

Hexagon Resources Limited Corporate Presentation  
US Downstream Energy-Graphite Business  
October 2019

# Next-Generation Graphite Starts Here.



**HXG**

**HEXAGON** 

# Important Notices

## DISCLAIMER

The purpose of this presentation is to provide background information to assist in obtaining a general understanding of the Company's proposals and objectives. This presentation may contain some references to forecasts, estimates, assumptions and other forward-looking statements. Although the Company believes that its expectations, estimates and forecast outcomes are based on reasonable assumptions, it can give no assurance that they will be achieved. They may be affected by a variety of variables and changes in underlying assumptions that are subject to risk factors associated with the nature of the business, which could cause actual results to differ materially from those expressed herein. This presentation is not to be considered as a recommendation by the Company or any of its subsidiaries, directors, officers, affiliates, associates or representatives that any person invest in its securities. It does not take into account the investment objectives, financial situation and particular needs of each potential investor. Investors should make and rely upon their own enquires and assessments before deciding to acquire or deal in the Company's securities. If you are unclear in relation to any matter or you have any questions, you should seek advice from an accountant or financial adviser.

All references to dollars (\$) and cents in this presentation are to Australian Dollars, unless otherwise stated.

## FORWARD-LOOKING STATEMENTS

This presentation includes forward-looking statements that are only predictions and are subject to risks, uncertainties and assumptions, which are outside the control of Hexagon Resources Limited.

Actual values, results, interpretations or events may be materially different to those expressed or implied in this presentation. Given these uncertainties, recipients are cautioned not to place reliance on forward-looking statements in the presentation as they are relevant only at or near the date of issue. Subject to any continuing obligations under applicable law and ASX Listing Rules, Hexagon Resources Limited does not undertake any obligation to update or revise any information or any of the forward-looking statements in this presentation or any changes in events, conditions or circumstances on which any such forward-looking statement is based.

This presentation has been prepared by the Company. It contains background information about the Company current at the date of this presentation. The presentation is in summary form and does not purport to be all inclusive or complete. Recipients should conduct their own investigations and perform their own analysis in order to satisfy themselves as to the accuracy and completeness of the information, statements and opinions contained in this presentation. The presentation is for information purposes only. Neither this presentation nor information contained in it constitutes an offer, invitation, solicitation or recommendation in relation to the purchase or sale of shares in any jurisdiction. The presentation may not be distributed in any jurisdiction except in accordance with legal requirements applicable in such jurisdiction. Recipients should inform themselves of the restrictions that apply to their own jurisdiction as a failure to do so may result in a violation of securities laws in such jurisdiction. This presentation does not constitute investment advice and has been prepared without taking into account the recipient's investment objectives, financial circumstances or particular needs and the opinions and recommendations in this presentation are not intended to represent recommendations of particular investments to particular persons. Recipients should seek professional advice when deciding if an investment is appropriate. All securities transactions involve risks, which include (among others) the risk of adverse or unanticipated market, financial or political developments.

To the fullest extent of the law, Hexagon Resources Limited, its officers, employees, agents, and advisers do not make any representation or warranty, express or implied, as to the currency, accuracy, reliability, or completeness of any information, statements, opinion, estimates, forecasts, or other representations contained in this presentation. No responsibility for any errors or omissions from the presentation arising out of negligence or otherwise is accepted.

[www.hxg-energy.com](http://www.hxg-energy.com)

© 2019 Hexagon Resources Limited. All rights reserved.



The background of the slide is a scanning electron microscope (SEM) image of natural-flake graphite concentrate. It shows several large, dark, layered flakes of graphite with a rough, fibrous texture. The flakes are oriented in various directions, some showing clear parallel layering. The lighting highlights the edges and surfaces of the flakes, creating a sense of depth and highlighting their irregular shapes.

**Ongoing material events in  
the global graphite  
upstream have led to  
HXG's sole focus on its US  
downstream business**

*SEM image of HXG's natural-flake graphite concentrate*

**HEXAGON** 

# Graphite Upstream

## A Buyers' Market

Product — depressed prices, ongoing and significant oversupply; excess capacity; incumbents can ramp-up/expand production quicker and at lower cost than a new entrant ever could

