



Ilika Half-Year Results  
January 2025

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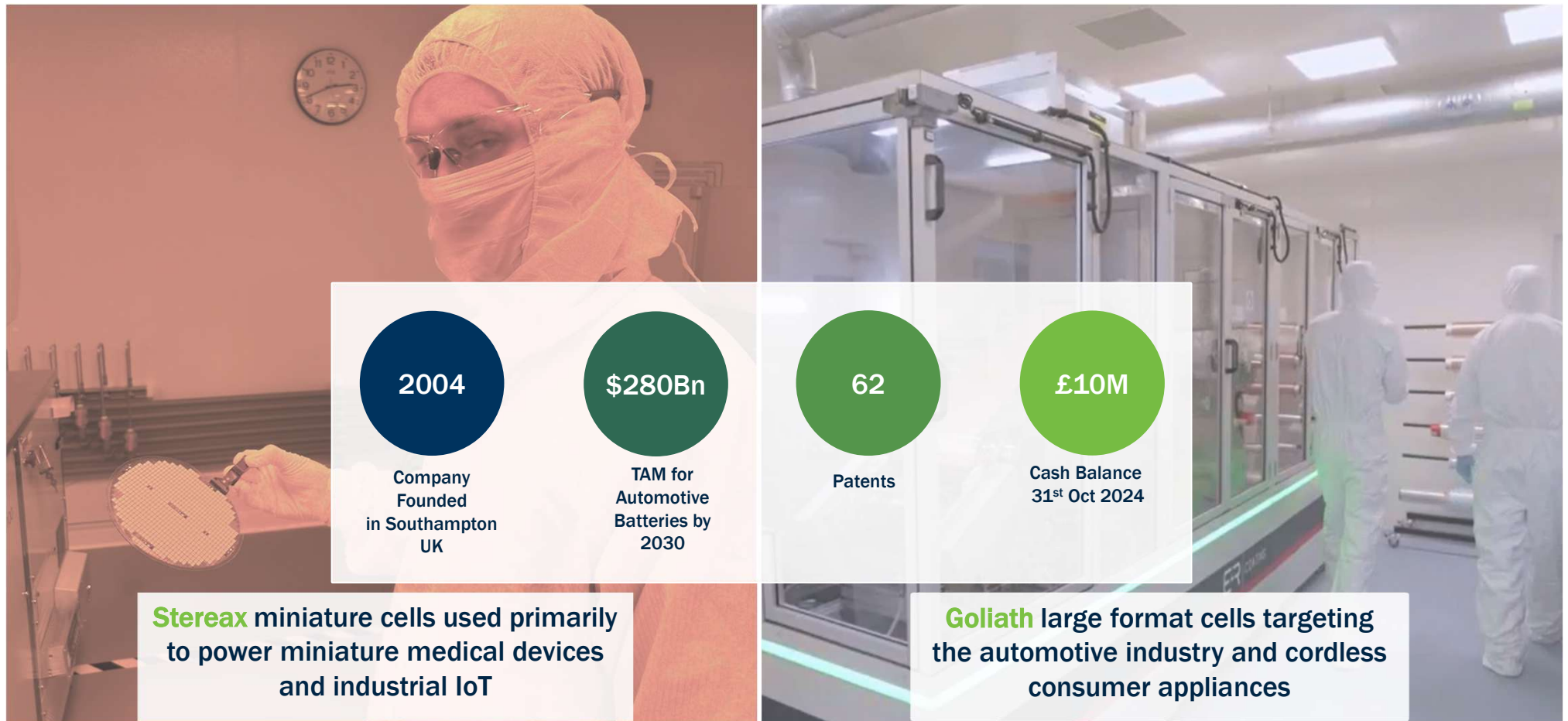
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# Ilika at a Glance: Pioneer in Solid State Batteries

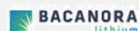


# Seasoned Management Team

Board and Management Team Offers a Wealth of Diversified Experience Across Multiple Industries



**Graeme Purdy**  
Chief Executive Officer & Co-Founder



- Founding CEO appointed in 2004
- Led two VC funding rounds and IPO
- Previously COO of Avantium BV and early career with Shell. Latterly NED with Bacanora Lithium plc.
- Chartered engineer with an MEng in Chemical Engineering from Cambridge and an MBA from INSEAD



**Jason Stewart**  
Chief Financial Officer



- CFO since Jan 2023
- Previously Interim CFO and other senior roles at Sunseeker International Ltd since 2010; prior to which was at B&Q and Kerry Foods
- CIMA qualified accountant, with a BSc in Business from Manchester Metropolitan University



**Keith Jackson**  
Non-exec Chairman



- Former Chief Technology Officer at Rolls Royce Engines PLC and Meggit plc
- Professor at Sheffield University's Automated Control and Systems Engineering department



**Jeremy Millard**  
Non-Executive Director



- Founded Iridium Corporate Finance
- Non-Executive Director and Chairman of the audit committee of Cambridge Nutritional Sciences plc
- Leverages over 20 years of investment banking experience, providing corporate finance advice to science and deep technology sector clients



**Monika Biddulph**  
Non-Executive Director



- Non-Executive Director on the board of Celebris Technologies plc, AFC Energy Plc and Power Roll Ltd
- Senior leadership at Arm Holdings until 2018
- Wide range of experience in both the commercial and technical aspects of an international technology business
- Holds a PhD in Physics from the ETH Zurich



**Louise Turner**  
VP of Product Development



- Holds a PhD in physical chemistry from the University of Southampton (2012)
- MBA from Quantic University (March 23)
- Previously Stereax Technical Director
- Her areas of expertise include the application of high throughput methods for the development of electrocatalysts and solid-state lithium-ion battery materials

