



**GEOLITH**

SUSTAINABLE LITHIUM



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# Summary

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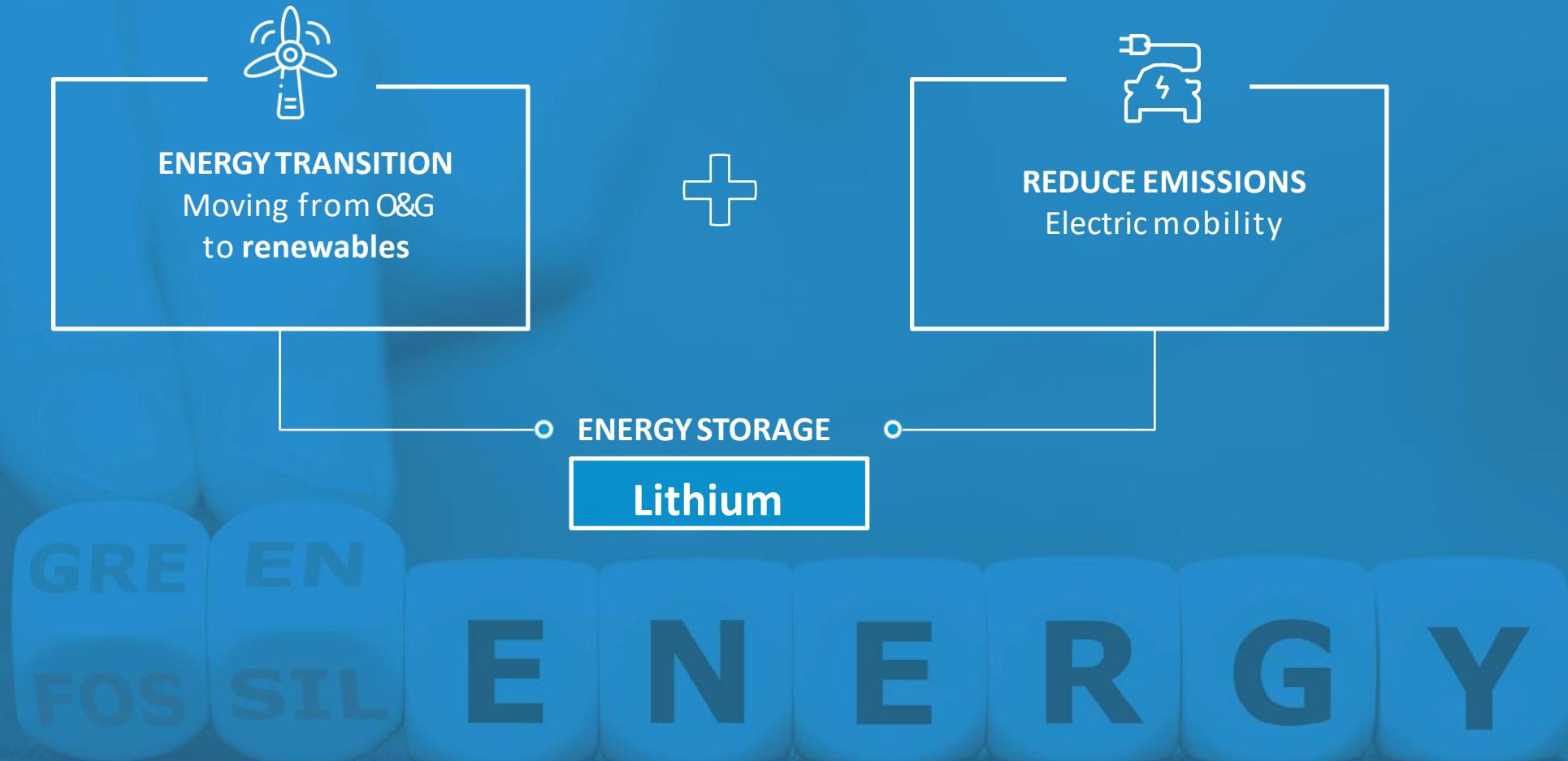


# 01

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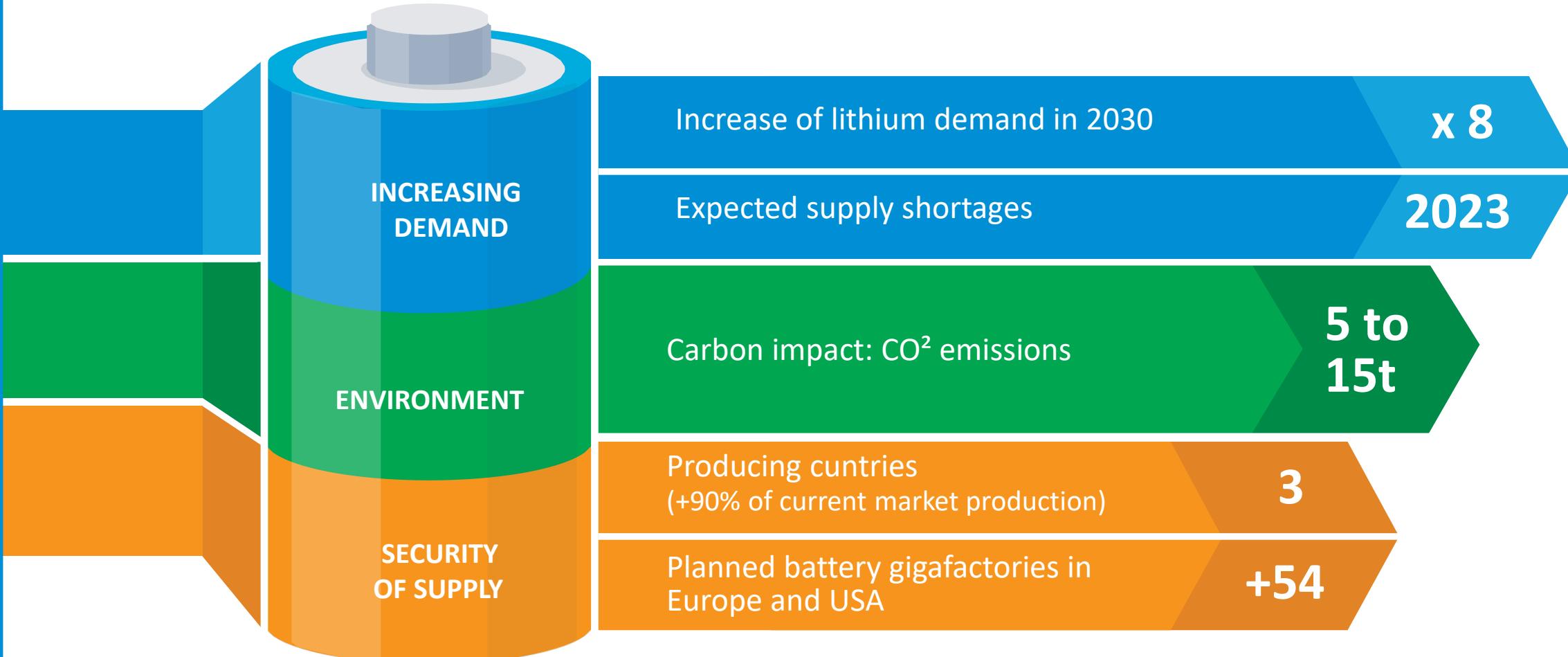
## & Stakes & Challenges

