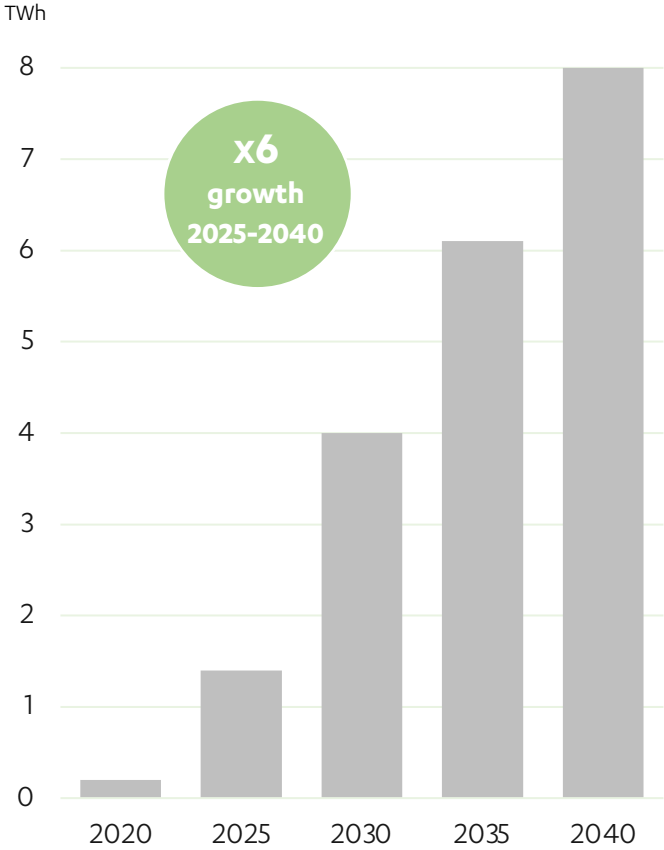


CARBONSCAPE **THE FUTURE OF** **GRAPHITE**

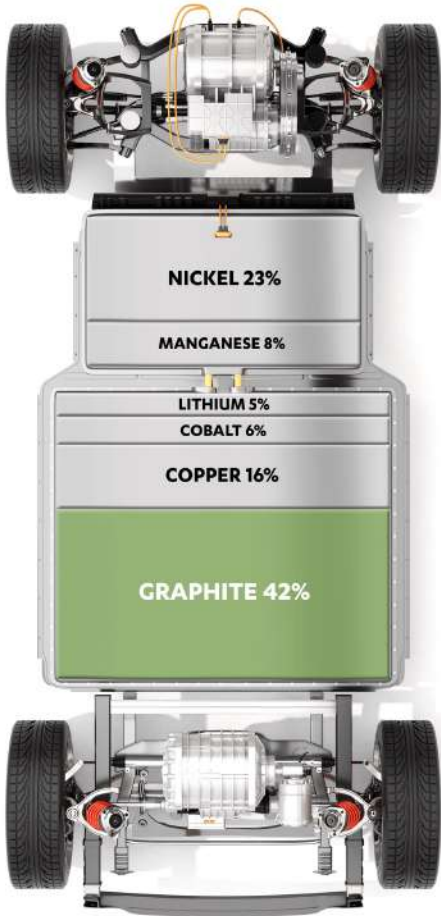
A. SETTING THE SCENE

THE ELECTRIFICATION REVOLUTION

LITHIUM-ION BATTERY
DEMAND FORECAST¹



GRAPHITE VOLUME IN
BATTERY CELL²



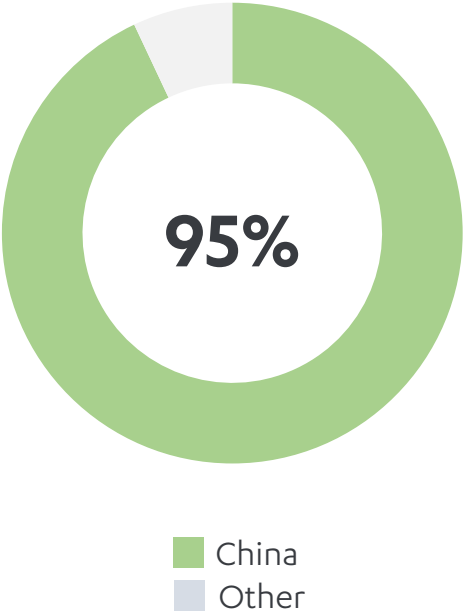
GRAPHITE WEIGHT IN AN
ELECTRIC VEHICLE



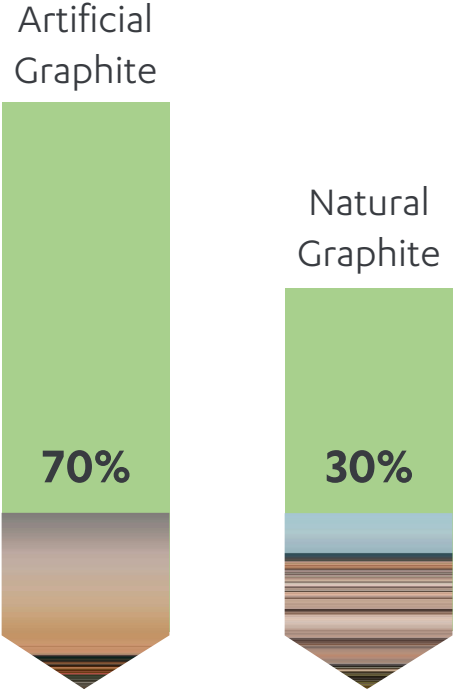
¹Benchmark Mineral Intelligence
²Wood Mackenzie - using an NMC811 (LiNi0.8Mn0.1Co0.1O2) cathode

THE SUPPLY BOTTLENECKS

GLOBAL GRAPHITE ANODE PRODUCTION¹



GRAPHITE ANODE PRODUCTION TYPE²



GRAPHITE ANODE FEEDSTOCK

Artificial Graphite:

- 100% based on petroleum products such as coke
- Highly concentrated market
- Volatile feedstock pricing
- Risk of shortages
- High emissions (CO₂)

Natural Graphite:

- 100% mined product
- Mines in Africa, South America and China
- Volatile pricing
- Uneven quality

No alternative product currently available that can integrate with or diversify existing supply chains

¹Benchmark Mineral Intelligence
²For Electric Vehicles Applications, SMM - 2024

IDENTIFIED MARKET CHALLENGES

HIGH PRODUCTION COSTS EX-CHINA

U.S. and EU graphite projects **struggle to compete directly on prices** because of high costs.

Example: U.S. projects OpEx ranges from \$8,000–10,000/tonne vs. a \$4,000–7,000/tonne average sale price¹