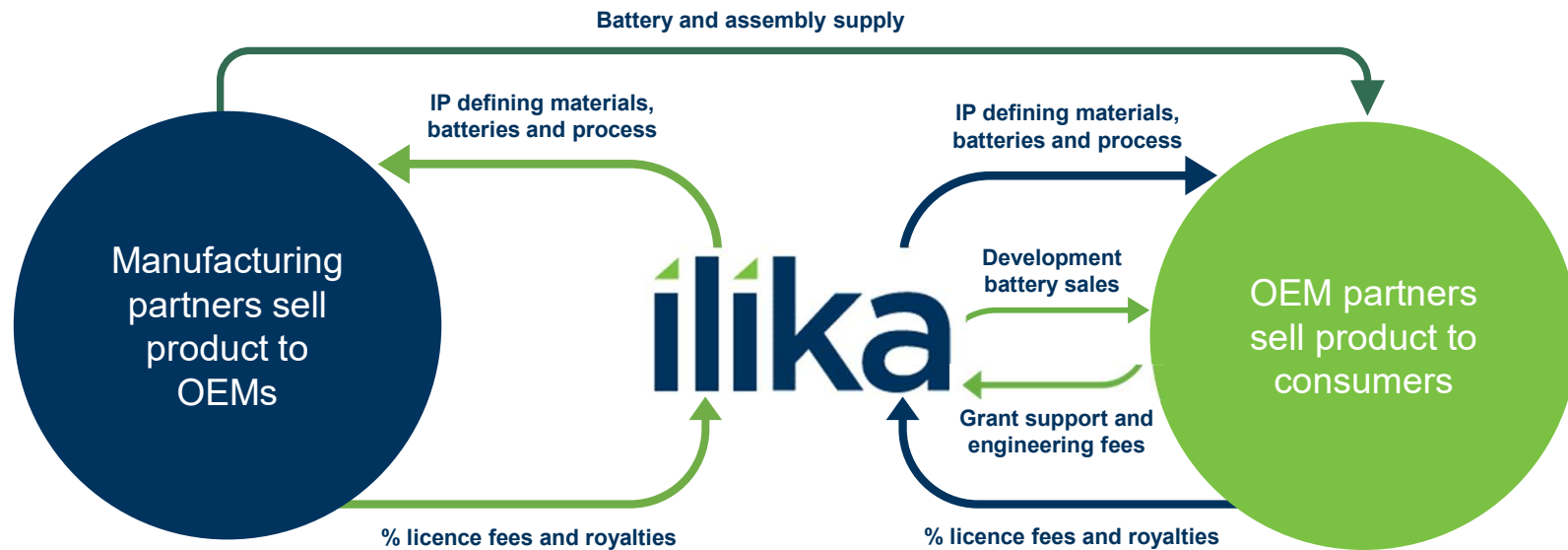


**John Tinson**  
VP Sales & Marketing



- Joined Ilika in 2019 as VP Sales & Marketing
- Holds a degree in Physics from Birmingham University
- Career focused on early-stage UK technology companies in sectors such as opto-electronics, cabling solutions, industrial lasers and semiconductor design

## Asset-light licensing model demonstrated on production-intent equipment



Low working capital requirement combined with faster time to market



# Shaping our investment case



Solid-state battery technology; growing patented portfolio across multiple jurisdictions



Hedged across two markets with near-term route to commercialisation, reducing execution risk



In-house, purpose built, fabrication facilities help drive and deliver scale-up plans



Licencing and royalty agreement with Cirtec set to deliver economy of scale and add the ability to rapidly ramp production of Stereax® batteries



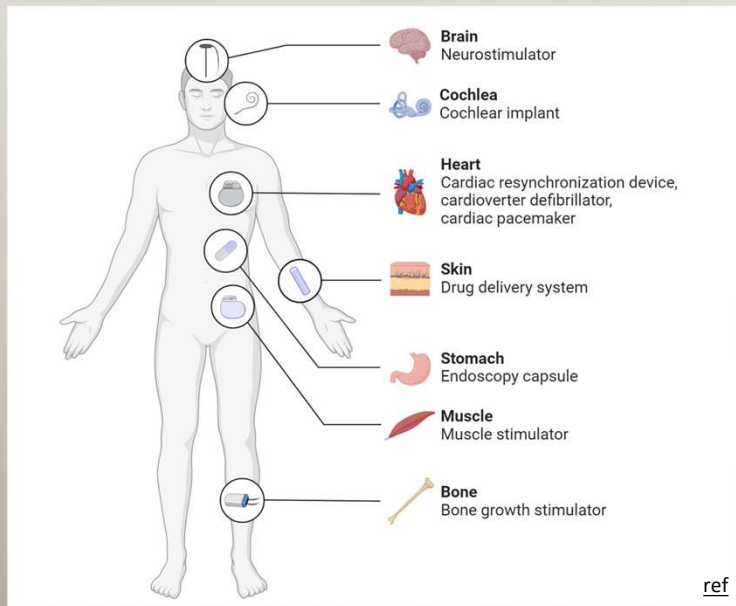
First batch of prototype Goliath batteries shipped to automotive customer; engaging with wider portfolio of interested OEMs and Tier 1 companies on commercially sponsored evaluation trials

# Stereax: Trends in Global Healthcare

Across the world people are living longer, but not necessarily healthier lives, creating an immense **burden on healthcare systems**



The use of smart electronic  
**Active Implantable Medical Devices**  
(AIMD) is at the forefront of a search  
for efficacy and productivity





Today the primary battery is  
the **largest component** in  
AIMD



Small rechargeable cells  
exist but have low power  
and slow charging

# Stereax: Large and Fast-growing Markets

Demand for medical batteries is being driven by innovation in electroceuticals and sensors

Neuromodulation	\$4.2 Bn (2024) CAGR: 9.5%	<ul style="list-style-type: none"><li>• Cognitive disorders</li><li>• Chronic pain</li><li>• Stroke</li><li>• Psychiatric disorders</li></ul>
Implanted sensors	\$6.0 Bn (2023) CAGR: 11.1%	<ul style="list-style-type: none"><li>• Cardiovascular</li><li>• Oxygen pressure</li><li>• Temperature ...</li></ul>
Orthopedics	\$26 Bn (2023) CAGR: 4.2%	<ul style="list-style-type: none"><li>• Data capture from spine / knee / hip implants</li></ul>
Ophthalmic	Projected: \$1.3 Bn (2030) CAGR: 29.3%	<ul style="list-style-type: none"><li>• Diabetes &amp; glaucoma monitoring</li></ul>
Orthodontic	\$5.8 Bn CAGR: 24%	<ul style="list-style-type: none"><li>• Monitoring of braces</li><li>• pH, glucose...</li></ul>




AIMD Market  
Penetration<sup>1</sup>

**\$5.7B**  
18.1% CAGR

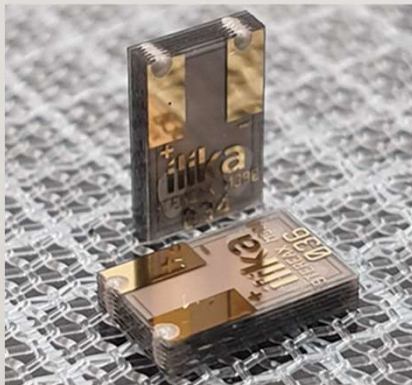
## Stereax benefits for **medical implant industry**