# Lithium is critical to mitigate climate change



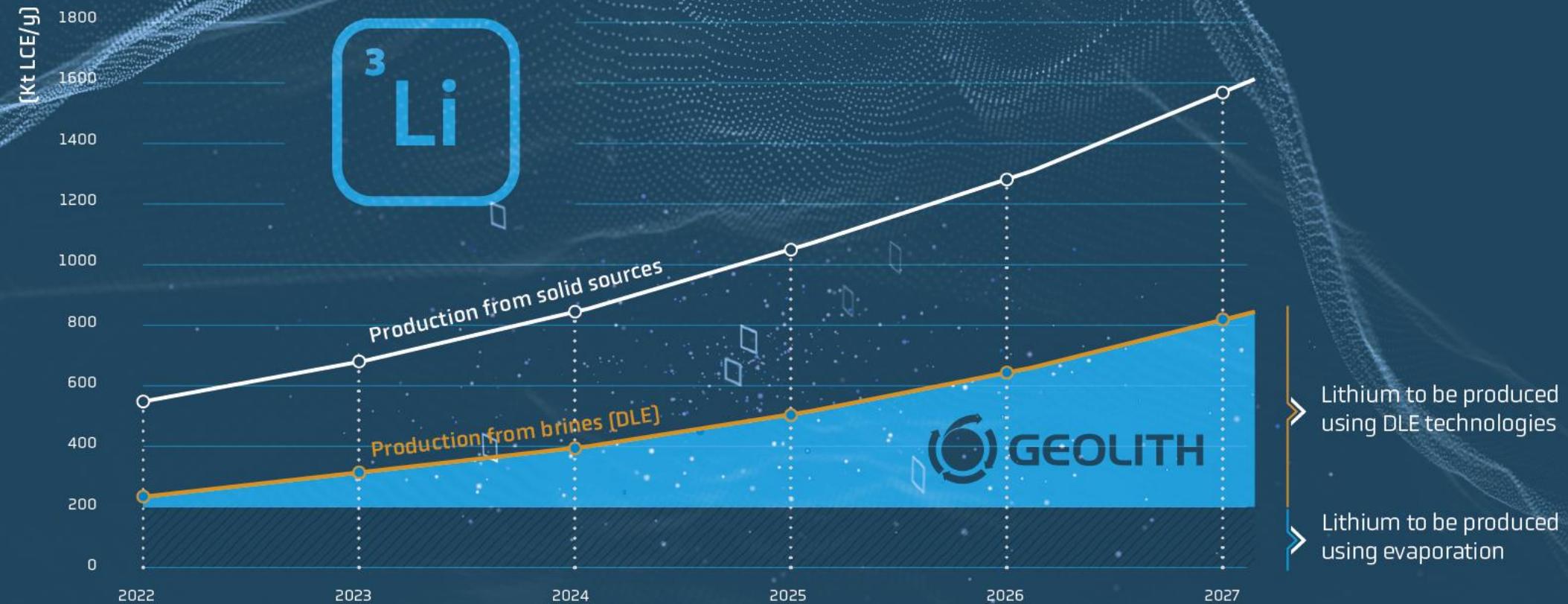
# Lithium market challenges

Current production is **unable to meet the energy transition needs**



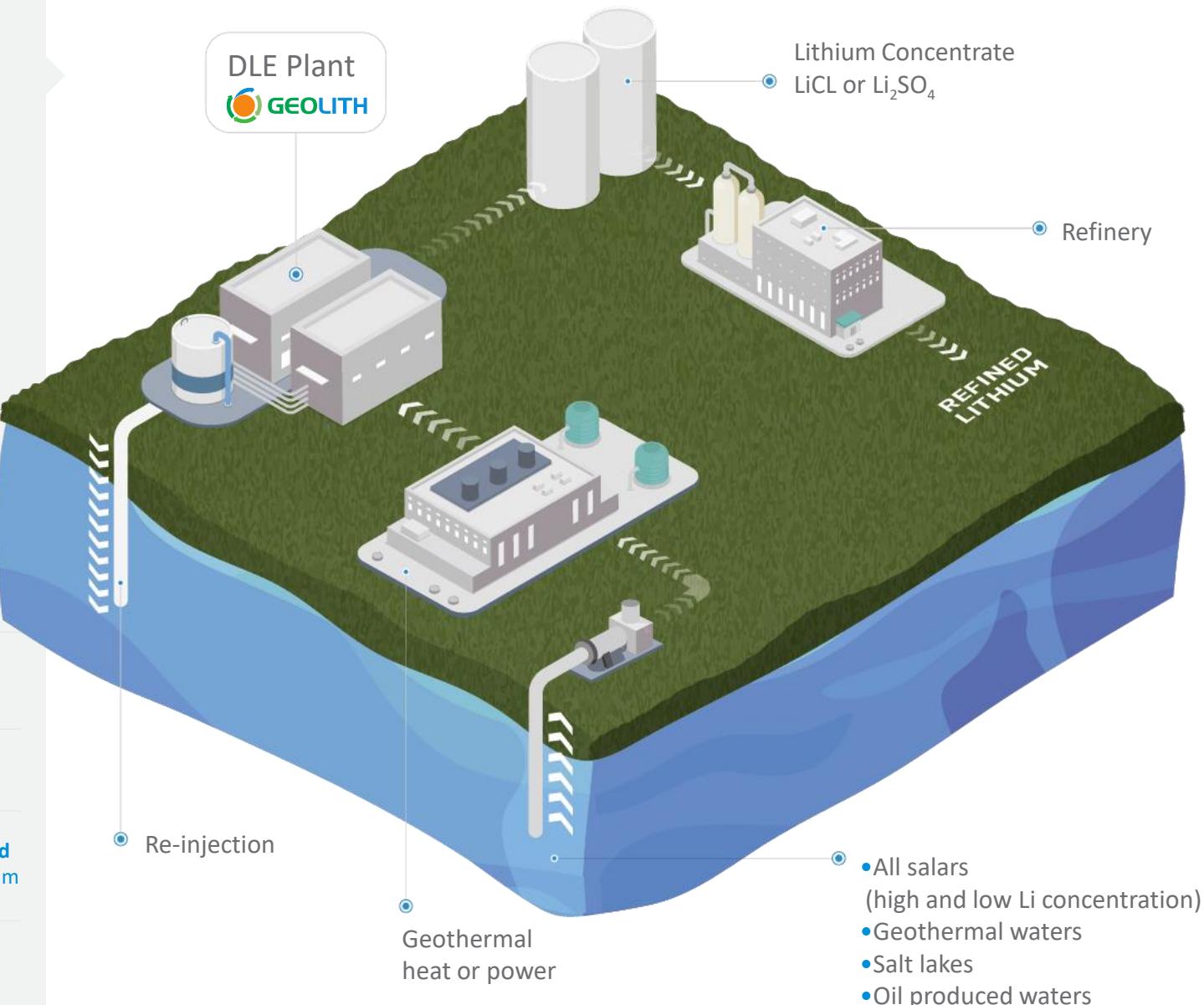
# Exponential growth of lithium demand

Driving an exponential increase of production from conventional and non-conventional sources

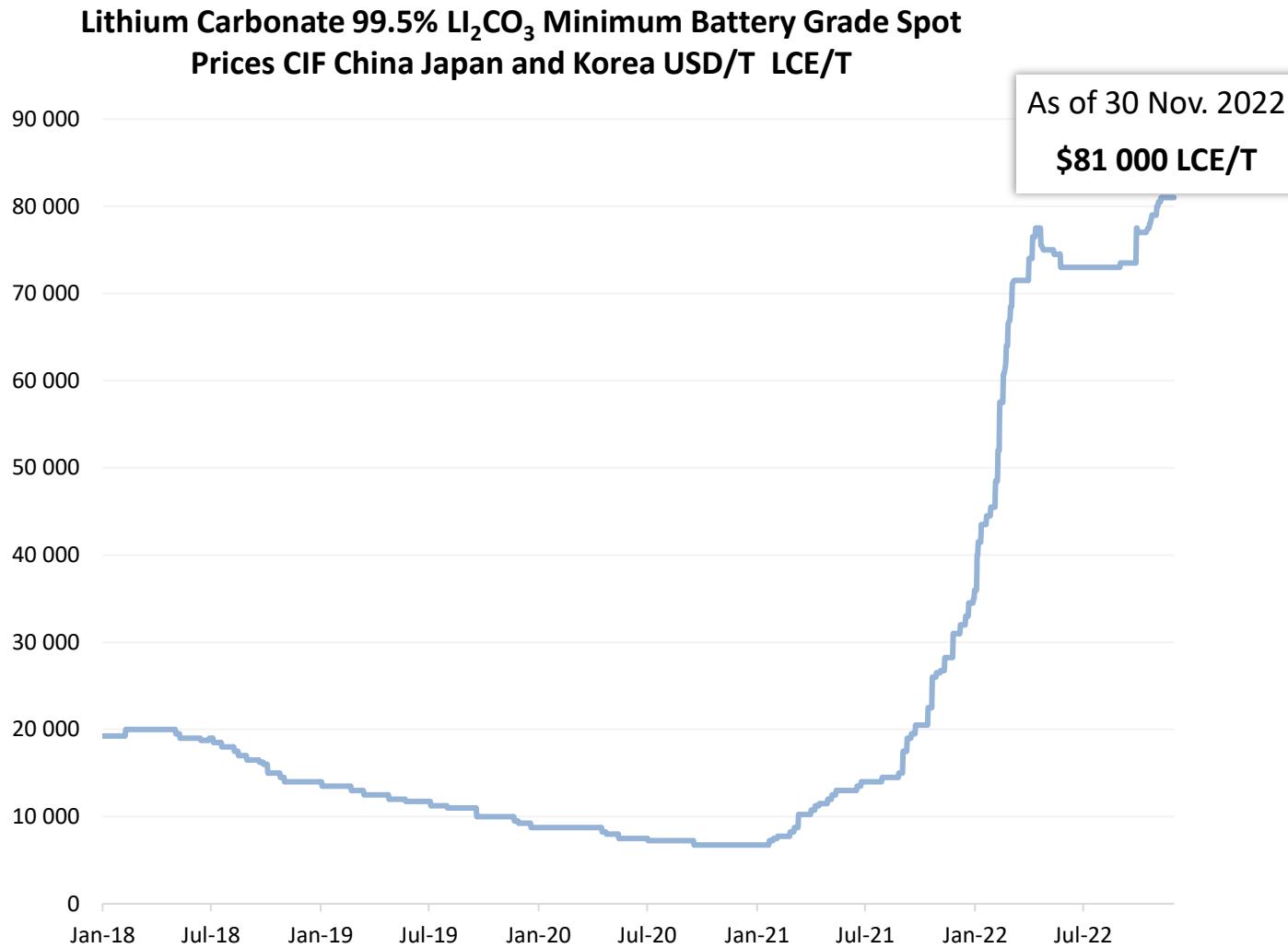


# DLE Sustainable lithium production from local sources disrupting dependence on centralised supply

	Traditional process	GEOLITH's Li-Capt®
<b>Efficiency</b>	20 to 40% lithium capture, and high water losses through evaporation	>90% lithium capture, allowing to source new sustainable brines
<b>CO<sub>2</sub> emissions</b>	5 tCO <sub>2</sub> from brine production 15 tCO <sub>2</sub> from hard rock production	< 1 tCO <sub>2</sub> emissions
<b>Waste production</b>	Intensive use of chemicals and consumables	Zero waste, low use of chemicals & recycling of consumables
<b>Production time</b>	2 years from source to commercial product	4 Hours cycle, from source to commercial product
<b>Respect of water resources</b>	Water losses in arid regions (lithium triangle in the Andes)	Water is returned unpolluted to the source once the lithium is captured