American Active Anode Material Producers (AAAMP) **seeks 920% tariff** on Chinese graphite so they can compete against Chinese prices²



ONSHORING vs FRIENDSHORING

Governments (EU & U.S) signalled **intentions** to onshore critical mineral supply chains are **not backed** by tangible legislations

Chinese firms are increasingly choosing **friendshoring** (e.g. Indonesia, Morocco) to pre-empt regulation and stay price-competitive

Cost remains the **primary driver** of production location



PRODUCT PERFORMANCE IS KEY

Graphite anode is not a commodity; it is a **specialized product** that must be tailored to cell makers' performance requirements

There are many types of graphite anode products, so there is **no single market price**

Alignment of anode producers and cell makers is **essential**, and requires close collaboration



¹ ²STEER Graphite Supply Chain and Appendix 1

²<https://graphitealliance.org/us-graphite-firms-seek-920-duty-to-thwart-china-on-ev-material/>

B. OUR VALUE PROPOSITION



A SOLUTION HAS BEEN DEVELOPED

CarbonScape is a **technology** company based in New Zealand and expanding globally. CarbonScape's **mission** is to **derisk graphite supply** for the lithium-ion battery industry.

CarbonScape **recovers carbon** from locally sourced **forestry products** and then **converts it** through a low temperature process into a **biographite** product which is used in **lithium-ion batteries**.