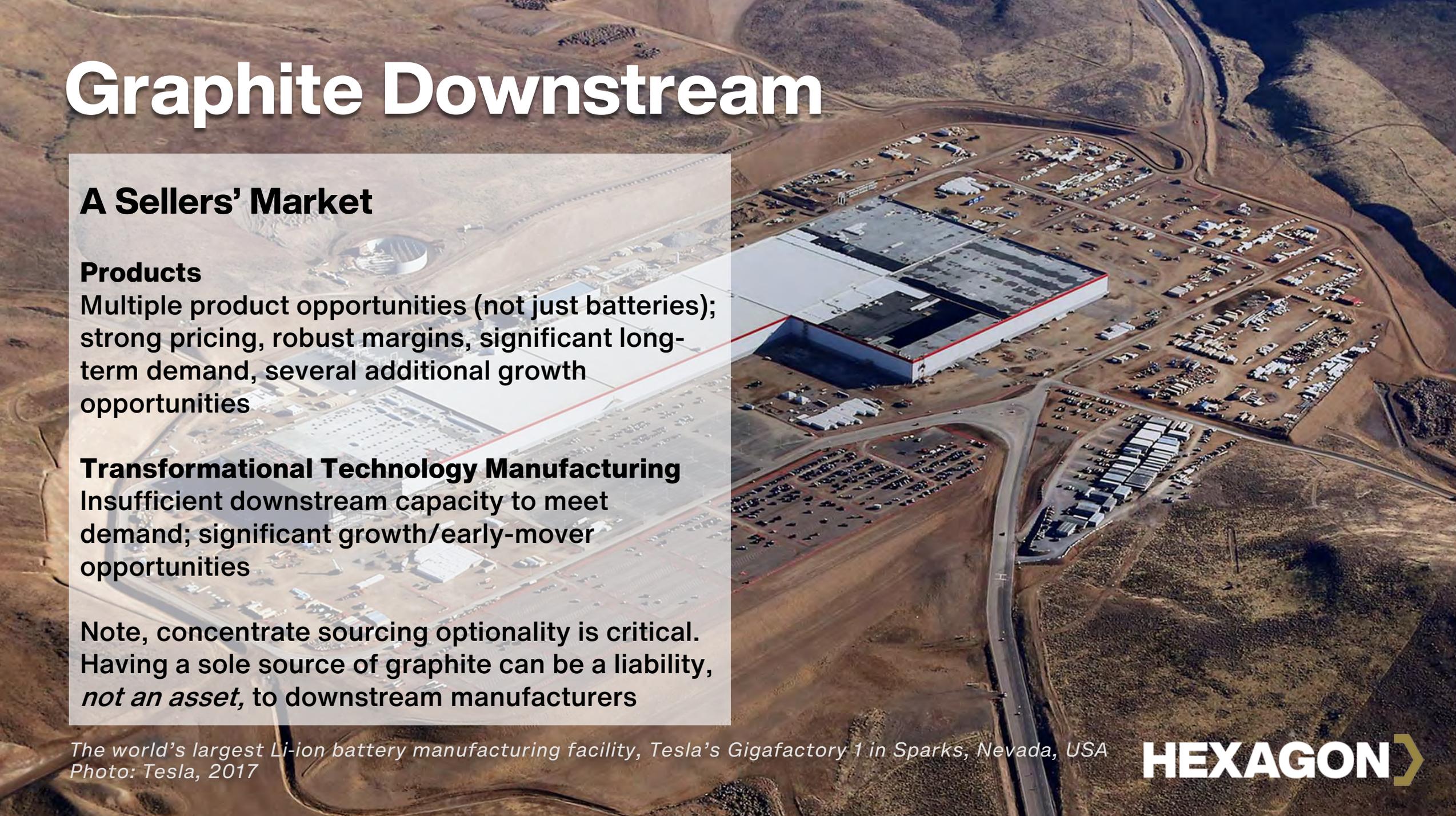
Mine Development — oversaturated space and limited-value creation opportunities for shareholders until demand and supply are in balance (2023-2024)

Note, HXG sees tremendous demand for upstream development opportunities 2024 onward

*Graphite mining at Jixi City Puchen Graphite Co, Ltd in Jixi, southeastern Heilongjiang Province, China.  
Photo: G&W, 2019*

**HEXAGON** 

# Graphite Downstream



## A Sellers' Market

### Products

Multiple product opportunities (not just batteries); strong pricing, robust margins, significant long-term demand, several additional growth opportunities

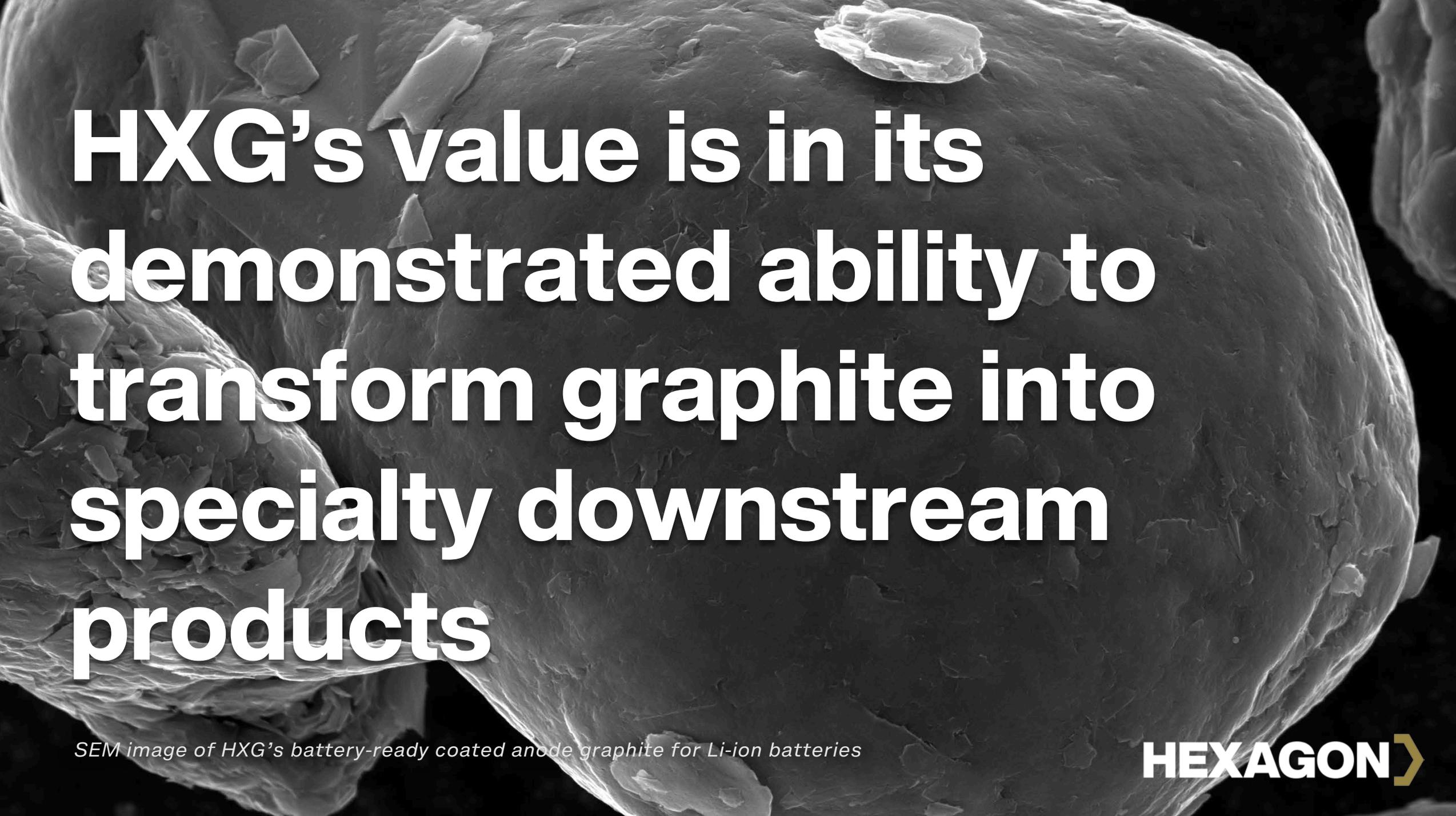
### Transformational Technology Manufacturing