# GEOLITH's DLE technology a cost competitive technology



Source: Fastmarkets MB



Lithium extracted with GEOLITH's technology is expected to correspond to c.USD 10K of opex per t LCE, including:

- DLE opex: c.USD 3k per t LCE
- Auxiliary opex (HR, maintenance, etc. ): c.USD 2k per t LCE
- Refining: c.USD 5k per t LCE

This total opex level per tLCE corresponds to opex ranges of other types of production of existing sites, estimated at USD5 to 15k

# GEOLITH is committed to deliver positive social & environmental impact

## 4 SDGs directly targeted by GEOLITH:



Clean water & sanitation



- Avoid depleting underground water reservoirs



Industry, innovation & infrastructure



- Innovative solution developed through R&D
- Reduced land footprint than current infrastructures
- Reduced use of chemicals and hazardous products



Responsible consumption & production



- Zero waste during the lifetime of the product
- Enables local production of lithium
- Enhances battery sustainable supply chain for EV
- Extension of assets lifetime
- Applicable to battery recycling



Climate action

## 2 SDGs indirectly addressed :

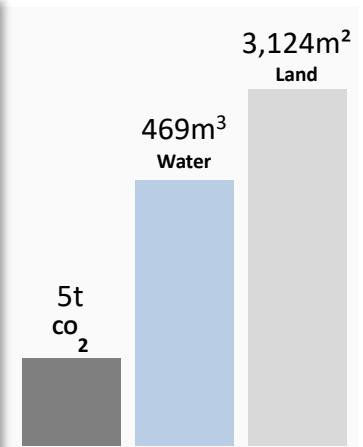
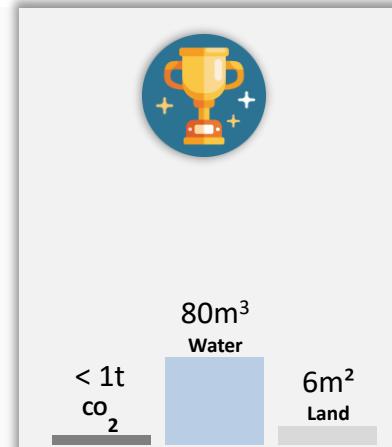
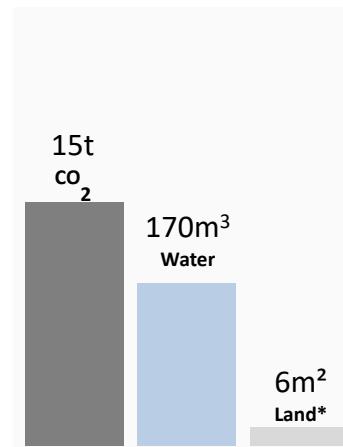


Gender equality



Decent work & economic growth

## Environmental footprint per ton of lithium hydroxide



\* Land needed for LCE treatment, excluding surface of mining sites



# 4 major sectors for GEOLITH

Producing lithium from new sources gives access to **four new markets**

## OIL & GAS

Add value to existing assets:

- Turn a cost (wastewater associated to oil production) into a revenue
- Extend lifetime of the assets
- Major source of lithium, already available

**1 000 to 100 000 t LCE/y Projects\***



## SALARIS

- Access to new resources, not economical with current technology
- Environmental Impact reduction

**10 000 to 50 000 t LCE/y projects\***

\*LCE = Lithium Carbonate Equivalent

Value of lithium greater than associated electricity or heat:

- Use of renewable energy: negative CO<sub>2</sub> emissions
- Local production in Europe
- Great untapped resources

**1 000 to 3 000 t LCE/y projects\***



## GEO THERMAL

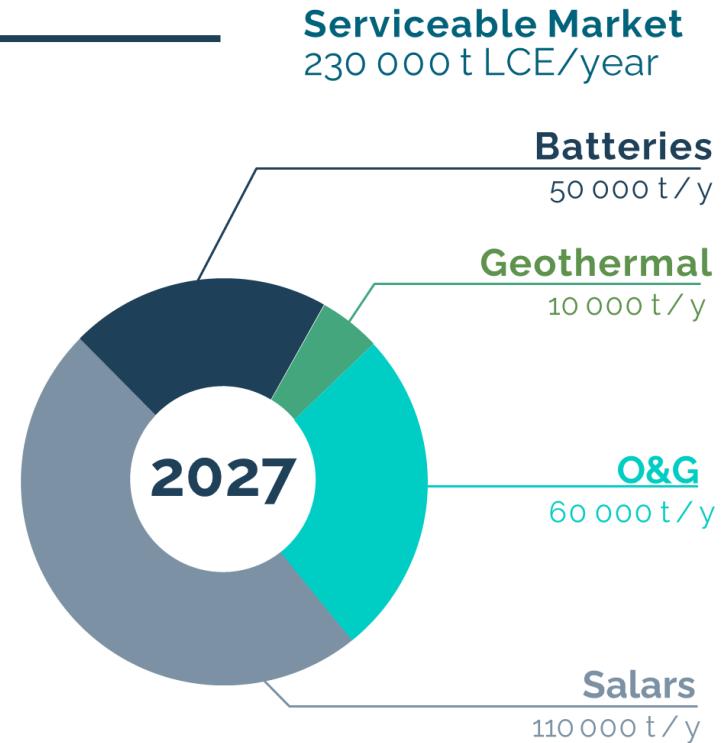
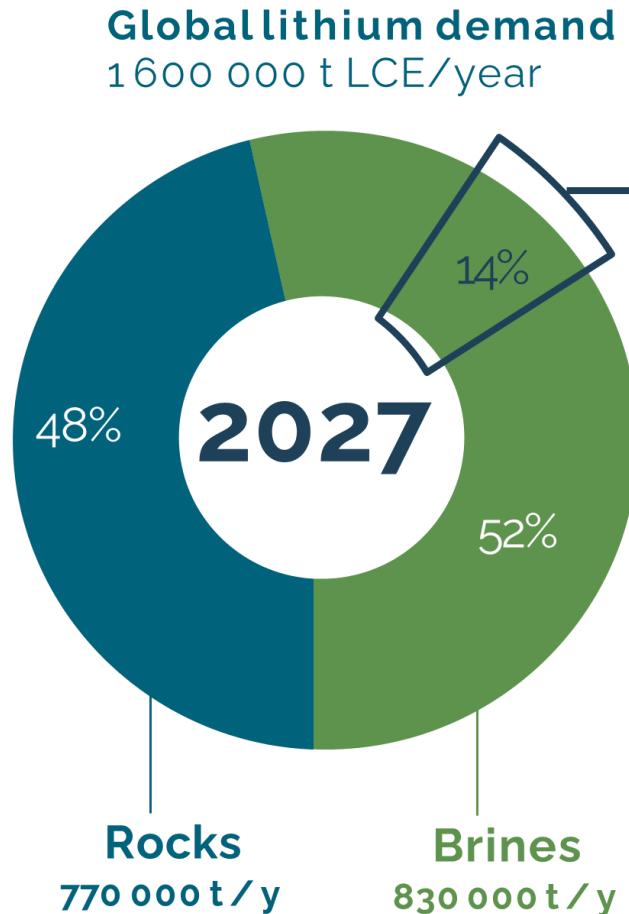
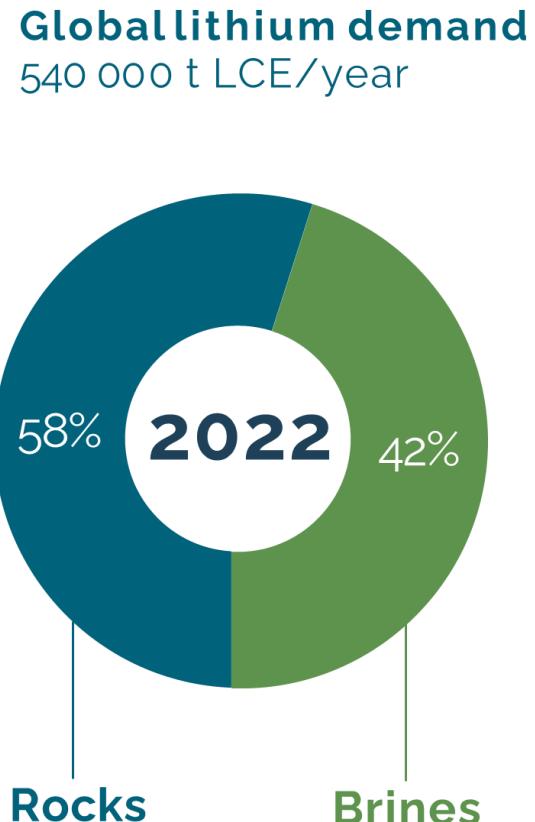
## BATTERIES