KEY ADVANTAGES

COST

1. COST-COMPETITIVE AND FEEDSTOCK-STABLE SUPPLY CHAIN

- Feedstock (pre-cursor) — abundant, globally available — ensures long-term price stability and security of supply
- Biomass-based process enables consistently low-cost production

FLEXIBILITY

2. FLEXIBLE PRODUCT TAILORING

- Through direct collaboration with cell makers, CarbonScape can adapt biographite characteristics to meet partner-specific needs

LOCATION

3. SCALABLE, STRATEGIC GLOBAL MANUFACTURING FOOTPRINT

- Manufacturing model built around low-cost and strategic locations
- Offers cell makers secure access to global markets, while navigating around tariffs and regional content regulations

COMPLIANCE

4. REGULATORY-READY & ESG-ADVANTAGED FOR END CUSTOMERS

- Carbon-neutral biographite supports compliance and emerging ESG frameworks



B.1. COST- COMPETITIVE AND FEEDSTOCK- STABLE SUPPLY CHAIN



1. COST-COMPETITIVE AND FEEDSTOCK-STABLE SUPPLY CHAIN

As opposed natural & artificial graphite production, CarbonScape **sources local and renewable feedstock** for its production

- CSL has **verified feedstocks across the world**, and its process is agnostic to the biomass source
- **Biomass** products such as woodchips are **much cost effective** than pet coke or flake graphite
- Those products also have a more **stable pricing** and tend to be **oversupplied** in many regions
- CSL would require only a **very small fraction** of the low value wood material **market** to operate at commercial assets
- **Several biomass offtake agreements** secured to support commercial production



1. COST-COMPETITIVE AND FEEDSTOCK-STABLE SUPPLY CHAIN

While costs may vary by location, based on current engineering and optimization, biographite OpEx is estimated at **\$3,000-\$4,000/tonne**

Cost Structure

10-20%	Low-cost biomass feedstock
30-40%	Energy cost, mostly power. Lower energy consumption than artificial graphite production. Syngas potential
20-30%	Reagents and Consumables. Catalyst and some reagents are recycled
10-15%	Labor costs
5-10%	Other costs



B.2. FLEXIBLE PRODUCT TAILORING



2. PRODUCT-MARKET-FIT

Through direct collaboration with cell makers, CarbonScape has adapted biographite characteristics to meet partner-specific needs, developing two targeted grades:

HED (High Energy Density) And Fast Charge Grades:

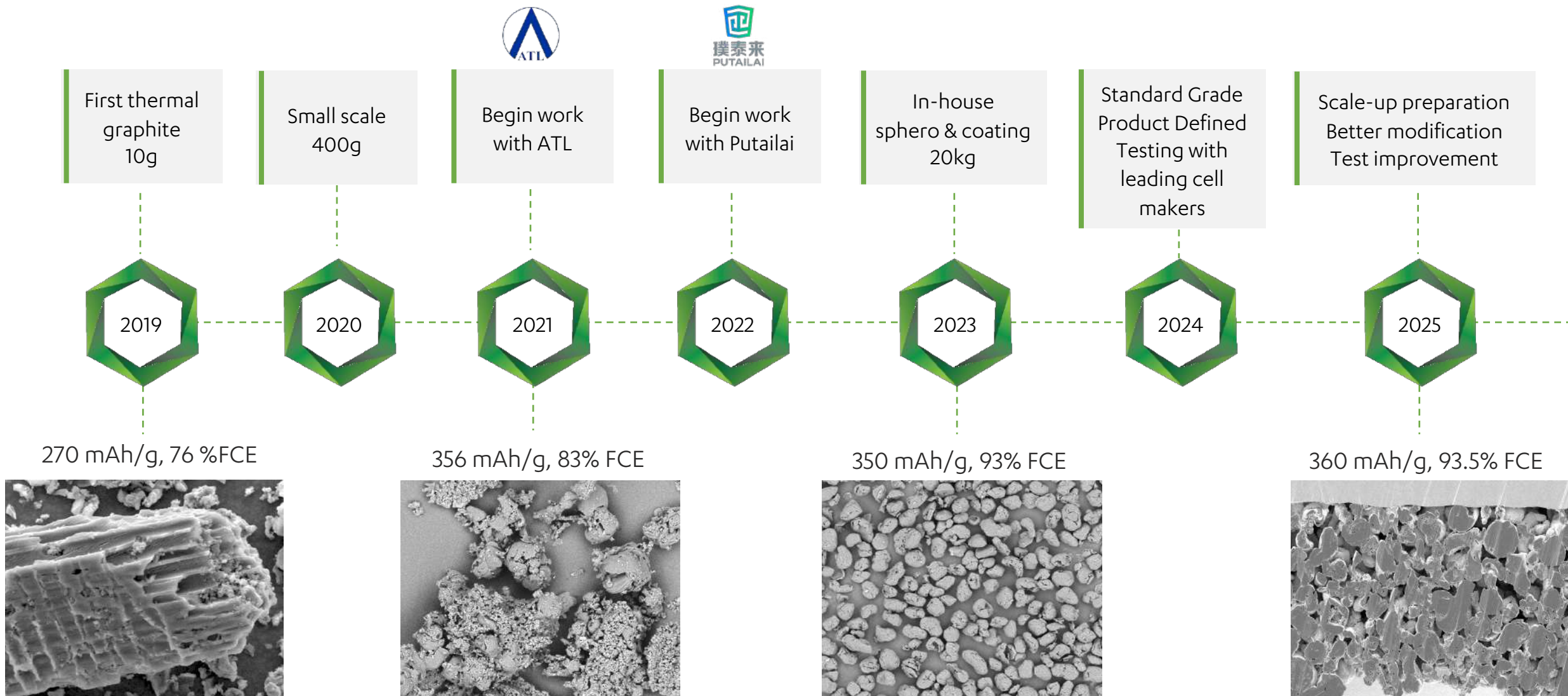
- With high levels of crystallinity, the HED CSL anode has **greater capacity than synthetic graphite** (>360 mAh/g) and better cycle life than natural graphite.
- For the fast charge grade, the unique microstructure allows rapid movement of lithium ions, providing superior **fast charge capacity compared to natural graphite, on par with synthetic.**