Insufficient downstream capacity to meet demand; significant growth/early-mover opportunities

Note, concentrate sourcing optionality is critical. Having a sole source of graphite can be a liability, *not an asset*, to downstream manufacturers

The world's largest Li-ion battery manufacturing facility, Tesla's Gigafactory 1 in Sparks, Nevada, USA  
Photo: Tesla, 2017

**HEXAGON** 

The background of the image is a scanning electron microscope (SEM) image showing a highly textured, layered structure of graphite. The surface is covered with numerous small, irregular, flake-like particles, which are the coated anode graphite. The overall appearance is dark and granular, with some larger, more distinct flake structures visible. The text is overlaid on this image in a large, bold, white font.

**HXG's value is in its  
demonstrated ability to  
transform graphite into  
specialty downstream  
products**

*SEM image of HXG's battery-ready coated anode graphite for Li-ion batteries*

**HEXAGON** 

# HXG Downstream Growth Strategy

## Objectives

1. Value-creative utilisation of HXG's assets
2. Create new and sustained **shareholder value**
3. Maximise value; generate future **cash flows** quickly and efficiently
4. Successfully identify, effectively manage, accurately measure, and develop near-term **downstream market opportunities**
5. Rapidly bring premium **Made-in-USA products** to market
6. Diversify US downstream **Graphite** focus to include **Rare Earth Elements (REEs)**
7. Communicate effectively with stakeholders



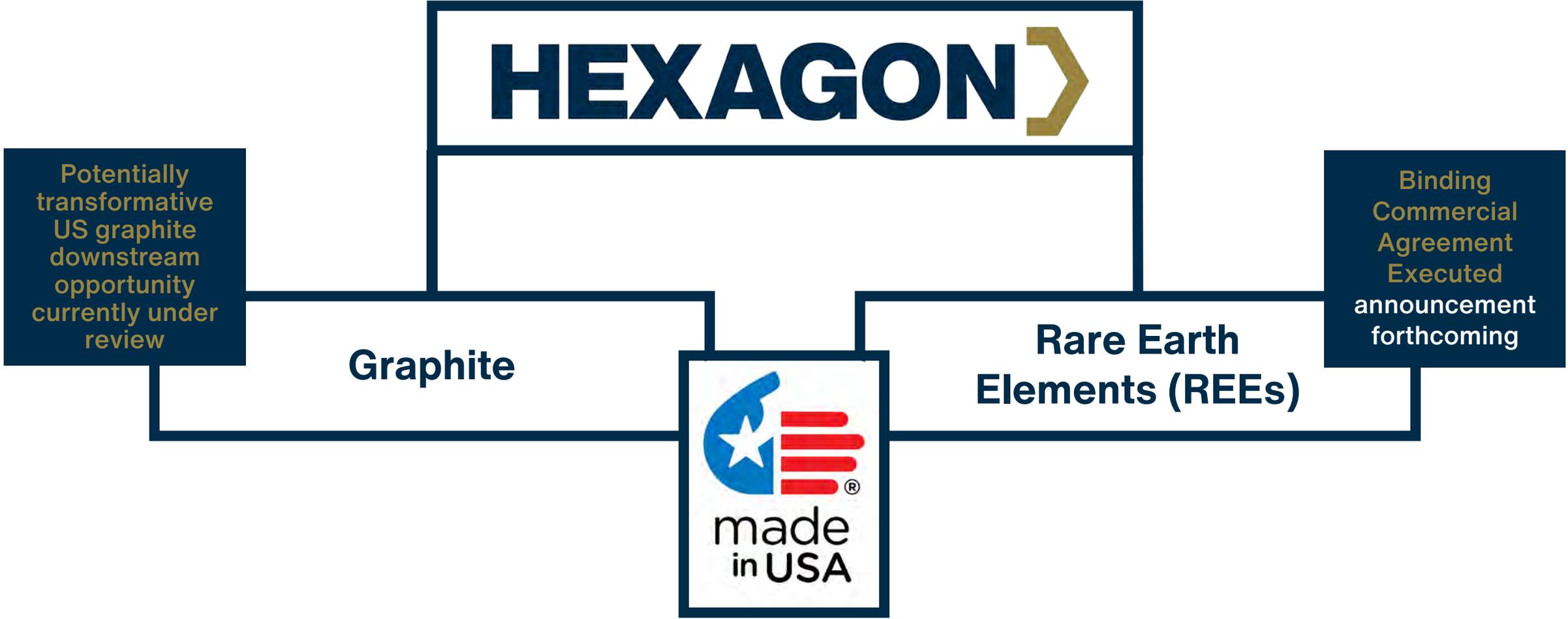
*Improving stakeholder engagement –  
CEO and Managing Director, Mike Rosenstreich,  
filming a HXG corporate-update video segment in  
North America on 19 September 2019  
Photo: G&W*

