



**VULCAN ENERGY**  
**ZERO CARBON LITHIUM™**

## **Corporate Presentation**

**Third Quarter, 2023**



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**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'). This announcement may include certain information relating to the DFS. The DFS is based on the material assumptions outlined in the DFS Announcement (see "Competent Person Statement" below). 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 or that the range of outcomes indicated by the DFS will be achieved. This announcement 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, 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.

<sup>1</sup> This slide contains a summary of the applicable disclaimers, the full disclaimer in relation to this Presentation is contained in the Appendices.

# INTRODUCTION







# Purpose

We will empower a  
zero-carbon future

# Mission

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



# OUR TARGETS

We are aiming to become the world's first dual 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<sup>1</sup>



Enough **lithium hydroxide**  
production for  
**1 million** EVs  
per annum<sup>2</sup>



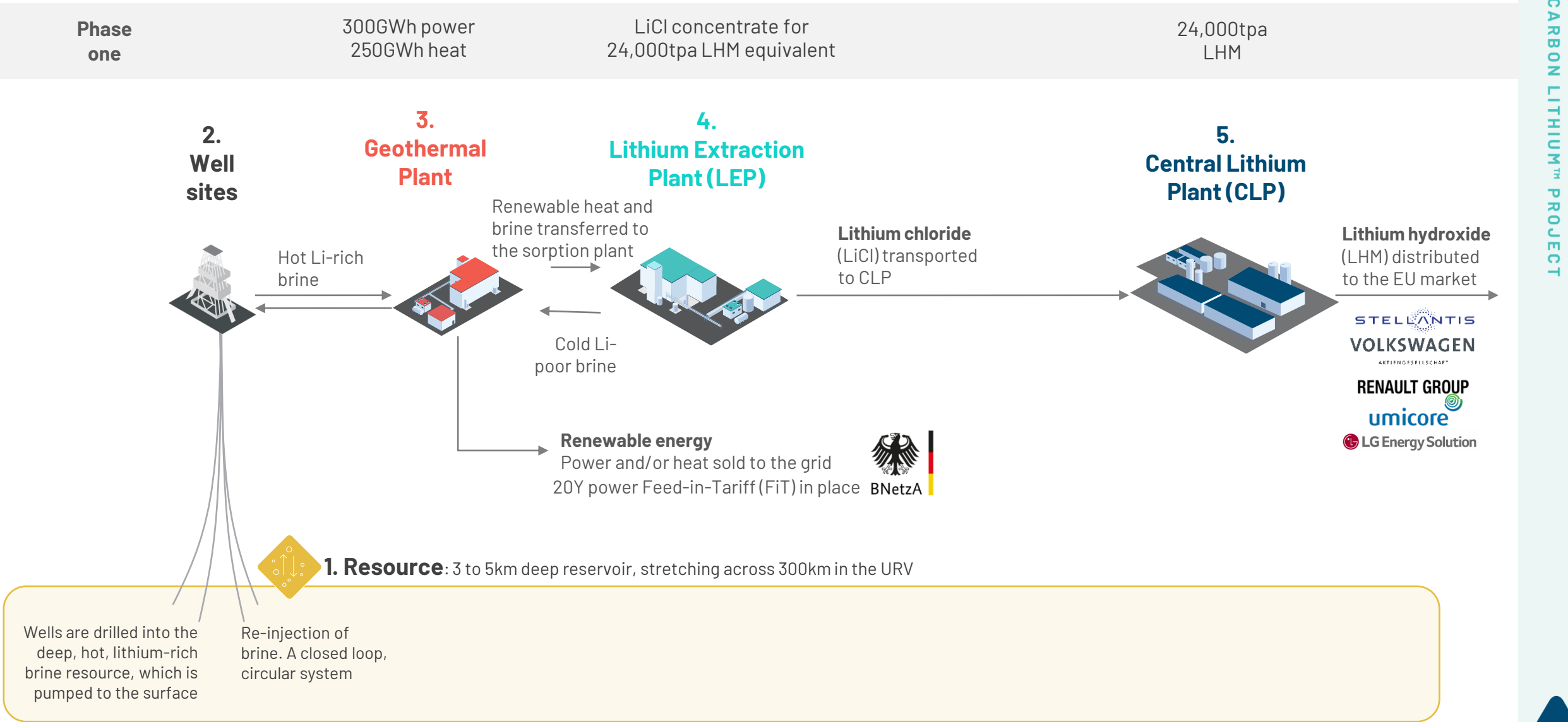
**1 million** tonnes of  
CO<sub>2</sub> emissions  
avoided  
per annum<sup>3</sup>



<sup>1</sup>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. <sup>2</sup>Based on Phase One production target of 24ktpa from DFS, 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. <sup>3</sup>CO<sub>2</sub> emissions avoidance target based on Minviro LCA data on Vulcan project and lithium industry peer averages in the same LCA.

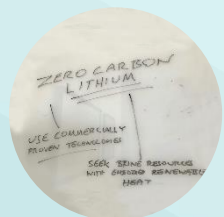


# WHAT ARE WE BUILDING?





# 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

Scoping Study  
completed

Estimation of Largest Lithium  
resource in Europe - Globally  
significant

Lithium  
extraction test  
work  
commences

2021

PFS  
Released

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

2x institutional  
capital raises for  
total \$320 M



Acquisition of 2  
electric drill rigs

5 binding lithium  
hydroxide agreements  
signed

STELLANTIS  
VOLKSWAGEN  
AKTIENTREIFERE

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



Construction of  
Vulcan's Lithium  
Extraction  
Optimisation Plant  
commences

STELLANTIS

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

High grade, lowest  
impurity LHM  
produced from pilot  
plant

Successful in-house  
development of  
VULSORB®

Successful  
completion of  
lithium  
extraction  
pilot test work

2023

\$109m institutional  
equity raise

Second joint  
project signed  
with Stellantis  
in '23 to  
decarbonise  
energy supply  
for their  
operations



Completion of  
Positive Phase One DFS



# WHY DO WE NEED LITHIUM IN EUROPE?

## The market



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

## The crisis



- **Zero** local supply of lithium hydroxide. **80%** reliant on China<sup>4</sup>
- Current supply of lithium is **CO<sub>2</sub>** intensive. Western automakers want low carbon sources<sup>5</sup>

## The solution



- Vulcan is developing the only **CO<sub>2</sub> neutral**, zero fossil fuel lithium project in the world, producing lithium **from Europe, for Europe**<sup>6</sup>
- Vulcan's Zero Carbon Lithium™ Project is the largest lithium resource in Europe<sup>7</sup>

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

STELLANTIS

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GROUP

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<sup>1</sup> [https://ec.europa.eu/commission/presscorner/detail/en/ip\\_22\\_6462](https://ec.europa.eu/commission/presscorner/detail/en/ip_22_6462)

<sup>2</sup> <https://www.spglobal.com/marketintelligence/en/news-insights/research/investment-in-lithium-ion-batteries-could-deliver-5-point-9-twh-capacity-by-2030>

<sup>3</sup> <https://www.euractiv.com/section/economy-jobs/news/eu-unveils-critical-raw-materials-act-aiming-to-lesser-dependence-on-china/>

<sup>4</sup> <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>

<sup>5</sup> Refer to next slide. <sup>6</sup> Vulcan is not aware of any other such projects either in development or operation

<sup>7</sup> 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<sup>1</sup>
- EU wants to develop local sources of energy<sup>2</sup>

## 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<sup>3</sup>
- 55% of Germany's gas came from Russia pre-Ukraine invasion<sup>4</sup>
- European emissions need to fall dramatically to avoid climate breakdown and meet carbon neutral by 2050<sup>5</sup>

## The solution



- Fraunhofer: Geothermal renewable energy can meet a quarter of Germany's heating needs<sup>6</sup>
- German Govt. announced in November '22 the need for 100 new Geothermal projects targeting 10 TWh of geothermal output by 2030<sup>7</sup>
- 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.<sup>8</sup>

<sup>1</sup> <https://www.reuters.com/business/sustainable-business/germany-aims-get-100-energy-renewable-sources-by-2035-2022-02-28/>

<sup>2</sup> [https://commission.europa.eu/strategy-and-policy/priorities-2019-2024/european-green-deal/repowereu-affordable-secure-and-sustainable-energy-europe\\_en](https://commission.europa.eu/strategy-and-policy/priorities-2019-2024/european-green-deal/repowereu-affordable-secure-and-sustainable-energy-europe_en)

<sup>3</sup> <https://www.consilium.europa.eu/en/infographics/eu-gas-supply/>

<sup>4</sup> <https://www.cleanenergywire.org/factsheets/germanys-dependence-imported-fossil-fuels#:~:text=Germany%20%2D%20GAS,imports%2C%20according%20to%20the%20BGR.%E2%80%8B>

<sup>5</sup> [https://climate.ec.europa.eu/eu-action/climate-strategies-targets/2050-long-term-strategy\\_en](https://climate.ec.europa.eu/eu-action/climate-strategies-targets/2050-long-term-strategy_en)

<sup>6</sup> Roadmap deep geothermal energy for Germany – recommendations for action for politics, business and science for a successful heat transition.

<sup>7</sup> <https://www.thinkgeoenergy.com/germany-aims-for-100-new-geothermal-projects-by-2030/> <sup>8</sup> 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*<sup>1</sup> and *Net Zero Industry Acts*<sup>2</sup> 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	<ul style="list-style-type: none"> <li>Establishing a framework for ensuring a secure and sustainable supply of critical raw materials</li> <li><b>"Strategic project" status, indicating the status of the highest national significance possible</b></li> </ul>	<ul style="list-style-type: none"> <li>Establishing a framework for strengthening Europe's net-zero technology products manufacturing ecosystem</li> <li><b>Net Zero Resilience Projects shall get the status of the highest national significance possible</b></li> </ul>	<ul style="list-style-type: none"> <li><b>Should it be granted, Strategic Project and Net Zero Resilience Project status could significantly streamline project progress</b></li> </ul>
Permitting	<ul style="list-style-type: none"> <li><b>One stop-shop for permitting</b> handled by one national authority, with all permitting documentation to be sent out to a centralised system</li> <li>Permit granting process shall <b>not exceed 24 months</b> for Strategic Projects</li> </ul>	<ul style="list-style-type: none"> <li>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.</li> <li>Environmental impact assessments to not exceed a period of 30 days from the date of project submission.</li> </ul>	<ul style="list-style-type: none"> <li><b>Potentially fast track and streamline the permitting process</b></li> </ul>
Funding	<ul style="list-style-type: none"> <li>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.</li> <li>Potential public funding support, in the form of guarantees, loans or equity and quasi-equity investments.</li> </ul>	<ul style="list-style-type: none"> <li>Member States to provide financial support to address financing gaps in the form of:               <ul style="list-style-type: none"> <li>a) guarantees to decrease borrowing costs</li> <li>b) off-take guarantees for tech made in Europe</li> </ul> </li> <li>Innovation Fund auctions to allocate grants to Net Zero industry projects</li> </ul>	<ul style="list-style-type: none"> <li><b>Potential EU &amp; State grant/subsidies</b></li> <li><b>Assistance with other financing alternatives</b></li> </ul>

<sup>1</sup> [https://ec.europa.eu/commission/presscorner/detail/en/ip\\_23\\_1661](https://ec.europa.eu/commission/presscorner/detail/en/ip_23_1661)

<sup>2</sup> [https://single-market-economy.ec.europa.eu/publications/net-zero-industry-act\\_en](https://single-market-economy.ec.europa.eu/publications/net-zero-industry-act_en)





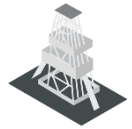
VULCAN ENERGY  
ZERO CARBON LITHIUM™

# ZERO CARBON LITHIUM™ PROJECT

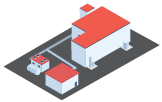


# PHASE ONE UPSTREAM-DOWNSTREAM PRODUCTION STRUCTURE

**Phase One:**  
expanding upstream capacity,  
building downstream



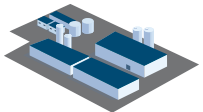
Increasing the number of production/re-injection well sites from 2 to 9