Characteristics meet industry needs			
	CSL	Artificial	Natural
Capacity (mAh/g)	345-365	345-355	355-365
First Cycle Efficiency (%)	90-94	92-94	90-92
Cycle life	Superior to Natural	High	Moderate
Rated Charge	Similar to Synthetic	High	Moderate



2. FLEXIBLE PRODUCT TAILORING

MATERIAL DEVELOPMENT TO DATE



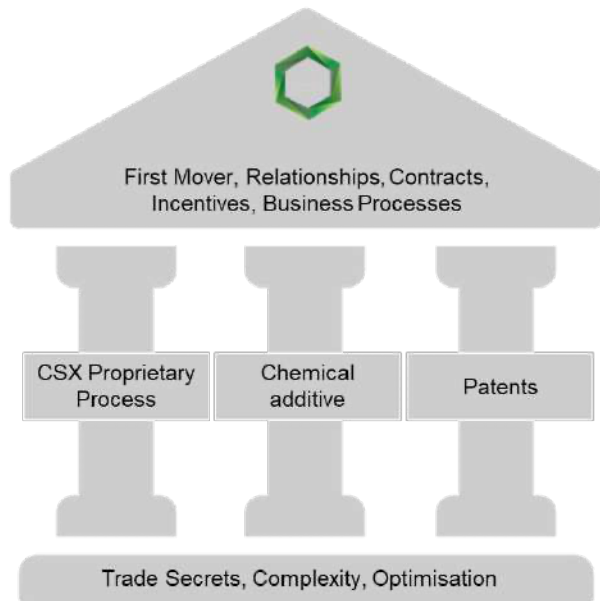
2. FLEXIBLE PRODUCT TAILORING

STRONG IP PROTECTION

CSL has **developed multi-pillar, reinforcing protective strategies.**

MULTI-LAYERED IP STRATEGY

- **“composition of matter” patents worldwide** to protect its IP regardless of manufacturing method.
- **>250 trade secrets** embodying deep industry knowledge of product customisation.
- **2 breakthrough process elements** including a unique chemical additive and an undisclosed process step.



**B.3.
SCALABLE,
STRATEGIC
GLOBAL
MANUFACTURING
FOOTPRINT**



3. SCALABLE - CARBONSCAPE PRODUCTION FACILITIES

[VIEW PRODUCTION FACILITIES TOUR VIDEO](#)



3. SCALABLE - CARBONSCAPE PRODUCTION FACILITIES

CarbonScape has been running **production facilities since 2021** with thousands of hours of cumulative operation and hundreds of kilos of samples shipped to industrial partners.