Valorization of production scrabs  
Many new Gigafactories worldwide

- Recycling production wastes # up to 10%
- Competitive Production Costs
- 50 GW battery factory # 25 000 t LCE/y

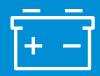
# An addressable market representing several billion USD/year



# GEOLITH target clients: Operators of lithium-rich resources



Geothermal operators



Battery manufacturers



Mining companies (salars)



Oil & gas producers



A substantial income source from a by-product to accelerate the development of these renewable energies

Recycling lithium from batteries to minimize wastes

To increase production performance, minimize environmental impact, and allow development of new resources

To turn an Environmental cost into Business opportunity – the path to Energy Transition



Cornish Lithium



Lithium de France  
GEOHERMAL



ExxonMobil



MOL GROUP

# GEOLITH's main recent references

## Semi-industrial demonstrator (04/2022)

**CLIENT:** Cornish Lithium Ltd.  
Geothermal brines

### GEOLITH's Supply:

- 6 Li-Capt® cartridges
- Automation and control system

### Capacity:

- 6 cartridges of 140 l each
- Flowrate : 500 l/h
- Continuous operation
- Output: LiCl / Li<sub>2</sub>SO<sub>4</sub>

## Salar pilot plant (07/2022) Universidad de Antofagasta (Chile)

- 6 Li-Capt® cartridges
- Automation and control system
- Brine pre-treatment unit
- Reagent dosing and circulation

### Capacity:

- 6 reactors of 16 l each
- Flowrate : 100 l/h
- Continuous operation
- Output: LiCl / Li<sub>2</sub>SO<sub>4</sub>



## Headquarters & workshop

Lab to test the different brine samples and cartridge cyclability

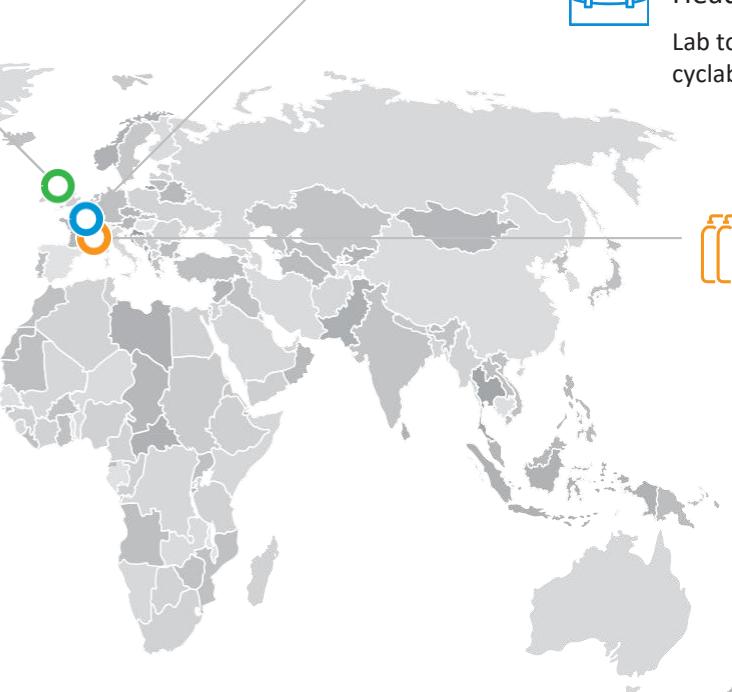


## Geothermal pilot plant (2021)

- One cartridge with 4L capacity
- Designed to withstand high pressure and temperature
- Batch production
- Installed in transportable container
- Output: LiCl / Li<sub>2</sub>SO<sub>4</sub>

### Operations performed:

- > Client undisclosed 1 (France)
- > Client undisclosed 2 (France)
- > Cornish Lithium (UK)
- > EnBW (Germany)



"We are delighted to announce that GeoCubed has selected GeoLith's Li-Capt® technology for use in this Pilot Plant. We have established a good working relationship with the team at GeoLith, who provided a demonstration plant, along with their operations team, to enable us to test their DLE technology on our shallow geothermal water samples in June. **This test work provided excellent results and we look forward to working with them**" – Jeremy Wrathall, founder of Cornish Lithium and Director of GeoCubed.

## Case study:

# CORNISH LITHIUM

Cornish Lithium is an eco-technology company focused on mineral exploration and development for the environmentally sustainable extraction of lithium in the historic mining district of Cornwall, UK.



**February 2021**

Bench tests

**June 2021**

Pilot tests with GEOLITH geothermal pilot

**August 2021**

Dedicated pilot sold  
to Geo3: Cornish Lithium (CLL)  
+ Geothermal Engineering Limited (GEL)

1. Pilot Plant (10 t LCE/y)



**December 2021**

Pilot sent to EPC yard for  
integration (photo 1)

**May 2022**

EOI by GEL for a plant 350 t/y to  
be commissioned  
by end of 2023

**April 2022**

Geo3 pilot commissioned (photo 2)

**June 2022**

Tender by Cornish Lithium  
for a 150 t LCE/y demonstration plant to  
be commissioned early 2024

**Q2 2023\***

Contract award

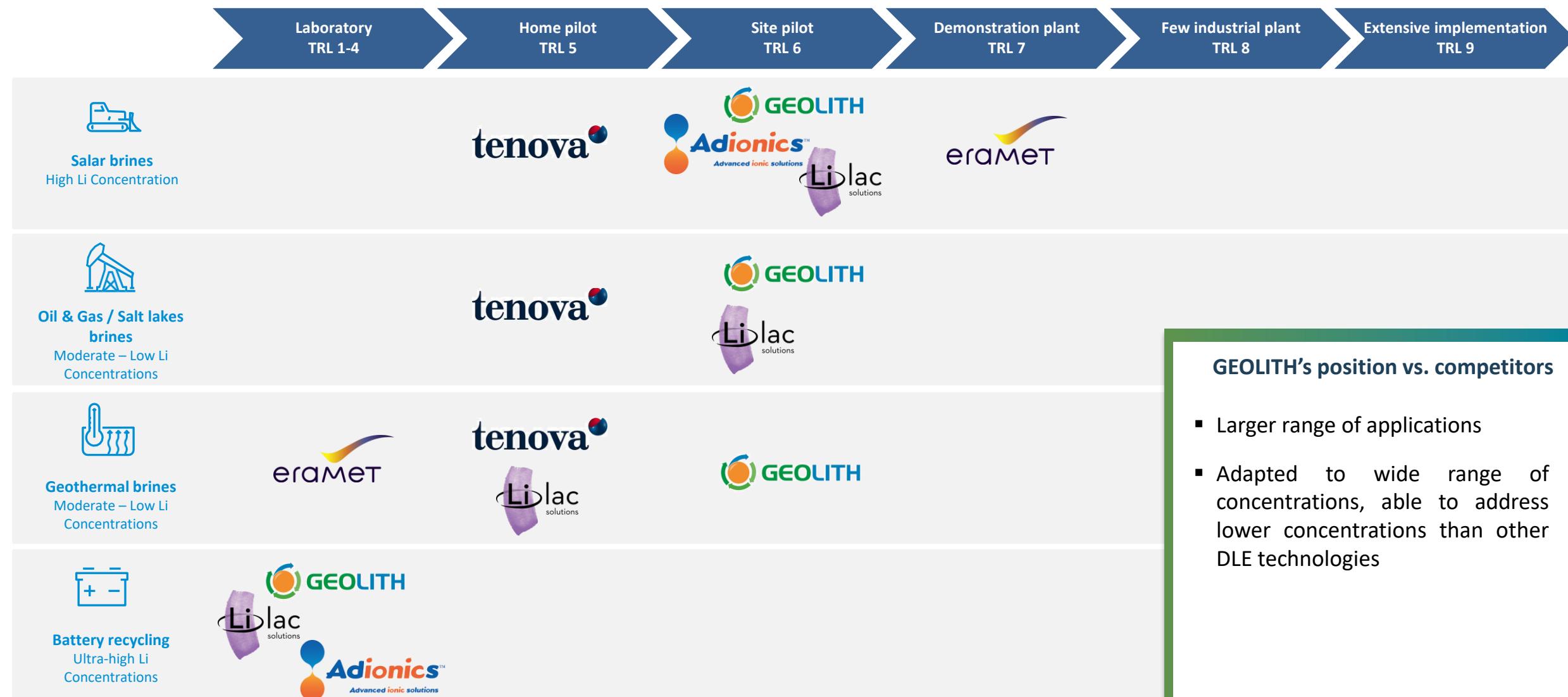
**End 2024\***

Demonstration plant  
commissioned

\*Expected

\*Expected

# Competition on DLE: Different technologies for different use cases



## GEOLITH's position vs. competitors

- Larger range of applications
- Adapted to wide range of concentrations, able to address lower concentrations than other DLE technologies