Building new, larger geothermal plant near existing one

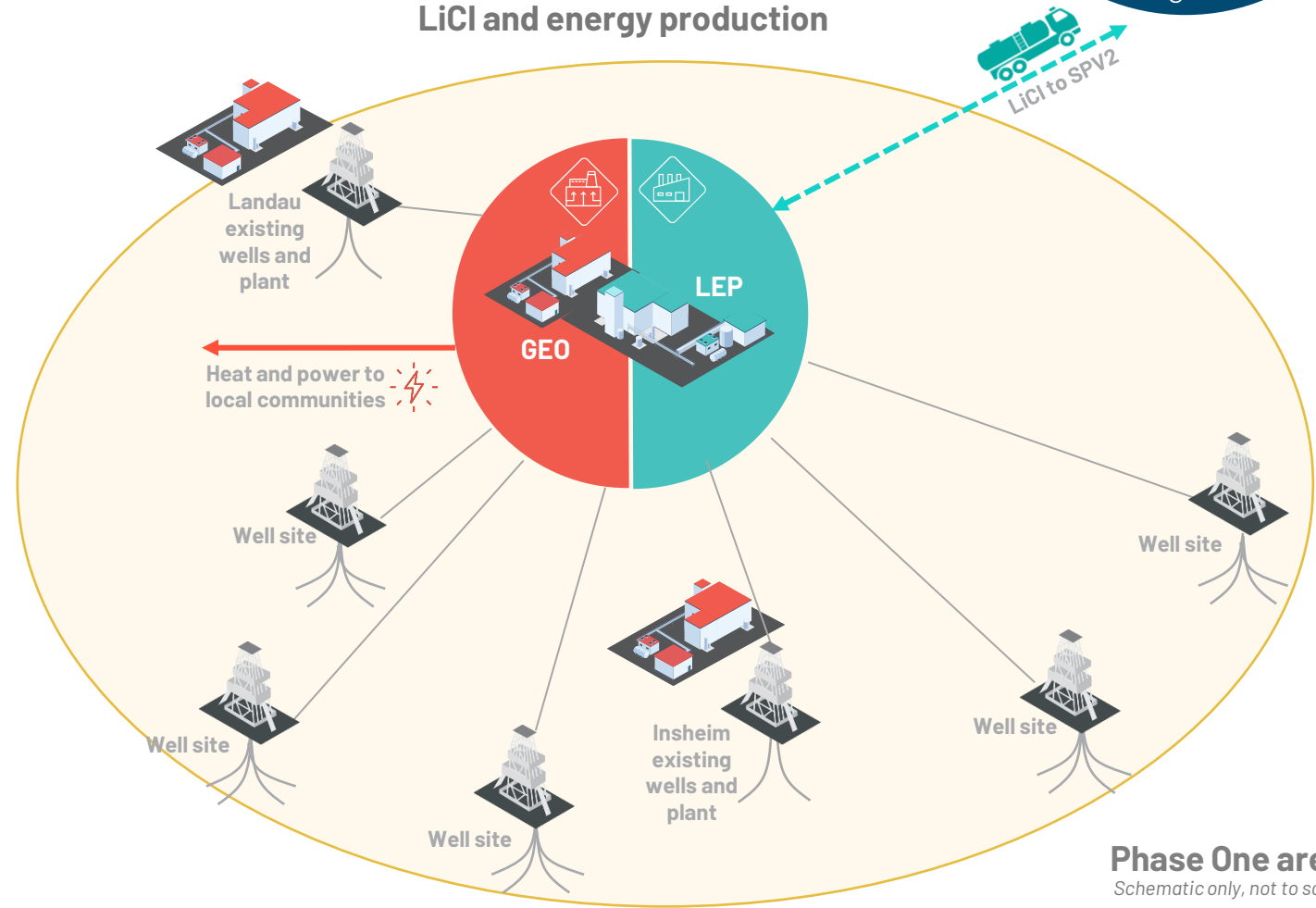


Building new Lithium Extraction Plant



Building new Central Lithium Plant

Upstream GEO plant and  
LEP, wells, resource.  
LiCl and energy production



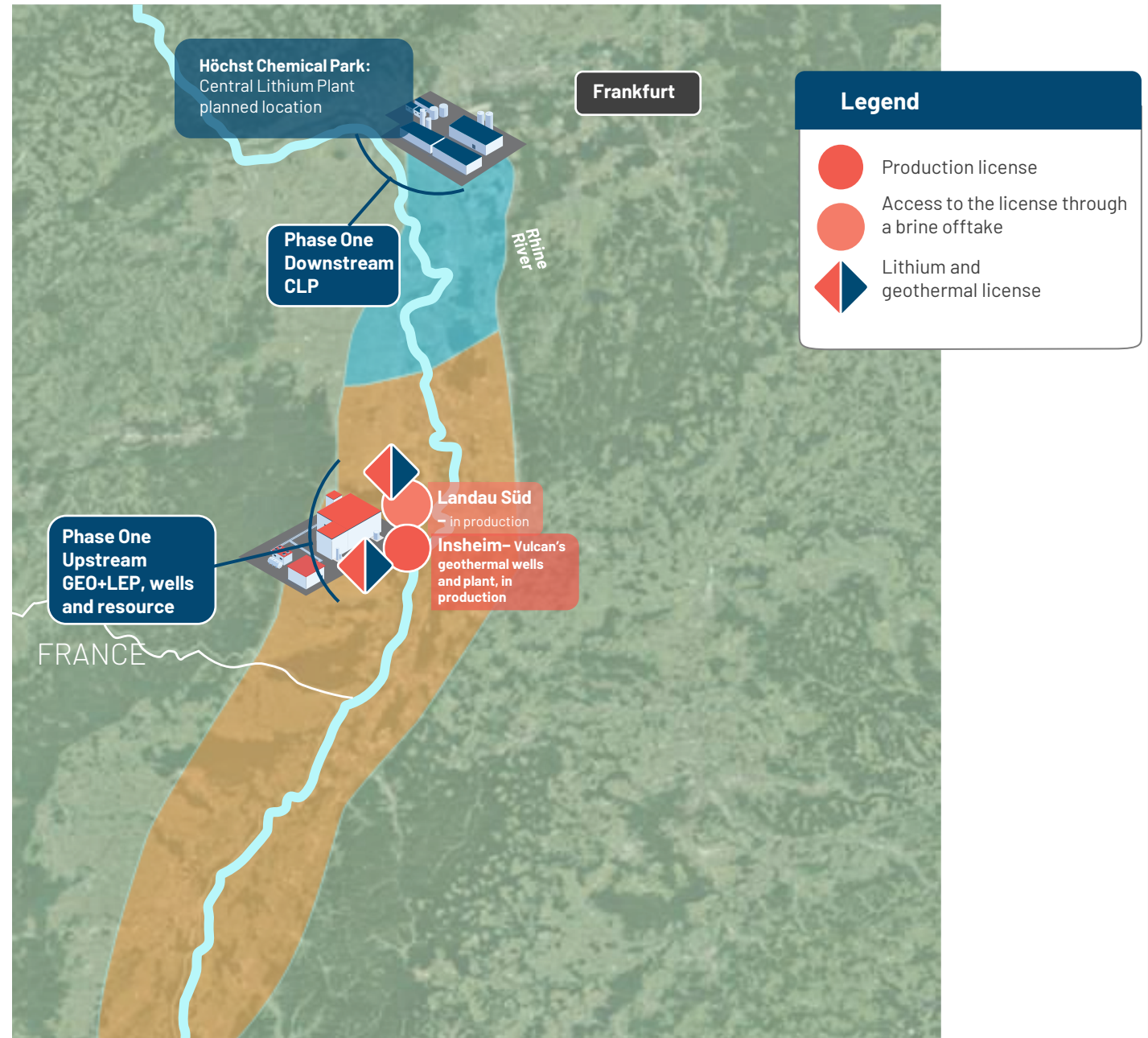
Downstream CLP  
Frankfurt  
24Ktpa LHM





# PHASE ONE AREA

- ✓ **Phased growth approach**, starting from core of field where Vulcan already owns production/re-injection wells in operation.
- ✓ **Phase One focuses on** the core of the field including existing production wells.
- ✓ Large resource allows for further modular expansion.





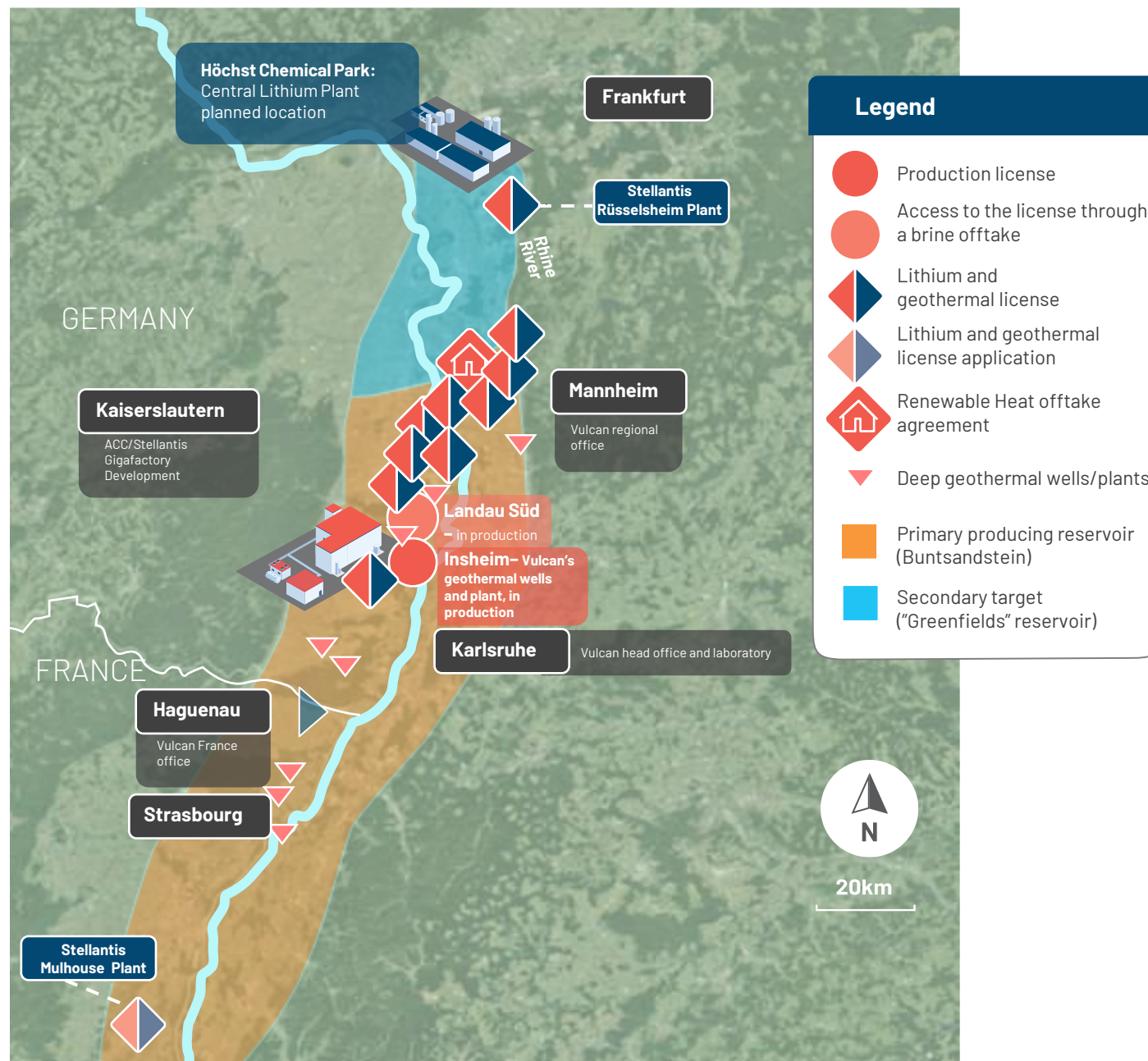
# THE UPSTREAM RESOURCE: FUTURE PIPELINE

- ✓ Vulcan's Upper Rhine Valley Brine Field (URVBF), consisting of 15 licenses for a total area of 1,583 km<sup>2</sup>, represents **Europe's largest lithium resource**<sup>1</sup>, with **26.6Mt contained LCE from 10 of its 15 German licenses**.
- ✓ 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**<sup>2</sup>. The Federal Government targets to reach 100 plants by 2030.<sup>3</sup>
- ✓ URVBF area is a **mature, producing field**, with **>1,000 oil & gas** and **24 deep geothermal wells** already drilled in the URV.