- Reduced surgery time
- Implant located close to point of therapy
- Long life in the body
- User recharge at home
- Able to power Bluetooth radio



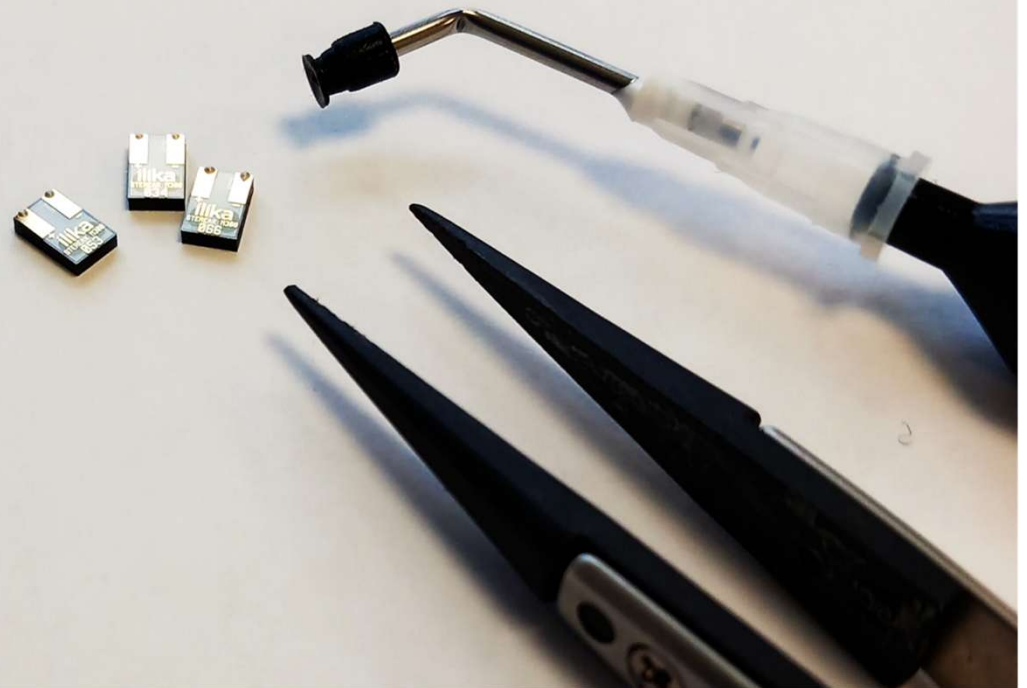
	Medical Li-ion	Stereax
Small Footprint	✓	✓
Ultra-thin	x	✓
Fast charge/ High Power	x	✓
Safety	✓	✓
High temperature tolerance	x	✓

# Stereax: Ilika's Unique Miniature Battery



## First Product **Stereax M300**

- Rechargeable
- Voltage: 3.5V
- Capacity: 300  $\mu$ Ah
- Max pulse current: 3 mA (10C)
- Cycle life: >1000 cycles (50% DoD)



# Stereax: Cirtec Partnering



## Status:

- Commissioning completed
- User acceptance tests completed
- Engineering lots started

## Partnership Benefits to Ilika

**Validation** of Stereax product and process

**Medical Manufacturing & Scale:** Cirtec holds the medical accreditations and have the size and scale to meet customer ramp expectations

**Business Development:** The partnership gives Ilika access to a larger sales & marketing resource

**Alignment:** Cirtec and Ilika have the same AIMD applications focus

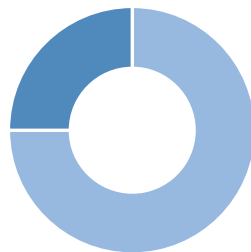
Cirtec has developed a **neurostimulator technology platform** enabling faster adoption of Stereax





# Stereax: Commercial Order Analysis

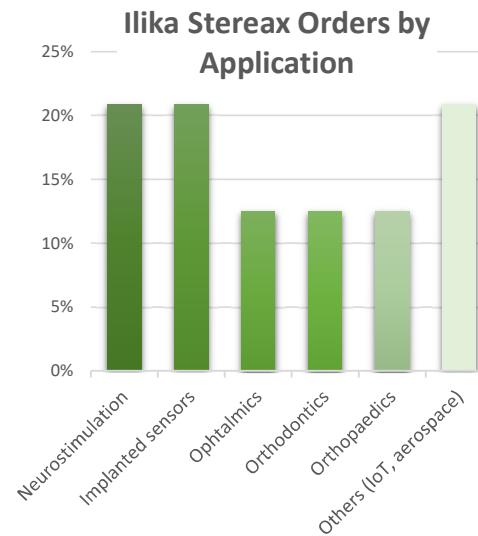
## Initial commercial orders from a US-centric customer base