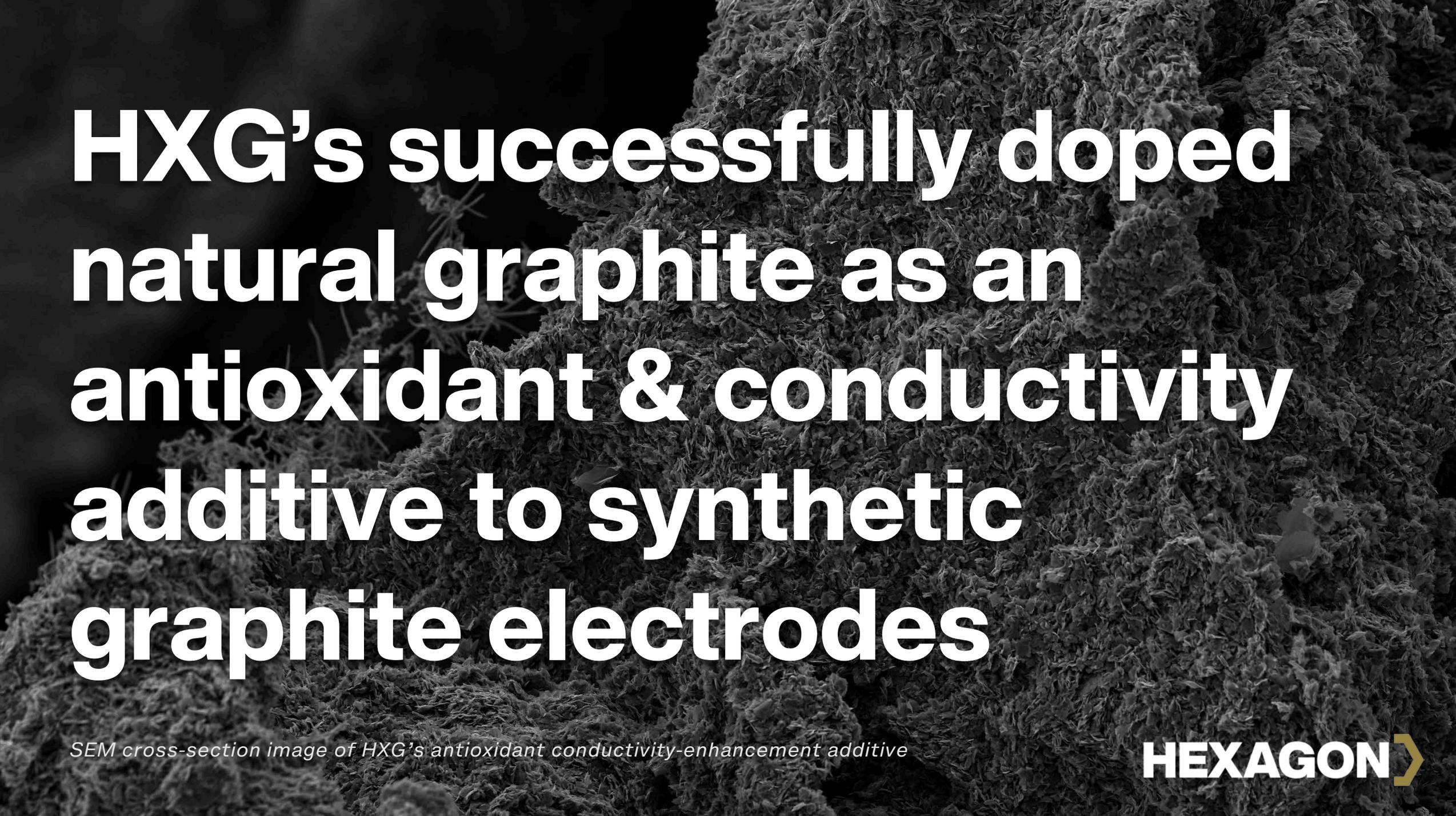
# HXG Downstream Growth Strategy

## Go-to-Market Strategy

- Detailed, complete, commercialisable, enduring
- Accelerated qualification timelines, providing significant opportunities as an early-mover
- Commercialising downstream technologies and expertise to transform graphite into high-value end products by building on HXG's significant development work
- Diverse range of battery and energy products
- Deep relationships with leading end users and industry experts
- Increase HXG's enterprise value by partnering with an industry innovator to commercialise a demonstrated key downstream Rare-Earth Elements (REEs) technology
- Advancing US-based businesses with leading global commercial partners

# HXG Downstream Growth Strategy



The background of the slide is a grayscale scanning electron microscope (SEM) cross-section image of a material. It shows a dense, porous, and fibrous structure with many small, interconnected particles and fibers, creating a complex, three-dimensional network. The lighting highlights the texture and depth of the material.

# **HXG's successfully doped natural graphite as an antioxidant & conductivity additive to synthetic graphite electrodes**

*SEM cross-section image of HXG's antioxidant conductivity-enhancement additive*

**HEXAGON** 

# Downstream Graphite Demand Drivers



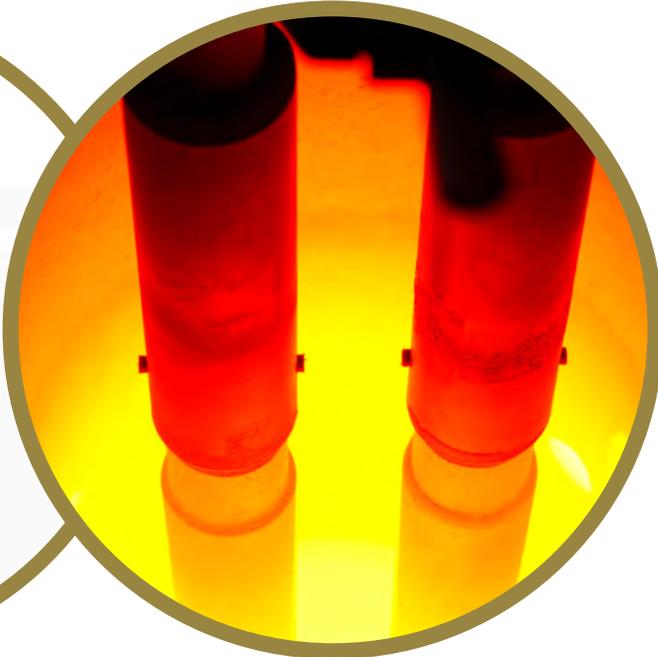
**Electric  
Transportation**



**Stationary  
Storage**



**Primary  
Batteries**



**Industrial &  
Energy**

# HXG Downstream Growth Strategy

HXG's 'Go-to-Market' US downstream business strategy is based on extensive input and guidance from battery-industry leaders