<sup>1</sup>According to public, JORC-compliant data

<sup>2</sup>Bundesverband Geothermie

<sup>3</sup>Geothermie\_Eckpunktepapier\_ressortabgestimmt (bmwk.de);







# 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, 4 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.
- Contract labour company acquired.

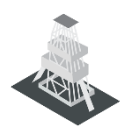
## Conservative approach

- 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 (69l/s), below nearby projects (>100l/s), leaving room for upside.
- Brownfield development, Vulcan is increasing the number of its existing production well sites from 2 to 9 during Phase One project build.

## Execution

- Duration: expected 2.5 years starting H2 2023.
- Vulcan has secured a number of pre-EIA approvals for its sites and has also secured land to start wells.

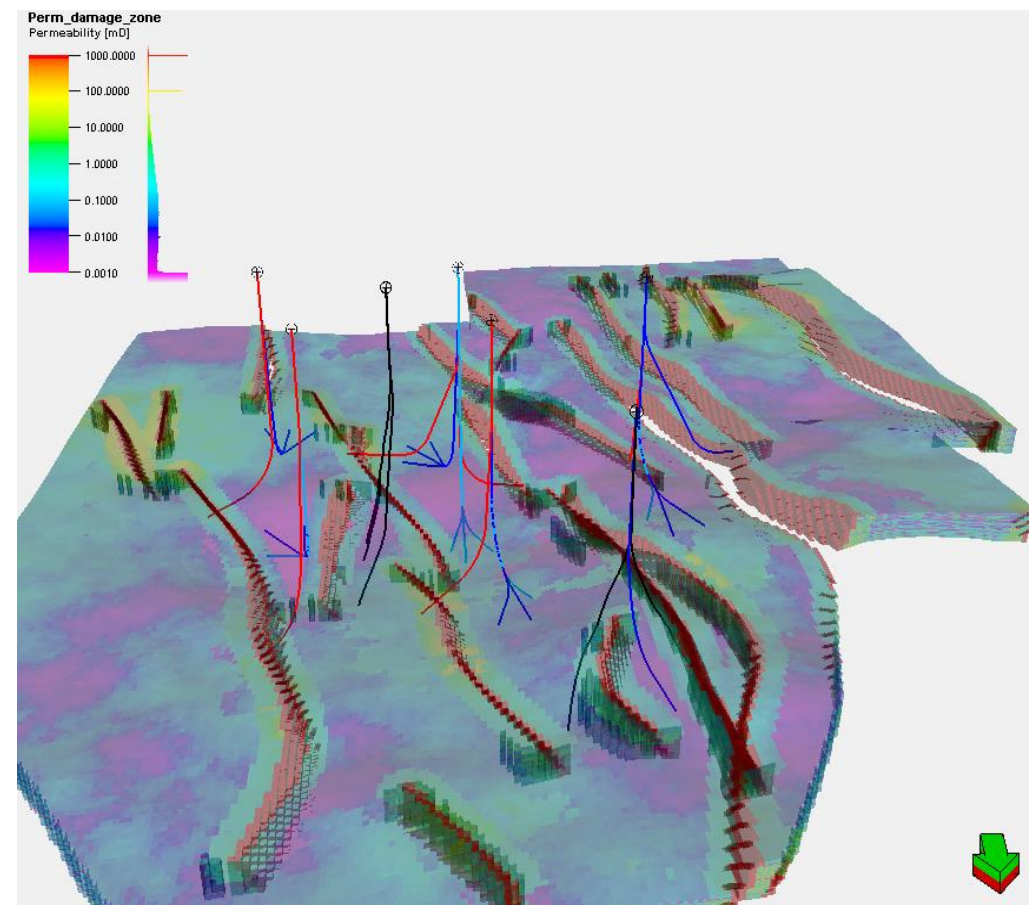
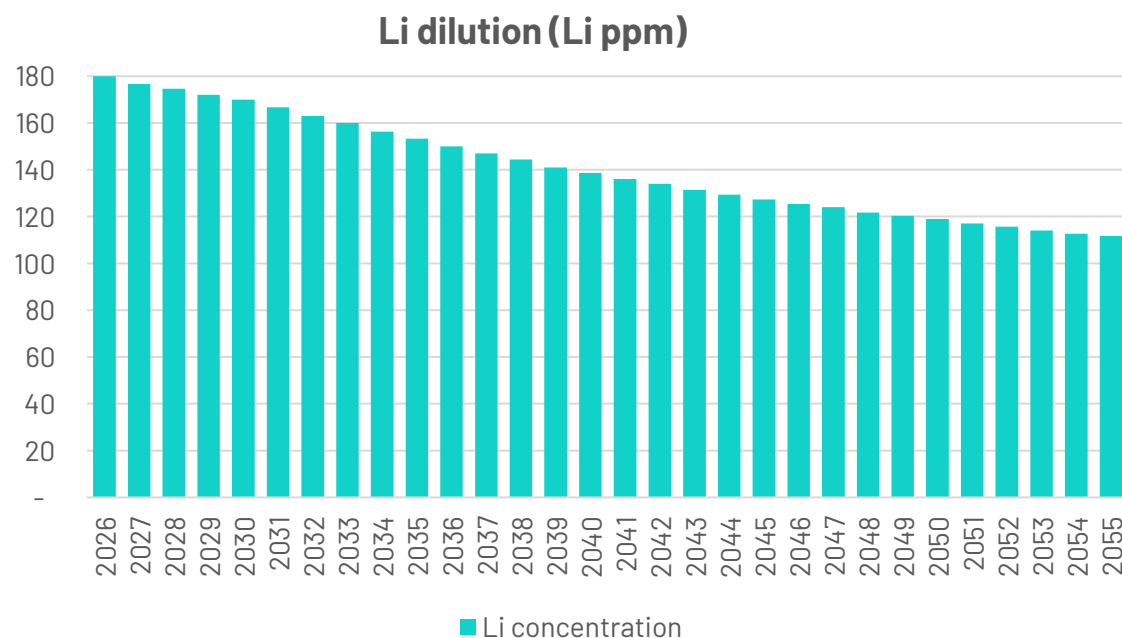




# LONG LIFE, SUSTAINABLE UPSTREAM PRODUCTION

## State-of-the art reservoir management principles from O&G industry

- Lithium dilution at the well sites modelled over 30 years and remains above cut-off, with only ~1.6% annual grade decrease.
- Production levels could be increased by adding new wells in the future, not modelled here<sup>1</sup>.
- Heat modelling shows no material decrease over time.

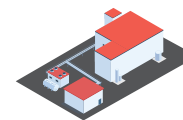


<sup>1</sup>Production and dilution is based on reservoir estimation, modelling and simulation, and is subject to further review as further development wells are drilled to increase brine production from Phase One area. Dilution is based on weighted average of two areas.

Note: See the DFS announcement dated 13 February 2023, particularly material assumptions in Appendix 14, risk factors in Appendices 10 and 11 and Competent Person Statement.

<sup>2</sup>Output of 24ktpa is estimated as at the fully ramped up commencement of production as shown above.





# INCREASING RENEWABLE ENERGY PRODUCTION

## Long established industry with strong growth potential

- Geothermal energy: 16GW of power & 107GW of heat capacity deployed worldwide<sup>1</sup>
- 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<sup>2</sup>
- Vulcan owns an existing geothermal renewable energy plant with over 10 years of successful production
- The 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:

- Insheim: 4.2MW power capacity
- Additional total planned generation capacity: 33MW power capacity, 30MW heat capacity

<sup>1</sup>[Global geothermal market and technology assessment \(irena.org\);](https://www.irena.org/publications/2019/Global-geothermal-market-and-technology-assessment)

<sup>2</sup>[Geothermie\\_Eckpunktepapier\\_ressortabgestimmt \(bmwk.de\);](https://www.bmwi.de/SharedDocs/DEK/presse/medien/2019/06/20190613-Geothermie-Eckpunktepapier-ressortabgestimmt.pdf?__blob=publicationFile&v=1)





# NEW LITHIUM EXTRACTION PLANT (LEP)

- In-house designed Lithium Extraction **Optimisation Plant (LEOP)** near completion, planned to start operation second half of 2023 to train staff in pre-commercial environment prior to start of commercial production for **targeted operational readiness in late 2025**
- Optimisation plant also built to start sending significant volume of product to offtakers for pre-qualifications
- Once operational, this plant intends to produce the first tonnes of domestically produced lithium chemicals in Europe

## Phase One commercial: adsorption-type LEP

- To be constructed next to new Phase One geothermal plant
- Total targeted capacity to be 24,000tpa LHM equivalent in LiCl form
- From the LEP, LiCl concentrate solution will be transported to the CLP
- Modular build allows for further phased development across other phases in URVBF
- Targeting Phase One SOP in late '25, ramping up during '26.



Top: construction of Lithium Extraction Optimisation Plant (LEOP) plant  
Bottom: Planned new commercial Phase One geothermal and LEP development.



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

## Track record

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

## Low operating cost

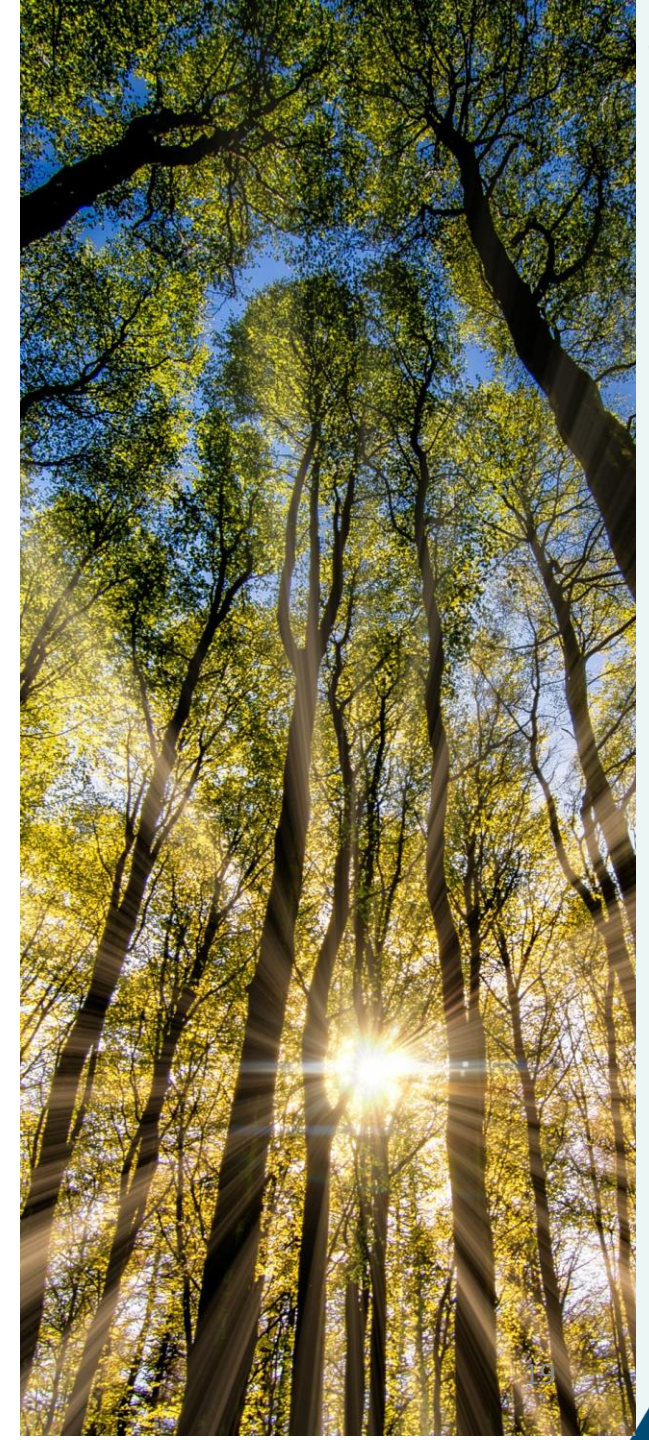
- ✓ Water is used to recover the lithium from the sorbent – no acid requirement means lower operating cost and less waste
- ✓ Requires heat to work, so lowers operating cost and saves energy when applied to naturally heated sub-surface brines