■ Europe ■ USA

21  
Companies

24  
Orders

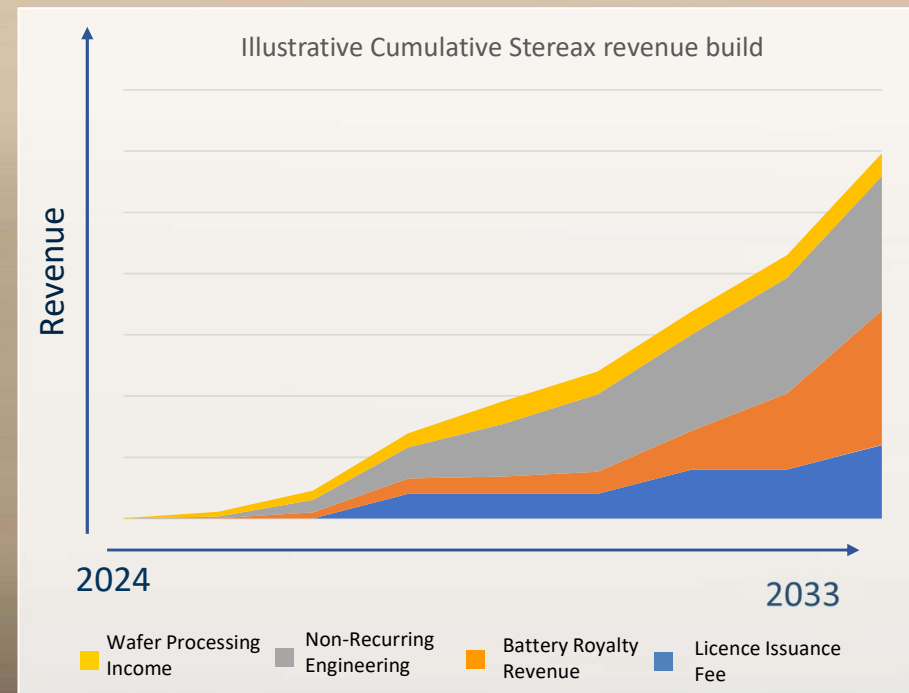


# Stereax: Revenue Growth Profile



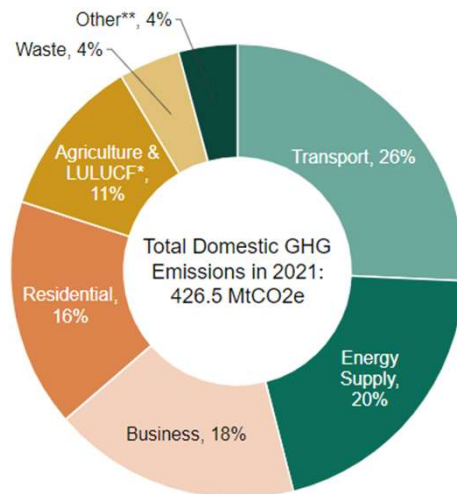
## Illustrative Revenue from Stereax product lines

- Income growth derived from several revenue streams
- Royalty timelines dictated by the certification of medical devices
- Industrial IoT addressable at larger volumes



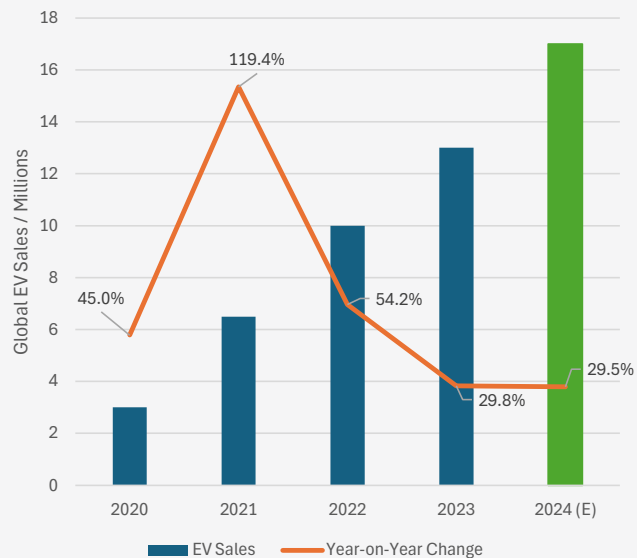
# Goliath: Regulatory Driven Uptake

- 145 countries announced net zero targets
- Covering ~ 90% of global emissions<sup>1</sup>
- Transport is the largest emitting sector<sup>2</sup>

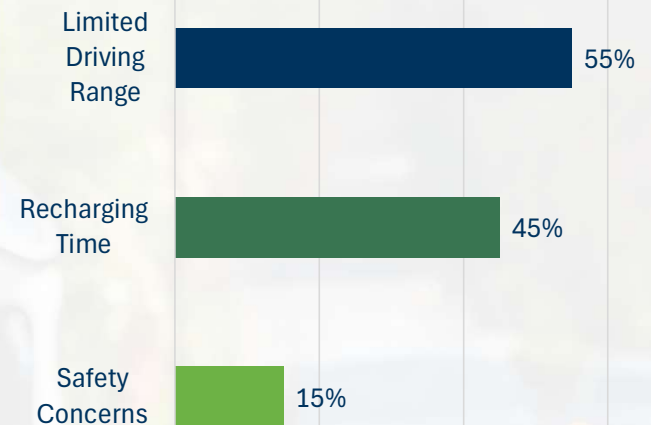


# Goliath: Enabling further EV sector growth

## Growth in Electric Vehicles sales continues<sup>1</sup>



## Reasons for not purchasing an Electric Vehicle <sup>2</sup>





# Goliath: Solid State Battery Technology Landscape

Different chemistries are optimal for different applications



- SSBs can be made using different materials combinations
- Goliath SSBs combine oxide electrolytes with silicon anodes delivering:
  - Ease of handling in a manufacturing environment
  - Longer cell life
  - Lower cost
  - Lower manufacturing carbon footprint

Sulfide Electrolyte	Oxide Electrolyte	Polymer Electrolyte	Lithium Anode	Silicon Anode	Anode-less
<ul style="list-style-type: none"><li>+ High ionic conductivity</li><li>+ Malleable</li><li>- Reacts easily with O<sub>2</sub> and moisture to make toxic H<sub>2</sub>S</li><li>- Expensive to manufacture</li></ul>	<ul style="list-style-type: none"><li>+ Stable in air</li><li>- More difficult to manage interfacial resistance</li></ul>	<ul style="list-style-type: none"><li>+ High ionic conductivity</li><li>- Needs pre-heating to 50-60°C</li></ul>	<ul style="list-style-type: none"><li>+ Constant cell voltage</li><li>+ High energy density</li><li>- Expensive</li><li>- Dendrite formation can lead to short life</li></ul>	<ul style="list-style-type: none"><li>+ Longer cell life</li><li>+ Less expensive than lithium</li><li>- Can lead to volumetric expansion</li></ul>	<ul style="list-style-type: none"><li>+ Cheaper than lithium anode</li><li>+ Very high energy density</li><li>- Cell life compromise</li><li>- Volumetric expansion</li></ul>





# Goliath: Ilika's Cutting Edge Solid State EV Battery



**COMMERCIAL**  
**Lithium Ion Battery**

**EUCAR 6**

**ilika**  
**Solid State Battery**

**EUCAR 3**

Nail Penetration Tests carried out by University College London as part of Industry Sprint associated with the Faraday Institution SafeBatt project. Both cells were approximately 2 Ah

Goliath delivers a safer, lower temperature response without flames to mechanical pouch penetration and shorting.