- Driven by major end users
- Not reliant on upstream development activities
- HXG has gained an intimate knowledge of major potential customers' immediate and future needs; this knowledge and insight is the foundation the Company's downstream business
- With this deep understanding, HXG can better serve the wants and needs of potential customers and, in turn, build long-term trusted business relationships
- Forthcoming business plan de-risks the enterprise and rapidly advances commercial opportunities



*Li-ion battery anode manufacturing at CATL in China. Led by its American CTO Robert Galyen, CATL has become the world's second largest Li-ion battery manufacturer in less than 10 years*

# Battery Customer Requirements



## Source Optionality

Customers require products derived from several different upstream commercial graphite concentrate producers

## Product Optionality

Customers require a suite of natural, synthetic and blended specialty graphite products

## Familiarity & Safety

Customers require specialty graphite products manufactured by current industry-accepted technologies

## Testing Data

Customers require extensive materials and commercial performance testing, utilising standard industry formulations

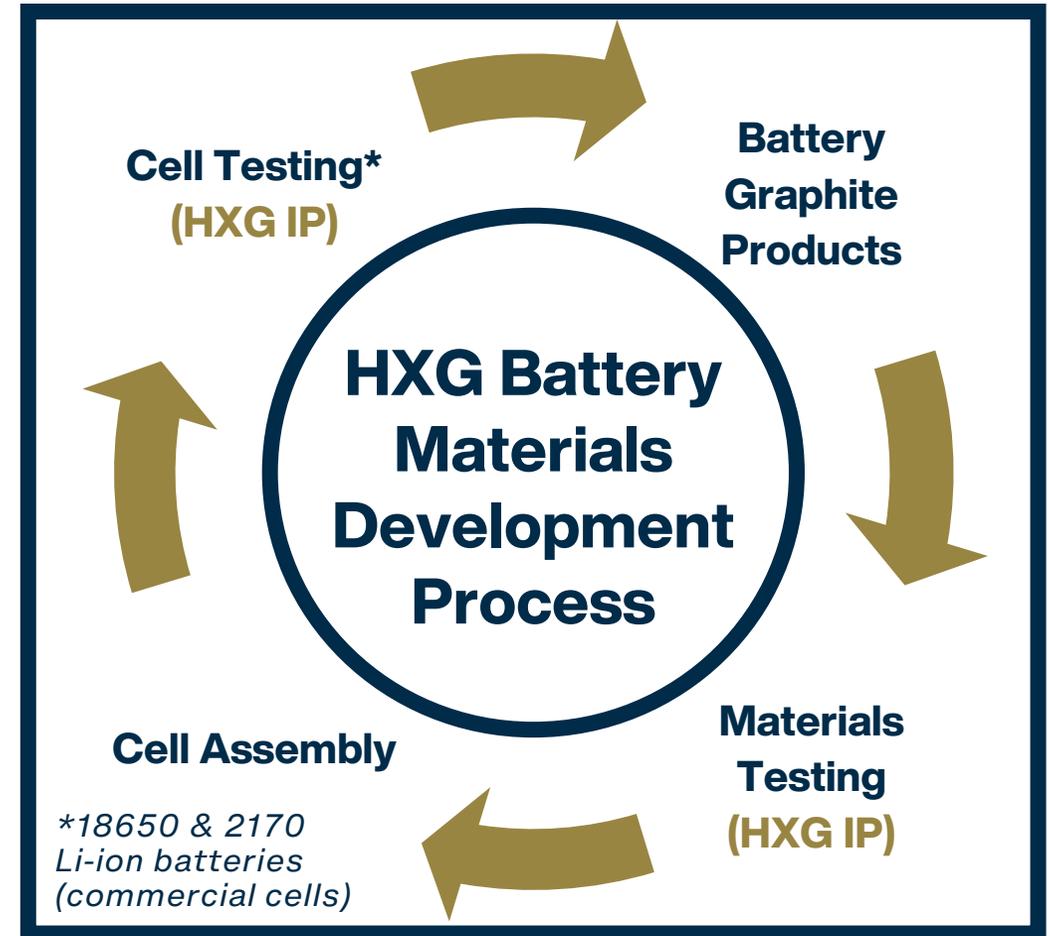
## Performance, Consistency & Scalability