## 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

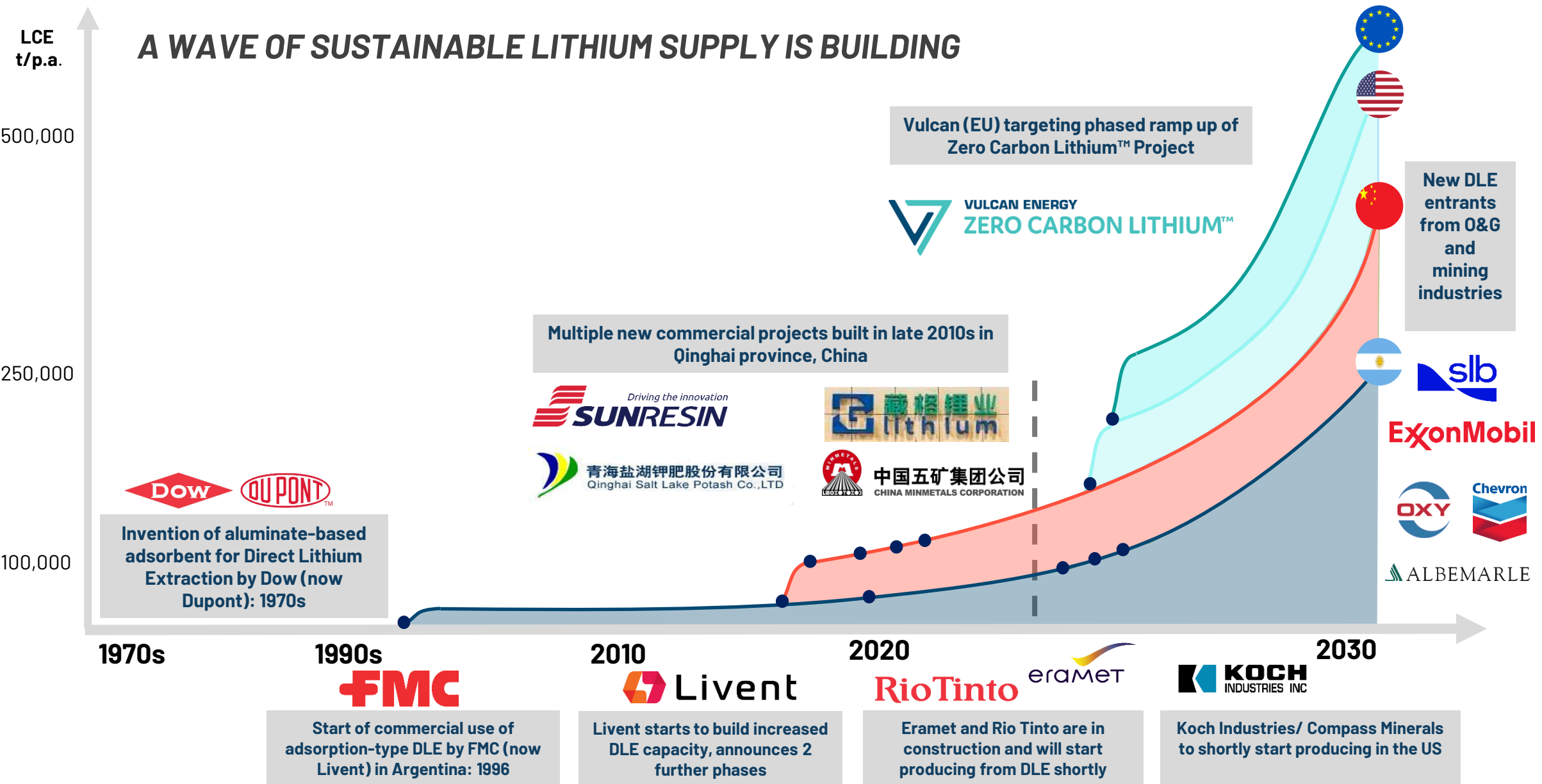
## Product quality

- ✓ 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





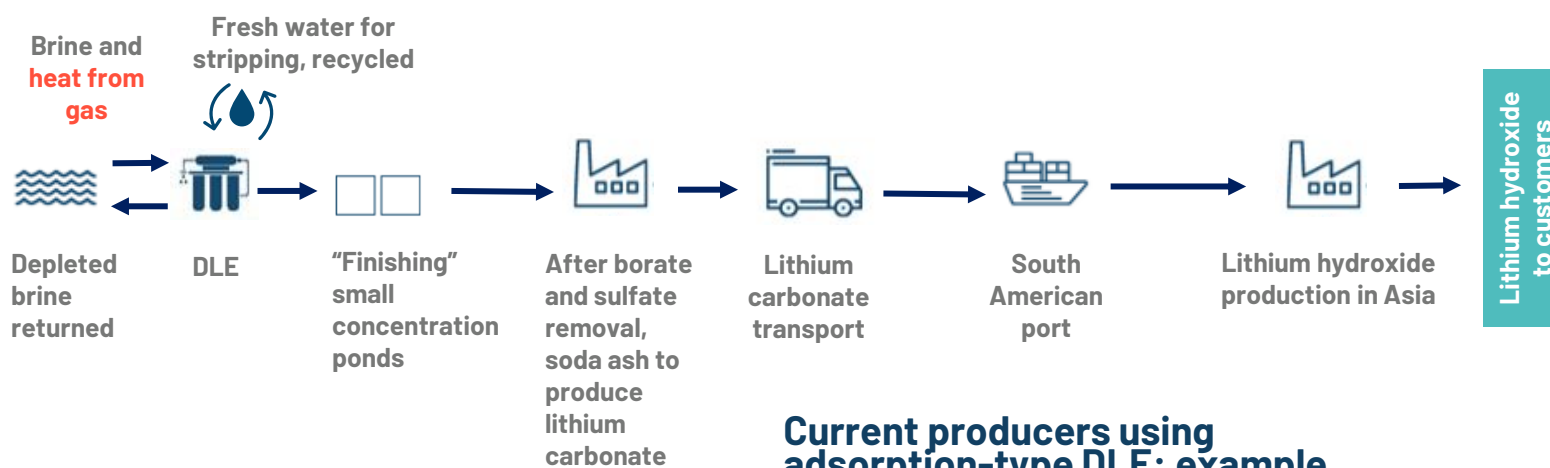
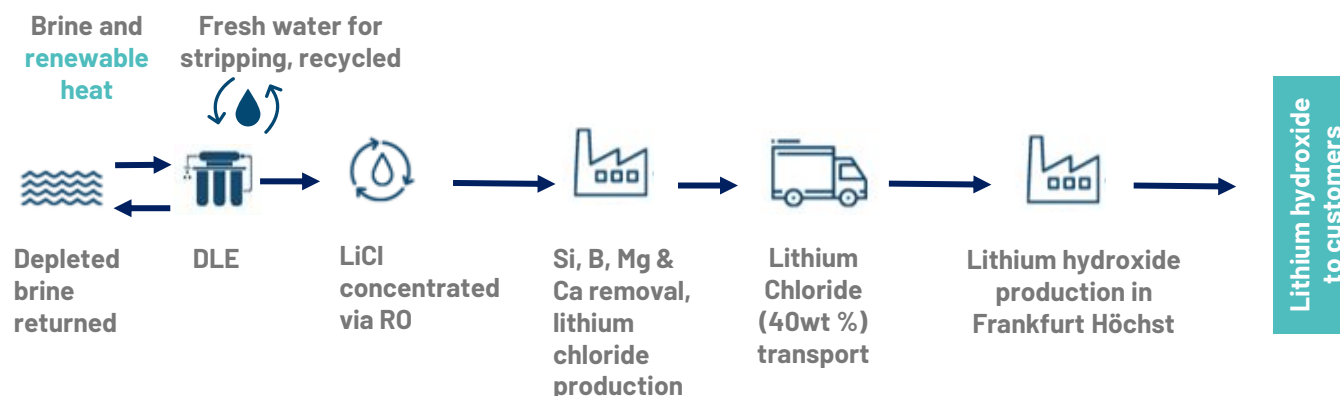
# COMMERCIAL GROWTH OF ADSORPTION-TYPE DLE<sup>1</sup>



<sup>1</sup>This graph is intended to illustrate the increasing commercial usage of DLE worldwide. The data is taken from the public sources referenced in Appendix 4 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.

# DECARBONISING DLE: COMPARISON WITH CURRENT DLE PRODUCTION

- Adsorption-type DLE needs heated brine to work.
- Current DLE producers use gas to heat the brine. Vulcan uses geothermal brine that is already naturally heated. Excess heat is used to generate renewable energy.
- Vulcan uses process equipment to concentrate lithium, instead of concentration ponds. This speeds up production time and reduces water usage. Incumbent producers are also switching to process equipment concentration.
- Vulcan's proximity to lithium hydroxide conversion also reduces carbon footprint, relative to current producers.



Current producers using adsorption-type DLE: example

# SUMMARY OF VULCAN'S ACTIVITIES TO DE-RISK A-DLE ON UPPER RHINE VALLEY BRINE FIELD (URVBF) BRINE

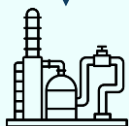
Standard approach for applying known metals extraction process to a mineral resource



Technology selected



Applicability to geochemistry confirmed in laboratory



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



Commercial plant build and operation

- ✓ Technology selected in scoping work 2018-2020
- ✓ 3 years of in-house laboratory testwork successfully completed '21-'23
- ✓ Technology de-risked on our brine chemistry (i.e., salinity, Li content, chemical composition, temperature), at multiple well sites
- ✓ Pilot plant operational since '21. Lithium hydroxide "better than battery grade" already produced.
- ✓ 1000s of cycles, and 10,000s of hours of stable successful operation
- ✓ Data from pilot plants used to optimise and complete engineering design for Definitive Feasibility Study and Bridging Phase

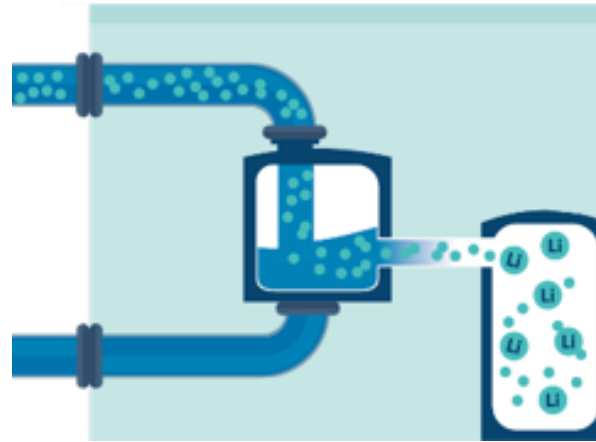
*Ready to move into execution, build and operation of commercial plant*

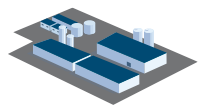




## In-house A-DLE intellectual property

- ✓ Vulcan has developed its own proprietary sorbent, **VULSORB®**, which it has been manufacturing in Germany and France.
- ✓ **VULSORB®**, belongs to the lithium extraction adsorbent family which has been developed and used by different companies in multiple project around the world over the past 25 years.
- ✓ **VULSORB®**, offers higher lithium capacity than other lithium aluminate intercalate sorbents available on the market, based on Vulcan's test work on Upper Rhine Valley Brine.
- ✓ **VULSORB®**, can be used with other brines, both in Europe and globally.





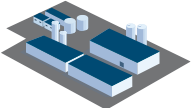
# LITHIUM PROCESSING: PROVEN, SUSTAINABLE METHODS, STRONG PARTNERS

## 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.
- **Testwork** with Electrosynthesis (partly owned by NORAM) **completed**, better than battery grade specification LHM **successfully** produced from Vulcan's LiCl.