The full video of the nail penetration test can be found at: [https://www.youtube.com/watch?v=fIP\\_jwKa9SU](https://www.youtube.com/watch?v=fIP_jwKa9SU)

# Goliath: Ilika's Cutting Edge Solid State EV Battery



### Goliath addresses customer concerns

Performance of NMC\*

+

Safety of LFP\*

	FEATURE	BENEFIT
	Non-flammable	Lighter vehicle
	Competitive capacity	Longer range
	Tolerant of higher temperatures	Safe in manufacture, use and recycling

# Goliath: Pack Level Benefits



**BB** BALANCE BATTERIES

UK Pack Designers **Balance Batteries** modelled a hypothetical Hyundai Ioniq 5 pack with Goliath SSB



- 20 wt%



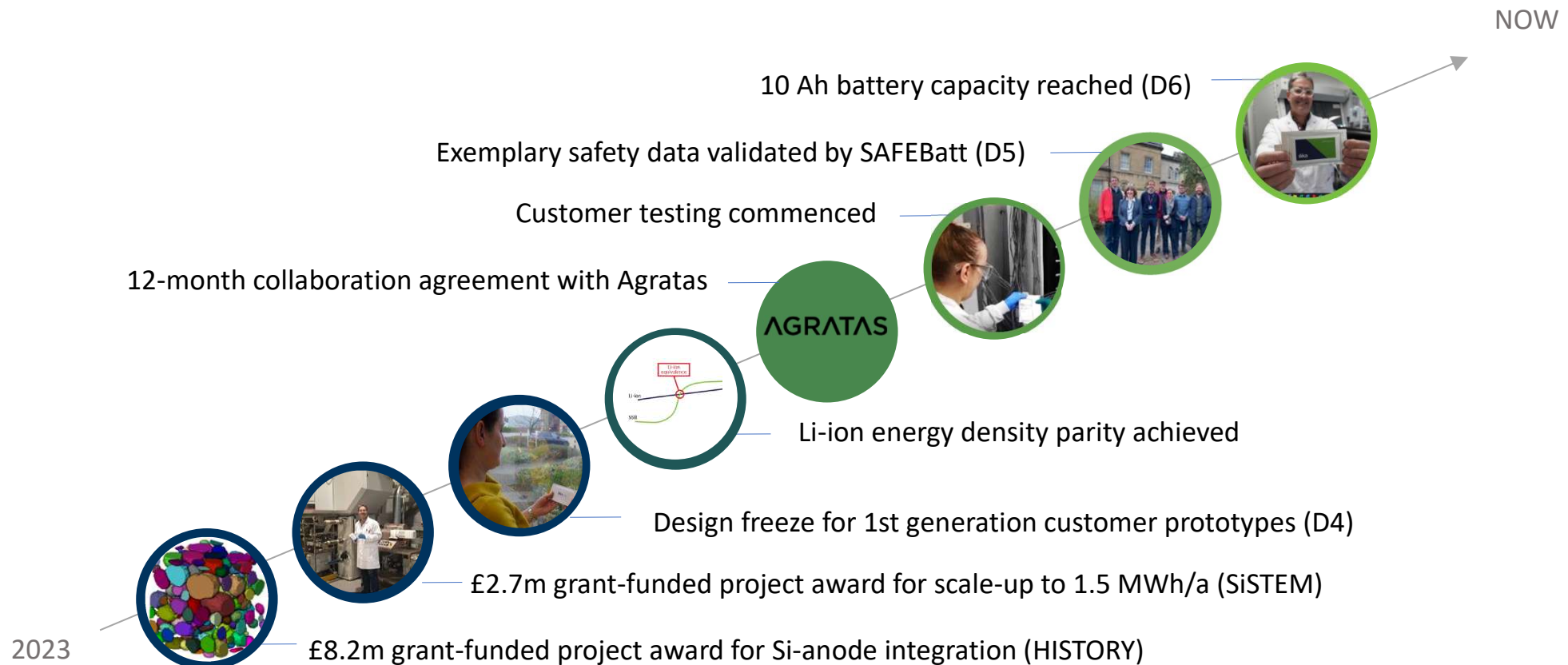
- £2,500  
(Bill of Materials)



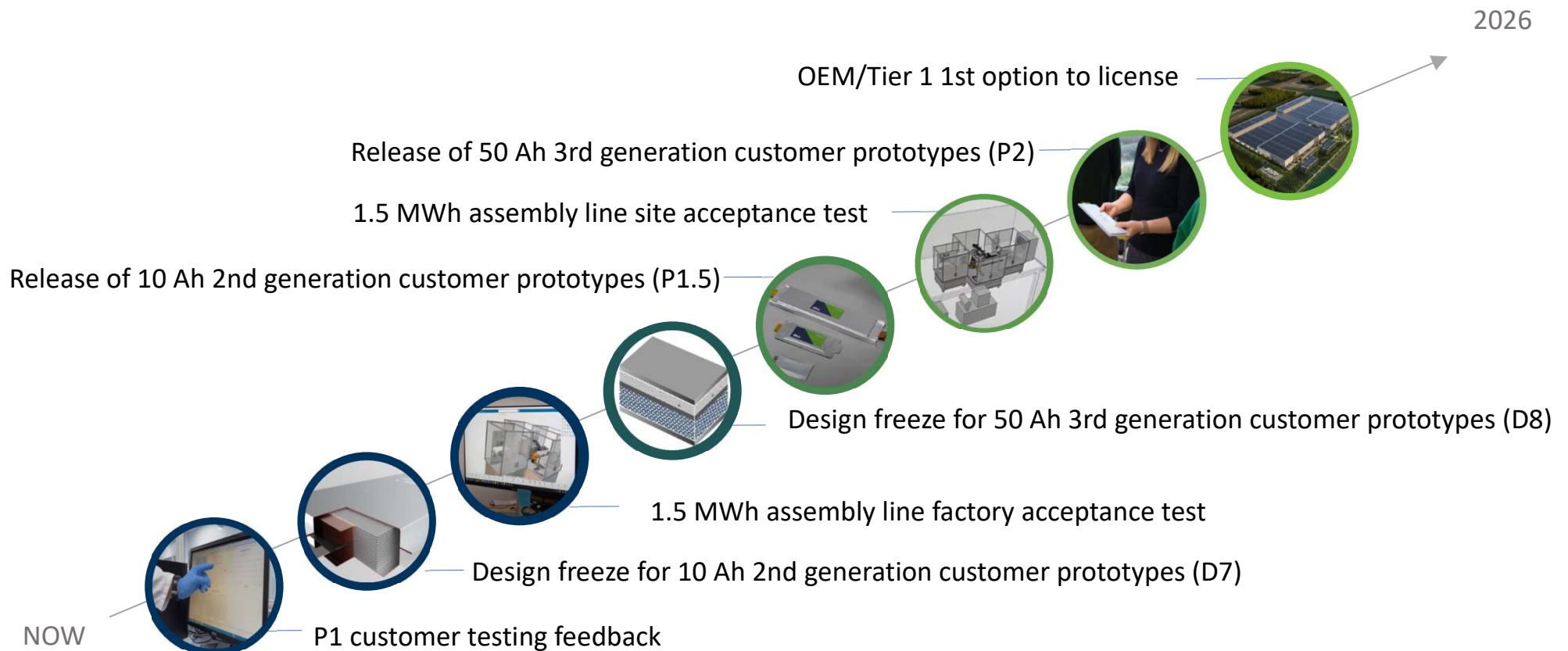
- 6 min  
(12 min vs 18 min,  
10-80 SoC%)