The facility, located in Marlborough, New Zealand, is ~1,200 m² under roof, which includes:

- **3 tons per year** biographite capacity using selected **industrial scale equipment**
- Commercial scale **toll manufacturing** for majority of the process steps
- Fully integrated QMS data pipeline covering manufacturing execution system and material analytics
- Battery anode **cell testing lab**, coupled to manufacturing data from over 700 production runs



1. PRE-TREATMENT



2. GRAPHITISATION



3. PURIFICATION



4. POST-TREATMENT

3. SCALABLE, STRATEGIC GLOBAL MANUFACTURING FOOTPRINT

- CarbonScape has spent several years de-risking and validating its technology while improving its product
- The company is now ready to scale its assets, while continuing to optimize the product in collaboration with selected cell makers.
- The company, led by its downstream partners, is looking at ways to further accelerate its Go To Market strategy

Laboratory Scale
Technology Validation

Pilot Plant
Technology Validation
and Optimisation

**Toll Processing &
Vendor Testing**
Key steps of the process
covered, more derisking coming

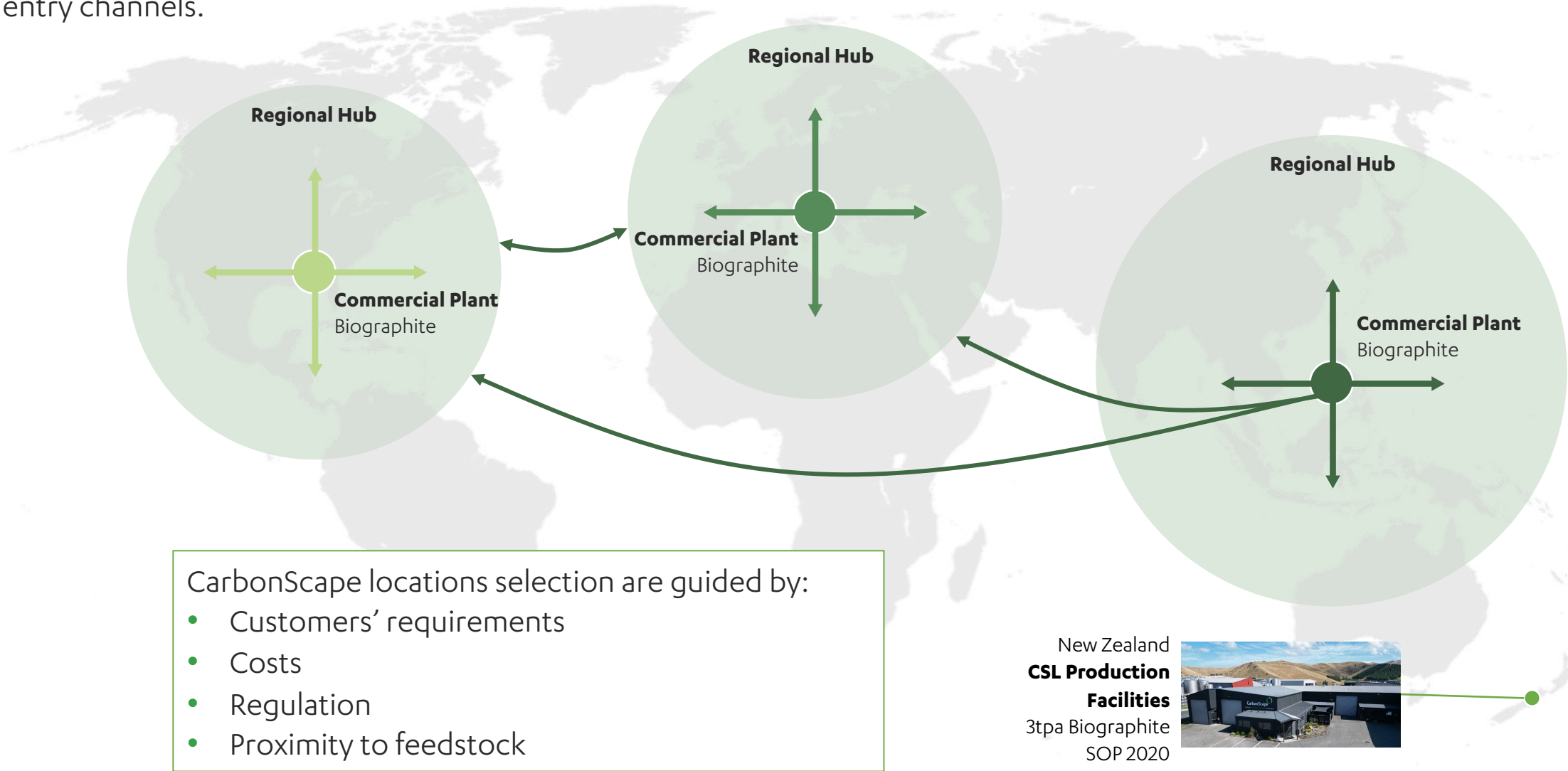
**Engineering for
Scale Up Asset**

**Industrial plant
Construction**



3. SCALABLE, STRATEGIC GLOBAL MANUFACTURING FOOTPRINT

CSL’s commercialisation strategy combines JV manufacturing and technology licensing globally for security in market entry channels.