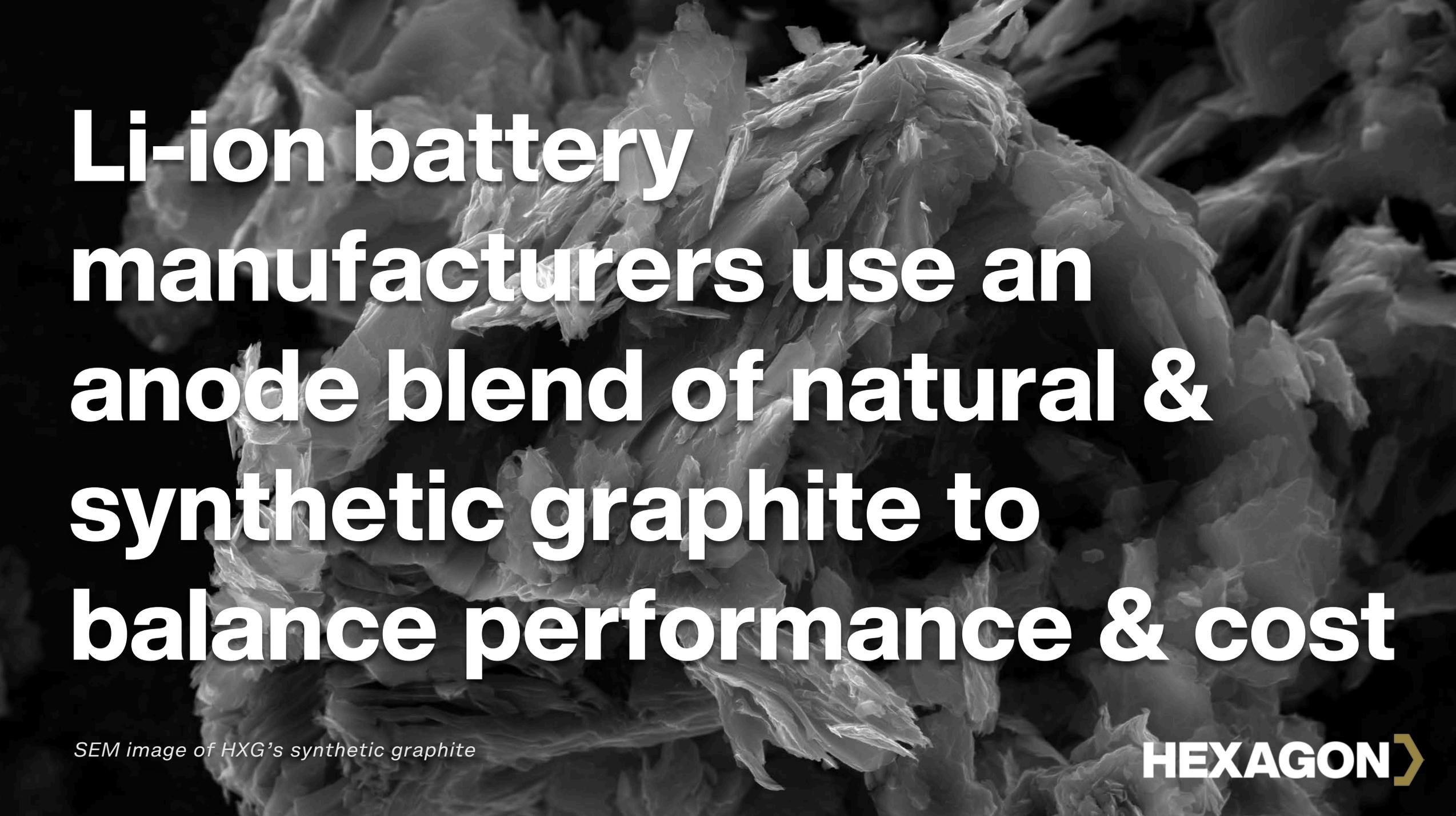
Customers require consistent, high-performance, Made-in-USA products with capacity to scale production

**HEXAGON** 

# Responding to Current Market Needs

- HXG's extensive downstream graphite **product testing** is of critical import and will **drive sales** (*will demonstrate commercial suitability, product electrochemical/electric quality and performance, stability, long-term cycling capacity, safety, etc.*)
- The resultant, continually growing product **testing dataset/IP** will become a **core asset** of the Company and is key to **end-user approvals** and purchase orders
- HXG's downstream graphite operations will consist of **natural, synthetic and blended** (*natural and synthetic*) **specialty graphite products** for energy and industrial applications



The background of the slide is a grayscale scanning electron microscope (SEM) image of synthetic graphite. It shows a complex, layered, and somewhat porous structure with many small, overlapping flakes and irregular shapes, characteristic of synthetic graphite used in battery anodes.

**Li-ion battery  
manufacturers use an  
anode blend of natural &  
synthetic graphite to  
balance performance & cost**

*SEM image of HXG's synthetic graphite*

**HEXAGON** 

# Responding to Current Market Needs

## Ready to address customers today

HXG's unique, go-to-market strategy is based on commercially available feedstocks, transformed utilising only proven commercial technologies already approved and understood by end users to sell into markets as quickly as possible

## Ready to address customers tomorrow

HXG's downstream is underpinned by ongoing commercial development with leading next-generation technologies such as electrothermal fluidised furnace testwork (*i.e. partnering on alternative purification technologies with industry leaders*) to main/increase market share if/when new transformation technologies are adopted by industry

## Made-in-USA

Products provide customers a potential competitive advantage (*US content must be disclosed by automobile manufacturers per the US Federal Trade Commission's American Automobile Labeling Act*)



# HXG Competitive Advantages

## Go-To-Market Strategy

Speed to Market & Revenues  
Accelerated Qualification Timelines

Product Diversification; Addressing Multiple Markets Now

Leading Technical Expertise & Commercial Partners

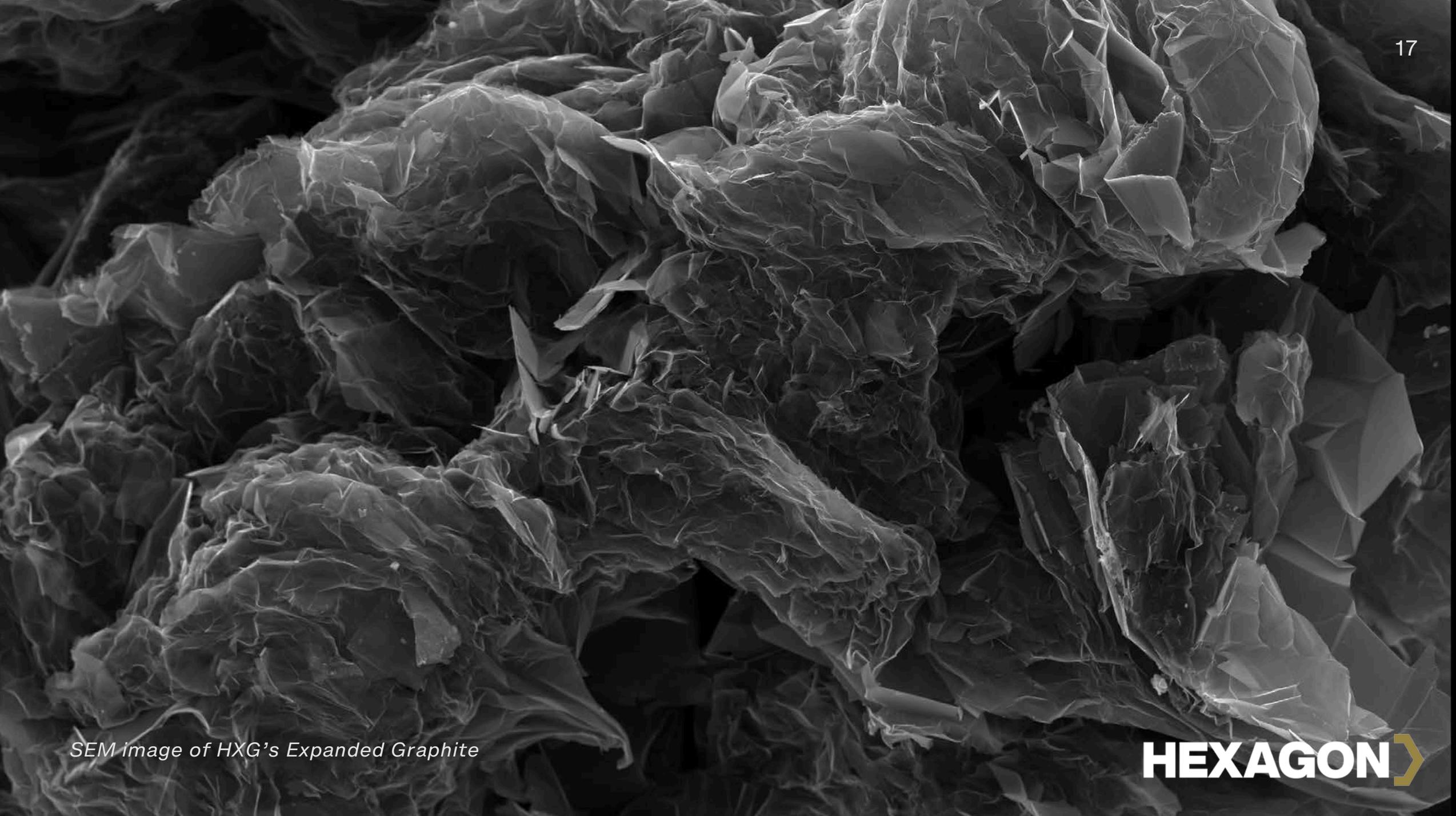
Established Relationships with Industry & End Users