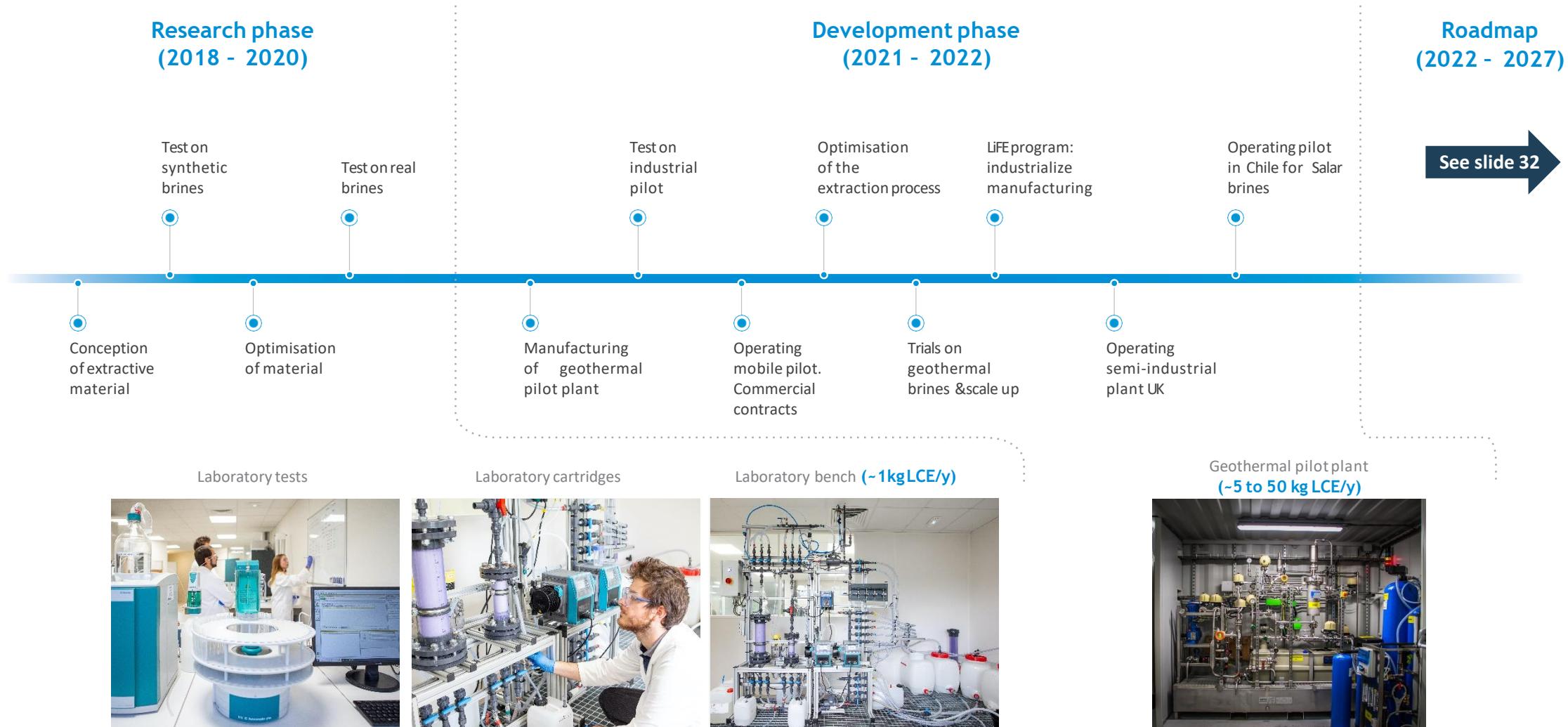
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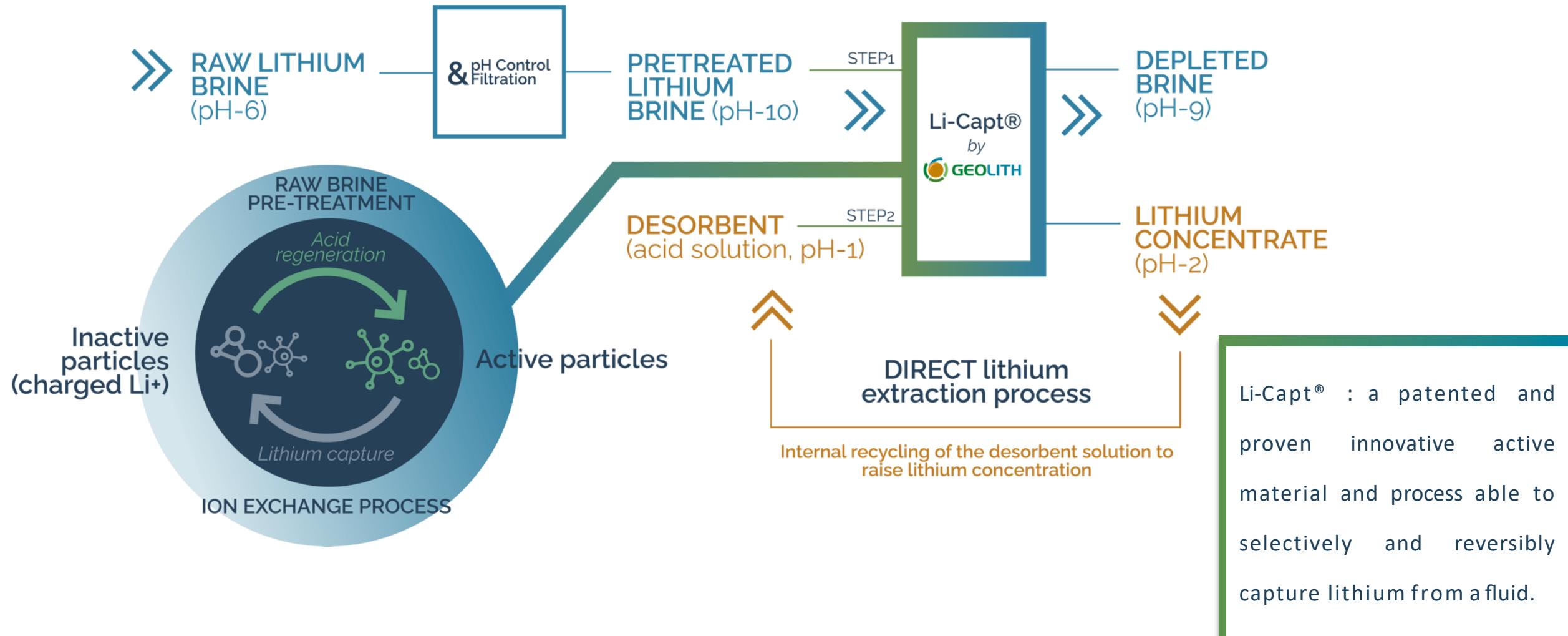
GEOLITH

# Market traction: three pilots in two years

Customer's interest has driven our industrial scale-up, by piloting in Europe and Chile

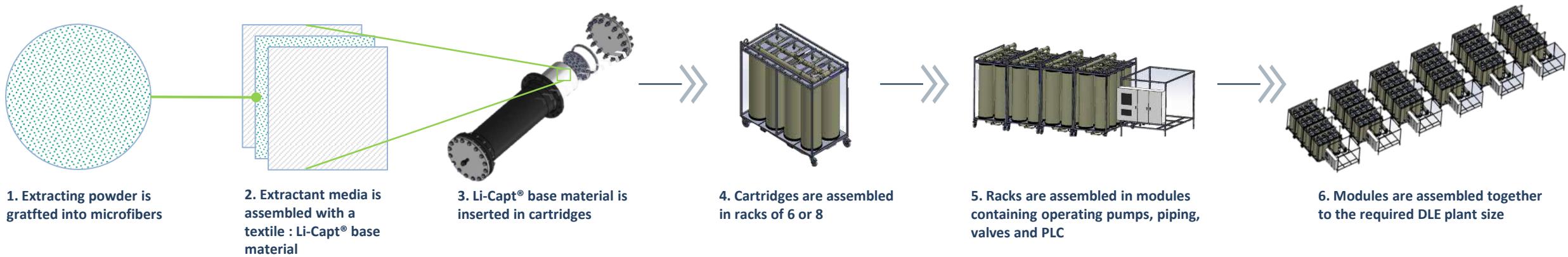


# GEOLITH's Solution: GEOLITH Li-Capt® DLE process and filters



# GEOLITH's Solution: an innovative DLE technology enabling local and sustainable production of lithium

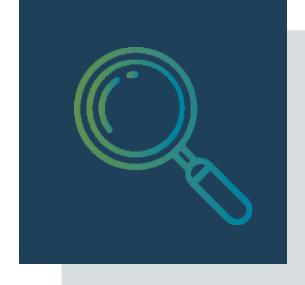
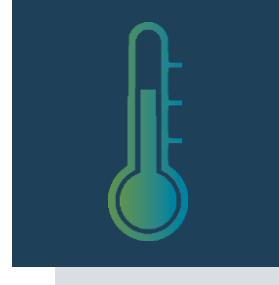
**Li-Capt® DLE technology assembles to the required production size thanks to an innovative modular approach:**



- The active material (based on Titanium nanoparticles), **patented by GEOLITH** is able to capture lithium from any liquid
- The technology acts as a « filter » : fluid run through the cartridges, and the active material **selective captures Lithium ions**. The rest of the fluid is returned to the natural resource **without any environmental impact**
- The modular design provides **substantial scalability** and great advantages to our clients (operation, maintenance, easy capacity increase). Limited need of energy on site for the processing

# GEOLITH's Positioning: focusing on various use cases as its technology applies to a wide range of assets

## Adapted to the industrial needs



### Modularity

Allows scalability at clients speed, without need of re-engineering or temporary construction works. Allows for easy operation and maintenance in remote industrial sites

### Able to operate at high temperatures

Avoids the need for cooling systems, being very suitable for geothermal applications. Tested at over 80°C

### Able to operate at high pressure

Being very suitable for geothermal applications. Tested at over 40 bars

### Continuous production

Facilities can work 24/7, the technology captures and releases lithium automatically

### Lowest brine concentration

Li-Capt® has proved lithium extraction over 90% in the lowest concentrated brines (less than 20ppm of lithium)



# 04

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## GEOLITH's Organisation

# GEOLITH led by sector experts and supported by a multi-disciplinary technical & commercial team



**Jean-Philippe Gibaud**  
Founder & CEO

- 40+ years international experience - O&G and mining
- General delegate of AFPG - Li cluster
- Former COO of COFOR Drilling
- Former experience : Schlumberger, VALE, SUEZ, Bechtel



**Didier Muschalle**  
COO

- 40+ years of industry experience
- Managing director
- Former director INEO/ENGIE
- GEOLITH since 2017



**Pedro Ruiz**  
CCO

- 10 years of international Business Development: Elecnor, Technip, EDF, Engie
- MBA from IESEG Paris
- Engineering degree from Universidad Politécnica de Madrid



**Arnaud Poirel**  
PhD, R&D Manager

- 10 years R&D experience
- PhD in chemistry



**Jeremy Monnet**  
CFO

- 15 years of experience
- Associate partner myCFO
- Finance Master's Degree IAE Grenoble
- Former Manager EY France & Hong Kong



Engineers

8



Technicians

7



Business

2



Other positions

3

Team of 20 persons  
based on 2 locations



**Orsay (HQ, testing & R&D)**

- 12 people

**Haguenau (prototyping)**

- 8 people

# Team supported by experienced board members and partners

## STRATEGIC BOARD



**Franck BOGET** – Board director at Azulis Capital



**Dominique BOUVIER** – former CEO Entrepose and EVOLEN

Julius Bär **Philippe DEGREMONT** – private fund manager at Julius Baer



**Jean Georges MALCOR** – former CEO CGG



**Mathieu BAILLY** – CEO EURODIA

## STRATEGIC PARTNERS



bpiFrance



Shareholder, market & technological synergies

Manufacturer of Li-Capt® base material



Research & innovation

## SCIENTIFIC BOARD



**Philippe GISLETTE** – former scientific director at SUEZ



**Patrice GUGUIN** – former head of desalination at SUEZ



**Philippe HOCQUET** – former manager at SCHLUMBERGER

# GEOLITH powered by the strength of a multi-disciplinar supportive ecosystem

## ACADEMIC PARTNERS



## INDUSTRIAL PARTNERS



## INSTITUTIONAL PARTNERS



An aerial photograph of a massive solar farm at sunset. The panels are arranged in a grid pattern, stretching across the frame. The sky above is a vibrant orange and blue, with the sun low on the horizon. In the distance, a range of mountains is visible under the colorful sky.

05

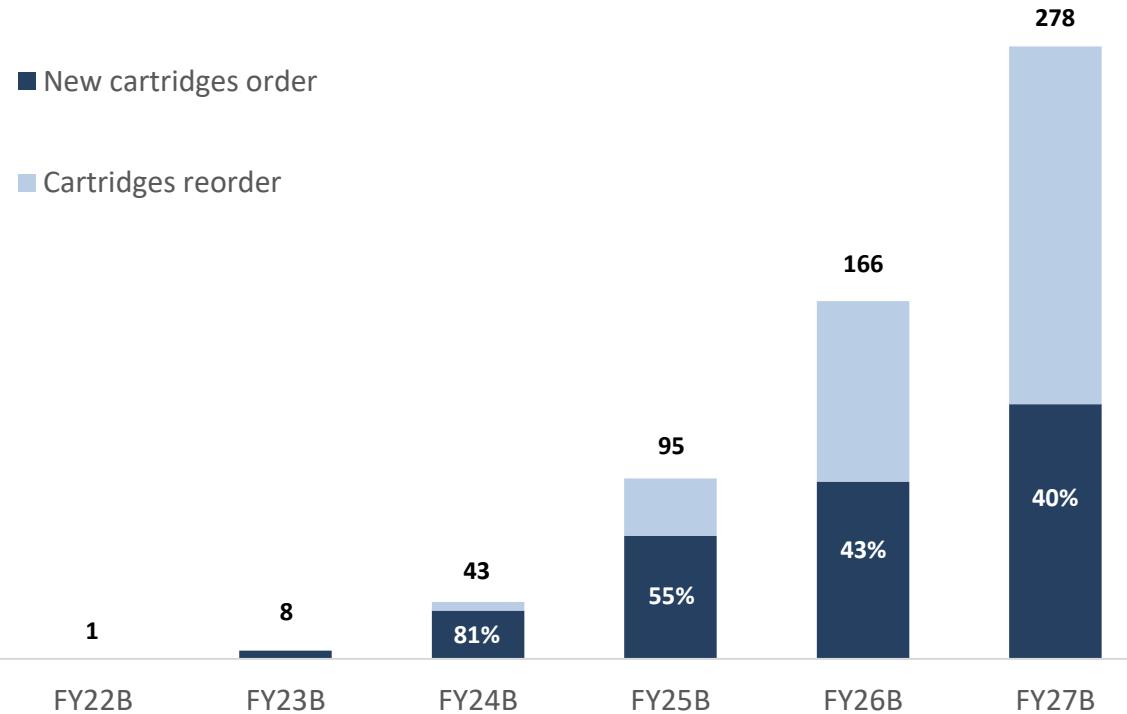
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## Financial Elements

# Business Model: Total orders forecast & manufacturing capacity



## A recurrent business model (€M) :



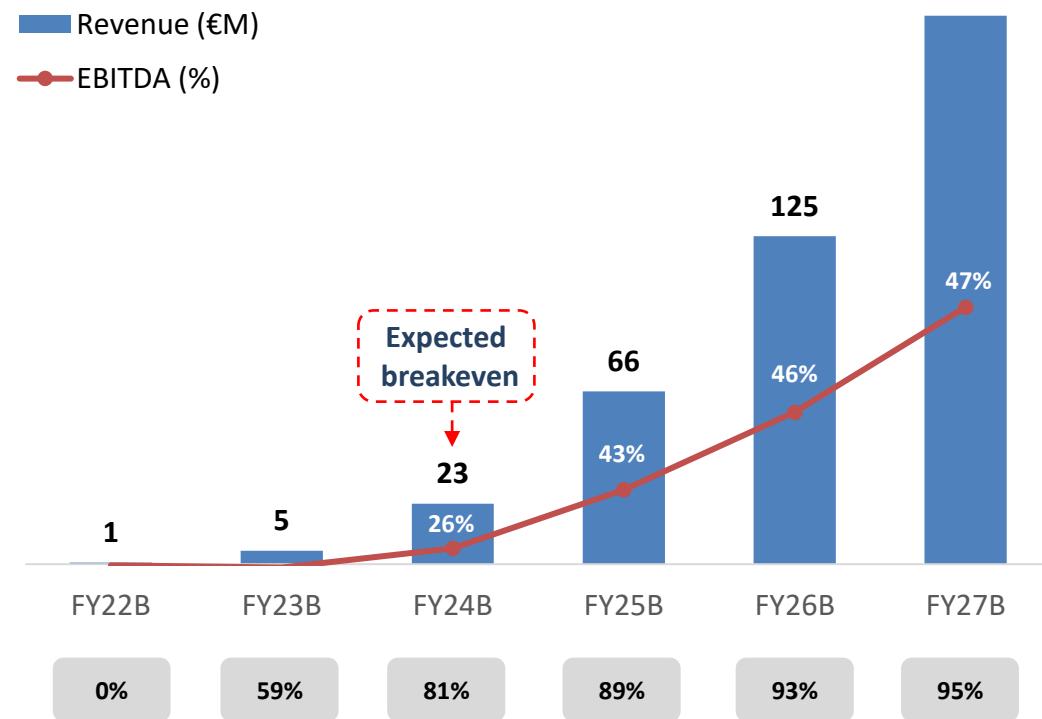
### Technology provider with recurrent orders of Li-Capt®