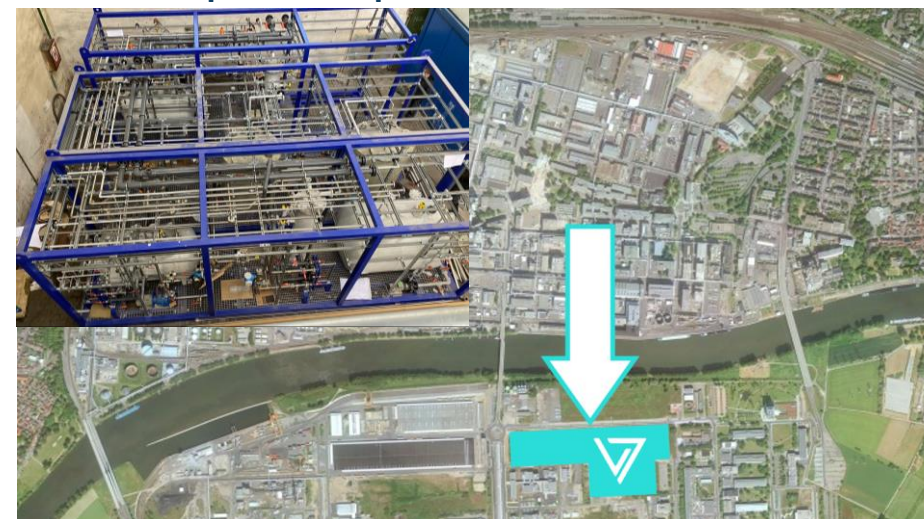
# NEW CENTRAL LITHIUM PLANT (CLP)

- CLP planned to be located in Frankfurt (Höchst Industrial Park). 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. By-products HCl and Sodium Hypochlorite. Significant synergies with existing chlor-alkali producers in the same chemical park, e. g. Nobian.
- Höchst is one of Europe's largest industrial estates and is home to around 90 chemical and pharmaceutical companies.
- Targeting late 2025 for commercial start of operations.
- Optimisation plant under construction, planned to start operation in H2, training staff in pre-commercial operational setting, will send significant volume of product to offtakers for pre-qualifications. Intended to ensure **commercial operational readiness**.

Commercial CLP



Optimisation plant under construction



Secured plot at Höchst



# 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



## CORE FUNCTIONS

## SUPPORT FUNCTIONS

### Project Execution

**Director Project Execution**  
Carsten Bachg

### Production Organisation

**VP Production**  
Christian Tragut

### Development Organisation

**Chief Development Officer**  
Thorsten Weimann

**Chief Technology Officer**  
Dr. Stefan Brand

**Chief Commercial Officer**  
Vincent Ledoux-Pedailles

**CEO - GER**  
Dr. Horst Kreuter

**CoSec/ In-House Legal**  
Daniel Tydde

**Chief Financial Officer**  
Rob Ierace (Australia)

**Director of Comms & IR**  
Annabel Roedhammer

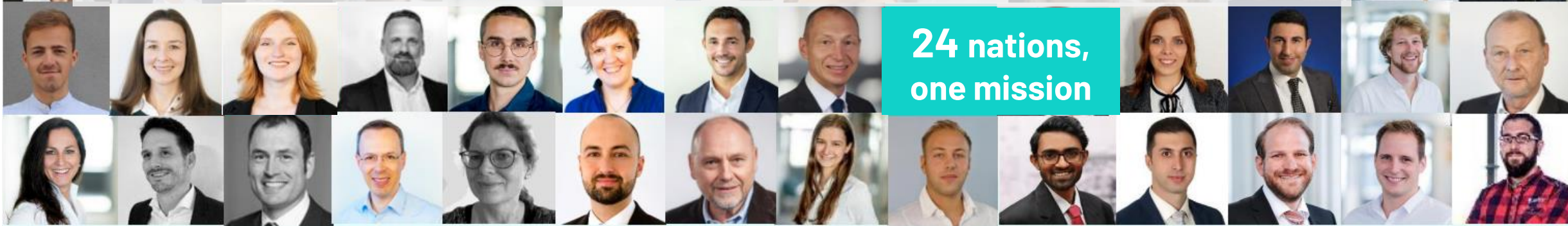
**Legal Counsel (Germany)**  
Meinhard Grodde

**Chief Financial Officer**  
Markus Ritzauer (Germany)

**ESG Lead**  
Storm Taylor

**VP Supply Chain**  
N.N

**24 nations,  
one mission**



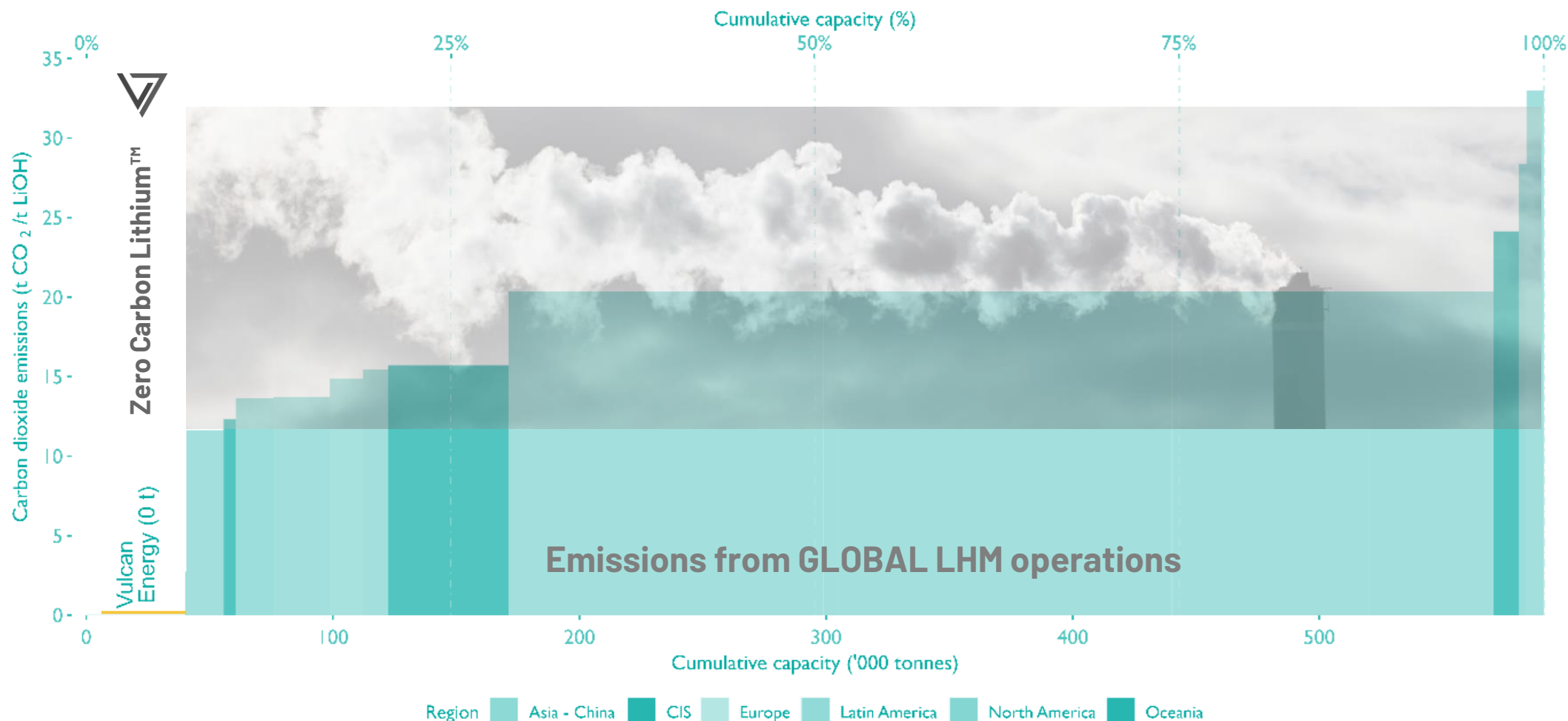


# ENVIRONMENT, SOCIAL, GOVERNANCE



# AIMING FOR LOWEST CO<sub>2</sub> FOOTPRINT IN THE LITHIUM INDUSTRY

- Vulcan is developing the first and only carbon neutral lithium project in the world<sup>1</sup>
- Globally significant decarbonisation opportunity through Vulcan's Zero Carbon Lithium™ Project



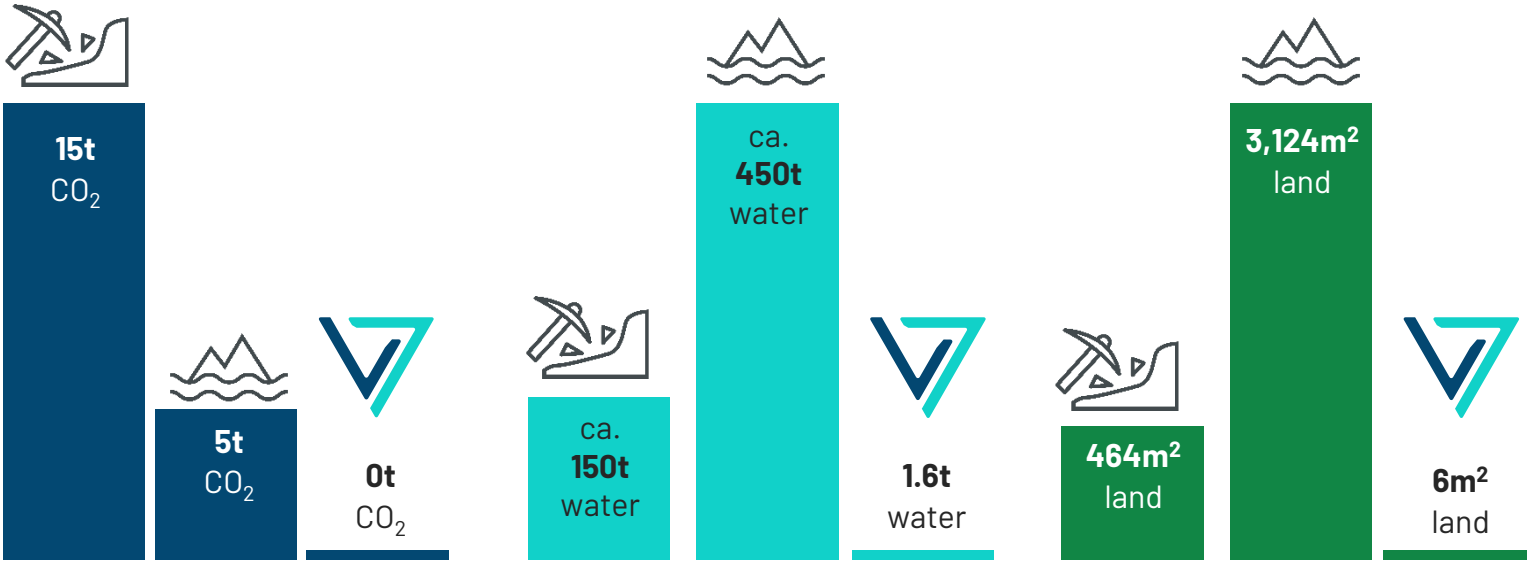
<sup>1</sup>Sources: Fastmarkets projection for industry. Vulcan CO<sub>2</sub> value provided by Minviro. The CO<sub>2</sub> assessment is a cradle-to-gate study. It starts with the cradle: extraction of geothermal brine. Thermal energy of the brine is extracted and used for electricity and steam generation. 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<sub>2</sub> eq. per kg LiOH·H<sub>2</sub>O 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

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**  
~ 60% of world lithium production



**Evaporation ponds**  
~ 40% of world lithium production



**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.

# OTHER LEADING ESG CREDENTIALS



Low ESG Risk Rating from Sustainalytics (01/2023)  
First amongst peers and in the 2<sup>nd</sup> quartile Chemicals Industry



9,5kT CO<sub>2</sub> avoided from renewable energy generated at NatürLich Insheim in 2022.