Comprehensive Testing Data Library



*Workers assembling a Tesla Model 3 battery pack at the Tesla Gigafactory 1 in Nevada – the largest Li-ion battery-cell factory in the world*

*Photo: Las Vegas Review Journal*



*SEM image of HXG's Expanded Graphite*

# HXG Competitive Advantages

## Speed to Market & Revenues Accelerated Qualification Timelines

- Commercialising downstream technologies and expertise to transform graphite into high-value end products by building on HXG's significant development work
- Direct marketing to end users
- Utilising established industry-accepted downstream technologies already accepted/expected by end users
- Suite of high-quality products and full-manufacturing/testing capability; technical and commercial partners in place
- Defined suite of diverse, commercially available precursors
- Extensive testing data based on what end users require to engage
- Limited direct competition
- Significant early-mover advantage



*An LG Chem worker tends to a roll of anode material for Li-ion EV battery cells at LG Chem's plant in Holland, Michigan. The plant has multiple assembly lines running 24 hours a day and is capable of producing batteries for 30,000 EVs  
Photo: Automotive News*

# HXG Competitive Advantages

## Product Diversification Addressing Multiple Markets Now

- Diverse range of battery, energy and industrial products
- Targeting deep, high-growth, high-margin market sectors, including electric vehicles, energy storage, industrial and energy applications, renewable energy, and defence applications
- Suite of natural, synthetic and blended graphite products

## Leading Technical Expertise & Commercial Partners

- Downstream graphite product commercial laboratory
- Battery graphite commercial formulations laboratory
- Battery assembly commercial scale-up partner
- Long-term cycling commercial partner



*In July 2019, BMW Group announced investment to double Li-ion battery production at its largest plant worldwide – in Spartanburg, South Carolina – for the X3 and X5 PHEVs  
Photo: Automotive News*

# HXG Competitive Advantages

## Established Relationships with Industry & End Users

- Business strategy is based on extensive input and guidance from battery-industry leaders
- Extensive knowledge of major potential customers' immediate and future needs
- Relationships with world-leading battery manufacturers and electric vehicle companies
- Strong end-user-driven marketing programme

## Comprehensive Testing Data Library

- Will become a core asset (IP) of the Company
- Testing data library is of critical import to end users for product selection and will drive sales
- Data library is key to end-user approvals and purchase orders
- All development work and testing data is interconnected



*Mercedes Benz U.S. International has invested US\$1B in its Tuscaloosa, Alabama plant to build Li-ion batteries for the EQC 400 EV  
Photo: Daimler AG*



# **HXG's Downstream Graphite Transformation Technical Accomplishments**

# Battery-Grade Purification

Produced  $\geq 99.99$  wt% C purified natural-flake graphite concentrate via thermal purification