- Upfront equipment sale
- Recurring revenues from filter replacement
- Circular economy : recycling of used Li-Capt® material
- Opens business opportunities to partners

# Business Model: Sustained growth driven by lithium producers from alternative sources



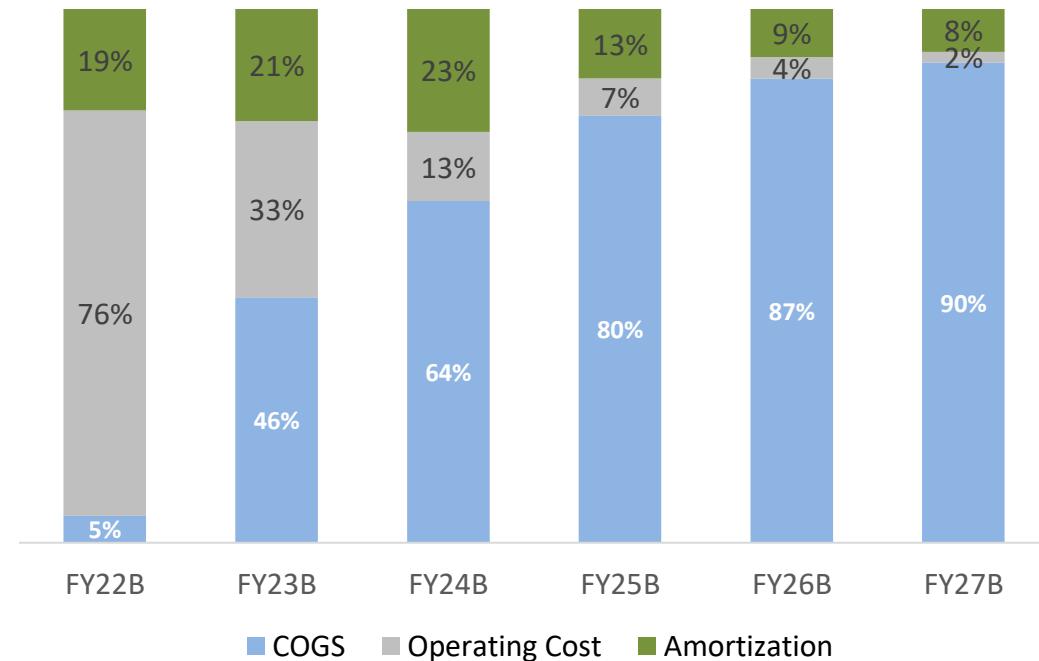
## A strong growth and profitability (€M) :



Superior value proposition to ensure profitable growth

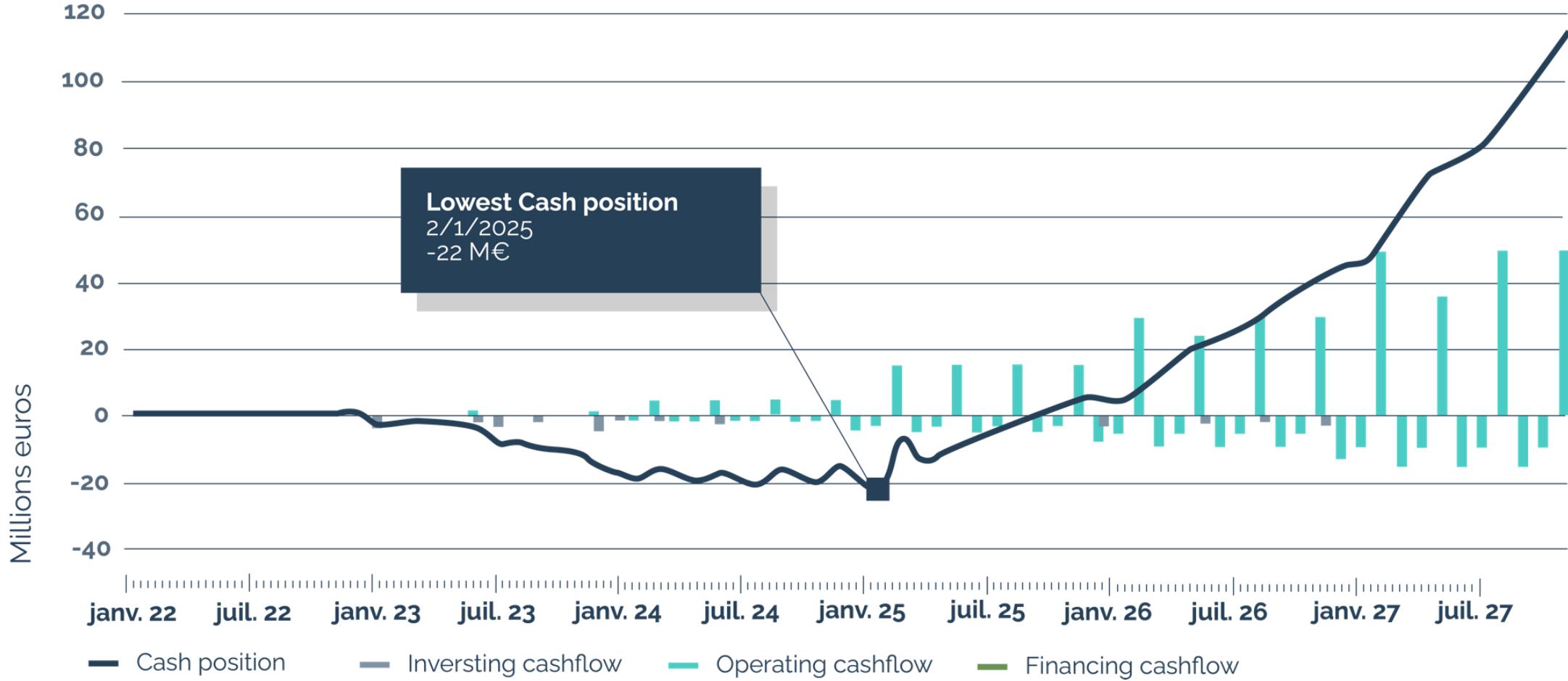


## Evolution of operating costs



An asset light profile with variabilised cost structure

# Cash-flow forecast: steady increase after initial investments in manufacturing facilities





06

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## Fundraising

# Roadmap: from Successful Pilots to Scale



2022

2023/24

2025/27

## Pilots & first demonstration plants

### Fundraising



Demonstration plant  
(~5 to 50 t LCE/y)



## Scale production

- Filter Manufacturing plant
- First full scale lithium plants
- Open legal entities in US and Chile
- Develop business in all 4 markets (Salars, O&G, GeoT, Batteries)