# Goliath: Strong Progress Over Last 18 Months

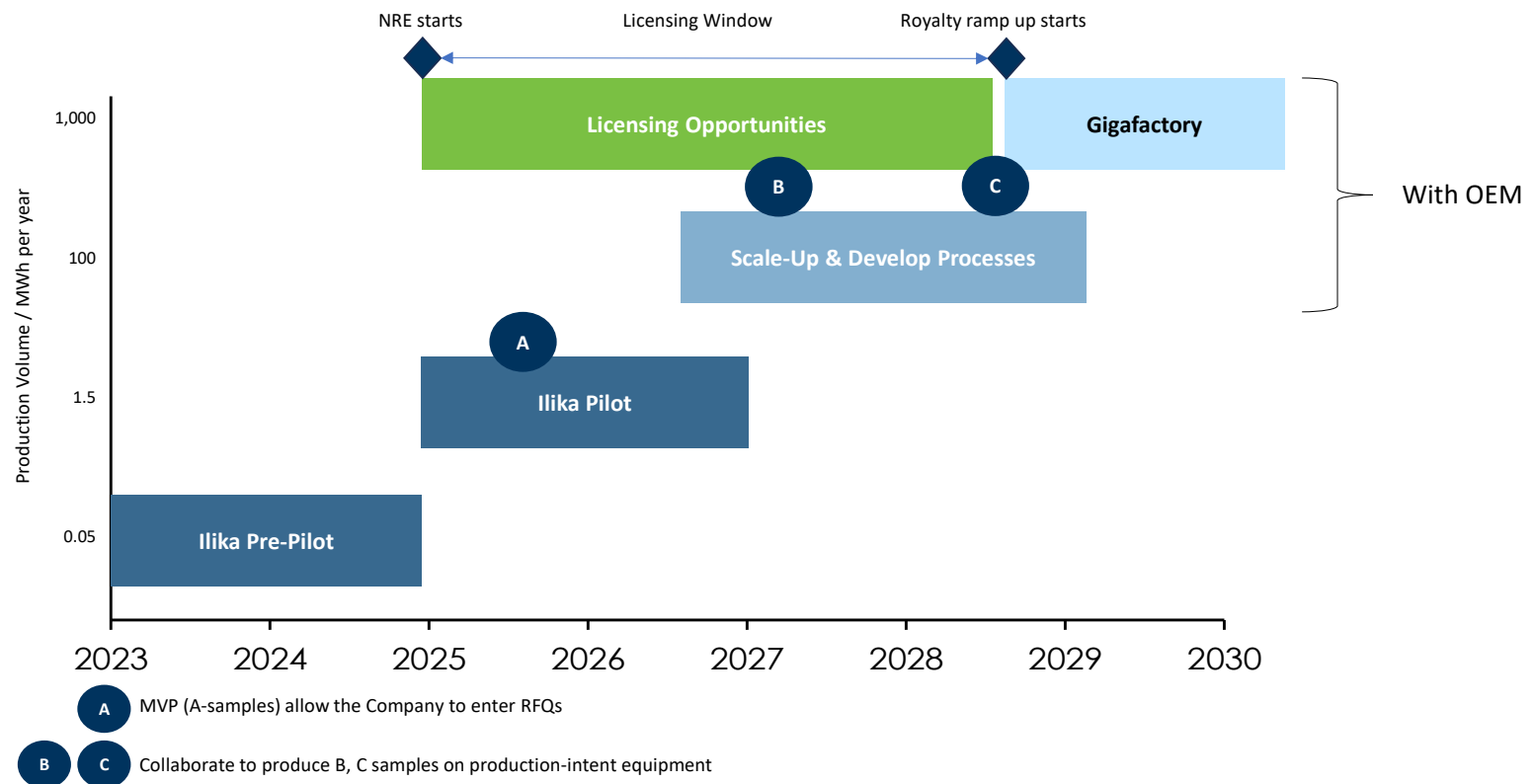


# Goliath: What to Expect

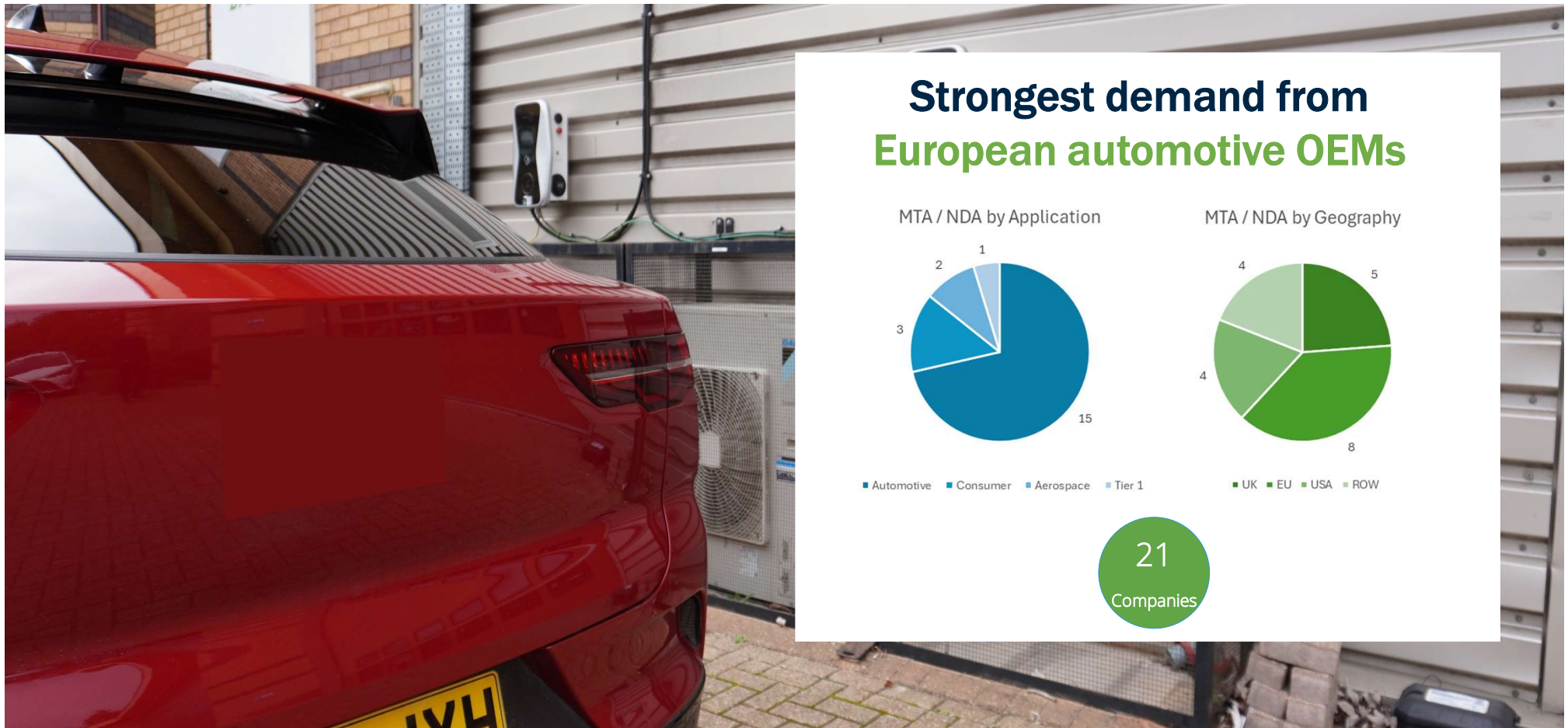




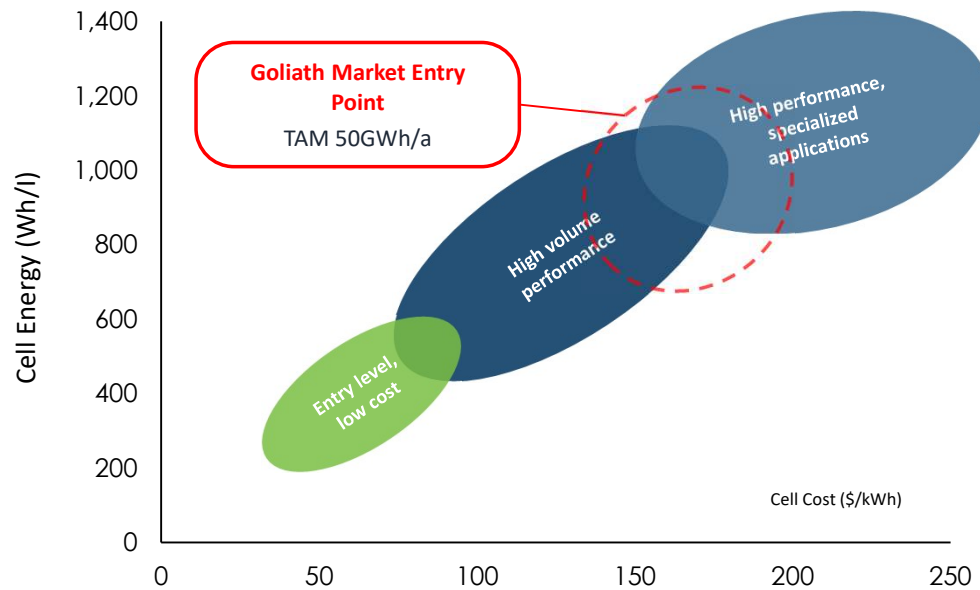
## Ilika Scale-up Plan and Business Model



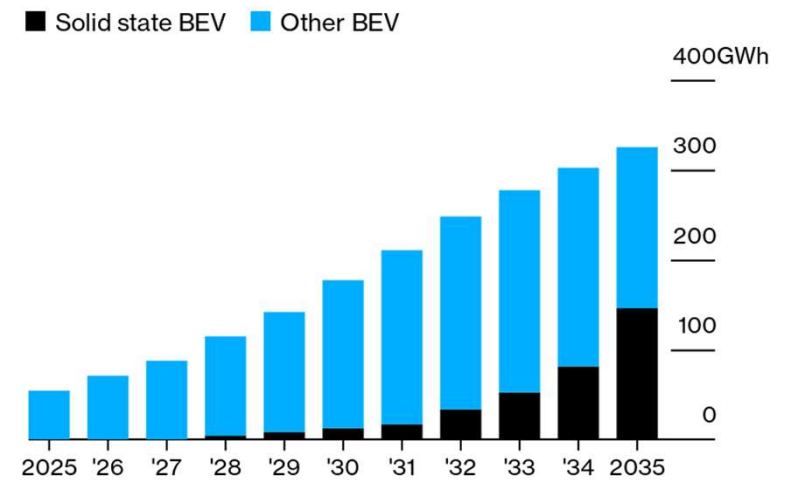
# Goliath: Commercial Interaction Analysis