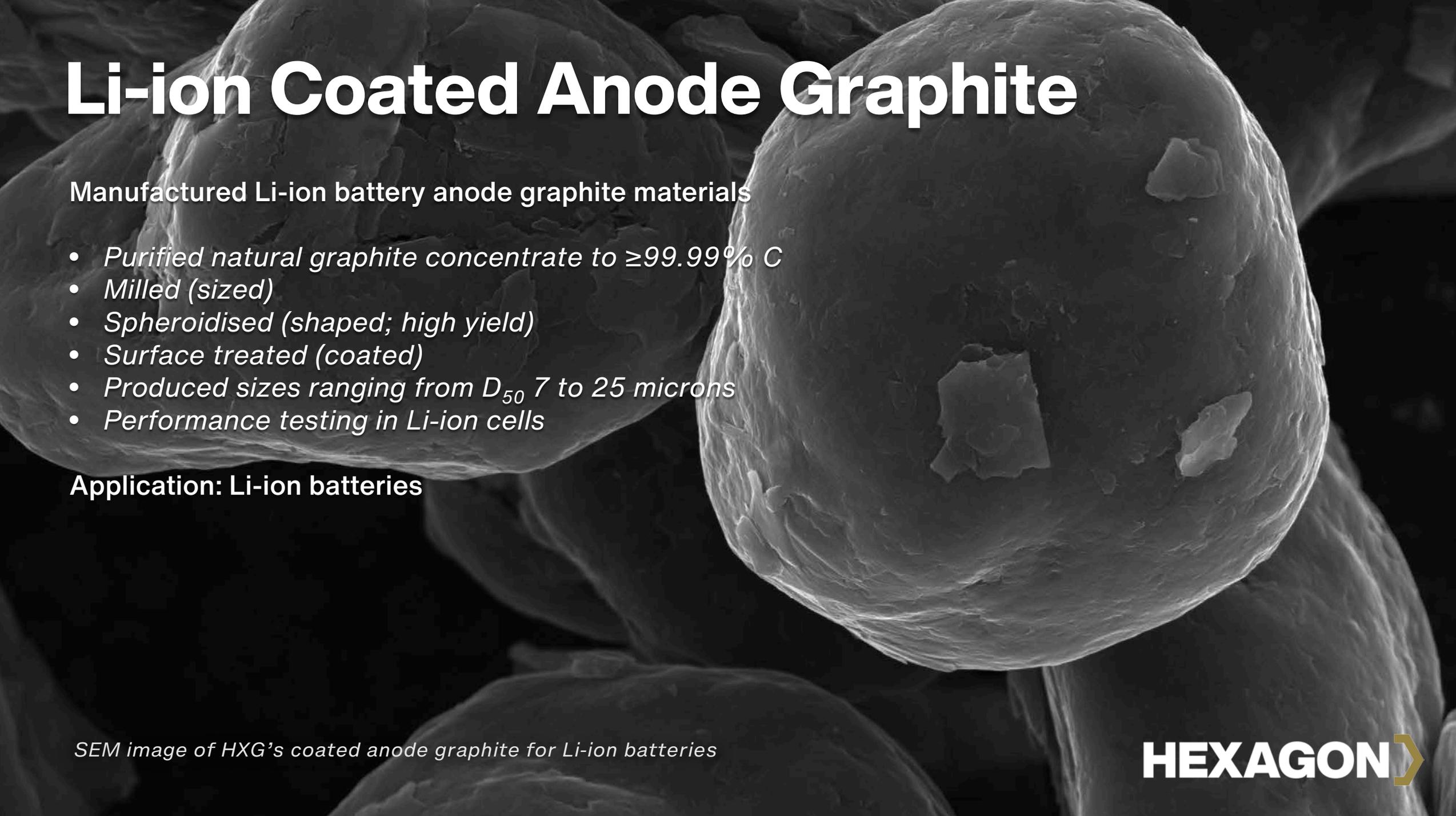
- *Battery applications require a net purity of  $\geq 99.95\%$  C*

Applications: serves as the precursor for all high-value downstream graphite products

*SEM image of HXG's 99.9999 wt% C purified graphite concentrate*

**HEXAGON** 

# Li-ion Coated Anode Graphite

The background of the slide is a scanning electron microscope (SEM) image showing several large, spherical particles of coated anode graphite. The particles have a rough, textured surface with some irregularities and small protrusions, characteristic of a coated material. The lighting is directional, creating highlights and shadows that emphasize the three-dimensional structure of the particles.

Manufactured Li-ion battery anode graphite materials

- *Purified natural graphite concentrate to  $\geq 99.99\%$  C*
- *Milled (sized)*
- *Spheroidised (shaped; high yield)*
- *Surface treated (coated)*
- *Produced sizes ranging from  $D_{50}$  7 to 25 microns*
- *Performance testing in Li-ion cells*

Application: Li-ion batteries

*SEM image of HXG's coated anode graphite for Li-ion batteries*

# Conductivity-Enhancement Graphite

Manufactured battery cathode conductivity enhancement graphite (CEG) materials

- *Purified natural graphite concentrate to  $\geq 99.99\%$  C*
- *Produced expandable graphite (graphite intercalation)*
- *Produced expanded graphite (thermal shock)*
- *Milled expanded graphite into high-performance CEG*
- *Produced and tested both standard and high-performance CEG products*

Applications: all major commercial battery cathodes chemistries  
*(Li-ion, primary lithium, alkaline, and lead acid batteries)*

*SEM image of HXG's cathode conductivity-enhancement graphite*

# Antioxidant Conductivity Enhancement Additive

Manufactured antioxidant conductivity enhancement additives for graphite electrodes

- *High-performance purified natural graphite additive to increase electrical and thermal performance, while extending life in synthetic graphite electrodes in electric-arc furnace (EAF) steel production*
- *Details forthcoming*

Application: graphite electrodes for EAF furnaces

*SEM image of HXG's Antioxidant Conductivity Enhancement Additive*

**HEXAGON** 

# Expandable & Expanded Graphite

Manufactured expanded/expandable graphite materials

- *Purified natural graphite concentrate to  $\geq 99.99\%$  C*
- *Produced expandable graphite (graphite intercalation)*
- *Produced expanded graphite (thermal shock exfoliation) with significant expansion*

Applications: flame-retardant/fire-suppression building materials, thermal management systems, sealing, ceramics, plastics, geothermal/energy, and batteries

*SEM image of HXG's expanded graphite*

**HEXAGON** 

# Synthetic Industrial Diamonds



## Manufactured synthetic industrial diamonds

- *High Pressure High Temperature (HPHT) synthesis of cultured diamonds produced from natural graphite flake*

*Applications: various industrial applications (cutting, grinding and polishing media) and active and passive semiconductor devices*

*SEM image of HXG's synthetic industrial diamond material*

# Charles Whitfield

## Chairman

The Principal Investment Officer at Drumrock Capital, Mr. Whitfield has extensive experience in both the battery resource sector and in the development of specialty mineral projects and companies. Previous to joining Hexagon, Charles undertook the turnaround and progression into profitable operation of ASX-listed Galaxy Resources Ltd, a producer of lithium for the battery industry.

Previously, Mr. Whitfield served as Managing Director of Citigroup where he served as Head of the Corporate Equity Solutions Group (Asia Pacific). Prior to this, he worked for Deutsche Bank where he served as head of the Strategic Equity Transactions Group (Asia Pacific).

Mr. