3 lithium producer, has used A-DLE in its commercial lithium operations in Argentina for >25 years. Now increasing production by over 400%.[1]
- ✓ Growth of five new Chinese producers in late 2010s, when lithium market started to grow linked to EVs: **Lanke Lithium, Zangge Mining, Jintai Lithium, Minmetals Salt Lake, Jwell New Materials**.

New players entering the market in '24-'26, including from the mining industry

- ✓ French company **Eramet** (market capitalisation ~ EUR 2.5 billion) is commissioning an adsorption-type DLE project in Argentina for a 24,000 tpa LCE capacity, using a proprietary alumina-based adsorbent. The first tonnes of production are slated for 2024.[2]
- ✓ In Europe, dual Australian and Frankfurt-listed **Vulcan Energy** has been developing its Zero Carbon Lithium™ Project since 2018 and is now ready to move into the execution phase, using its own, proprietary alumina-based adsorbent. Targeting start of production by H2 2026, with 24,000 tpa LHM capacity for Phase One.[3]
- ✓ US company **Compass Minerals** (market cap ~ US$1.6 billion), using Energysource Minerals' adsorbent, backed by Koch Industries.[4]
- ✓ Australian company **Rio Tinto** (market capitalisation ~ A$167 billion) moving into the construction phase of a lithium adsorption project in Argentina, Rincon, using a proprietary adsorbent, having conducted pilot testwork since acquiring the project in 2022 for US$825m.[5]
- ✓ **SQM** announced that it plans to spend $1.5 billion on desalination and DLE to improve lithium production in Chile. The project would help increase lithium production capacity by more than 60% from 2021 levels, the company says.[6]
- ✓ **Albemarle** has also announced that it is entering the DLE space, starting in Arkansas from existing bromine operations.[7]

Livent
藏格锂业 Lithium
Driving the innovation SUNRESIN
青海盐湖钾肥股份有限公司 Qinghai Salt Lake Potash Co.,LTD
中国五矿集团公司 CHINA MINMETALS CORPORATION
eramet
VULCAN ENERGY ZERO CARBON LITHIUM™
COMPASS MINERALS
RioTinto
SQM
ALBEMARLE

[1] [https://livent.com/wp-content/uploads/2023/07/Livent_2022_SustainabilityReport_English.pdf] Market capitalization is calculated as ~4.1B US$ at 09/08/2023
[2] [https://www.eramet.com/en/eramine-world-class-lithium-production-project] Market capitalization is calculated as ~2.2B € at 09/08/2023
[3] [https://www.investi.com.au/api/announcements/vul/e617fca6-6d4.pdf] Market capitalization is calculated as ~660m A$ at 09/08/2023
[4] [https://www.compassminerals.com/what-we-do/lithium] Market capitalization is calculated as ~ 1.59B US$ at 09/08/2023
[5] [https://www.riotinto.com/news/releases/2022/Rio-Tinto-completes-acquisition-of-Rincon-lithium-project] Market capitalization is calculated as ~162.36B A$ at 09/08/2023
[6] [https://cen.acs.org/energy/energy-storage-/Lithium-firms-hope-direct-extraction/100/web/2022/12] Market capitalization is calculated as ~ 18.9B US$ $ at 09/08/2023
[7] [https://www.reuters.com/markets/commodities/albemarle-jumps-into-global-race-reinvent-lithium-production-2023-08-03/] Market capitalization is calculated as ~ 22.96B US$ $ at 09/08/2023

...NOW WITH THE OIL AND GAS INDUSTRY BEHIND IT

The next wave: Big Oil into Big Lithium

- ✓ Adsorption-type DLE has synergies with and similarities to integrated oil and gas projects, including piping networks, "upstream" and "downstream" integration. Notable trend of oil and gas majors starting to invest in the space.
- ✓ **Exxon Mobil Corp** (MC: US$ 431 billion), has recently announced it will start its first A-DLE plant, building a first phase 10,000 metric tonnes per year of lithium in Arkansas by 2026 with partner Tetra Technologies in what has been labeled "Project Evergreen.[1]
- ✓ **Koch Industries** (private, revenue US$115 billion) invested US$252m into adsorption-type DLE with Compass Minerals International (CMP.N) (offtake w/ Ford).[2]
- ✓ **Occidental Petroleum Corp** (market capitalisation US$57 billion) has also entered the space, having acquired adsorption-type DLE technology.[3]
- ✓ **SLB**, formerly **Schlumberger** (market capitalisation US$82 billion), is expanding into adsorption-type DLE in Nevada. "The fact that you can have a completely domestic brine resource that is now economic is an enormous driver for DLE."[4]
- ✓ **Chevron Corp** (market capitalisation US$295 billion) has also just announced it is exploring opportunities to enter the space, noting that "extracting lithium fits with the "core capabilities" of a company like Chevron that has deep experience producing oil and gas."[5]

ExxonMobil

slb

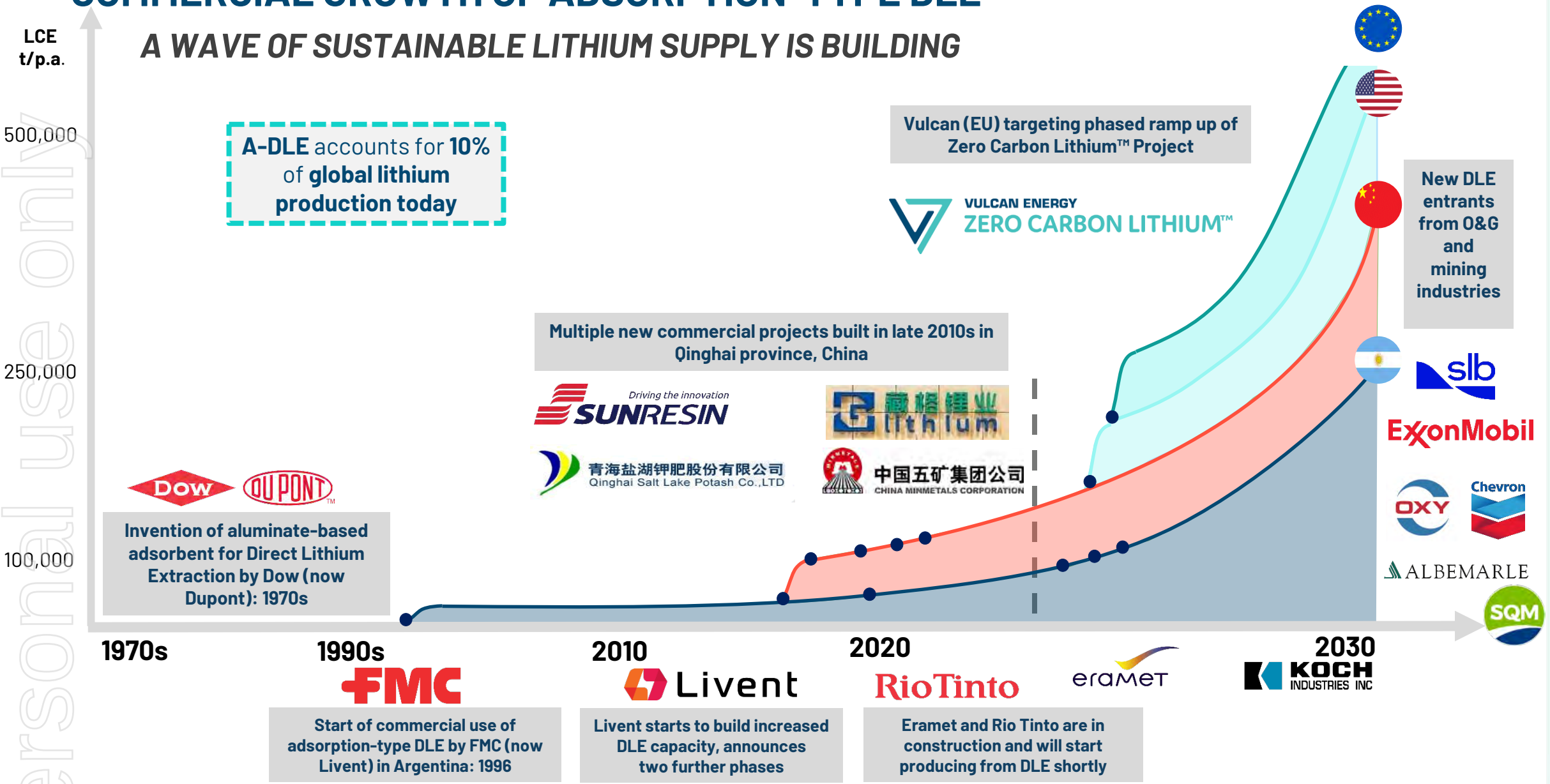
KOCH INDUSTRIES INC

OXY

[1] [https://www.energyintel.com/00000189-9db8-d6e5-adab-9dbc9caa0000] Market capitalization is calculated as ~431B US$ at 09/08/2023
[2] [https://www.mining-technology.com/news/compass-koch-lithium/] private, revenue 2022 115B US$ at 09/08/2023
[3] [https://www.ft.com/content/7616a9f4-e0db-4d61-b189-9e81ddd8137b] Market capitalization is calculated as ~56.4B US$ at 09/08/2023
[4] [https://www.slb.com/news-and-insights/newsroom/press-release/2021/pr-2021-0318-sne-lithium-extraction-plant-nevada] Market capitalization is calculated as ~83.2B US$ at 09/08/2023
[5] [https://www.mining.com/web/chevron-considers-lithium-production-in-latest-ev-bet-by-big-oil/] Market capitalization is calculated as ~305.5B US$ at 09/08/2023

COMMERCIAL GROWTH OF ADSORPTION-TYPE DLE[1]

A WAVE OF SUSTAINABLE LITHIUM SUPPLY IS BUILDING



[1]*This graph is intended to illustrate the increasing commercial usage of DLE worldwide. The data is taken from the public sources referenced in slide 58 and no warranty is given for the correctness of the data. The future data is subject to change at any time due to external factors and should be read, mutatis mutandis, with the forward-looking statements disclaimer.*

EXAMPLES OF COMMERCIAL A-DLE PLANTS

ARGENTINA – LIVENT HOMBRE MUERTO DLE PLANT -30,000 TPA LCE

CHINA - EVEBATTERY 10,000 TPA LCE COMMERCIAL PLANT BUILT WITH SUNRESIN

ARGENTINA – ERAMET CENTENARIO-RATONES DLE PLANT -24,000 TPA LCE (2024)

CHINA - ZANGGE MINERAL 10,000 TPA LCE

DIFFERENCES BETWEEN ADSORPTION-TYPE DIRECT LITHIUM EXTRACTION (A-DLE) AND NOVEL, NON-COMMERCIAL DLE METHODS

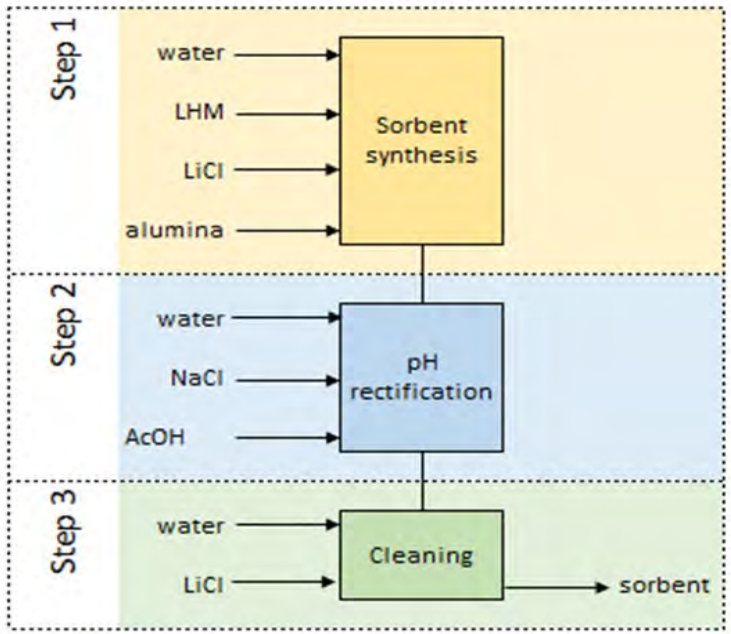
DLE method	Material	Main advantages	Main disadvantages
IN COMMERCIAL USE FOR >25 YEARS, EXPONENTIAL GROWTH IN PRODUCTION			
Adsorption-type Direct Lithium Extraction (A-DLE)	$LiCl{\cdot}2Al(OH)_3, nH_2O$ Many form factors	• Global and multi-decade commercial precedent • Water is used to recover the lithium from the sorbent – no chemical reagents required • No acid requirement means long sorbent life • Highly selective for Li with >90% extraction efficiency • Works well with heated brines	• Usually requires temperatures > 50 °C (not a disadvantage if brine, e.g., from geothermal plants, is already hot) • Lower eluate LiCl concentration than IX, requires more reverse osmosis to separate and recycle water
STILL IN DEVELOPMENT/R&D PHASE			
Ion Exchange (IX)	$LiMnO_x$ $LiFePO_4$ Li_2TiO_3	• High capacity and therefore high concentration of Li in the eluate	• Needs large amounts of base and acid to work, increases OPEX and waste formation • Some IX materials are attacked during desorption. Degrade in acidic conditions
Solvent Extraction	Organic solvents	• High concentrations of lithium can be achieved in the extraction solution. Continuous	• Organic solvents are environmentally challenging • Fire risk with high temperature brines • Expensive relative to other technologies, potentially larger CAPEX for first fill
Membranes	MOFs, IX or $LiCl{\cdot}2Al(OH)_3$ in polymers	• No contact between brine and extractant, fewer impurities and continuous	• In their technological infancy, fouling, lack of stability in geothermal brines. Pretreatment required

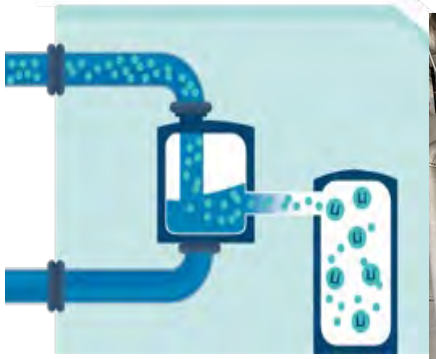
VULSORB® – VULCAN'S PROPRIETARY SORBENT FOR A-DLE OPERATION

VULSORB®

In-house A-DLE intellectual property

- In the past, Vulcan tested a series of commercially available sorbents, which all worked well with our brine.
- Based on test results achieved, the development team decided to use a sorbent with lithium aluminate intercalate structure for Vulcan's A-DLE process.
- To achieve better optimisation, create IP value in-house and control over its process and supply chain, Vulcan has developed its own proprietary sorbent, **VULSORB®**, which is synthesised via a scalable 3-step process.
- **VULSORB®** belongs to a lithium extraction adsorbent family that has been used by different companies in multiple commercial production assets over the past 25 years.
- Based on Vulcan's test work on its Upper Rhine Valley brine, **VULSORB®** offers higher lithium extraction capacity than other sorbents.*
- **VULSORB®** can be used with other brines, both in Europe and globally.
- In addition, Vulcan has built up extensive application and analytical know-how for the use of **VULSORB®** in the A-DLE process.





*based on test work carried out by Vulcan Labs and Vulcan's pilot plants

OUR ACTIVITIES TO DE-RISK A-DLE ON UPPER RHINE VALLEY BRINE

Standard approach for applying known metals extraction process to a mineral source

Technology selected

Applicability to geochemistry confirmed in laboratory

Engineering parameters determined and optimised using pilot-scale processing test work. Feasibility study.

Commercial plant built and operation

✓ VULSORB® developed

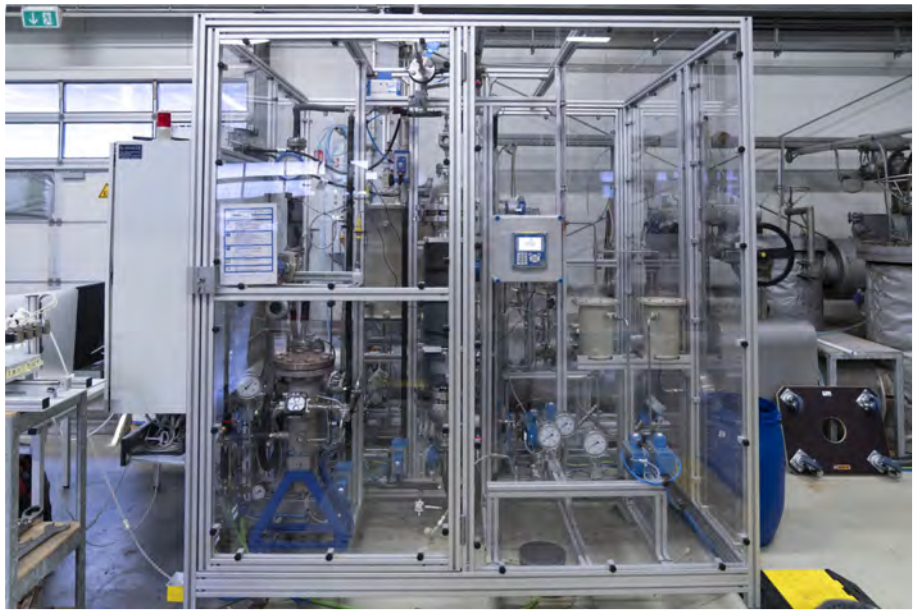
✓ PP1: 1000 **non-stop cycles** with VULSORB®

✓ P1A: 2000 **non-stop cycles** with VULSORB® at brine pressure

- ✓ Technology selected in scoping work 2018-2020.
- ✓ **3 years** of in-house **laboratory testwork** successfully completed '21-'23.
- ✓ Technology de-risked on Vulcan's brine chemistry (i.e., salinity, Li content, chemical composition, temperature) in "**live" environment** at multiple producing well sites.
- ✓ **Pilot Plant PP1** is operational since spring '21. Lithium hydroxide "better than battery grade" already produced.
- ✓ **5000+ cycles in 2 ½ years** of stable, continuous operation.
- ✓ Larger **Pilot Plant P1A** in operation since fall '22, with total **2000+ cycles** of operation.
- ✓ Data from pilot plants used to optimise and complete engineering design for Definitive Feasibility Study and Bridging Engineering Study.

Ready to move into execution, construction and operation of commercial plant

VULCAN'S PILOT PLANTS PP1 AND P1A AT GEOTHERMAL PLANT IN INSHEIM HAVE ENABLED EXTENSIVE OPTIMISATION WITH REAL "LIVE" BRINE



Pilot Plant PP1

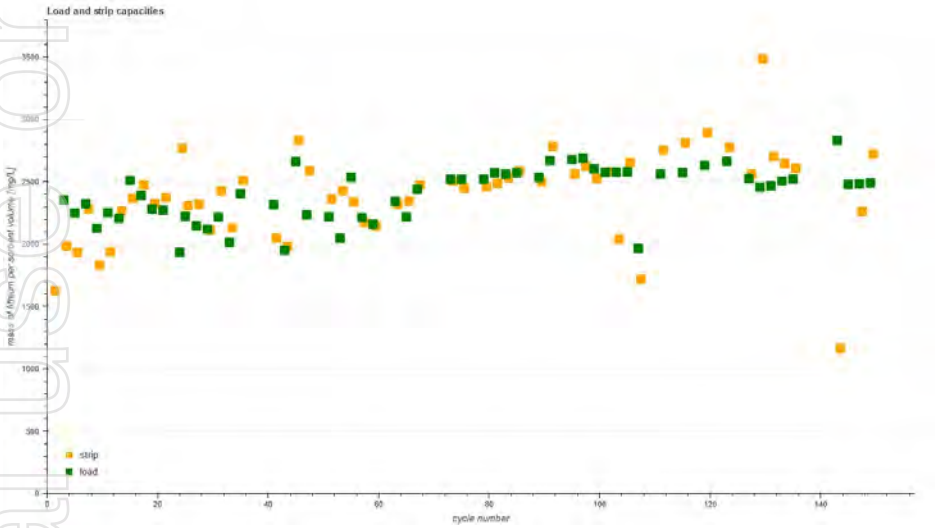
- Column volume 1 L
- Ambient pressure
- Pre-treated geothermal brine
- Brine feed capacity 12-20 L/h

Pilot Plant P1A

- Column volume 15 L
- Brine pressure of ~18 barg
- Untreated geothermal brine
- Brine feed capacity 100 L/h

STABLE PERFORMANCE IN BOTH PILOT PLANTS, CONTINUOUS OPTIMISATION AND IMPROVEMENTS

Pilot Plant P1A



Load (sorption, green) and strip (desorption, yellow) capacities of current VULSORB® campaign at P1A (geothermal plant pressure, no pre-treatment) with improved parameters and set-up.

- ✓ VULSORB® performance was stable for more than >2000 A-DLE cycles with geothermal brine at 60 to 75 °C and 18 barg, as well as at atmospheric pressure.
- ✓ Lithium extraction efficiency: >90%.
- ✓ Further recent optimisations have included modification of flow distributor in the column, reduction of dead volume of liquid, optimised activation of VULSORB®, among others.
- ✓ This has resulted in:
  - ✓ increased sorbent capacity: ~2400 mg Li/l of sorbent.
  - ✓ Improved eluate quality.

LITHIUM EXTRACTION OPTIMISATION PLANT (LEOP) IN LANDAU PROVIDES LITHIUM CHLORIDE SOLUTION TO MAKE BATTERY GRADE LHM AT CLEOP

- In-house designed **Lithium Extraction Optimisation Plant (LEOP)** in commissioning phase, planned to start operation Q4 of 2023 to train staff in pre-commercial environment for **targeted operational readiness** prior to start of commercial production.
- LEOP built to start sending significant volume of product (i.e., LiCl solution) to Central Lithium Electrolysis Optimisation Plant (CLEOP) to make Battery Grade LHM.
- Once operational, this plant will produce **the first tonnes of domestically produced lithium chemicals in Europe.**

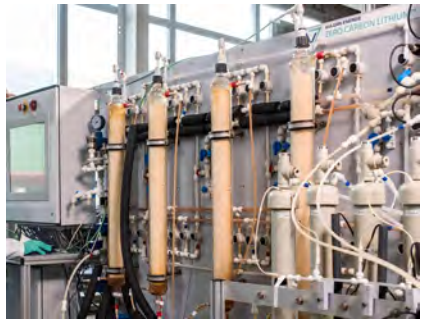
LEOP: A-DLE Column volume of 1.35 m^3

LEOP: Centrifuge and Crystallizer from Sedgman Novopro

LITHIUM EXTRACTION OPTIMISATION PLANT LEOP

ENSURING COMMERCIAL OPERATIONAL READINESS FOR A-DLE AT VULCAN

LAB	PILOT PLANT PP1	PILOT PLANT P1A	LEOP	COMMERCIAL LEP
SOP 2020	SOP 2021	SOP 2022	SOP H2 2023	SOP H2 2026
Grams of product	Kilos of product	100s of kilos of product	Tonnes of product	Kilotonnes of product



Optimise and improve performance | *Optimise and improve performance* | *Optimise and improve performance* | *Optimise and improve performance, ensure operational readiness*

Feed flow per column	1.5 l/h	12-20 l/h	100 l/h	5,000 l/h (= 1.4 l/s)	270,000 l/h (= 75 l/s)
Sorbent volume per column	0.25 l	1-2 l	15 l	830 l	45,000 l
Eq. LHM			105 g/h (= 840 kg/y)	**45 t/y**	**2,000 t/y**

x10 | x55 | x54

Scale-up factors based on sorbent volumes per column

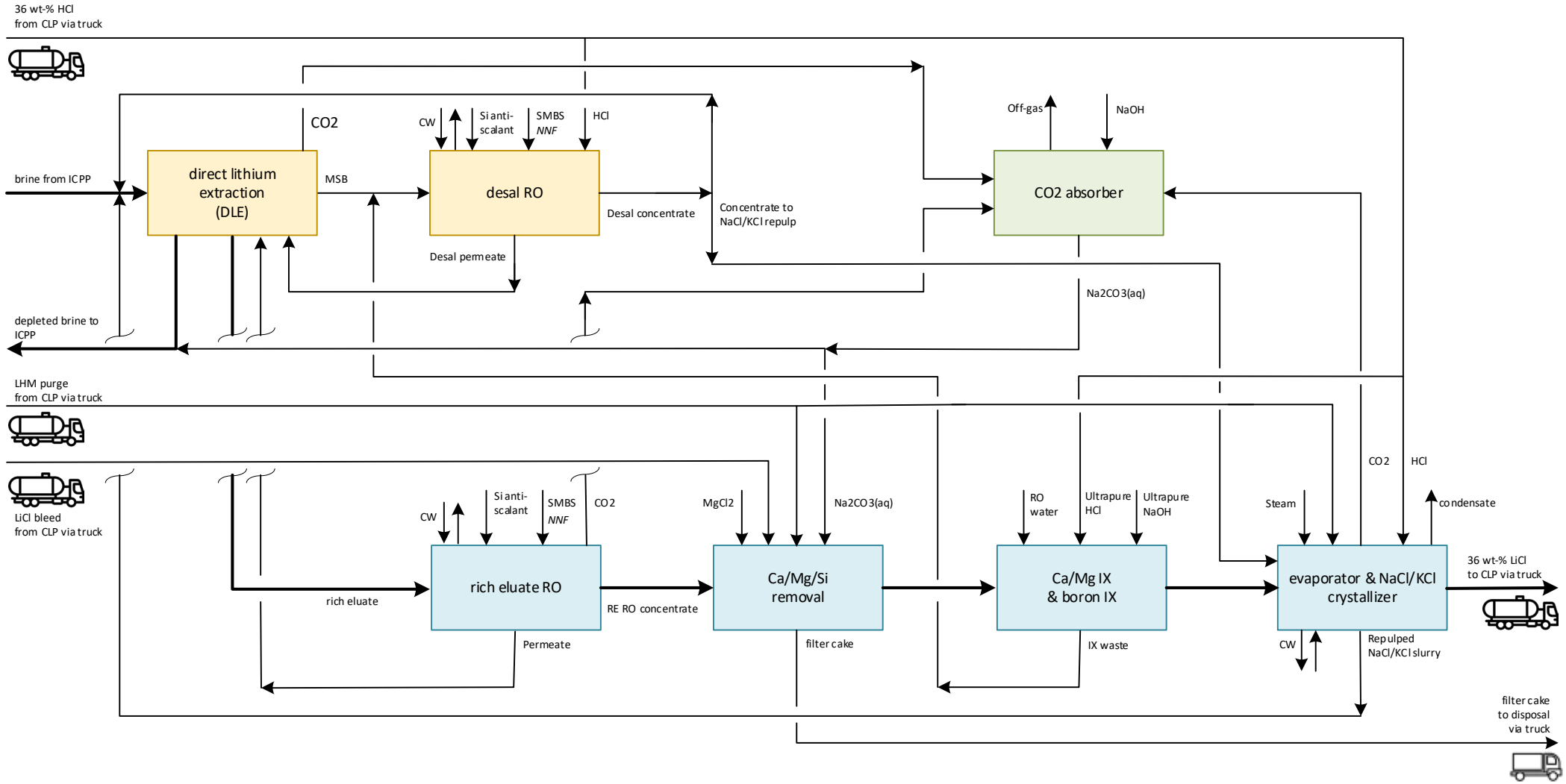
LITHIUM EXTRACTION PLANT (LEP) IN LANDAU

Phase One commercial: Lithium Extraction Plant (LEP)

- **Building permit submitted in November 2023**, in line with Vulcan's timeline.
- Will be constructed next to new Phase One Geothermal Plant in Landau.
- Total **targeted capacity to be 24,000tpa LHM equivalent in LiCl form.**
- From the LEP, **LiCl solution will be transported** to the CLP at Industrial Park Höchst (Frankfurt).
- **Modular build allows** for further phased development across other phases in Upper Rhine Valley Brine Field (URVBF).

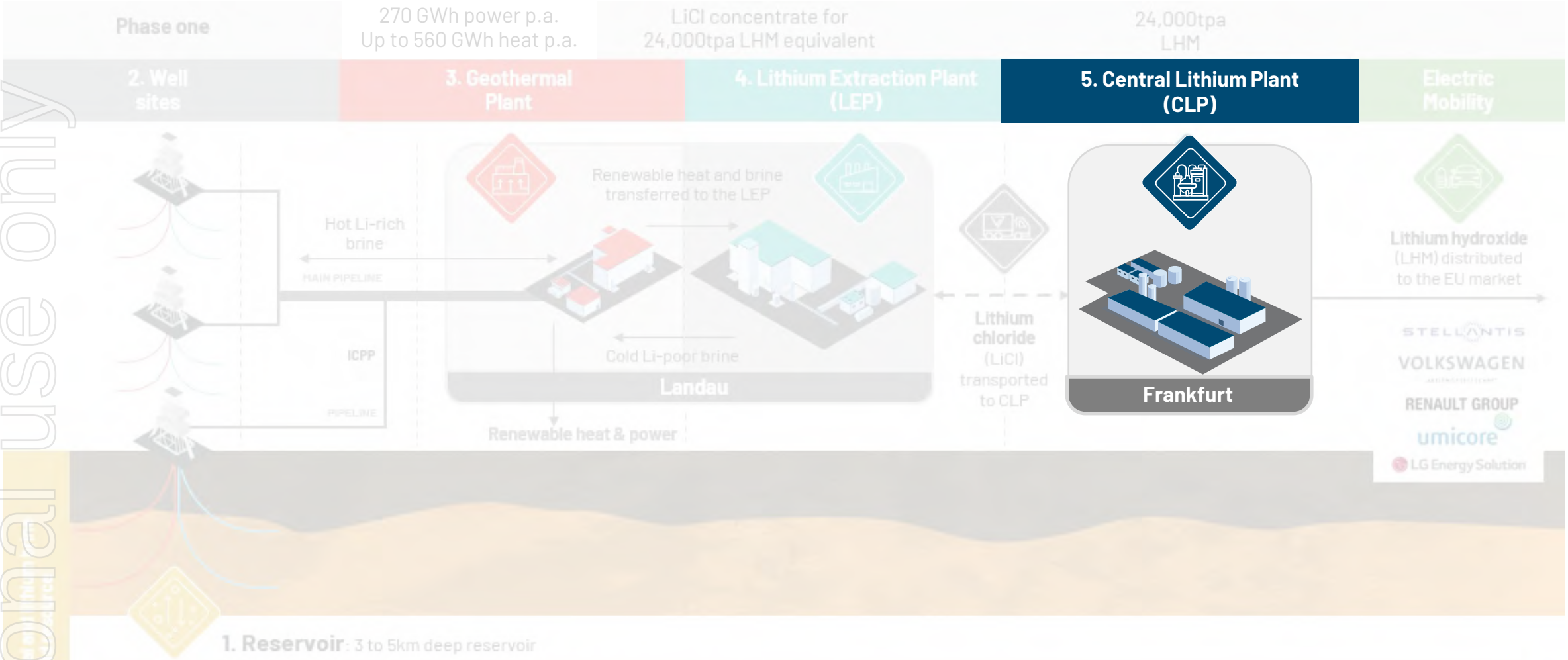
Planned new commercial Phase One Geothermal Plant and Lithium Extraction Plant (LEP) in Landau

OUR LEP PROCESS IS HIGHLY INTEGRATED WITH CLOSED WATER LOOP, MINIMAL ENERGY DEMAND AND MINIMAL WASTE STREAMS



- **Major units:** A-DLE system, RO systems, IX systems, evaporator/crystallizer, BOP

5. CONVERTING LITHIUM TO A BATTERY GRADE PRODUCT



LITHIUM PROCESSING: PROVEN, SUSTAINABLE METHODS, STRONG PARTNERS

Proven chlor-alkali type process, sustainable inputs, no fossil fuels

- Vulcan to use the electrolysis process to convert lithium chloride into lithium hydroxide. Electrolysis produces very pure lithium hydroxide product, important for battery EV industry. Main input is green power, in contrast to legacy methods which use large quantities of reagents and fossil fuels.
- This is similar to the **well-known chlor-alkali process used for >100 years** to produce caustic soda (sodium hydroxide) from sodium chloride, since cells for lithium chloride electrolysis are the same.
- Chlor-alkali electrolysis process: there are **36 active plants in Germany**, c. 5.4Mt chlorine production capacity, of which 3.4Mt is using the exact same membrane technology as Vulcan.

NORAM

- Vulcan is working closely with NORAM, lithium chloride electrolysis experts in charge of detailed engineering.
- NORAM brings their extensive experience of testing production of lithium hydroxide from lithium chloride through electrolysis, **already proven with commercial-scale cells**.
- **Testwork** with Electrosynthesis (partly owned by NORAM) **completed,** better than battery grade specification LHM **successfully** produced from Vulcan's LiCl.

ELECTROLYSIS – GREAT BENEFITS, LOW RISK

Key benefits in final step in our production steps (lithium chloride converted to battery-grade LHM via electrolysis)

Using sustainable energy, electrolysis offers a **carbon-free route to LHM**

No production of any **waste by-products**

High quality LHM due to upstream brine purification and membrane electrolysis

Low risk base technology

Lithium-chloride electrolysis is a **close analogue to well-established chloro-alkali industry**

NESI Technology package aims **robust design** with focus on **reliability** and operational flexibility

Technology already proven using commercial scale cell

Additional de-risking activities

Complemented **with proven chlorine and lithium processing units** from established technology providers

Built up a strong operations team with **in-depth expertise** from chloro-alkaline industry to **integrate** the building blocks

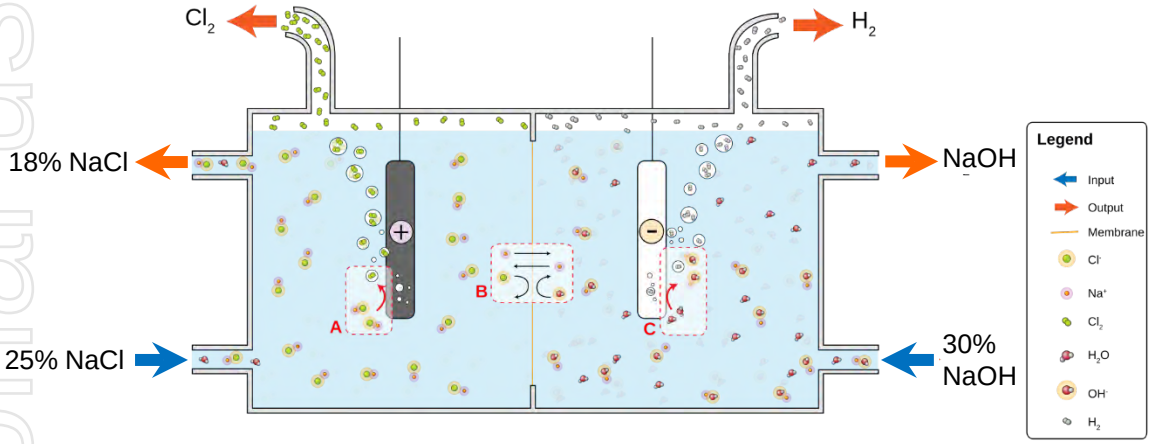
Priority on a **robust low-risk technology** before optimising performance

LIOH ELECTROLYSIS PROCESS – VERY SIMILAR TO CHLORO-ALKALI

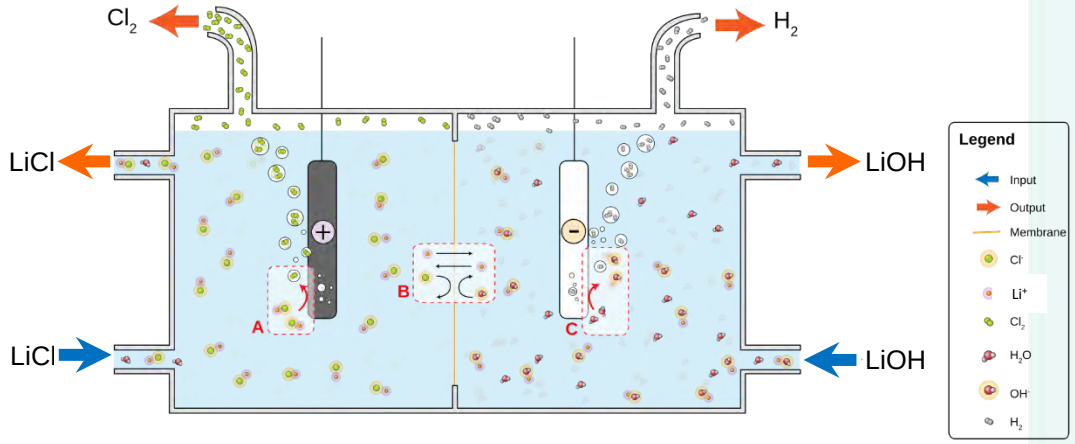
- Traditionally $LiOH \cdot H_2O$ (LHM) has been produced from inorganic precursors by re-crystallisation of inorganic precursors, e.g.:

$$Li_2CO_3 + Ca(OH)_2 \rightarrow 2\ Li(OH) \cdot H_2O + CaCO_3$$

- The traditional process results in large consumption of chemicals and large by-production of inorganic waste.
- Electrolysis is an efficient way to convert LiCl to LiOH without consumption of chemicals and production of solid wastes. By using sustainable electrical power, the process can be de-carbonised.
- The technology is similar to the chlor-alkali process, the well-established 'work-horse' of the ~ 100 M t chlor-alkali industry – only the *sodium ions Na^+ are replaced by lithium ions Li^+*



A	Anodic oxidation $2\ Cl^- \rightarrow Cl_2\uparrow + 2\ e^-$
B	**Na+** passes through the membrane, Cl- and OH- are rejected
C	Cathodic reduction $2\ H_2O + 2e^- \rightarrow 2\ OH^- + H_2\uparrow$

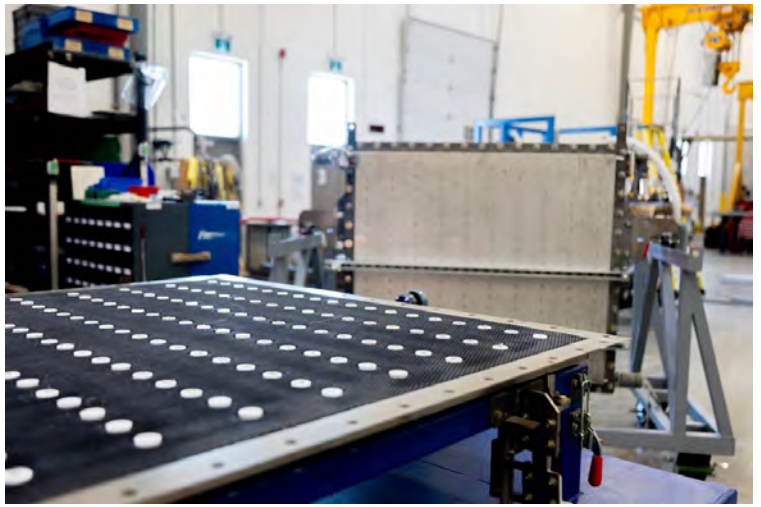


A	Anodic oxidation $2\ Cl^- \rightarrow Cl_2\uparrow + 2\ e^-$
B	**Li+** passes through the membrane, Cl- and OH- are rejected
C	Cathodic reduction $2\ H_2O + 2e^- \rightarrow 2\ OH^- + H_2\uparrow$

BUILDING ON A THREE-STAGE APPROACH: THE BASIS FOR THE TECHNOLOGY PACKAGE USED

NESI's 3-stage approach to electrolysis process development, all completed:

- **Stage 1:** Short and long duration brine testing on NESI cell - **completed**
  - Aim: Replicate commercial NORSCAND® Cell. Long term testing of 1,000 + hours
  - Cell: NESI's NS-01 cell with an electrode area of 0.015m2
- **Stage 2:** Full Electrode height NORSCAND ® Cell - **completed**
  - Aim: Confirm cell performance scale-up
  - Cell: NESI's Full Electrode height cell with a total electrode area of 0.175m2
- **Stage 3:** Full commercial cell testing -**completed**
  - Aim: Confirm cell performance at the full commercial scale
  - Cell: Commercial full-scale NORSCAND® cell with an electrode area of 1.5m2 (Like Vulcan's CLP plant). Used to demonstrate that the expected performance of the commercial scale NORSCAND® cell fully matches the results of the test results of the NESI NS-01 test cell.



NESI (NORAM Electrolysis Systems) 's Electrochemical Demonstration Plant

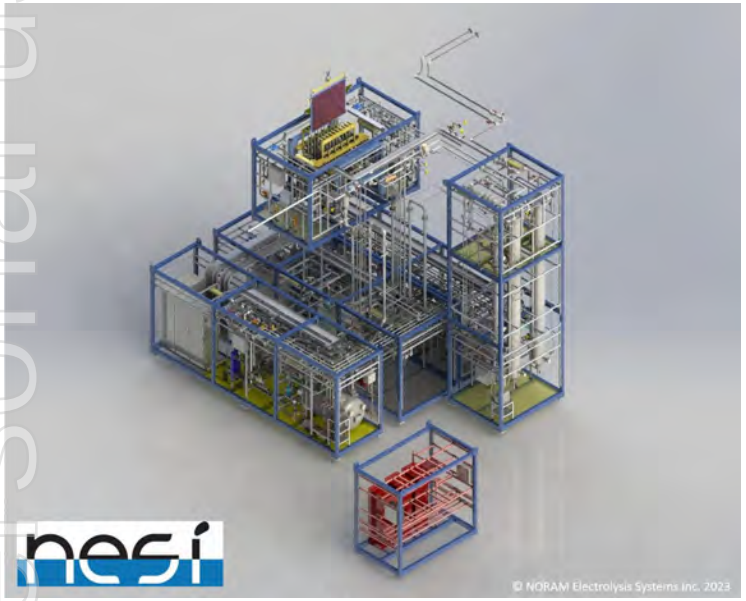
- Objective: To electrolyse lithium chloride and produce lithium hydroxide
- Equipment: Proven full-scale 1.5m^2 two-compartment electrolysis cell
- Results: Matched performance to prior tests on a full electrode height cell
- Significance: Confirmed the cell's suitability for designing the Vulcan optimisation plant and commercial plant

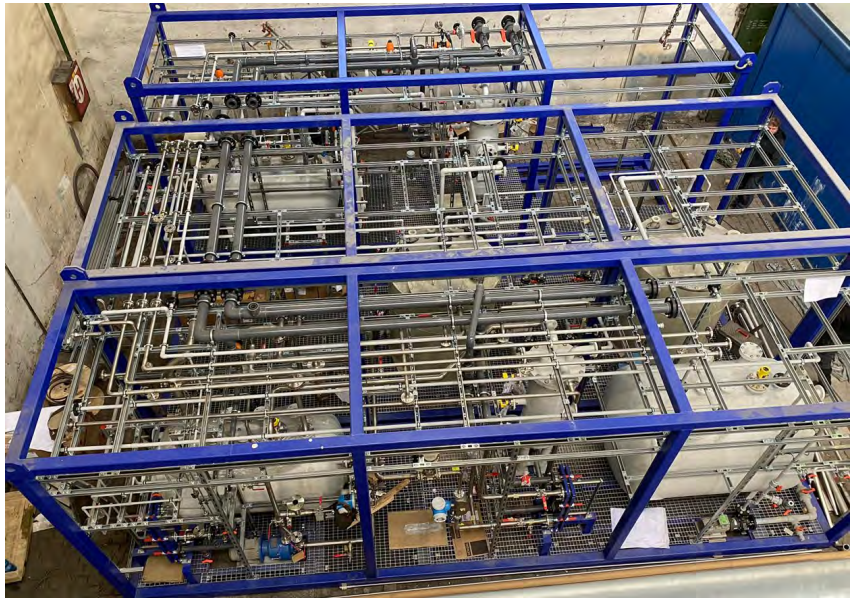
Designing the LEP Process based on NESI's specifications:

- Dilution levels of LiCl and LiOH
- Maintain low impurity levels (e.g., Ca, Mg, Sr, Ba, Si and P) at ppb or low ppm concentrations

ENSURING OPERATIONAL READINESS WITH OUR CENTRAL LITHIUM ELECTROLYSIS OPTIMISATION PLANT (CLEOP)

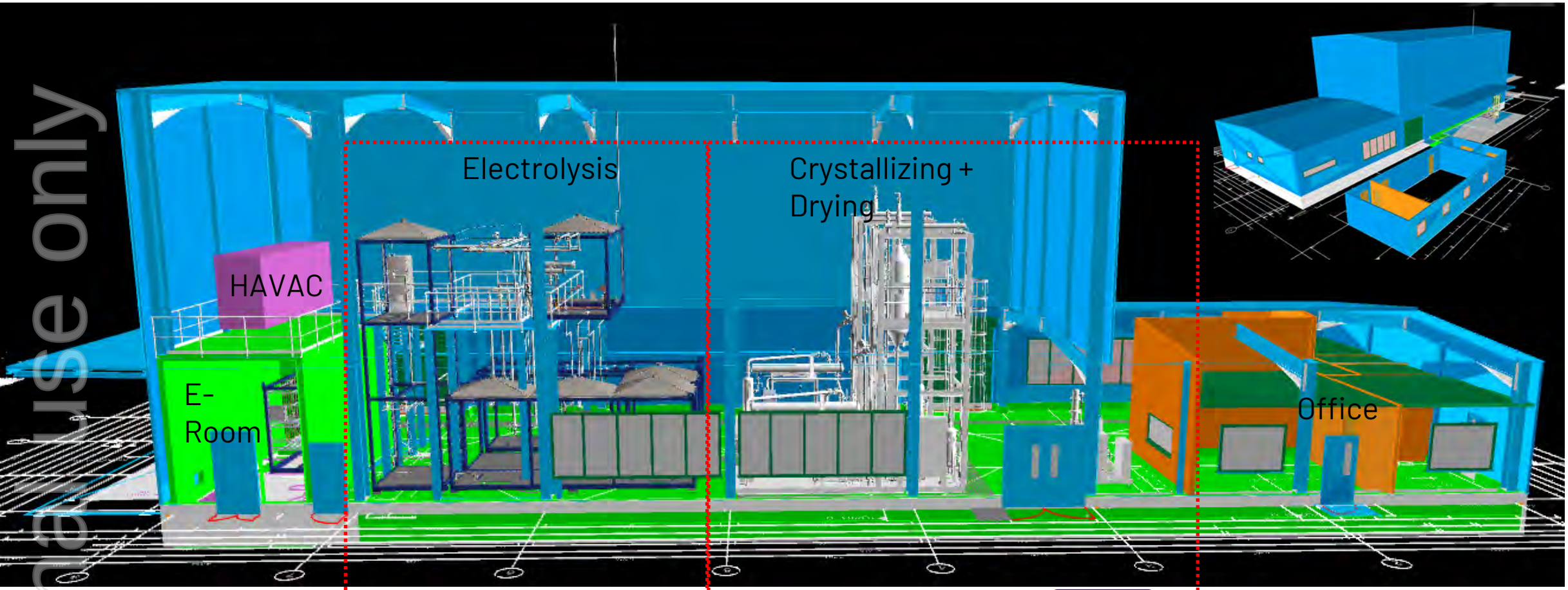
- Both optimisation and commercial plants will be located at the Höchst Chemical Park.
- Optimisation plant under construction, planned to start operation in H1 24, training staff in pre-commercial operational setting of (i) the electrolysis from LiCl to LHM solution; (ii) LHM crude and pure crystallisation; and (iii) LHM drying.
- Optimisation plant built to start sending volume of product to offtakers for pre-qualifications testing.

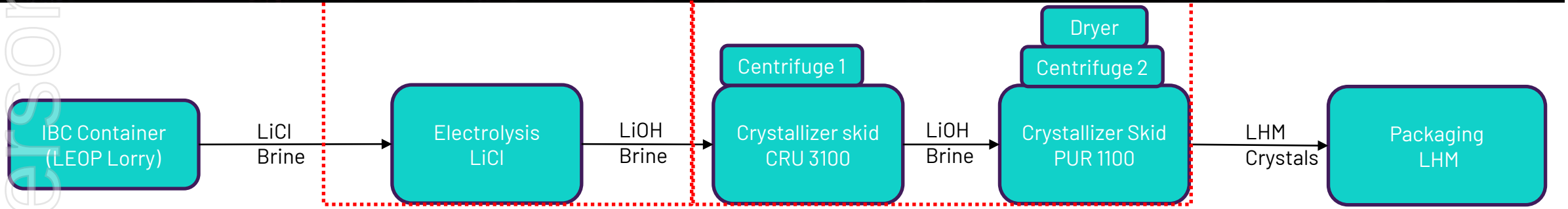




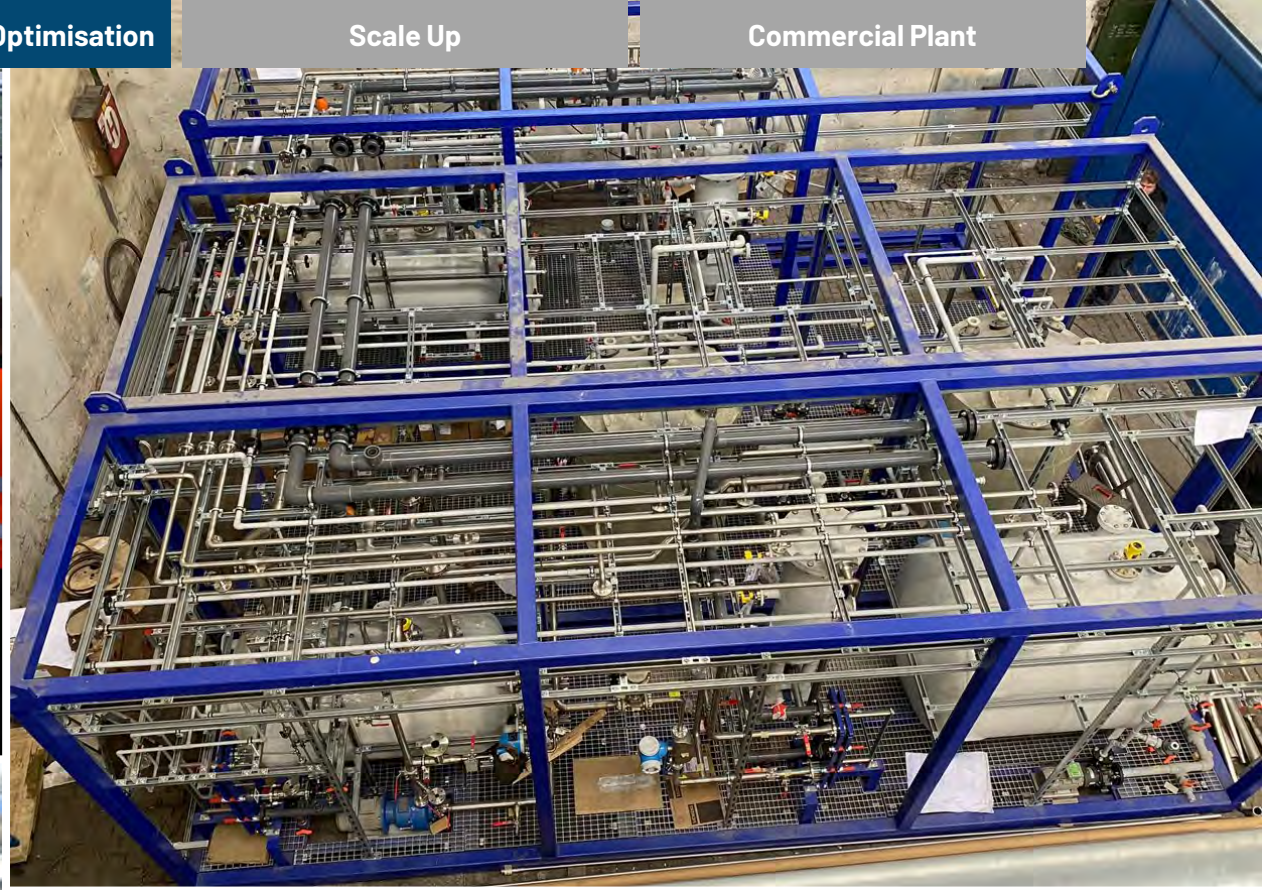
Optimisation, LHM battery grade pre-qualification, operational training

CLEOP: PERFECT TRAINING GROUND, SIMILAR TO CLP, ONLY SMALLER





EFFICIENT CONSTRUCTION THROUGH PRE-ASSEMBLED SKIDS



CLEOP GROUNDBREAKING CEREMONY COMPLETED WITH CHEMICAL PARK PARTNERS INFRASERV

NUMBERING UP, NOT SCALING UP ELECTROLYSIS CELLS

Commercial scale cells already successfully demonstrated

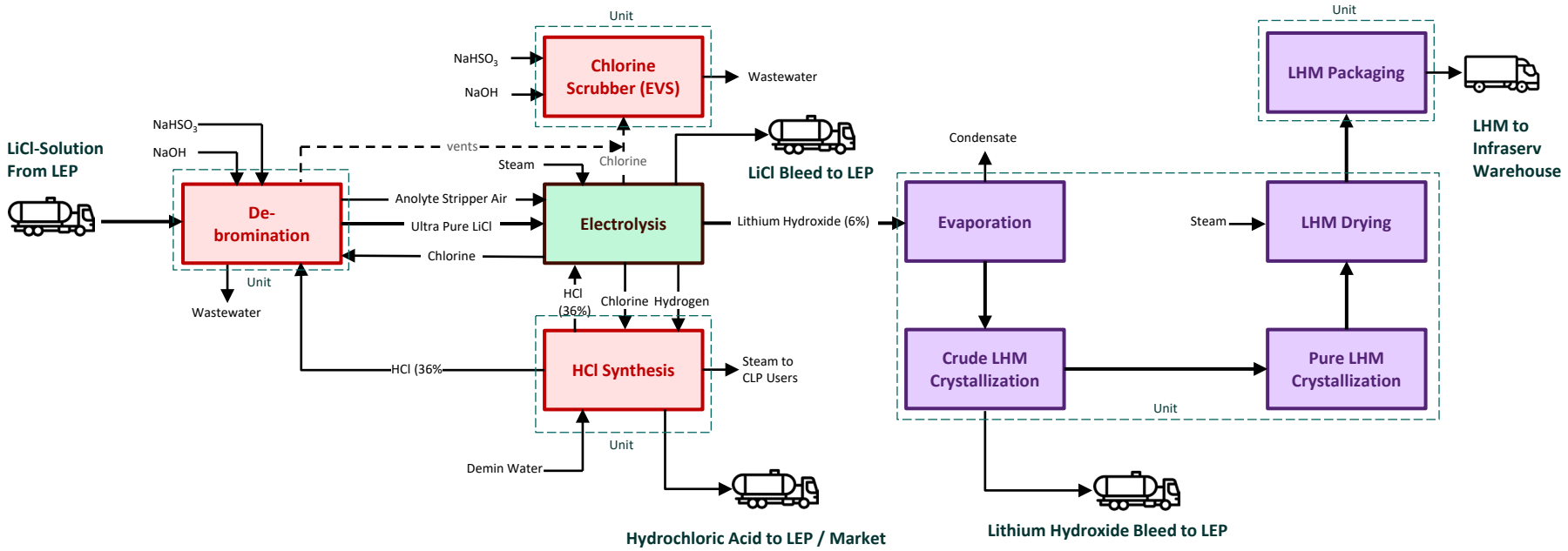
	PILOT PLANT (EXT.)	DEMO PLANT (EXT.)	CLEOP	COMMERCIAL CLP
	SOP 2021	SOP 2022	SOP H1 2024	SOP H2 2026
	Kilos of product	Hundreds of kg of product	Tonnes of product	Kilo-tonnes of product
				
Feed flow 40% LiCl	12l	Confidential	700m3/y	48,000m3/y
LHM	**Kgs produced**	**Confidential**	**350t/y**	**24,000t/y**
Number of cells	**1**	**1**	**5**	**600**
Size electrolysis cells	**0.015m^2**	**1.5m^2 - commercial scale**	**1.5m^2- commercial scale**	**1.5m^2- commercial scale**

x100 — *Prove technology*

x1 — *Optimise and improve performance*

x1 — *Optimise and improve performance, ensure operational readiness*

STRAIGHTFORWARD SIMPLICITY: PLANT DESIGN ADVANTAGE



Plant Sections

Section S100	Fluid Processing
Section S200	Electrolysis
Section S300	LHM Production
Section S400	Tank Farm
Section S500	OSBL

S400 - Tank Farm

2 x 1000 m³ FRP	1 x 250 m³ Duplex
1 x 1000 m³ Duplex	2 x 250 m³ SS
1 x 1000 m³ SS	1 x 150 m³ Duplex
2 x 500 m³ FRP	1 x 50 m³ Duplex
1 x 250 m³ FRP	1 x 50 m³ SS

S500 - OSBL

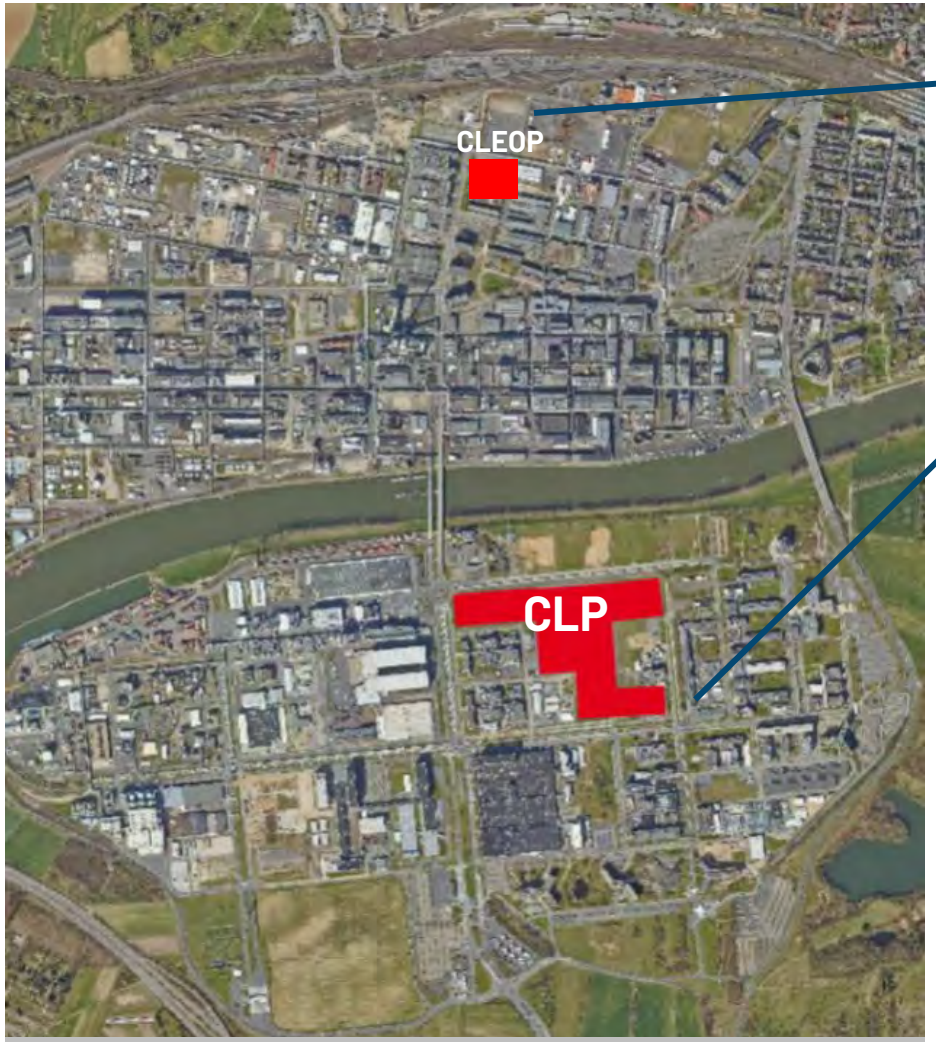
- Steam / Condensate System incl. Deaerator
- Condensate purification (RO)
- Sodium bisulphite ($NaHSO_3$) Preparation
- Plant Air Compressors
- Utilities

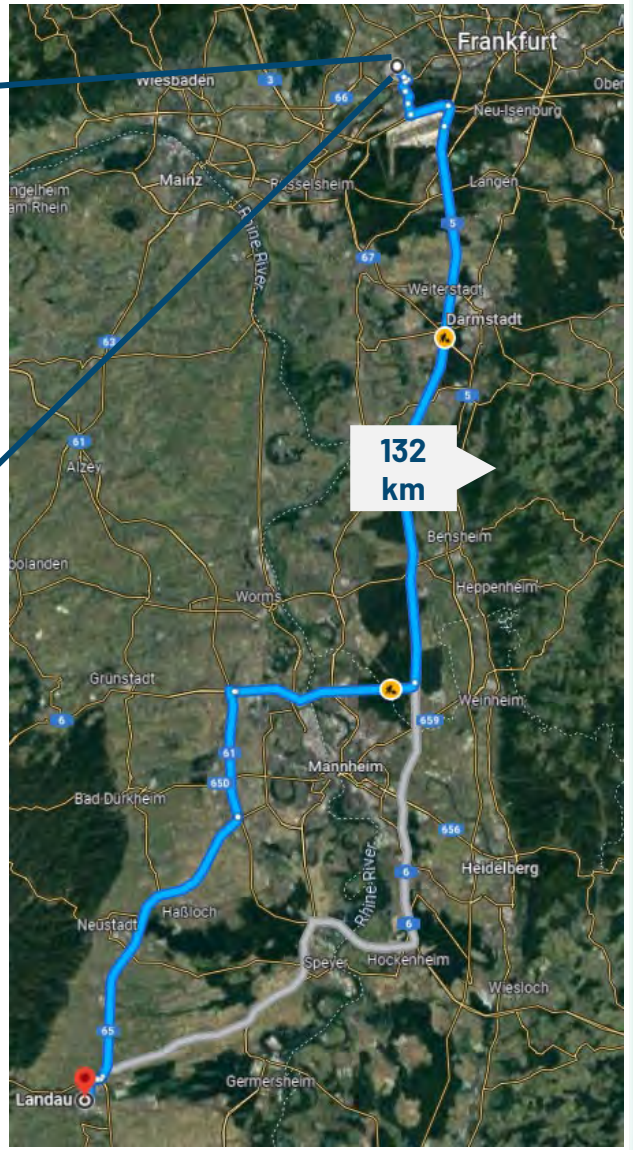
- **Technology Package:** Electrolysis (NESI)
- **Major Units:** Crystallisation & Drying, HCl Synthesis, EVS, Debromination, LHM Packaging and Loading, NaHSO3-Preparation System, Air Compressors

BUILT FOR GROWTH: BASE INFRASTRUCTURE PROVIDED FOR UP TO THREE PHASES

- CLP planned to be located in Frankfurt (Industrial Park Höchst). Close to 100,000sqm secured.
- **Targeted 24,000tpa LHM capacity with space for further modular expansion**.
- Conversion of LiCl to **battery grade LHM using electrolysis**. Only by-product (saleable) is HCl. **Significant synergies** with existing chlor-alkali producers in the same chemical park, e. g. Nobian.
- Recycle of **purge streams back to LEP – low waste**.
- Höchst is one of Europe's largest industrial estates and is home to around 90 chemical and pharmaceutical companies.
- Infraserv (industrial park operator) contracted to supply power, utilities and services.
- Targeting commercial **start of production H2 2026**.

Location in the Industrial Park Höchst





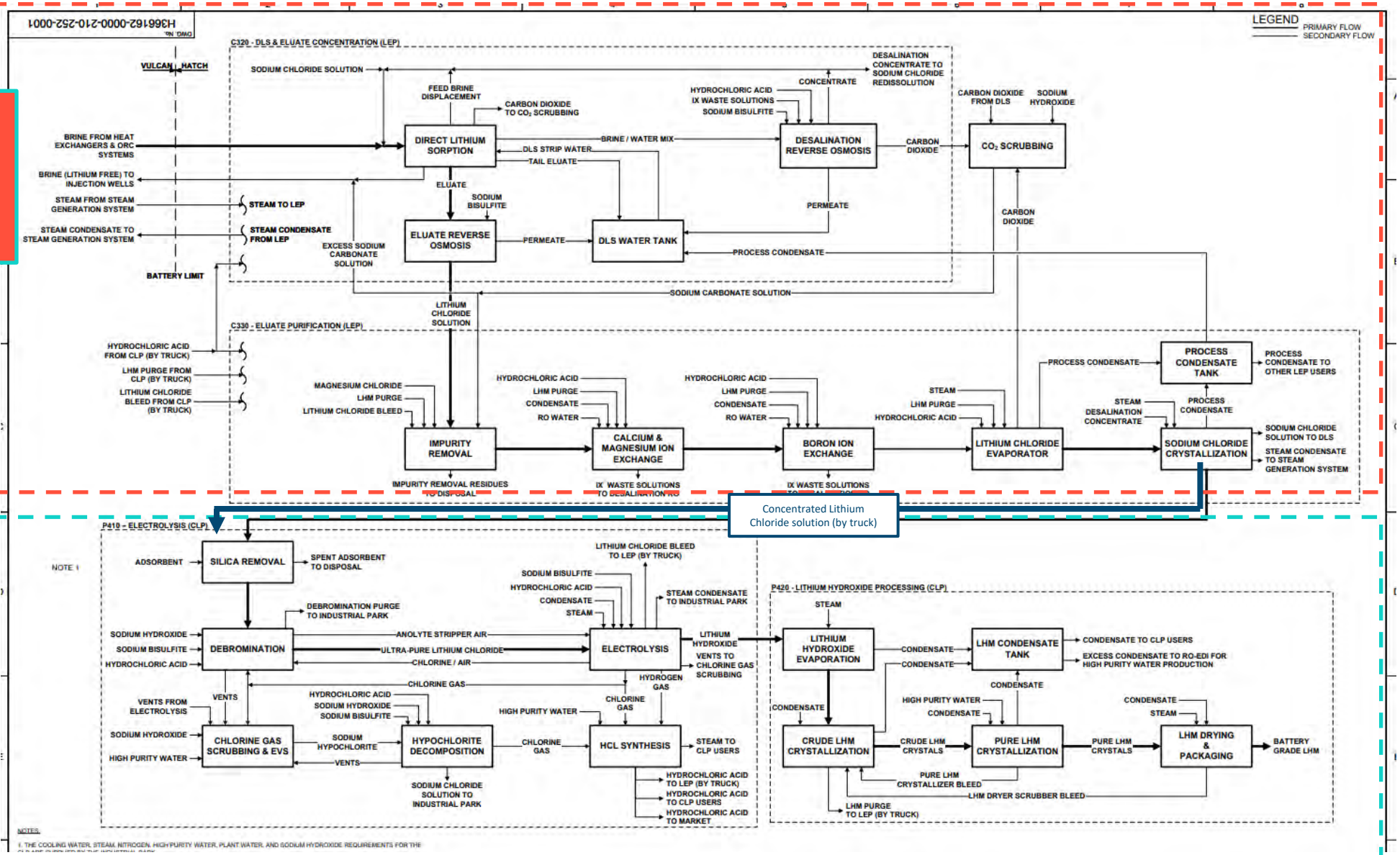
Planned new commercial Phase One Central Lithium Plant (CLP) in Frankfurt-Höchst, and current location of CLEOP Optimisation Plant

LITHIUM EXTRACTION AND CONVERSION INTO LHM – DESIGNED AS ONE PLANT

Proven technologies combined in an integrated way providing a sustainable flow sheet

Lithium Extraction Plant *(Lionheart-Landau site)*

Central Lithium Plant *(Höchst site Frankfurt)*



B. ENVIRONMENT,SOCIAL, GOVERNANCE

ESG CREDENTIALS HIGHLIGHTS

Low ESG Risk Rating from Sustainalytics (01/2023)
First amongst peers (market cap >$0.6bn) and in the 2nd quartile Chemicals Industry

~9,5kT CO_2 avoided from renewable energy generated at NatürLich Insheim annually

ESG linked KPIs, individual and shared targets, including implementation of a sustainable procurement procedure and achieving a positive ESG Score

Partnership with Karlsruhe Zoo Foundation supporting local biodiversity projects

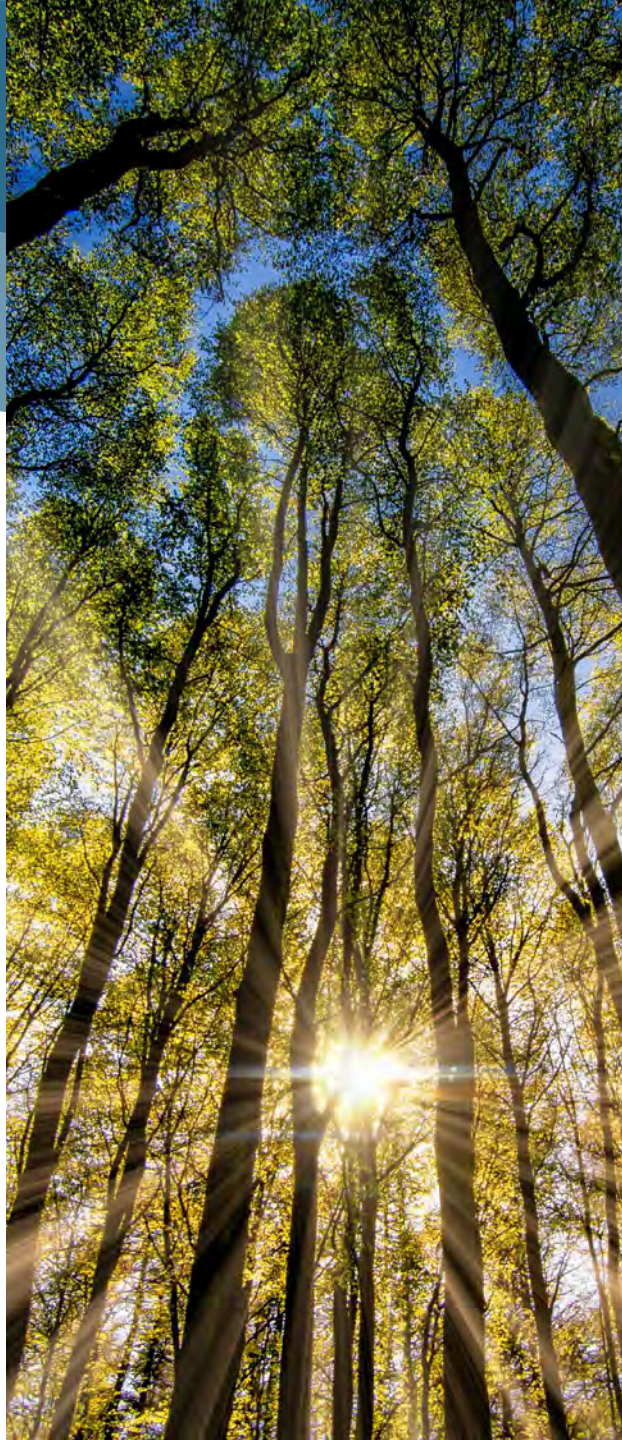
Voluntary TCFD reporting company since 2021, first stand-alone TCFD Report published (March 2023)

Certified Carbon Neutral International Organisation from 2021[1]

Updated Minviro Ltd lifecycle assessment conducted from DFS results; climate change impact quantified as -1.7 kg CO_2 eq. per kg $LiOH.H_20$[2]

Project deemed low environmental impact by local authorities, supported by recently completed Environmental Social Impact Assessment with ERM

UNGC Member, TNFD Forum Member and VCMI Stakeholder Forum Member



[1]*Vulcan Group is certified as a carbon neutral organisation for 2022 under the Climate Active and Climate Impact Partners certifications*
[2]*Data available in the TCFD Report published March 2023*

AIMING FOR LOWEST CO_2 FOOTPRINT IN THE LITHIUM INDUSTRY

- Vulcan is developing the first and only carbon neutral lithium project in the world[1]
- Zero fossil fuels used directly in lithium production process
- Globally significant decarbonisation opportunity through Vulcan's Zero Carbon Lithium™ Project

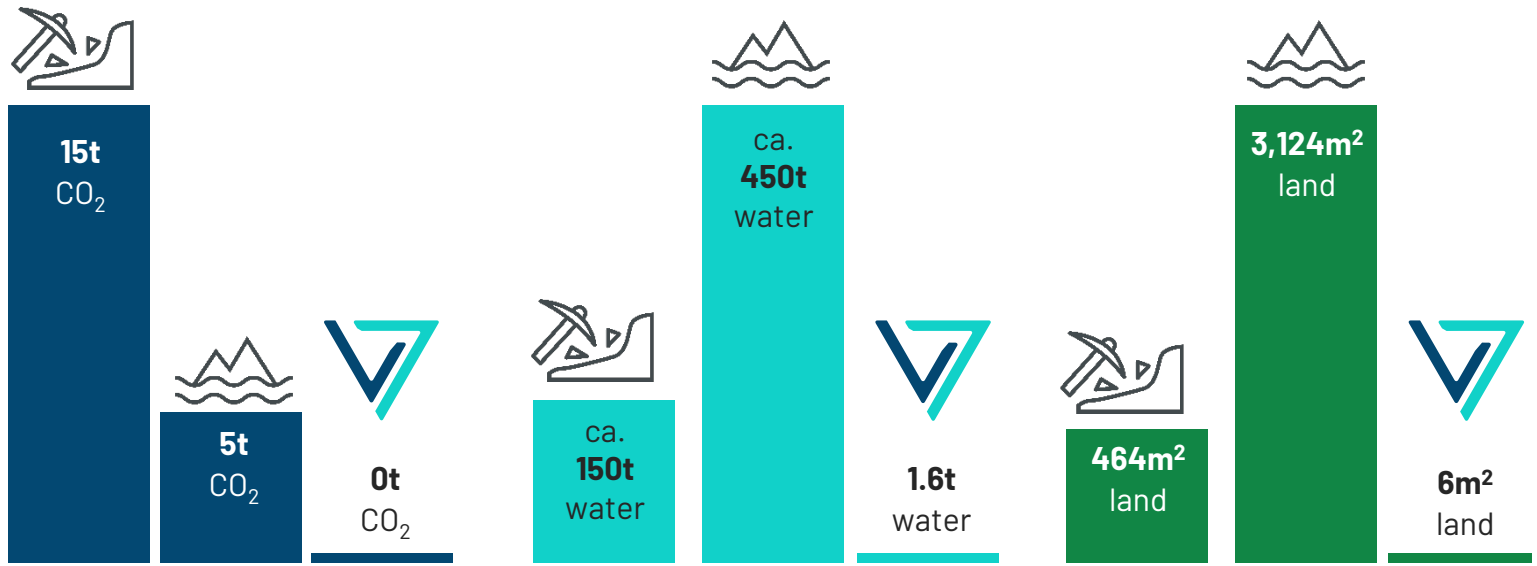
[1]*Sources: Fastmarkets projection for industry. Vulcan CO_2 value provided by Minviro. The CO_2 assessment is a cradle-to-gate study. It starts with the cradle: extraction of geothermal brine. Thermal energy of the brine is extracted and used for electricity and steam generation. Generated electricity is assumed to be exported to the German electrical grid. Part of the heat is exported for district heating, substituting natural gas use, and the rest of the heat is used for internal processes. It is assumed that of the electricity used throughout all processes 50% is sourced from the German grid and 50% is procured from additional wind generated electricity, on top of wind-based electricity that is already present in the German grid mix. Electricity, steam, hydrochloric acid (30% concentration) and sodium hypochlorite (15.8% concentration) are co-products of the lithium hydroxide monohydrate product. All co-products are accounted for using system expansion, meaning no allocation is required. The climate change impact for the lithium hydroxide monohydrate product for the assumptions described above is -1.7 kg CO_2 eq. per kg $LiOH \cdot H_2O$ using ISO-compliant methods for LCAs. Vulcan has amended to net zero for the purposes of the presentation, to clarify that this is not a carbon removal project. Vulcan is not aware of any other net zero carbon, zero fossil fuels lithium projects either in operation or development.*

AIMING FOR LOWEST WATER AND LAND FOOTPRINT IN LITHIUM INDUSTRY

Engineered to have industry-leading environmental performance: our core mission

Data based on the DFS. Vulcan in the process of updating its LCA with Minviro based on Bridging Engineering Study.

Vulcan draws on naturally occurring, renewable geothermal energy to power the lithium extraction process and create a renewable energy by-product. This uses **no fossil fuels** in the process, requires **very little water** and has a **tiny land footprint**.



PER TONNE OF LHM PRODUCED

Hard rock mining

Brine evaporation ponds and reagents

Zero Carbon Lithium™

1. Industry peer data generated from Minviro Life Cycle Assessment (see Vulcan ASX announcement, 4 August 2021)
2. Vulcan Energy's DFS, 13 February 2023

The Company's environmental credentials set out in this slide (and elsewhere in this Presentation) are based on the Company's Studies. There is no guarantee that the Company will be able to achieve the targeted metrics.

AN ENVIRONMENTAL AND GOVERNANCE LEADER

- Vulcan offers **strong local employment opportunities**, with over 370 employees to date, and growing, across a number of disciplines including engineering, project execution, chemicals and technology development.
- **Locally produced and processed battery-grade lithium**, aiming to be the first fully domestic lithium supply chain in Europe, supplying local offtakers including Stellantis and continuing to strengthen European decarbonisation targets.
- Project has a **minimal environmental and social impact**, with operational sites located in agricultural areas and no interaction with sites of ecological importance[1].
- Zero Carbon Lithium™ Project Phase One has been deemed **eligible for Equator Principles** aligned Project Finance and has completed a bankable Environmental and Social Impact Assessment.
- Vulcan's Zero Carbon Lithium™ Project sites have been analysed to be resilient to both physical and transitional climate risks including acute and chronic weather events and potential regulatory requirements[2].
- Vulcan's sustainable procurement process helps identify best-in-class suppliers to partner with.

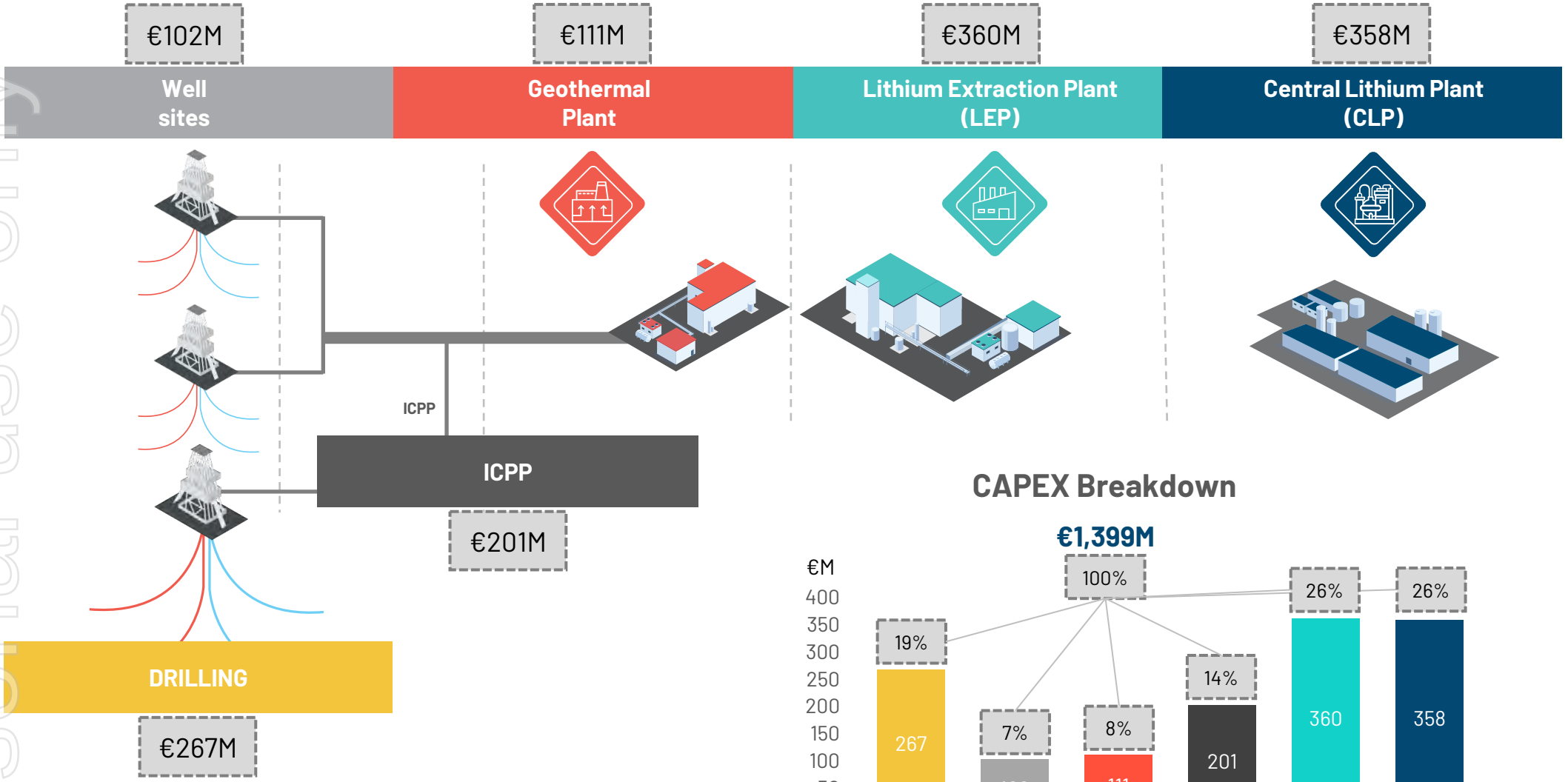
[1] *According to preliminary environmental impact assessments undertaken by Natur SüdWest to date*
[2] *Climate Scenario Analysis as part of the TCFD Report released March 2023*

PART OF THE LOCAL COMMUNITY

- **Thousands of local** direct and indirect **jobs** to be created, linked to the **energy transition, decarbonisation and electrification of transport.**
- Vulcan's projects provide a unique, tangible benefit which literally "flows" into local communities: **renewable heating** for district heating networks.
- Vulcan's affordable, renewable, net zero carbon heat, contributes to **decarbonisation of cities and towns**, as well as **Europe's energy security**.
- The Project is **developed in cooperation with local communities**, as Vulcan directly engages to understand and meet their needs. Vulcan is doing a substantial amount of work to consult with, as well as inform, the public.
- Community engagement activities include:
- "**Info-Centres**" have been set up across the region
  - **Citizen dialogue events**: Regional Roadshow with Info-Truck/ Trailer, Citizens' information events in cooperation with local community
  - Stakeholder dialogue/ technical discussion: participation workshops, presentations to the individual **community councils**
- Vulcan has received strong interest and generally **positive feedback from its extensive public engagement activities**.
- Majority of local city councils have been **voting in favour** of Vulcan's work programme for Phase One.

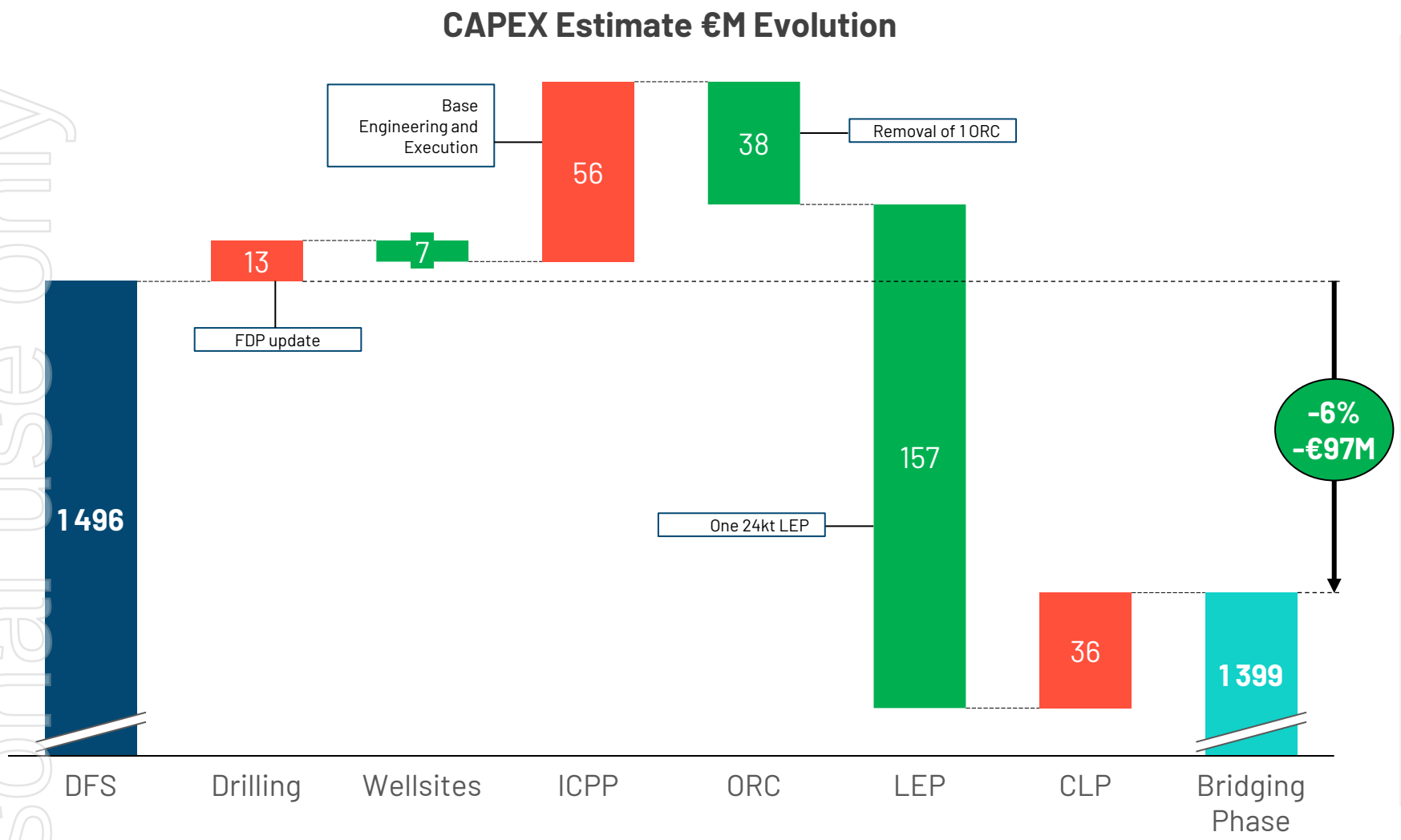
C. ECONOMICS AND FINANCING

IMPROVED PHASE ONE PROJECT FORECAST CAPEX



ZERO CARBON LITHIUM™ PROJECT

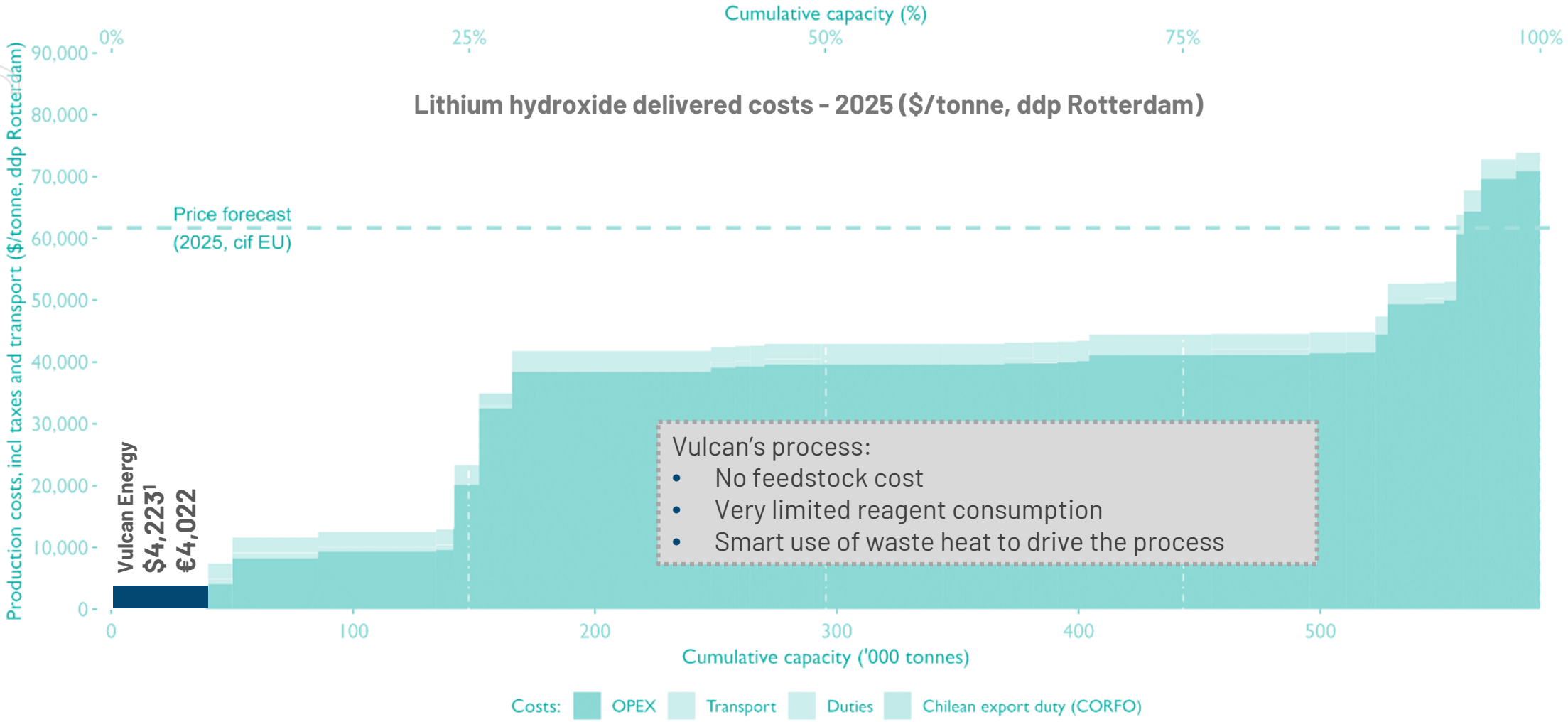
FORECAST CAPEX COMPARISON DFS VS. NOW



- **€97M CAPEX drop** compared to the DFS despite more accurate engineering with **Class 2 Estimate**
- Contingency at 12%
- Drilling cost increase based on new FDP
- Wellsite cost updated based on actuals
- ICPP cost increase based on basic engineering
- Significant cost saving on LEP due to economies of scale (2 to 1 plant) and one ORC
- CAPEX includes contingency, indirect costs, owner's costs, EPCM, etc.

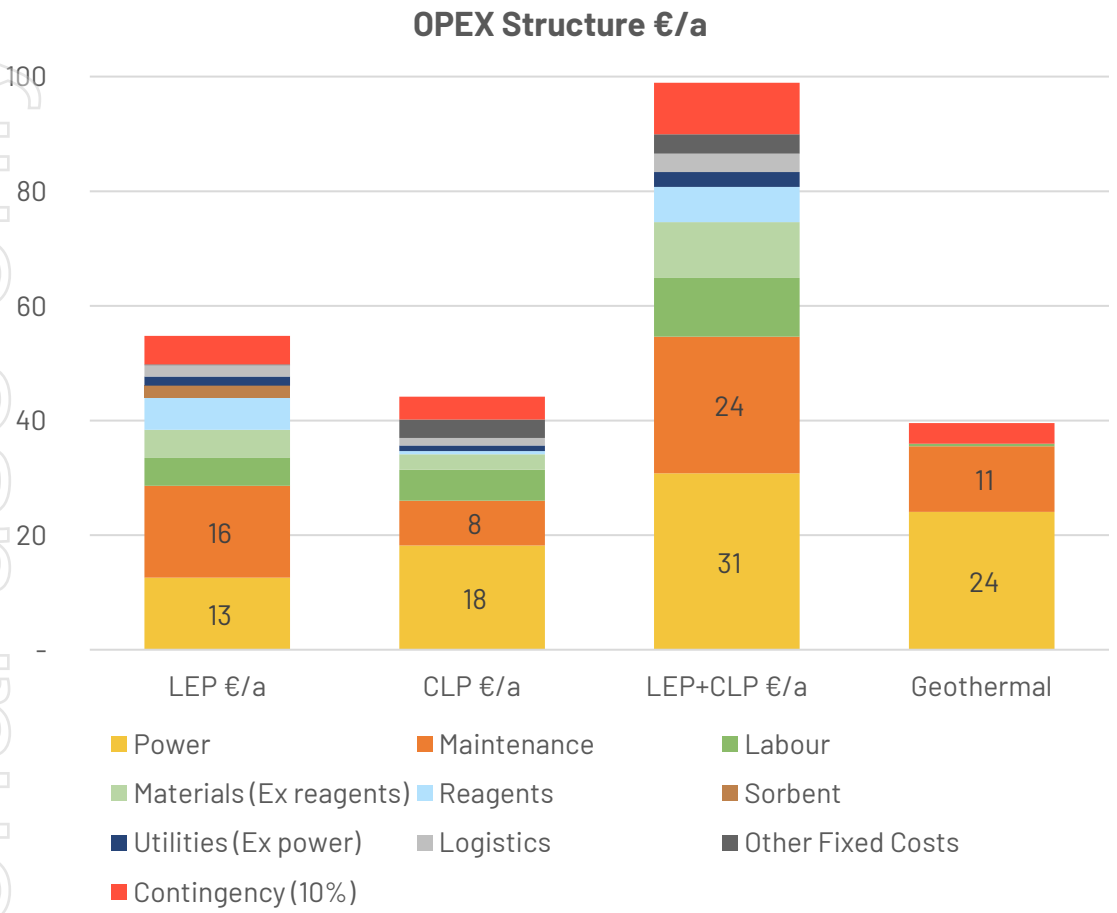
GLOBAL COST CURVE LHM – PROJECTED 2025[1]

Vulcan's Zero Carbon Lithium™ Project has the potential to be one of **the lowest cost integrated LHM projects** in the world.



[1]*Projected cost curve provided by Fastmarkets and Vulcan's OPEX estimate provided by the Company. Note: The OPEX is based on a production at designed capacity at 24,600t LHM and including an average power price over the project life, excluding inflation. Vulcan's OPEX converted from € to $ using 1.05 EUR/USD FX. Vulcan has used a projected cost curve by Fastmarkets as it is the Price Reporting Agency (**PRA**) for lithium for the London Metals Exchange, and as in Vulcan's view it would be invalid to compare Vulcan's future projected costs with current costs from other companies. Fastmarkets' estimate of a project's costs uses a bottom-up approach based on assumptions about the operations. On top of this, costs for transport to a common location and any duties that would be applied are added to allow comparison from different sources. Please also refer to the Forward-Looking Statement disclaimer.*

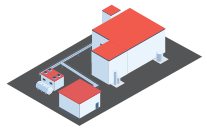
INTEGRATED RENEWABLE ENERGY AND LITHIUM OPERATION: OPEX



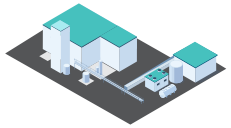
	LEP €M/a	CLP €M/a	LEP+CLP €M/a	Geothermal €M/a	Opex % of total
Power	13	18	31	24	**40%**
Maintenance	16	8	24	11	**25%**
Labour	5	5	10	0	**8%**
Materials (Ex reagents)	5	3	10	-	**6%**
Reagents	6	1	6	-	**4%**
Sorbent	2	-	2	-	**2%**
Utilities (Ex power)	2	1	3	-	**2%**
Logistics	2	1	3	-	**2%**
Other Fixed Costs	0	3	3	0	**2%**
Contingency (10%)	5	4	9	4	**9%**
Total incl. Contingency	**55**	**44**	**99**	**40**	**100%**

Note: The OPEX is based on a production at designed capacity at 24,600t LHM and including an average power price over the project life, excluding inflation

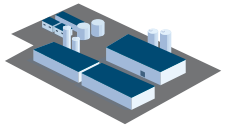
LITHIUM PRODUCTION AND CONVERSION: VERY LOW OPEX



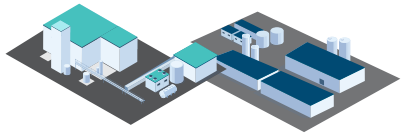
GEOTHERMAL OPEX €/t LHM



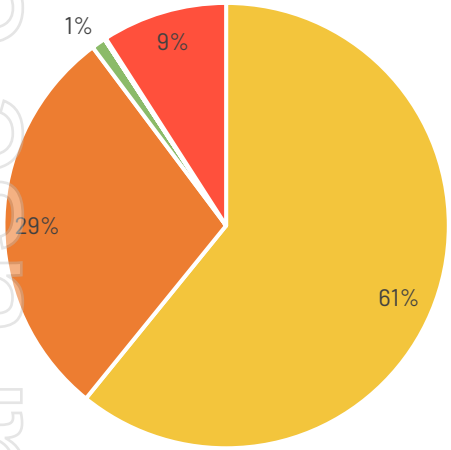
LEP OPEX LHM



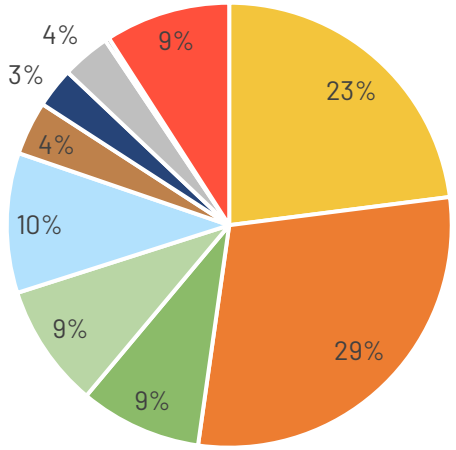
CLP OPEX LHM



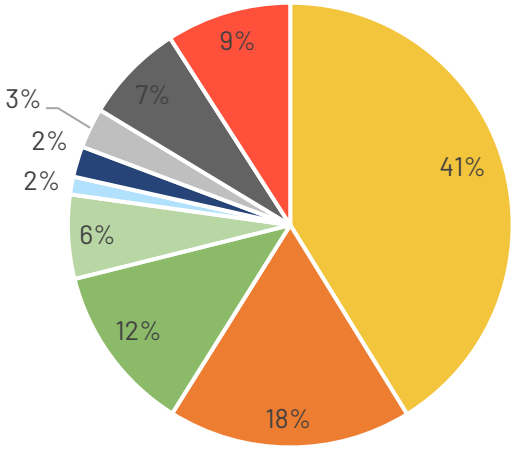
Combined OPEX LHM



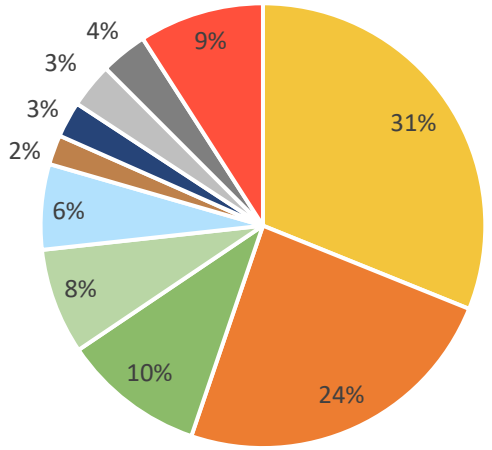
€40M/a



€2,227/t LHM



€1,796/t LHM



€4,022/t LHM

Power
Maintenance
Labour
Materials (Ex reagents)
Reagents
Sorbent
Utilities (Ex power)
Logistics
Other Fixed Costs
Contingency (10%)

Note: The OPEX is based on a production at designed capacity at 24,600t LHM and including an average power price over the project life, excluding inflation

LITHIUM PRICE VOLATILITY MITIGATED BY STRATEGIC SUPPLY PARTNER CONTRACTS

- High quality of European-focused offtake partners
- All offtakes are binding, take-or-pay, with agreed pricing mechanisms
- Pricing mechanisms are a basket of fixed, floor-ceiling and fully floating prices which provides assurance a more stability to lenders during payback period

STELLANTIS

€50M Equity investment
Binding lithium hydroxide offtake agreement, initial 10-year term.

umicore

Binding lithium hydroxide offtake agreement, initial 5-year term.

RENAULT GROUP

Binding lithium hydroxide offtake agreement, initial 6-year term.

VOLKSWAGEN GROUP

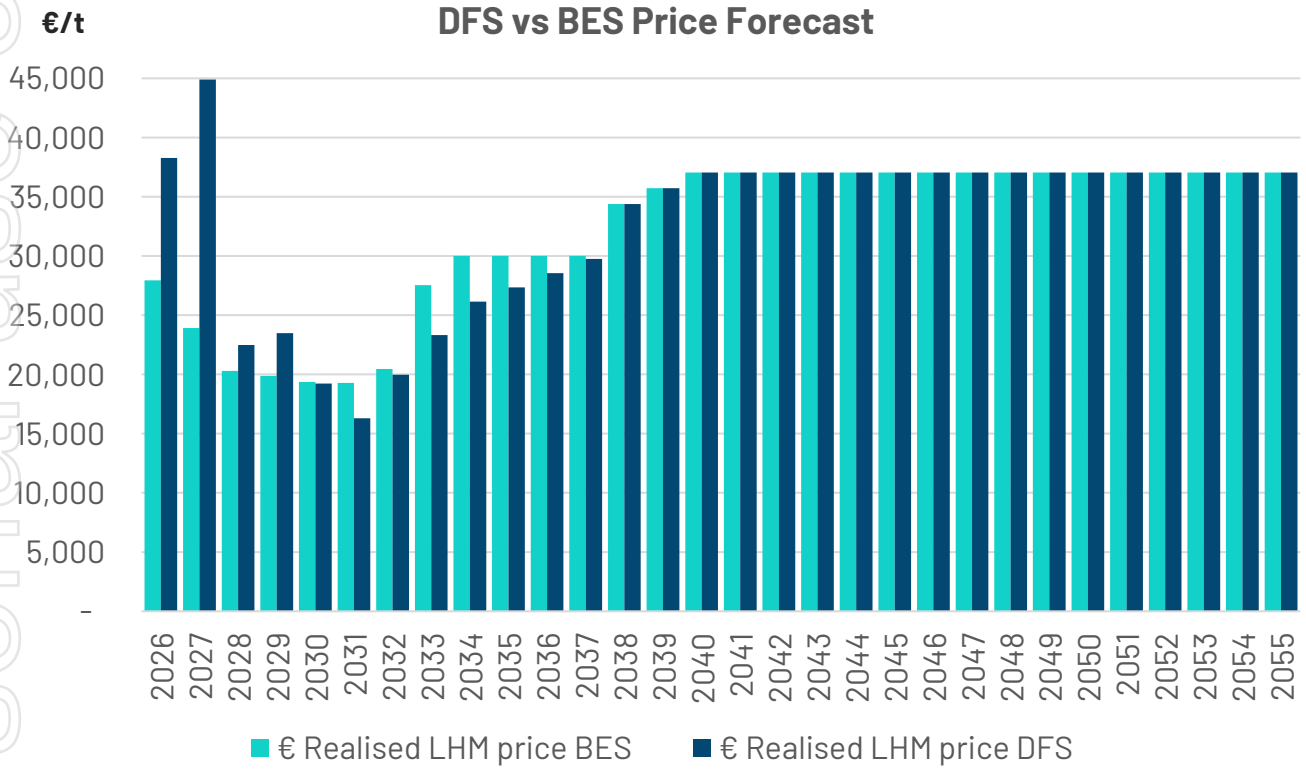
Binding lithium hydroxide offtake agreement, initial 5-year term.

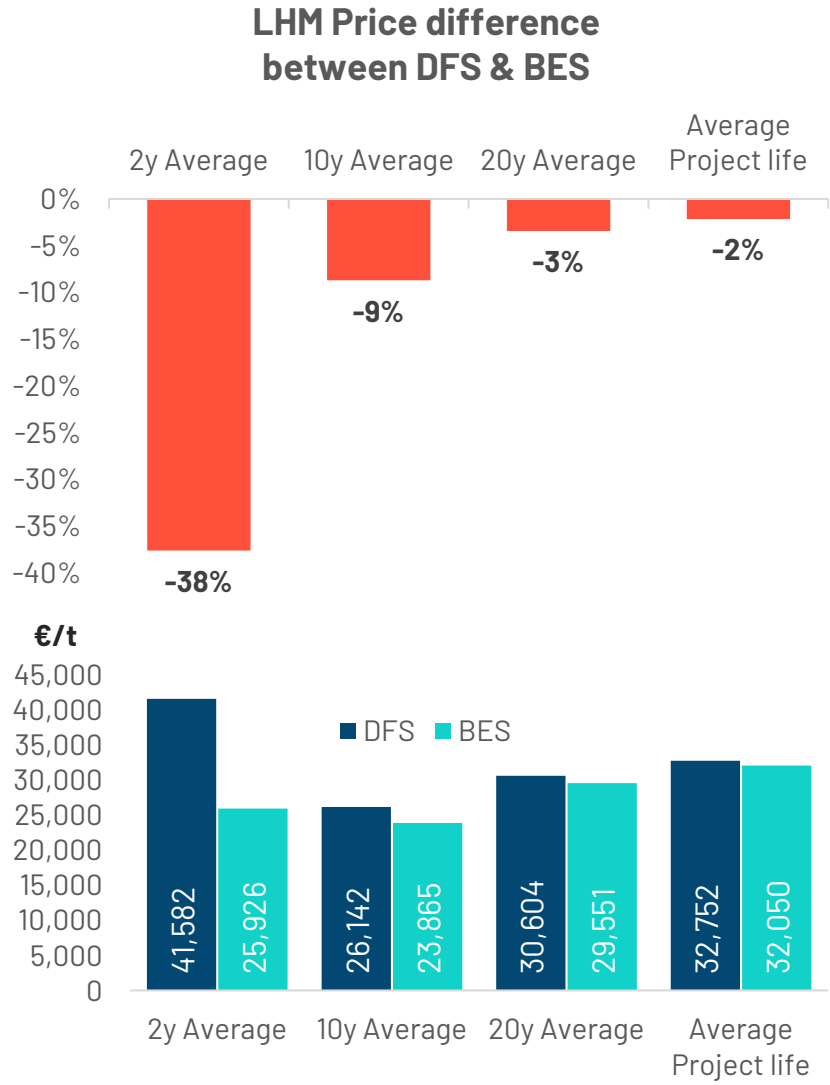
LG Energy Solution

Binding lithium hydroxide offtake agreement, initial 5-year term.

LOWER LHM PRICE FORECASTS: LIMITED IMPACT

- **Larger price drops during the first two years** of Vulcan's production, **down 38%**
- New average **10-year €23,865/t LHM** price forecast, **down 9%** compared to previous forecast
- New average **20-year €29,551/t LHM** price forecast, **down 3%** compared to previous forecast
- New long term price forecast, from 2032 at €**32,050/t LHM**, down 2%

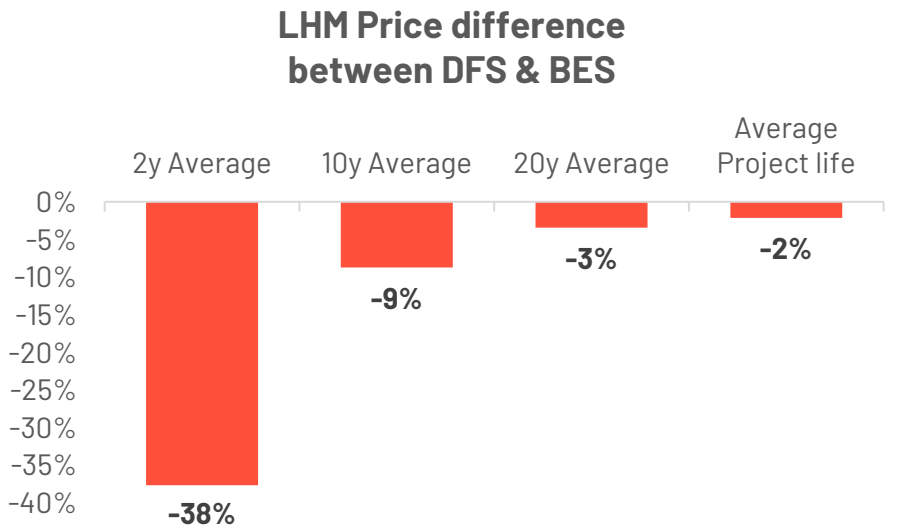


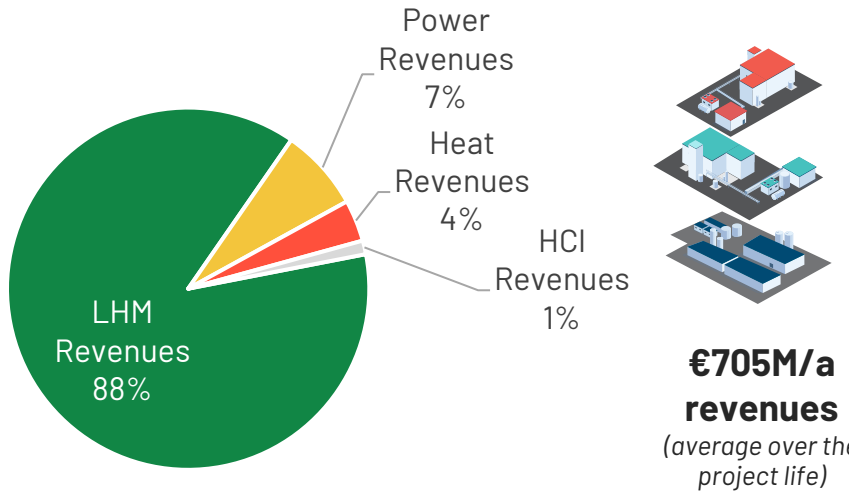


1The average forecast realised price per tonne of LHM is taking into consideration Fastmarkets long term price forecast (min 57.5% LiOH)($/kg, EU & US) and combining it with Vulcan's pricing concluded in offtake agreements which includes price floors and ceilings, fixed prices, and price indexed on indexes like Fastmarkets.

TARGET PROJECT ECONOMICS[1]: BRIDGING ENGINEERING STUDY

	Base Case Financials Bridging Engineering
Revenues €M/a	705
EBITDA €M/a	521
EBITDA margin %	74%
NPV pre-tax €M	**3,906**
NPV post-tax €M	**2,566**
IRR pre-tax %	**27.8%**
IRR post-tax %	**22.5%**
Payback in years	4
Total Capex €M	**1,399**
Avg Opex[2] €/t LHM	**4,022**
Avg LHM price 10y forecast[3] €/t	**€23,865**
Avg LHM price forecast[3] €/t	€32,050

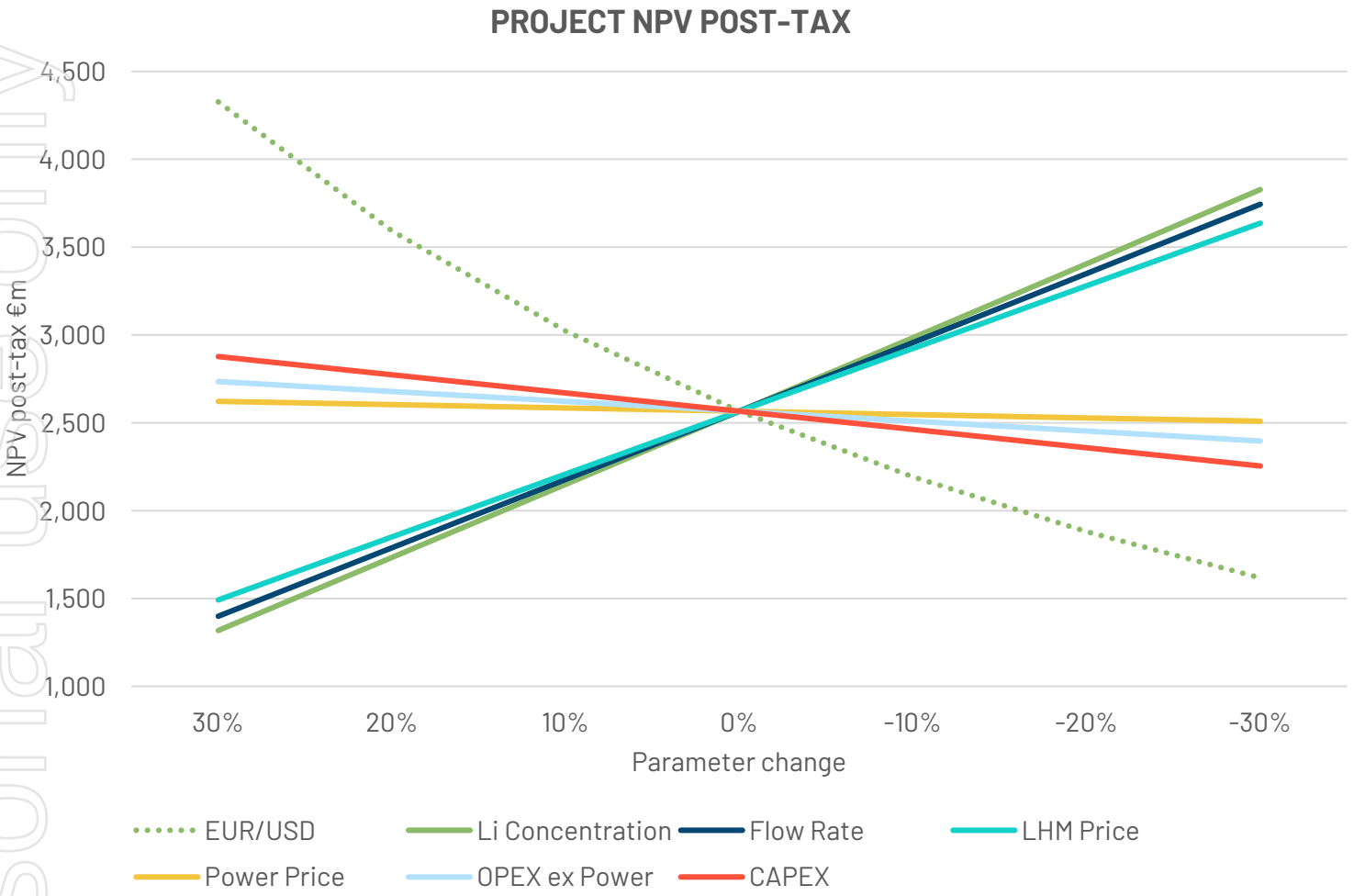




€705M/a revenues
(average over the project life)

[1] *Vulcan Energy's Phase One Bridging Engineering Study .These are targets and may not be achieved. Please refer to the Forward-Looking Statement disclaimer in Appendix 1.*
[2] *OPEX is based on a production at designed capacity at 24,600t, excluding inflation, LHM and including an average power price over the project life.*
[3] *1The average forecast realised price per tonne of LHM is taking into consideration Fastmarkets long term price forecast (min 57.5% LiOH)($/kg, EU & US) and combining it with Vulcan's pricing concluded in offtake agreements which includes price floors and ceilings, fix prices, and price indexed on indexes like Fastmarkets.*

FINANCIAL SENSITIVITIES



- EUR/USD: all LHM offtakes are linked to a Price Reporting Agency (PRA) with a USD index or a fixed price in USD – Vulcan is currently working on amending some of its offtake pricing mechanisms.
- Flow rate, Lithium concentration and LHM price: any fluctuation of those parameters impacts lithium output and therefore revenues. Conservative flow rates assumptions used in the BES. Lower LHM price forecast used in the BES.
- CAPEX: Limited impact on NPV
- OPEX: as a low-cost operation, OPEX has a limited impact on financials
- Power price: limited impact as the price fluctuations impact both cost and revenues in a similar manner.

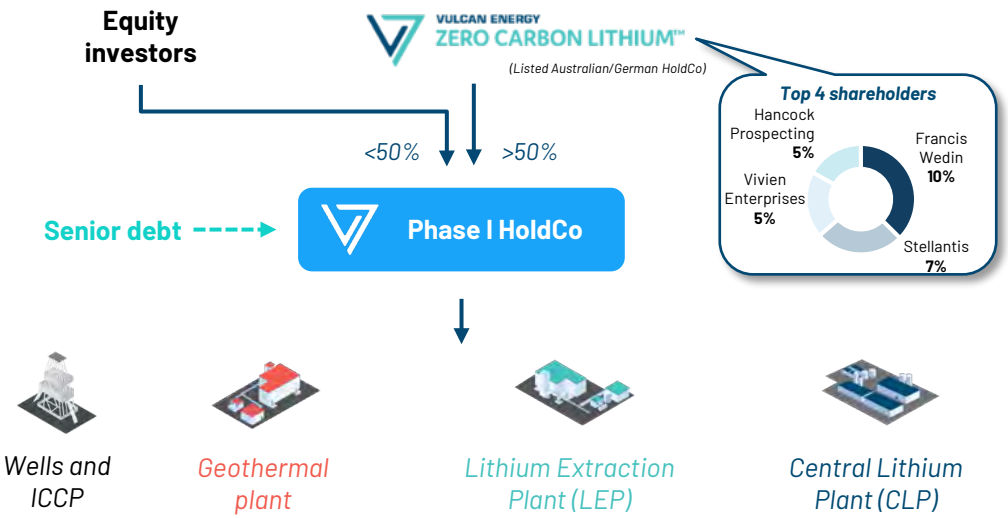
FINANCING HIGHLIGHTS AND CONSIDERATIONS

Preliminary Sources and Uses

Total CAPEX (incl. 12% contingency)	c. €1.399m
Other costs (Including financing costs, DSRA funding, ramp-up costs)	c. €0.4bn
Total equity need (assuming 65/35 gearing & including financing costs)	c. €0.63bn
Total debt need (assuming 65/35 gearing)	€1.17bn – Senior debt package
Public Funding	Not included in management case but the company is applying for public funding via different funding mechanisms

BNP PARIBAS coordinating **debt process**

Contemplated structure



Target entity	• Phase One Holdco (ProjectCo)
Business exposure	• Geothermal, LEP and CLP
Instrument	• Debt & Equity plus potential public funding
Structure	• Minority equity investment • Senior debt

FINANCING HIGHLIGHTS AND CONSIDERATIONS

CONTEMPLATED PROCESS FOR EQUITY FUNDING

Official launch	• **November 2023** ✓
Phase 1 – Introduction + due diligence	• Teaser + NDA • Management firechats • Wall-cross procedure • Phase 1 Information package
Indicative offers	• **Q1 2024**
Phase 2 – Confirmatory due diligence	• Site visits • VDR access + expert sessions • Q&A
Targeted Signing	• **Q2 2024**

CONTEMPLATED PROCESS FOR DEBT FUNDING

Official launch	• **November 2023** ✓
1st Launch	• ECAs: o Expression of interest received from BPI ✓ o Expression of interest received from EDC ✓ o Expression of interest received from EFA ✓ o Expression of interest received from SACE ✓ • Structuring banks
Phase 1 –Due diligence	• ESIA – first report delivered ✓ • Lender Technical and Environmental & Social DD - Ongoing • Lender Market DD • Lender Legal DD, etc.
2nd Launch –Q1 2024	• Commercial banks
Targeted Signing	• **Q2 2024**

FINANCING HIGHLIGHTS AND CONSIDERATIONS

PROJECT LEVEL EQUITY

Vulcan targets raising its equity requirement at a project level

STRATEGIC PARTNERS

- Strategic equity partner bringing expertise, offtake capacity, credit to the project, and ability to commit large equity ticket.

Oil & Gas
Expertise in subsurface projects (incl. exploration, geothermal) and petrochemical activities

Mining
Minerals / lithium producers and processors

OEMs/ Battery
End-users. Offtakers with ability to commit equity

Chemicals
Expertise in DLE, electrolysis, petrochemical

Utilities/Construction
Large utilities with EPC and project management capacities. Large construction contractors

FINANCIAL PARTNERS

- Financial equity partner bringing long term capital with reinvestment capacity.
- Ability to commit large equity ticket for a minority stake.
- Ability to do project investment.
- Can consider a JV investment.

Private Equity with O&G / Mining record

Infrastructure

Sovereign

Pension Funds

PE & Other

TOP CO

- VUL has already raised €320m for the project.

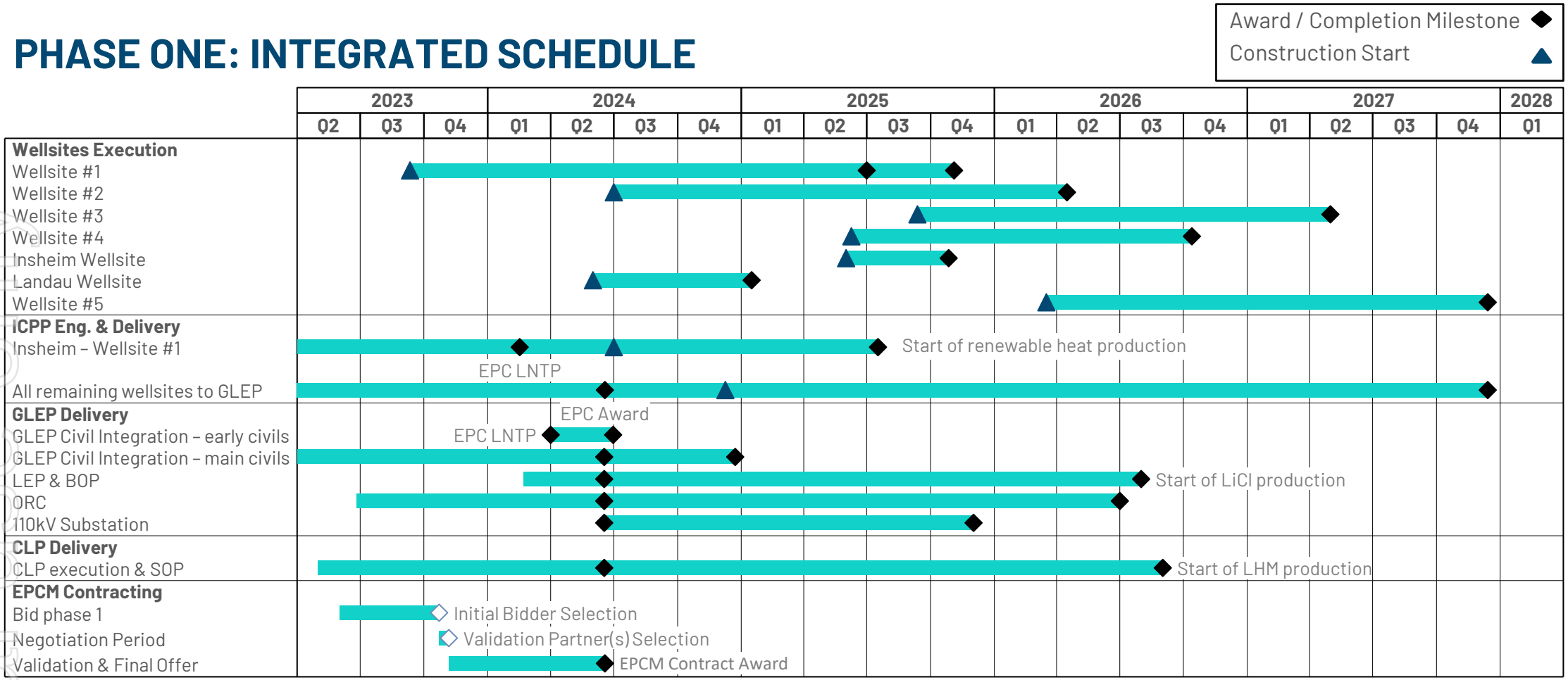
ASX

BÖRSE FRANKFURT

ZERO CARBON LITHIUM™ PROJECT

III. TIMING AND KEY TAKEAWAYS

PHASE ONE: INTEGRATED SCHEDULE



Re-baselined, integrated, deterministic schedule summary:

- Start of **renewable heat production** in **H2 2025** to augment current renewable power production and provide additional revenue
- Start of lithium chloride production from LEP: H2 2026
- Start of **lithium hydroxide production** from CLP: **H2 2026**
- Schedule adjusted to DFS, to align with **public funding application timelines** in **H1 2024**, to be able to potentially integrate public funding into financing.
- Vulcan is preparing and doing further pre-execution works in the interim to reduce risk even further, prepare all key contracts for award and have full financing in place so to be able to deliver the project on time and budget as per the Bridging Phase outcomes

CLEAR ROADMAP TO COMMERCIALISATION WITH START OF PRODUCTION EXPECTED IN H2 2026 – ALIGNED WITH PUBLIC FUNDING APPLICATIONS

Key milestones

Jan-2021: **Completion of PFS** for Zero Carbon Lithium™ Project

Jul-2021: **Kuniko**[1] **IPO**, reinforcing Vulcan Energy's intention to focus on lithium

Sep-2021: **Raise of €124m** via an underwritten share placement to institutional investors

Nov-2021: **Acquisition of two electric drill rigs** & est. in-house drilling team

Feb-2022: Dual listing on the Frankfurt stock exchange

Sep-2022: Start of **Sorption-Demo plant** onsite **construction**

Feb-2023: **Completion of DFS for** Zero Carbon Lithium™ Project

May-2023: **€66m** Institutional equity raise

Nov-2023: **Bridging Engineering study** completed

PFS — DFS — BES

2021 — 2022 — 2023

Jan-2021: **€79m** Institutional equity raise

May-2021: Acquisition of two geothermal engineering firms, **GeoT** and **Gec-Co**

Sep-2021: Agreement with Infraserv to **secure a site for its planned CLP**[2] at the Höchst chemical park

Dec-2021: **Acquisition** of **Insheim** operational geothermal power plant for **c.€31.5m**

Q4-2021: **Five binding offtake agreements signed**

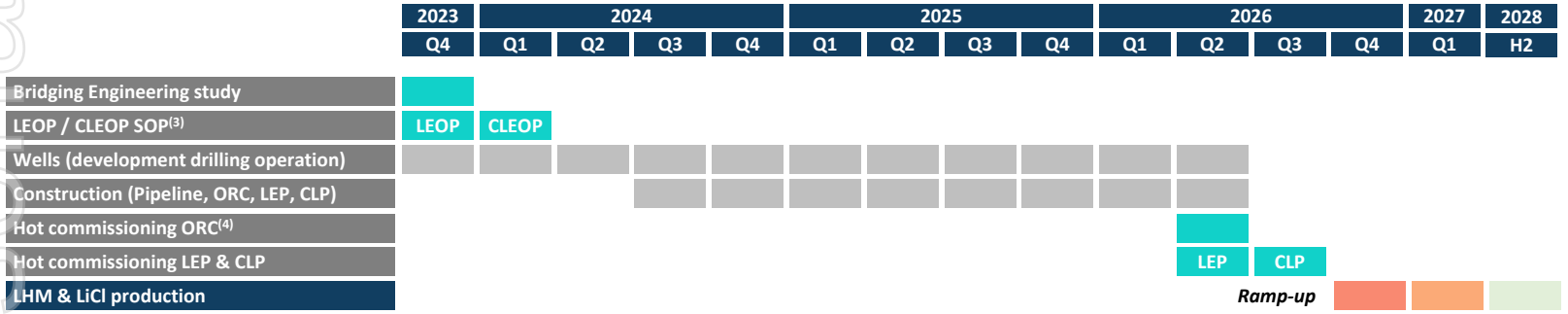
Jul-2022: Strategic partnership with **Stellantis,** representing a **€50m equity investment (~8% shareholding in German listed company)**

Nov-2022: **Vulcan Energy has successfully developed**, tested and demonstrated its own in-house **lithium extraction sorbent** (VULSORB)

Aug-2023: **Commissioning of LEOP begins** after three years of DLE testwork

Key milestones

Project roadmap



Key Dates

15-Nov-2023	Bridging Engineering study completed
Q4 2023	LEOP SOP
Q1 2024	Start of wells drilling activities
Q1 2024	CLEOP SOP
H2 2025	Renewable heat SOP
H2 2026	LEP SOP
H2 2026	CLP SOP

Note(s): (1) Former Vulcan Energy subsidiary focused on battery metals (copper, nickel and cobalt) projects; (2) Central lithium plant; (3) Start of production; (4) Organic-rankine-cycle
Source(s): Company public information; Mergermarket; Press

UPCOMING MILESTONES

Completion of **COMMISSIONING, START UP OF LEOP AND CLEOP**. The first tonnes of fully domestically-produced lithium chemicals in Europe.