ESG linked KPIs including individual and shared targets



Partnership with Karlsruhe Zoo Foundation supporting local biodiversity projects



Voluntary TCFD reporting company since 2021



Certified Carbon Neutral International Organisation from 2021<sup>1</sup>



3 Info Centres opened in local communities and 1 mobile Info Centre for local community engagement

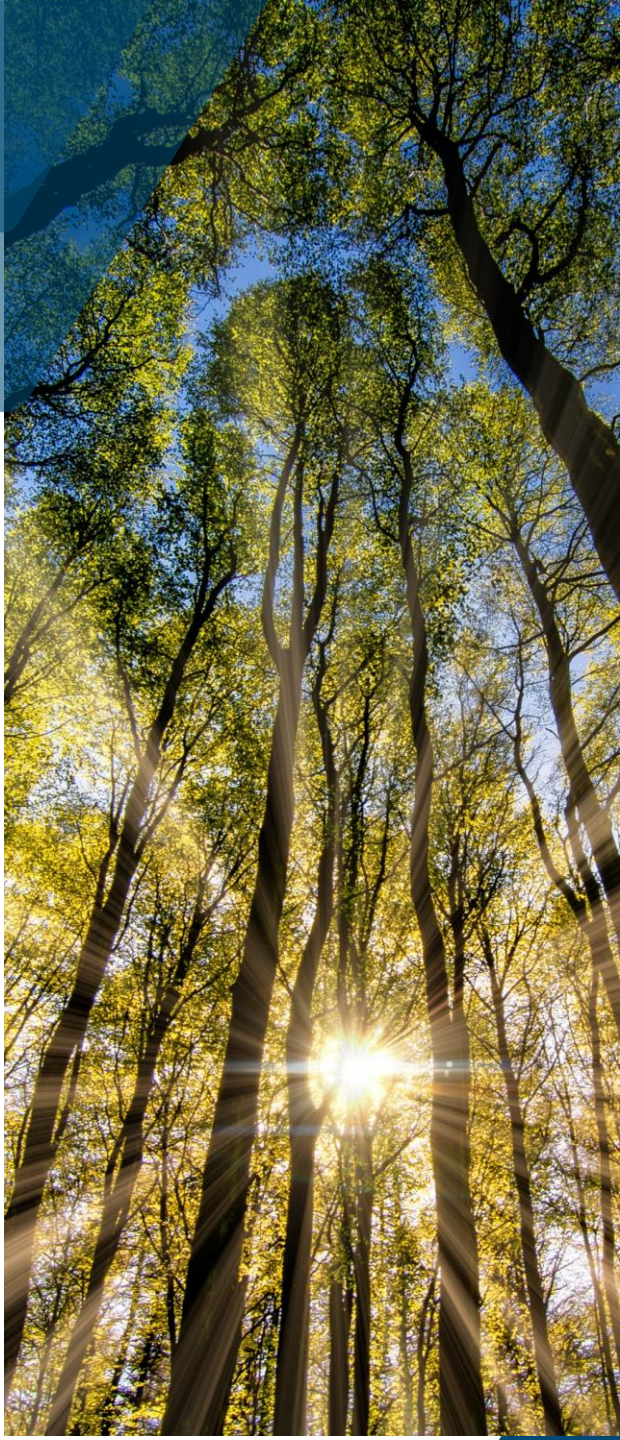


TNFD Forum Member assisting with framework development



UNGC Member (Since February 2022)

<sup>1</sup>Vulcan Group is certified as a carbon neutral organisation for 2021 under the Climate Active and South Pole certifications





# SOCIETAL ACCEPTANCE

- Vulcan's projects provide a unique, tangible benefit which literally "flows" into local communities: **renewable heating** for district heating networks.
- Vulcan's affordable, renewable, zero carbon heat, contributes to decarbonisation of cities and towns, and also to Europe's energy security.
- The Project is developed in cooperation with local communities, as Vulcan directly engages with them 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:
  - 3 "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 I.
- **Conclusion:** The project generally enjoys widespread support from the public, in favour of the tangible benefits of the renewable heat and local job creation.

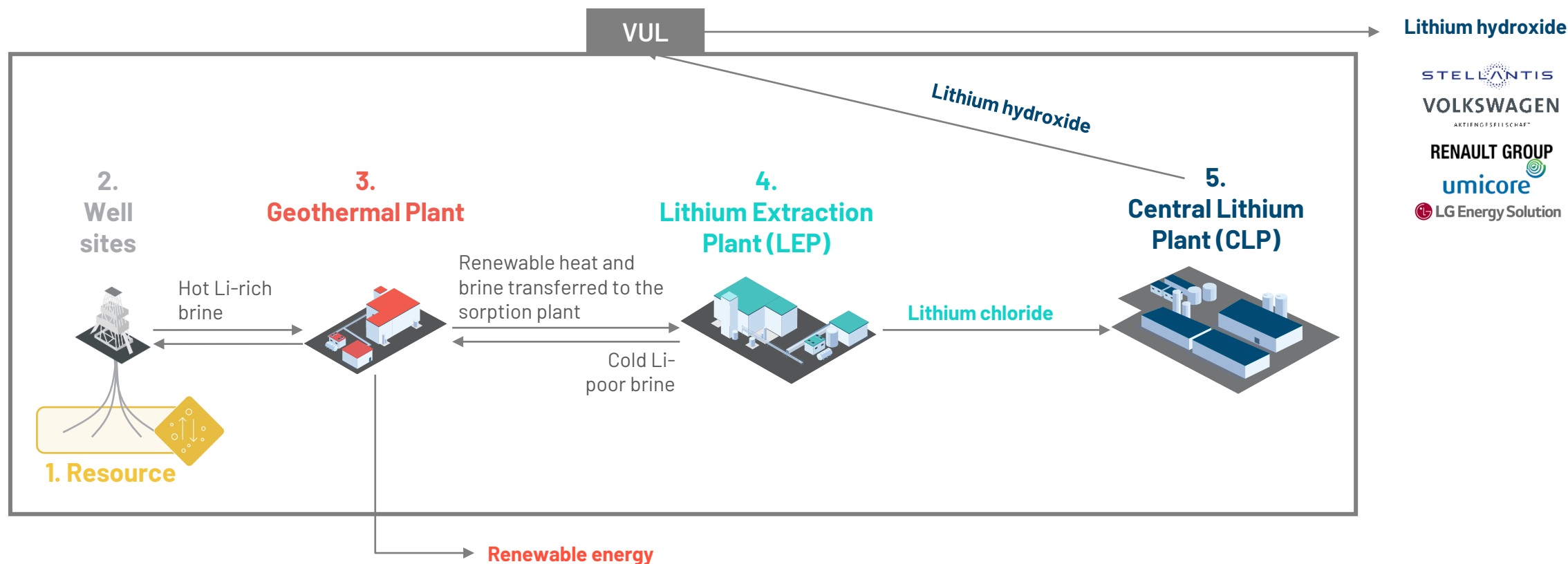


# **ECONOMICS AND FINANCING**





# PHASE ONE PROJECT VALUE FLOWS



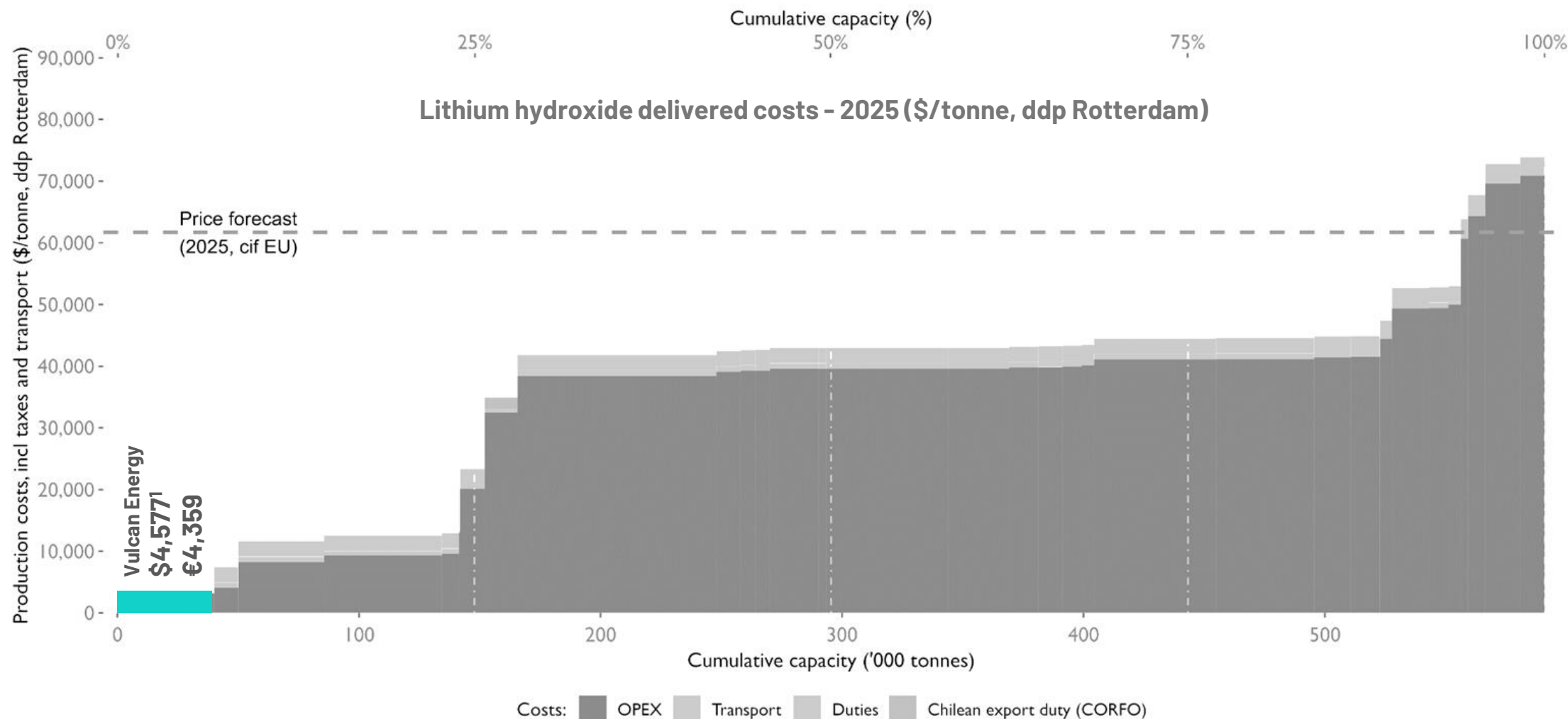
**Upstream** output includes renewable energy and LiCl, the latter which is sold to the CLP.

**Downstream** includes the CLP which converts LiCl into LHM, with a by-product of HCl. LHM will be sold to the Vulcan parent company which will then distribute it to Vulcan's off-takers.



# GLOBAL COST CURVE LHM – PROJECTED 2025<sup>1</sup>

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



<sup>1</sup>Projected cost curve provided by Fastmarkets and Vulcan's OPEX estimate provided by the Company. 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.

# STRATEGIC SUPPLY PARTNER CONTRACTS

- High quality of European-focused offtake partners.
- Average EUR 30,283/t price used by Vulcan over 20-year period, from a basket of fixed, floor-ceiling and fully floating price mechanisms in current offtake agreements, and using future forecast from Fastmarkets.
- Provides assurance 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.

**VOLKSWAGEN**  
GROUP

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

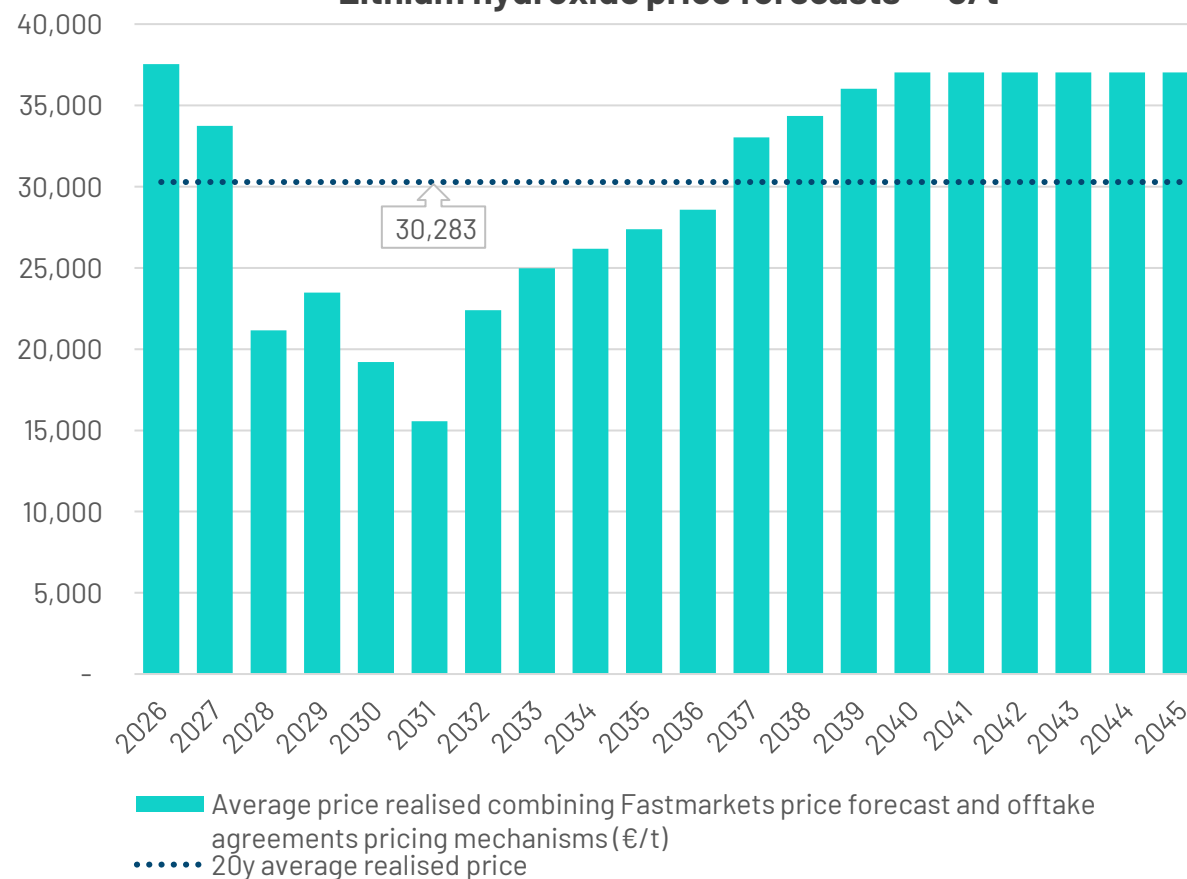
 **LG Energy Solution**

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

**RENAULT GROUP**

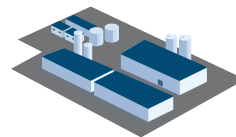
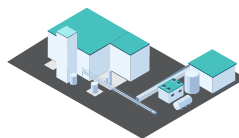
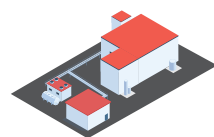
Binding lithium hydroxide offtake agreement, initial 6-year term.

**Lithium hydroxide price forecasts<sup>1</sup> - €/t**



<sup>1</sup>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 agreements which includes price floors and ceilings, fix prices, and price indexed on indexes like Fastmarkets. Therefore, the average realised price forecast varies from the Fastmarkets long term price forecast. The average realised price forecast is taken into consideration in our financial model and is used to underpin forecast revenues. Lithium prices are subject to unpredictable fluctuations, driven in part by changes in the balance of global supply and demand as well as international, economic and geopolitical trends and developments. Any decrease or significant volatility in the price of or demand for lithium could have a detrimental effect on Vulcan Group's business.

# TARGET PROJECT ECONOMICS<sup>1</sup>



Geothermal

LEP

CLP

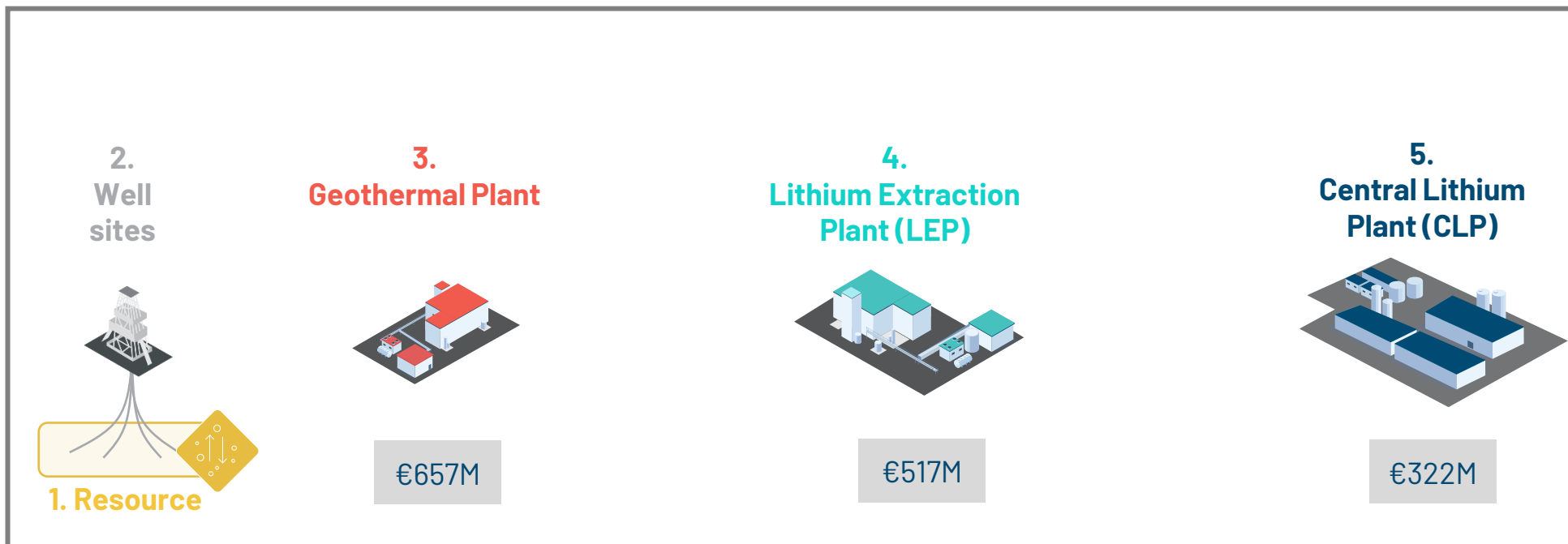
Phase 1

Revenues €/M/a	537	616	704
Net Op. Cash Flow €/M/a	339	104	437
<b>NPV pre-tax m€</b>	<b>3,022</b>	<b>895</b>	<b>3,917</b>
<b>NPV post-tax m€</b>	<b>1,998</b>	<b>572</b>	<b>2,584</b>
<b>IRR before Tax</b>	<b>34.1%</b>	<b>35.5%</b>	<b>34.4%</b>
<b>IRR after Tax</b>	<b>26%</b>	<b>26.1%</b>	<b>26.1%</b>
Payback in years	3.5	3.3	3.3
Total Capex m€	1,174	322	1,496
Geothermal	657		657
LEP	517		517
CLP		322	322
Avg Opex €/t LiOH	2,656	1,704	4,359

<sup>1</sup> Vulcan Energy's DFS. These are targets and may not be achieved. Please refer to the Forward-Looking Statement disclaimer. Notes: Lithium Hydroxide Battery Quality at €30,283/t. Refer to the DFS Presentation of 13 February 2023 for the financial term definitions.



# PHASE ONE PROPOSED FINANCING STRATEGY



Discussions under way for:  
strategic equity investment and government grant support

Debt financing activities for Phase One initiated with BNP Paribas advising, targeting 65:35 debt : equity



- Debt market sounding exercise completed with positive feedback from banks and ECAs.
- Government backed ECAs from France, Italy and Canada have indicated strong support, including “untied” strategic financing from the French ECA, bpifrance.
- Discussions under way for strategic, project level equity investment, as well as government grant support.
- Project-level equity investment, and EU government-backed debt financing, is consistent with Vulcan’s stated funding strategy.
- Value improvement opportunities being assessed as part of bridging engineering phase.

<sup>1</sup>There are no guarantees that Vulcan will be able to raise the funding required for the further implementation of its Zero Carbon Lithium™ Project. For further information please see the risk factors in the DFS Presentation of 13 February 2023.

<sup>2</sup> Based on Vulcan Energy’s DFS. These are targets and may not be achieved. Please refer to the Forward-Looking Statement disclaimer. Estimate Accuracy Based on Design Maturity: SPV Geothermal Est at +/-20%, SPV Lithium Est at +20/-15%. SPV Lithium planned to have the original DFS estimate at Class 3 accuracy (+/-15%), however several value improvements opportunities were identified late in the DFS and sufficient engineering was not able to be completed to achieve Class 3, therefore these opportunities have a lower accuracy than the original estimate, therefore giving an approximate DFS Phase accuracy of (+20/-15%). These opportunities are planned to be developed to the same detail and accuracy as the original estimate in the next phase

# WHY VULCAN?

- ✓ **World-leading product and brand** – carbon neutral, battery-grade lithium chemicals from **Zero Carbon Lithium™** Project
- ✓ **Right place** – located within the EU, fastest growing lithium market in the world
- ✓ **Long-life, sustainable asset, large growth potential** – largest lithium resource in EU<sup>1</sup>, globally significant, ability to grow in modular phases
- ✓ **In-house IP** – VULSORB® lithium sorbent means lithium extraction know-how is an in-house, on-shored in EU asset, using commercial technology
- ✓ **Substantially de-risked** – three years of lithium extraction and piloting testwork completed on producing wells
- ✓ **High quality EU offtakers** – Stellantis, VW, Renault, LG, Umicore, provides support for debt funding
- ✓ **Renewable energy co-product** – provides additional revenue and benefit to local communities
- ✓ **Exceptional team** – in-house team of approx. 300 experienced personnel in development, execution and operations. In-house electric rigs for production well development.
- ✓ **Already a commercial producer** – operating a commercial geothermal renewable plant and wells
- ✓ **Well advanced** – DFS completed for Phase One project, in bridging engineering phase
- ✓ **Well supported** – substantial investors include Stellantis and HPPL. Government ECAs in Europe provided in principle support to financing.

1. According to public, JORC-compliant data.



## LOOKING AHEAD: UPCOMING MILESTONES

- Mechanical completion, start-up and commissioning of LEOP and CLEOP: targeting the first ever tonnes of domestically produced lithium chemicals in EU, a major landmark.
- Acquisition of final critical land for Phase One execution (initial parcels already acquired).
- Complete Bridging Engineering phase, including value improvements since DFS, in advance of securing EPCM contractor for Phase One.
- Formally launch debt and equity financing process for full commercial Phase One build (debt market sounding successfully completed), including strategic equity investment process and formal applications for government and ECA funding assistance.





# SHARE PRICE AND CAPITAL STRUCTURE

## ASX : VUL

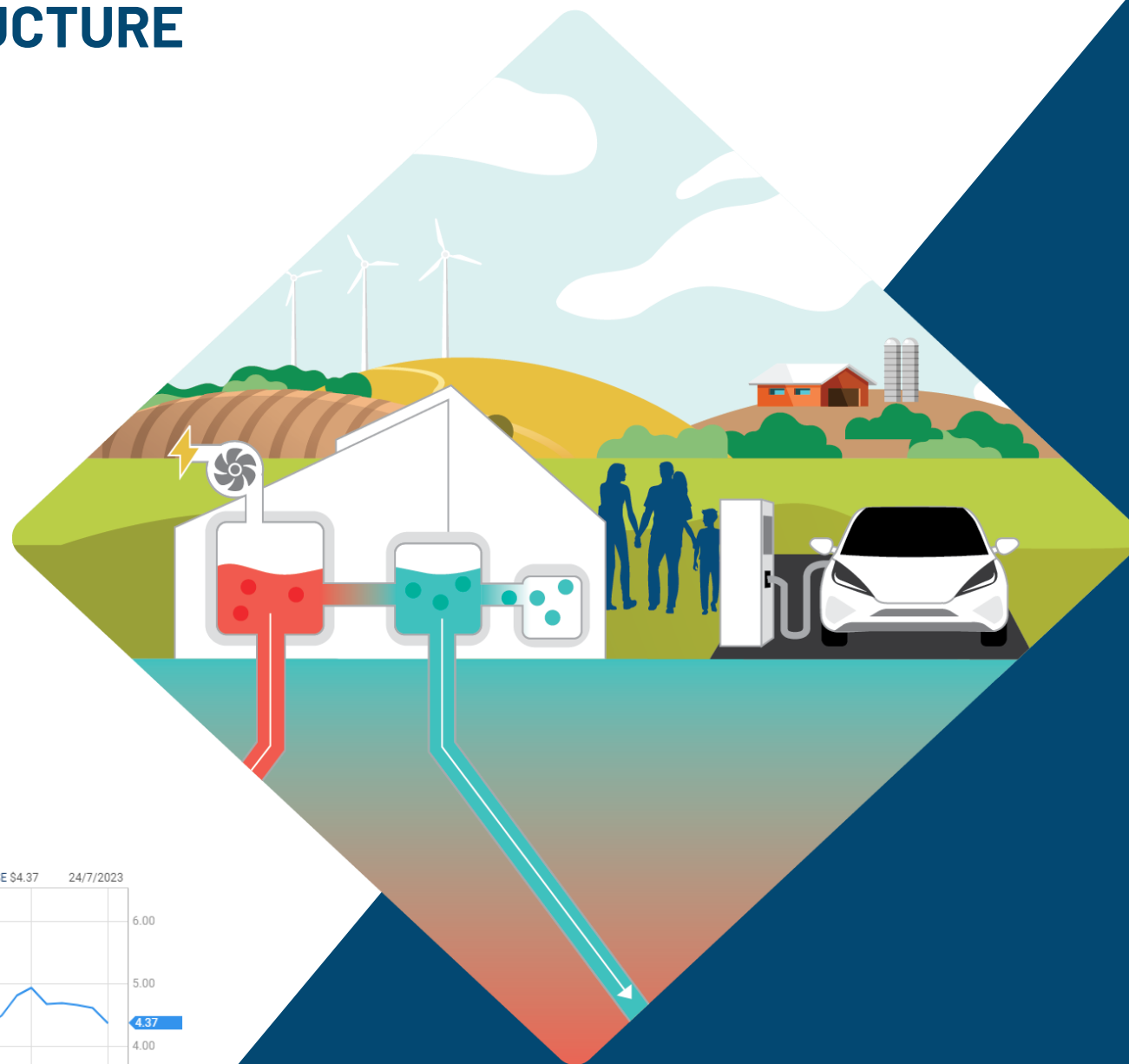
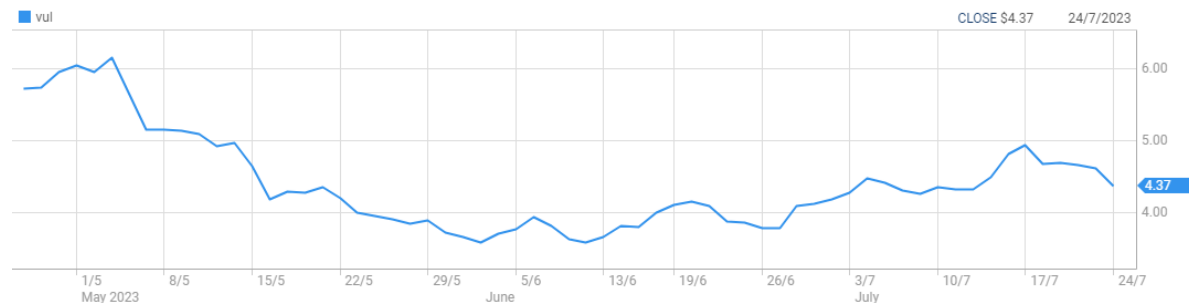
Shares on Issue	167,335,301
Performance Shares	91,174
Performance Rights	6,194,245
Market Capitalisation at \$4.37 (undiluted as at 24 July 2023)	~\$731m
Cash Position (as at 30 June 2023)	~€148m (~\$242m)
Top 20 Shareholders	~64%
Management (undiluted)	~15%

Frankfurt: VUL

## KEY SHAREHOLDERS

Dr. Francis Wedin (9.35%) Dr Wedin and Katy Wedin (0.49%)	9.84%
Stellantis Group (PSA Automobiles)	6.84%
Hancock Prospecting Pty Ltd	5.64%
Vivien Enterprises Pte Ltd	5.16%

## VUL SHARE PRICE (AUD) (MAY – JUL 2023)



# Thank you

Questions?

Contact our media and investor  
relation steam

[IR@v-er.eu](mailto:IR@v-er.eu)

@VulcanEnergyRes | [www.v-er.eu](http://www.v-er.eu) | [info@v-er.eu](mailto:info@v-er.eu)

ASX:VUL

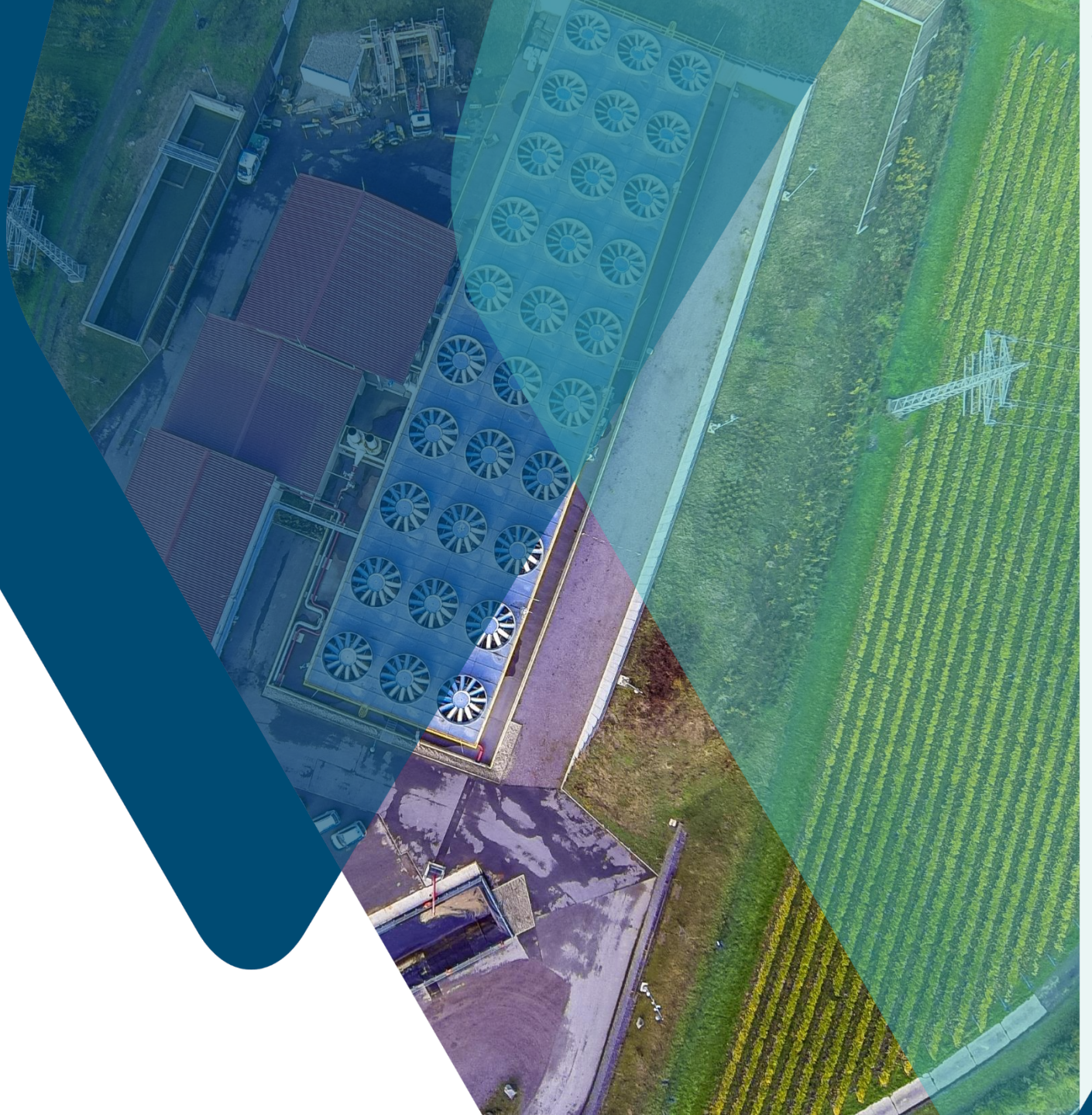
FSE:VUL



ZERO CARBON LITHIUM™ PROJECT



# APPENDICES





# APPENDIX 1: BOARD OF DIRECTORS



**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.



**Dr. Francis Wedin**  
**Executive Chair**

Founder of Vulcan's Zero Carbon Lithium™ 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.



**Gavin Rezos**  
**Deputy Chair**

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



**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.



**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.



**Josephine Bush**  
**Non-Executive Director**

Member of the EY Power and Utilities Board. Led and delivered the EY Global Renewables and Sustainable Business Plan and spearheaded a series of major Renewable Market Transactions. Successfully advised on the first environmental yieldco London Stock Exchange listing, Greencoat UK Wind PLC. Ms. Bush is a Chartered Tax Advisor, holds an MA Law degree from St Catharine's College.



**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.



**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).



**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.

## 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:

- "Vulcan Zero Carbon Lithium™ Project Phase One DFS results and Resources-Reserves Update", released on 13 February 2023.

The above announcement is available to view on Vulcan's website at [www.v-er.eu](http://www.v-er.eu).

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

- 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;
- 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
- 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: 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; 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 licenses 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 3: 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'). This announcement may include certain information relating to the DFS. The DFS is based on the material assumptions outlined in the DFS Announcement (see "Competent Person Statement" below). 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 or that the range of outcomes indicated by the DFS will be achieved. This announcement 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, 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 4

Location	Source	Data kt of LCE/p.a.
<b>China</b>	<a href="https://www.seplite.com/company.html">https://www.seplite.com/company.html</a> <a href="https://www.seetao.com/details/159795.html">https://www.seetao.com/details/159795.html</a> <a href="https://www.seplite.com/sunresin-s-4000t-a-jintai-salt-lake-lithium-extraction-project-put-into-operation.html">https://www.seplite.com/sunresin-s-4000t-a-jintai-salt-lake-lithium-extraction-project-put-into-operation.html</a>	Lanke Lithium 20 kt/p.a. 2017 Minmetals Slat 30 kt/p.a. 2022 Zangge Lithium 20 kt/p.a. 2018 Jewll New Materials 10kt/p.a. 2022 Jintai Lithium 7 kt/p.a. 2019 Guoneng Mining 3 kt/p.a. 2017
<b>Argentina</b>	<a href="https://livent.com/wp-content/uploads/2023/07/Livent_2022_SustainabilityReport_English.pdf">https://livent.com/wp-content/uploads/2023/07/Livent_2022_SustainabilityReport_English.pdf</a> <a href="https://livent.com/wp-content/uploads/2023/06/2023-Livent-Resource-and-Reserve-Report-Salar-del-Hombre-Muerto.pdf">https://livent.com/wp-content/uploads/2023/06/2023-Livent-Resource-and-Reserve-Report-Salar-del-Hombre-Muerto.pdf</a> <a href="https://www.goldmansachs.com/intelligence/pages/gs-research/direct-lithium-extraction/report.pdf">https://www.goldmansachs.com/intelligence/pages/gs-research/direct-lithium-extraction/report.pdf</a> <a href="https://www.riotinto.com/news/releases/2022/Rio-Tinto-completes-acquisition-of-Rincon-lithium-project">https://www.riotinto.com/news/releases/2022/Rio-Tinto-completes-acquisition-of-Rincon-lithium-project</a>	Livent: P1 additional 20 kt/p.a. 2024 P2 additional 30kt/p.a. 2026 P3 additional 30kt/p.a. 2029/30  Eramet 24 kt/p.a. 2024 RioTinto 30 kt/p.a. 2025
<b>USA</b>	<a href="https://www.goldmansachs.com/intelligence/pages/gs-research/direct-lithium-extraction/report.pdf">https://www.goldmansachs.com/intelligence/pages/gs-research/direct-lithium-extraction/report.pdf</a> <a href="https://www.compassminerals.com/what-we-do/lithium">https://www.compassminerals.com/what-we-do/lithium</a>	CompassMinerals ramp up 2025-2026 to 35kt/p.a. P1 11kt/p.a. P1 28kt/p.a. LHM
<b>EU</b>	<a href="https://www.investi.com.au/api/announcements/vul/e617fca6-6d4.pdf">https://www.investi.com.au/api/announcements/vul/e617fca6-6d4.pdf</a>	Vulcan Energy Ltd. P1 24kt/p.a. 2026 P2 additional 24kt/p.a. 2028