3. SCALABLE - ASIA – A KEY PARTNER

- Asia, including countries like China, Japan and South Korea, stands out for its speed, cost but even more importantly its expertise
- Asia dominates all steps of the lithium-ion battery supply chain, from battery minerals to EV manufacturing
- It has proven extremely difficult to develop battery-related assets in the Western world without the involvement of Asian companies
- It is essential to secure Asian partners to access this IP and scale at speed
- CSL has been collaborating with leading Chinese companies since 2020 and will continue to do work with Asian partners to de-risk its scale-up



3. SCALABLE, STRATEGIC GLOBAL MANUFACTURING FOOTPRINT

TARGET COMPANY ECONOMICS¹ 2035 GLOBAL TARGET



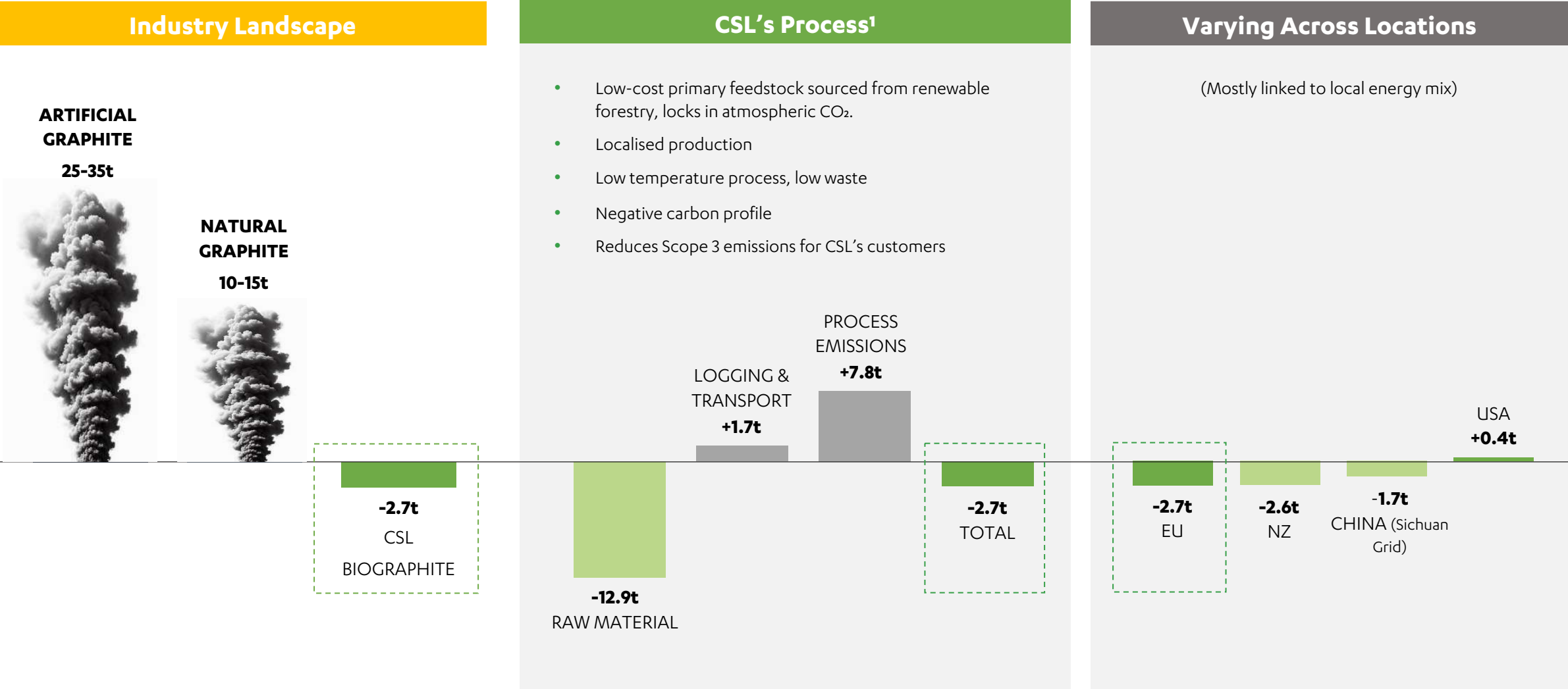
¹CSL capacity assumed in each region: 25kt plant + 50kt additional production line + 25kt under licensing