## Iluka Targets Performance Market

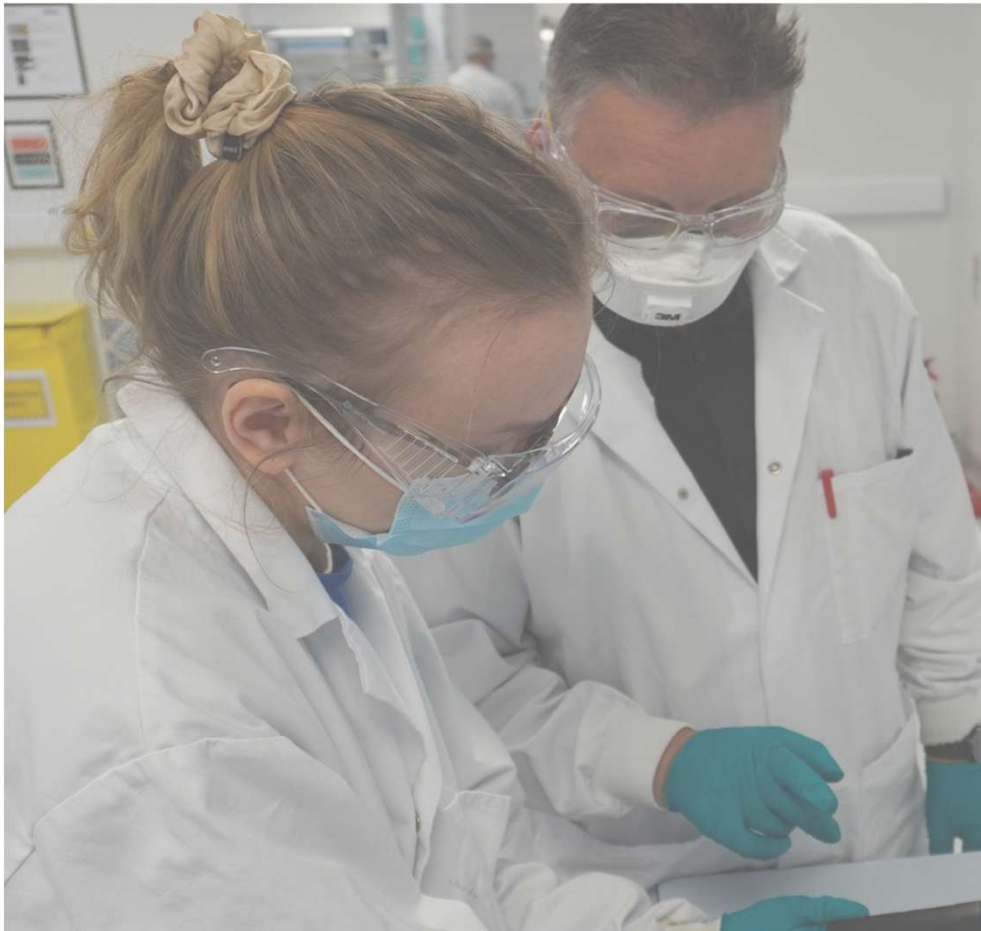


## Attractive SSB Market Forecast <sup>1</sup>



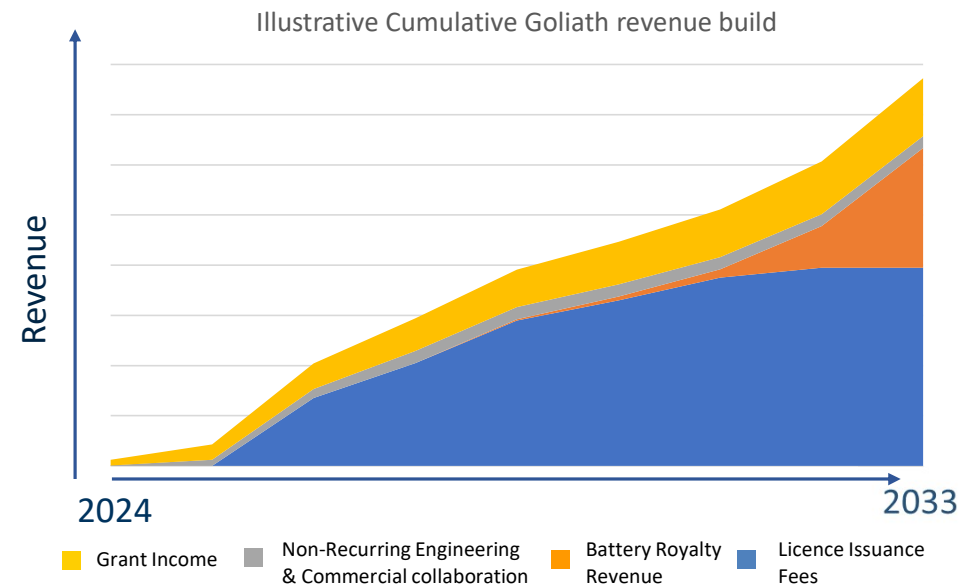
<sup>1</sup> BloombergNEF, 2022

# Goliath: Revenue Growth Profile

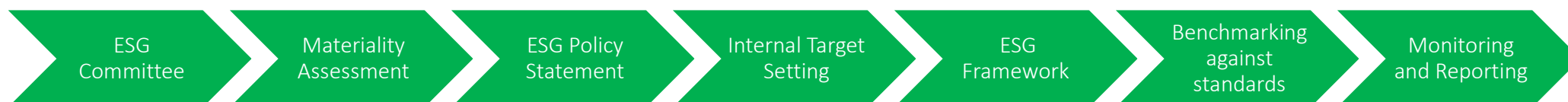


## Illustrative Revenue from Goliath product lines

- Income growth from several revenue streams
- Grant revenue and NRE in early years
- Licence income before royalties at Giga scale



**ESG is of utmost importance to Ilika and is monitored at board level**  
**Ilika continues to remain ahead of reporting requirements through ESG commitment**



- ISO 14001, ISO 9001, Carbon Reduced Organisation
- ESG Long Range Strategic Plan, most material items
  - Risk and Governance
  - Ethical Supply Chain
  - Carbon Footprint monitoring
  - Development and Opportunities

**Early engagement with Tier 1 & automotive OEM's has demonstrated the importance of this approach for their supplier onboarding processes.**





## Un-audited financial results for the half year ending 31 Oct 2024

### Turnover of £1.0m (2023/4: £1.3m)

- Grant funding of £0.9m (2023/4: £1.3m)
- Goliath commercial income of £0.1m (2023/4: £0)

### EBITDA loss\*, excluding share-based payments, £1.9m (2023/4: £1.9m loss)

- Continued focus on cost management to offset the small reduction in turnover

### Cash balance for half year of approximately £10.1m (2023/4: £13.2m)

\* EBITDA loss excluding share-based payments

**Scale** Stereax through joint manufacturing and marketing with Cirtec

**Mature** Goliath with partners through defined technical milestones

**Continue** pursuing grant support and strategic partnering

**Commercial** opportunity continues to build for Ilika's technology across the large addressable markets providing a strong platform for future growth