FINANCING PROCESS, including:

- strategic equity process,
- debt financing,
- government grant applications, and
- ECA funding assistance.

Sign EPC / EPCM contracts, secure next phase of permits, commence early works and civils towards **COMMERCIAL BUILD AND OPERATION.**

Thank you

Questions?

Contact our media and investor relations team

info@v-er.eu

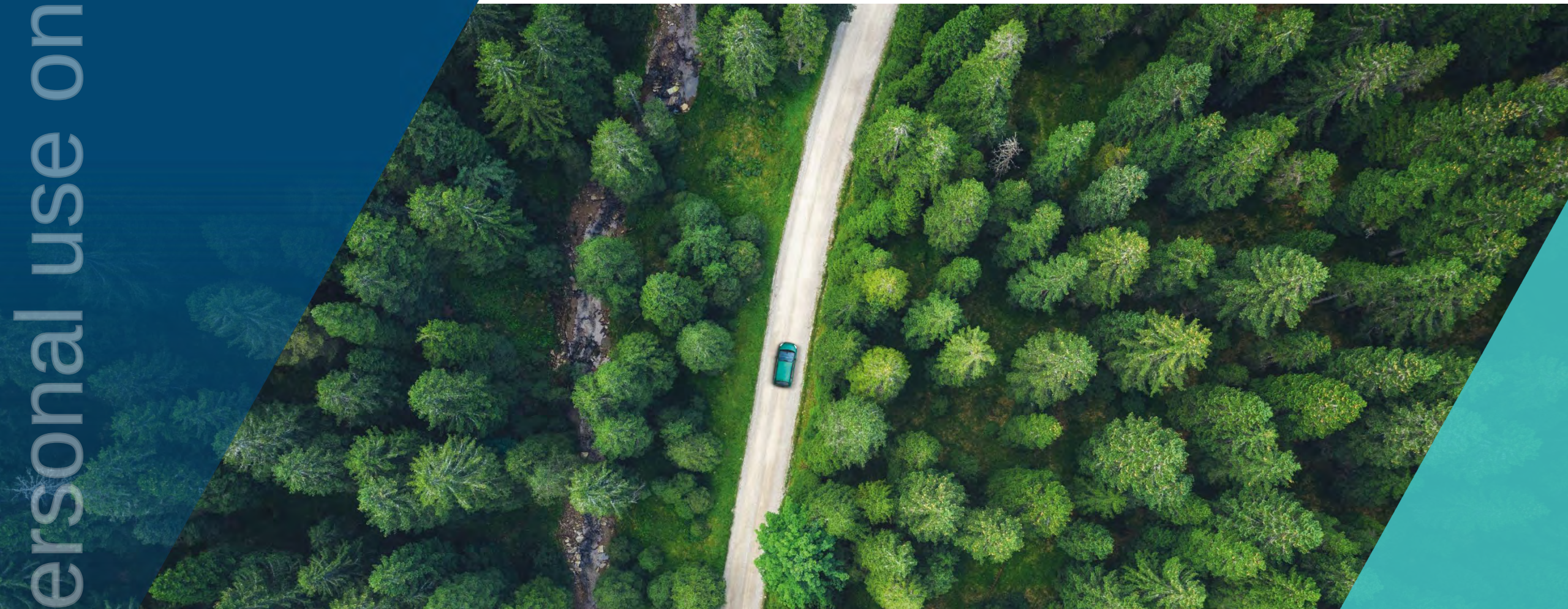
@VulcanEnergyRes | www.v-er.eu | info@v-er.eu

ASX:VUL

FSE:VUL

VULCAN ENERGY
ZERO CARBON LITHIUM™

APPENDICES



APPENDIX 1: FULL DISCLAIMER

No investment or financial product advice. This Presentation, and the information provided in it, does not constitute, and is not intended to constitute, financial product or investment advice, or a recommendation to acquire Vulcan Shares, nor does it constitute, and is not intended to constitute, accounting, legal or tax advice. This Presentation does not, and will not, form any part of any contract for the acquisition of Vulcan Shares. This Presentation has been prepared without taking into account the objectives, financial or tax situation or particular needs of any individual. Before making an investment decision (including any investment in Vulcan Shares or Vulcan generally), prospective investors should consider the appropriateness of the information having regard to their own objectives, financial and tax situation and needs, and seek professional advice from their legal, financial, taxation or other independent adviser (having regard to the requirements of all relevant jurisdictions). Vulcan is not licensed to provide financial product advice in respect of an investment in shares. Any investment in any publicly-traded company, including Vulcan, is subject to significant risks of loss of income and capital.

Forward-looking statements. This Presentation contains certain forward-looking statements. Often, but not always, forward-looking statements can be identified by the use of forward-looking words such as "may", "will", "expect", "intend", "plan", "estimate", "target", "propose", "anticipate", "continue", "outlook" and "guidance", or other similar words. Such forward-looking statements may include, but are not limited to, statements regarding: the proposed use of funds; estimated mineral resources and ore reserves; forecast financial information (including revenue and EBITDA); permits and approvals; production targets; forecast lithium prices; expected future demand for lithium products; planned production and operating costs; planned capital requirements; planned strategies and corporate objectives; and expected construction and production commencement dates. By their nature, forward-looking statements inherently involve known and unknown risks, uncertainties and other factors that may cause actual results, performance and achievements to be materially greater or less than estimated, including those generally associated with the lithium industry and/or resources exploration companies, including but not limited to the risks listed in Appendices 5 and 6 of the Corporate Presentation dated 28 April 2023 as well as the risks contained in the Prospectus dated 5 May 2023, and the ASX Announcement "Vulcan Zero Carbon Lithium™ Project DFS results and Resources-Reserves update" released to ASX on 13 February 2023 and the International Offering Circular dated 4 May 2023 (together the "**Previous Disclosures**"). These factors may include, but are not limited to, changes in commodity and renewable energy prices, foreign exchange fluctuations and general economic conditions, increased costs and demand for production inputs lithium, the speculative nature of exploration and project development (including the risks of obtaining necessary licences and permits and diminishing quantities or grades of reserves), political and social risks, changes to the regulatory framework within which Vulcan operates or may in the future operate, environmental conditions including climate change and extreme weather conditions, geological and geotechnical events, environmental issues, the recruitment and retention of key personnel, industrial relations issues and litigation. Any such forward-looking statements, opinions and estimates in this Presentation (including any statements about market and industry trends) are based on assumptions and contingencies, all of which are subject to change without notice, and may ultimately prove to be materially incorrect. Accordingly, prospective investors should consider any forward-looking statements in this Presentation in light of those disclosures, and not place undue reliance on any forward-looking statements (particularly in light of the current economic climate and significant volatility, uncertainty and disruption caused by the COVID-19 pandemic and the Russian invasion of Ukraine). Forward-looking statements are provided as a general guide only and should not be relied upon as, and are not, an indication or guarantee of future performance. All forward-looking statements involve significant elements of subjective judgement, assumptions as to future events that may not be correct, known and unknown risks, uncertainties and other factors – many of which are outside the control of Vulcan. Except as required by applicable law or regulation (including the ASX Listing Rules), Vulcan does not make any representations, and provides no warranties, concerning the accuracy of any forward-looking statements, and disclaims any obligation to update or revise any forward-looking statements, whether as a result of new information, future events or results, or otherwise. Neither Vulcan nor any of its directors, officers, agents, employees or advisors give any representation or warranty, express or implied, as to the fairness, accuracy, completeness or correctness of the information, opinions and conclusions contained in this Presentation.

Investment Risks. As noted above and contained in the Previous Disclosures, an investment in Vulcan is subject to both known and unknown risks, some of which are beyond the control of Vulcan. Vulcan does not guarantee any particular rate of return or its performance, nor does it guarantee any particular tax treatment. Prospective investors should have regard to the risks in the Previous Disclosures particularly the May 2023 Prospectus, when making their investment decision, and should make their own enquires and investigations regarding all information in this Presentation, including, but not limited to, the assumptions, uncertainties and contingencies that may affect Vulcan's future operations, and the impact that different future outcomes may have on Vulcan. There is no guarantee that any investment in Vulcan will make a return on the capital invested, that dividends will be paid on any fully paid ordinary shares in Vulcan, or that there will be an increase in the value of Vulcan in the future. Accordingly, an investment in Vulcan and Vulcan Shares should be considered highly speculative, and potential investors should consult their professional advisers before deciding whether to invest in Vulcan.

Disclaimer. Vulcan, to the maximum extent permitted by law, expressly excludes and disclaims all liability (including, without limitation, any liability arising out of fault or negligence on the part of any person) for any direct, indirect, consequential or contingent loss or damage, or any costs or expenses, arising from the use of this Presentation or its contents, or otherwise arising in connection with it.

Industry data. Certain market and industry data used in connection with or referenced in this Presentation may have been obtained from public filings, research, surveys or studies made or conducted by third parties, including as published in industry-specific or general publications. Neither Vulcan nor its advisers, nor their respective representatives, have independently verified any such market or industry data. To the maximum extent permitted by law, each of these persons expressly disclaims any responsibility or liability in connection with such data.

Effect of rounding. A number of figures, amounts, percentages, estimates, calculations of value and fractions in this Presentation are subject to the effect of rounding. Accordingly, the actual calculation of these figures may differ from the figures set out in this Presentation.

APPENDIX 1: FULL DISCLAIMER CONT.

Ore Reserves and Mineral Resources Reporting. It is a requirement of the ASX Listing Rules that the reporting of ore reserves and mineral resources in Australia comply with the Joint Ore Reserves Committee's Australasian Code for Reporting of Mineral Resources and Ore Reserves ("JORC Code"). Investors outside Australia should note that while ore reserve and mineral resource estimates of the Company in this document comply with the JORC Code (such JORC Code-compliant ore reserves and mineral resources being "Ore Reserves" and "Mineral Resources" respectively), they may not comply with the relevant guidelines in other countries and, in particular, do not comply with (i) National Instrument 43-101 (Standards of Disclosure for Mineral Projects) of the Canadian Securities Administrators (the "Canadian NI 43-101 Standards"); or (ii) subpart 1300 of Regulation S-K under the US Securities Act of 1933, as amended (the "Securities Act"), which governs disclosures of mineral reserves in registration statements filed with the US Securities and Exchange Commission ("SEC"). Information contained in this Presentation describing mineral deposits may not be comparable to similar information made public by companies subject to the reporting and disclosure requirements of Canadian or US securities laws. On 31 October 2018, the SEC adopted amendments to its disclosure rules to modernise the mineral property disclosure requirements for issuers whose securities are registered with the SEC under the US Exchange Act of 1934, as amended (the "Exchange Act"). These amendments became effective 25 February 2019, with compliance required for the first fiscal year beginning on or after 1 January 2021. Under these amendments, the historical property disclosure requirements for mining registrants included in Industry Guide 7 under the Securities Act were rescinded and replaced with disclosure requirements in subpart 1300 of Regulation S-K. As a result of the adoption of subpart 1300 of Regulation S-K, the SEC's standards for mining property disclosures are now more closely aligned to the JORC Code's requirements. For example, the SEC now recognises estimates of "measured mineral resources", "indicated mineral resources" and "inferred mineral resources." In addition, the SEC has amended its definitions of "proven mineral reserves" and "probable mineral reserves" to be "substantially similar" to the corresponding standards under the JORC Code. However, despite these similarities, SEC standards are still not identical to the JORC Code. Accordingly, investors are cautioned that there can be no assurance that the reserves and resources reported by the Company under the JORC Code would be the same had it prepared its reserve or resource estimates under the standards adopted under subpart 1300 of Regulation S-K.

Financial data. All monetary values expressed as "$" or "A$" in this Presentation are in Australian dollars, unless stated otherwise. All monetary values expressed as EUR or € in this Presentation are in Euros, unless stated otherwise. All monetary values expressed as "US$" in this Presentation are in US dollars, unless stated otherwise. The assumed exchange rate to convert Euros into Australian dollars or US dollars (as applicable) is shown in the footnote to each respective slide. In addition, prospective investors should be aware that financial data in this Presentation includes "non-IFRS financial information" under ASIC Regulatory Guide 230 'Disclosing non-IFRS financial information' published by ASIC and also 'non-GAAP financial measures' within the meaning of Regulation G under the U.S. Securities Exchange Act of 1934. The non-IFRS financial measures do not have standardised meanings prescribed by Australian Accounting Standards and, therefore, may not be comparable to similarly titled measures presented by other entities, nor should they be construed as an alternative to other financial measures determined in accordance with Australian Accounting Standards. Although Vulcan believes the non-IFRS financial information (and non-IFRS financial measures) provide useful information to readers of this Presentation, readers are cautioned not to place any undue reliance on any non-IFRS financial information (or non-IFRS financial measures). Similarly, non-GAAP financial measures do not have a standardised meaning prescribed by Australian Accounting Standards or International Financial Reporting Standards and therefore may not be comparable to similarly titled measures presented by other entities, nor should they be construed as an alternative to other financial measures determined in accordance with Australian Accounting Standards or International Financial Reporting Standards. Although Vulcan believes that these non-GAAP financial measures provide useful information to readers of this Presentation, readers are cautioned not to place undue reliance on any such measures.

Technical information. Vulcan has carried out a definitive feasibility study for Phase One of its Zero Carbon Lithium™ Project ('Project'), the results of which were announced to the ASX in the announcement "Zero Carbon Lithium Project Phase 1 DFS Results" dated 13 February 2023 ('DFS'), ('DFS Announcement') and also released the Bridging Study Announcement 16 November 2023 ("Bridging Study Announcement"). This document may include certain information relating to the DFS and the Bridging Study. The DFS and Bridging Study are based on the material assumptions and parameters outlined in their respective announcements. While Vulcan considers all of the material assumptions in the Bridging Study 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 Bridging Study will be achieved. This presentation uses the results of the DFS and the Bridging Study as a basis to update its Mineral Resources and Ore Reserves, estimated in accordance with the 2012 Edition of the Australian Code for the Reporting of Exploration Results, Mineral Resources, and Ore Reserves (JORC Code). This presentation may also include certain information relating to Phase 2 of its Project, Vulcan has not yet carried out a definitive feasibility study for Phase Two of its Project.

Funding Strategy. To achieve the range of outcomes indicated in the DFS and the Bridging Study, additional funding will be required. Investors should note that there is no certainty that Vulcan will be able to raise the amount of funding when needed. It is also possible that such funding may only be available on terms that may be dilutive to or otherwise affect the value of Vulcan's existing shares. It is also possible that Vulcan could pursue other financing strategies such as a partial sale or joint venture of the Project. If it does, this could materially reduce Vulcan's proportionate ownership of the Project.

Acknowledgement and agreement. By attending an investor presentation or briefing, or accepting, accessing or reviewing this Presentation, you acknowledge and agree to the terms set out in this "Disclaimer" section of the Presentation.

APPENDIX 2: COMPETENT PERSON STATEMENT

The information in this presentation that relates to estimates of Mineral Resources and Ore Reserves is extracted from the following ASX announcement: "Zero Carbon LithiumTM Project Phase One Bridging Engineering Study", released on 16 November 2023. The above announcement is available to view on Vulcan's website at www.v-er.eu.

Vulcan confirms that, in respect of the estimates of Mineral Resources and Ore Reserves included in this presentation:

(a) 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 estimates in the original market announcement continue to apply and have not materially changed;

(b) the form and context in which the Competent Persons' findings are presented in this presentation have not been materially modified from the original market announcement; and

(c) all material assumptions underpinning the production targets (and the forecast financial information derived from such production targets) included in this presentation continue to apply and have not materially changed.

APPENDIX 3: ASSUMPTIONS AND PARAMETERS

Key inputs and outputs of model

General	
General and economics	
FX EUR/USD	1.05
NPV discount rate	8%[1]
Tax rate	30%
State royalty	0%[2]
Brine royalty	Applied on 2 locations
Life of Mine	30 years
Life of Mine production target	0.595Mt LHM
LHM grade	57%
CO_2 emissions/t of LHM[3]	0t CO_2/of LHM

Production ramp-up LEP and CLP (%)

	Q3 2026	Q4 2026	Q1 2027	Q2 2027	Q3 2027	Q4 2027	Q1 2028	Q2 2028	Q3 2028
Ramp-up	40%	50%	60%	75%	80%	85%	90%	95%	100%

[1]WACC rate is 8% which is based on peer industry average. [2]Geothermal exempt from royalty. Lithium expected to also be exempt due under § 32 BBergG, since it is classified as a strategic raw material by the EU – to be confirmed with state authorities during ongoing permitting process. Up to 10% royalty would apply if it was not exempt.
[3]Vulcan CO2 value provided by Minviro. The CO2 assessment is a cradle-to-gate study. It starts with the cradle: extraction of geothermal brine. Thermal energy of the brine is extracted and used for electricity and steam generation. Generated electricity is assumed to be exported to the German electrical grid. Part of the heat is exported for district heating, substituting natural gas use, and the rest of the heat is used for internal processes. It is assumed that of the electricity used throughout all processes 50% is sourced from the German grid and 50% is procured from additional wind generated electricity, on top of wind based electricity that is already present in the German grid mix. Electricity, steam, hydrochloric acid (30% concentration) and sodium hypochlorite (15.8% concentration) are co-products of the lithium hydroxide monohydrate product. All co-products are accounted for using system expansion, meaning no allocation is required. The climate change impact for the lithium hydroxide monohydrate product for the assumptions described above is -1.6 kg CO_2 eq. per kg $LiOH \cdot H_2O$.

Geothermal assets	
Input	
Brine Flow rate	950 l/s total for Phase 1
Lithium Concentration in Brine*	181 mg/l
Output	
Power produced and sold	Up to 270,000MWh/a
Heat produced and sold	Up to 560,000MWth/a
Steam produced for own consumption	9MW
Li-rich brine flow to LEP	950 l/s total for Phase 1
LEP assets	
Input	
Brine Flow from geothermal asset	950 l/s total for Phase 1
Steam consumed	9MW
Output	
LiCl Production in LHM equivalent*	24,600 t/a
CLP asset	
Input	
LiCl in LHM equivalent*	24,600 t/a
Output	
LHM Production (Battery-grade)	24,600 t/a
HCl Production (30%wt)	66,420 t/a (net of CLP consumption)
*Capacity	