B.4. REGULATORY- READY & ESG- ADVANTAGED FOR END CUSTOMERS

4. REGULATORY-READY & ESG-ADVANTAGED FOR END CUSTOMERS

TONNES OF CO₂ EMISSIONS PER TON OF GRAPHITE PRODUCED



¹LCA validated by the Manchester University and University of Canterbury

C. ADDITIONAL BACKGROUND INFORMATION

CORNERSTONE INVESTORS SUPPORTING CSL

CarbonScape is backed by recognised lithium-ion battery supply chain and forestry participants.



Headquartered in Helsinki, Finland and Stockholm, Sweden, Stora Enso is part of the global bioeconomy. Stora Enso is a leading provider of renewable products in packaging, biomaterials, and wooden construction.

\$18M in 2023



ATL¹ is the world's leading producer and innovator of lithium-ion batteries, known worldwide for our high-tech, high-volume prowess in developing, producing and packaging high quality rechargeable LIB cells and packs.

\$2.5M in 2021



Putailai² is a China-based company principally engaged in the research, development, production and sale of new energy LIB materials and process equipment. The Company's main products include LIB anode materials.

\$2.5M in 2021

CarbonScape Ltd Shareholding Structure

CarbonScape Holdings Limited	56.8%
Management & Board	23.4%
Stora Enso Oyj	15.1%
Amperex Technology Limited	2.4%
Hongkong Excellen Technology (Putailai)	2.4%

¹\$8Bn revenues in 2022, 42,000 employees, largest revenue share in the smartphone battery market. In 2011, separated ATL's EV battery business into a new company, CATL

²Putailai are invested in CarbonScape Ltd via its 100% subsidiary Hongkong Exellen Technologies Ltd

WORLD-CLASS MANAGEMENT TEAM, HIGHLY EXPERIENCED BOARD

MANAGEMENT TEAM

Ivan Williams, Chief Executive Officer



Ivan has more than 25 years of rich international business experience in diverse industries from food and beverage, renewable energy to chemicals and industrial gas.

Vincent Ledoux-Pedailles, Chief Commercial Officer



Vincent is a recognised commercial leader in the battery space with +15 years experience.

Darryl Robinson, Chief Financial Officer



Darryl has built a successful career in finance leadership roles spanning both large corporates and the high-growth tech sector.

Dr. Heinrich Badenhorst, Chief Technical Officer



Heinrich is a recognised global expert in graphite with more than 20 years' combined experience in industrial process optimisation and academic research.

Oliver Foster, General Manager (NZ)



Oliver has over 20 years of diverse experience spanning petroleum geology, resources analysis, and corporate finance.

Dr Jay Kim, Chief Product Officer



Over two decades Jay has spearheaded the development of cutting-edge lithium-ion battery technologies – including at Samsung SDI.

BOARD OF DIRECTORS

Craig Sinclair, Chair



Craig has considerable experience as a Director, CEO and C-suite executive across publicly listed, private equity, and state-owned enterprises.

Danny Chan, Director - Non-Executive



Danny headed Fidelity Investments' Taiwan office and was on their Asia Pacific regional board. His current directorships include UP Education, Auckland University Business School, and Marlborough Wine Estate.

Mike Ashburn, Director - Non-Executive



Mike is a clean technology investor, project developer and one of the co-founders of ClearWorld Energy, a leading developer of carbon reduction projects in China.

Tim Langley, Director - Non-Executive



Co-founder of CarbonScape Ltd and Chair of CarbonScape Holdings Ltd, Tim is a human services innovator and entrepreneur.

Juuso Konttinen, Director - Stora Enso Oyj representative



Based in Helsinki, Finland, Juuso has more than 20 years experience in the global B2B materials businesses in the forest industry.

Ilpo Körkkö, Observer to the board - Stora Enso Oyj representative



Seasoned finance and supply chain leader with over a decade of leadership experience in Stora Enso.