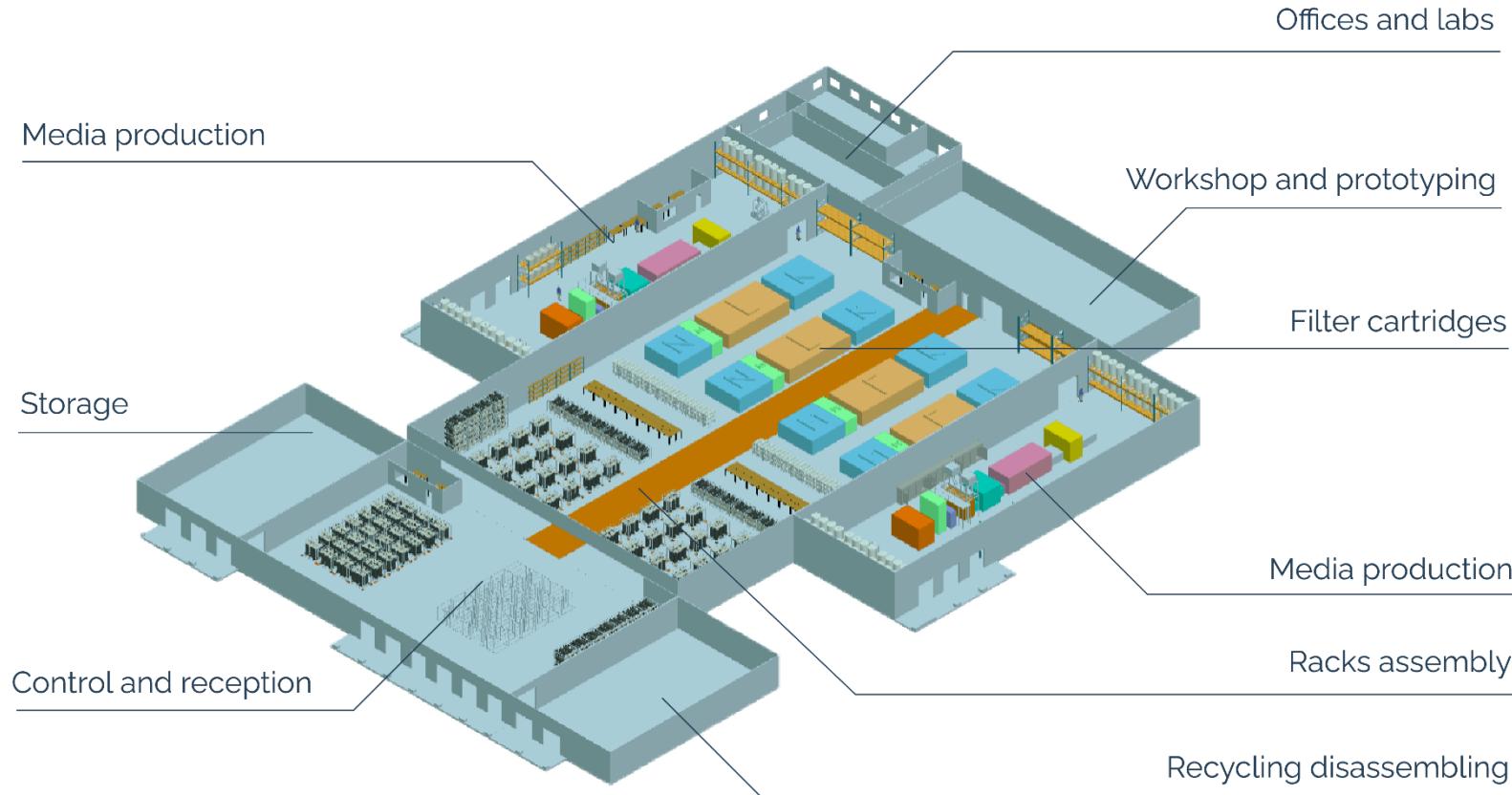


## Scale-up

- Deploy worldwide full lithium treatment capacity
- Open legal entities in other countries (Argentina, ...)
- Other manufacturing sites

# €19M for the 1<sup>st</sup> Li-Capt DLE filter factory in the world

A tangible, realistic project



## A modular production plant:

Phased installation



Capacity:

2024 ➤ 6,000 Li-Capt® filters per year

2027 ➤ 36,000 Li-Capt® filters per year (# 100 000 t LCE/y)

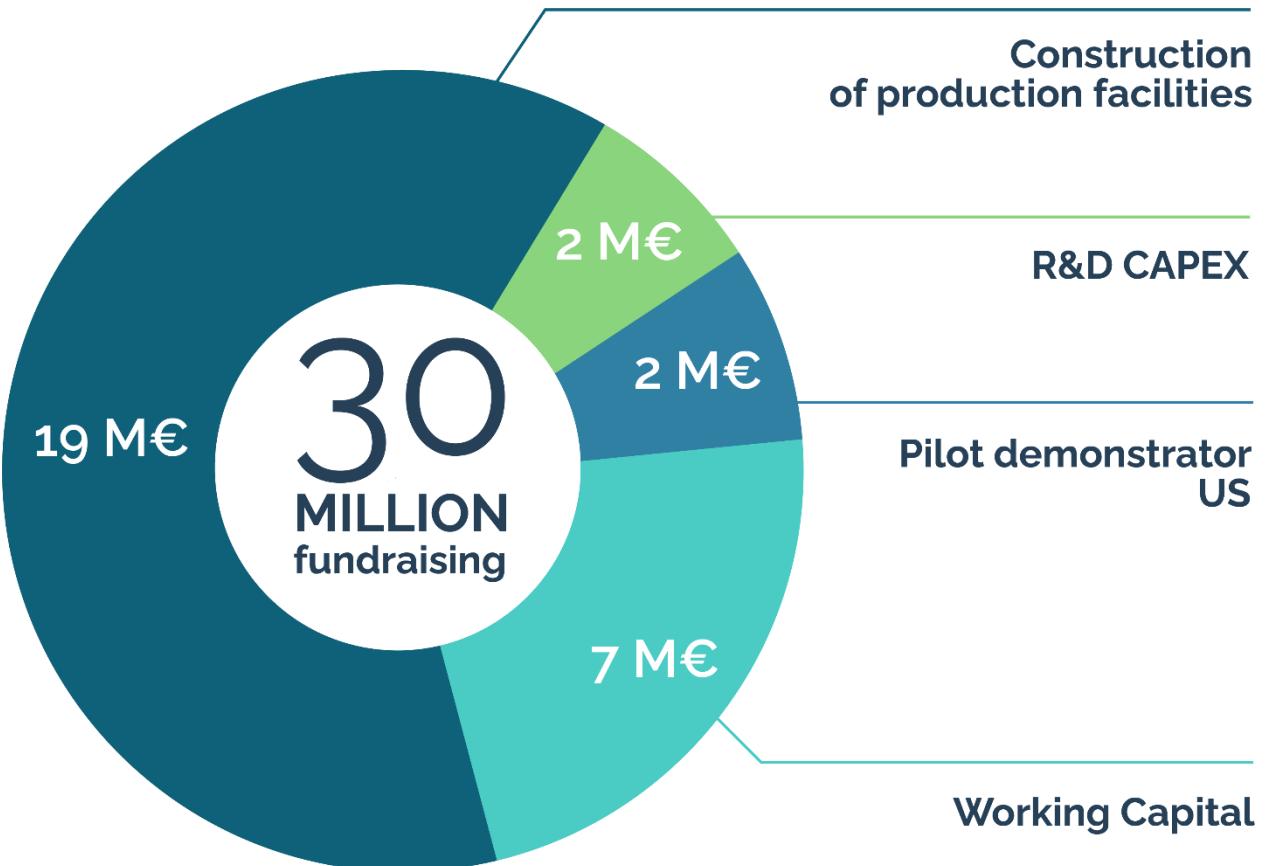


A model to follow in the future in other market locations



Timing matching clients' development projects (i.e.: Cornish and GEL start-up 2024)

# Financing needs of our industrial endeavor



€30M of fundraising, including €10-15M of non-dilutive financing, aiming to :

- Finance the construction of our Li-Capt® filter factory
- Finance the construction of a pilot demonstrator to tackle the US market
- Increase the tech team to pursue the development of the GEOLITH Li-Capt® technology
- Increase the sales team to develop both the US and South American market

Equity funding sought of €15-20M

# Equity story



## The growth project

The fundraising project is the opportunity for financial and corporate investors to participate and contribute to the implementation of the strategic and industrial growth project of GEOLITH, an outstanding environmental deeptech company dedicated to sustainable lithium extraction.

The funding will allow the company to build the first fully operational facility dedicated to the production of Direct Lithium Extraction Li-Capt® filters in the world.

Its roadmap is to bring effective impact on a new industry - the DLE - that is expected to disrupt the entire Lithium sourcing value chain on a global basis. GEOLITH's technology is an energy transition enabler that makes Lithium production much more local and diffused, and significantly more environmentally friendly.

The company's technology - applicable to brines with lower concentration compared to those other DLE technologies can treat - is an indisputable competitive advantage that gives GEOLITH constantly increasing market share perspectives and the capabilities to respond to the demand.

## Value creation perspectives for the investors

The investors retained and invited to the company's first major funding round will benefit from the value creation offered by its transformation into a genuine industrial OEM able to sell its products all over the world.

Over the mid run, additional fundraising opportunities can be considered, and would be the occasion for interested investors to seize windows for a total or partial exit. Future funding rounds may result from currently unscheduled growth opportunities, not included in the business plan, for the construction of additional facilities in other countries, or business development or R&D occasions worth to be seized and requiring dedicated financial support.

In parallel, the management will also be attentive to potential unsolicited marks of interest over the coming years from large strategic players (mining, oil & gas, energy transition OEMs) willing to integrate a top-notch DLE technology to consolidate / diversify their positions on the Lithium value chain. Such strategic opportunities, by generating significant commercial and technological synergies, are expected to be strong catalysts of the value created by the company for and by its owners and shareholders.



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