D. CONCLUSIONS

Building the future of graphite

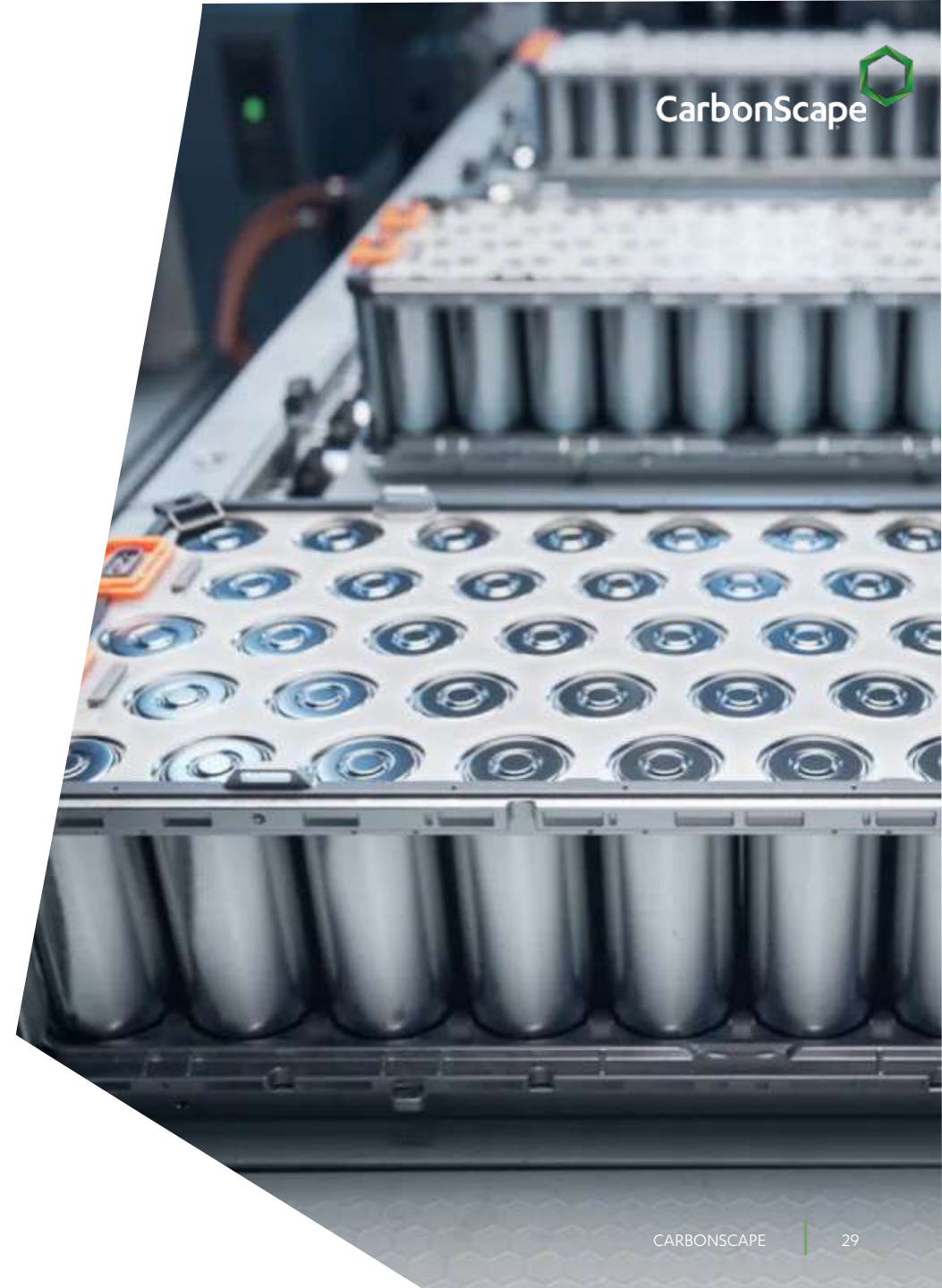
Urgent need to address the **graphite supply** chain

CarbonScape has developed a **low-cost** graphite anode material thanks to a **customizable** technology for integration into existing supply chains, **flexible on location**

The company works closely with **cell makers** to further optimise and customise its product

Strong, supportive **cornerstone investors** including ATL, Putailai and Stora Enso

CarbonScape is now looking at **scaling up** production with **strategic partners** to deliver the future of graphite at industrial scale



THANK YOU

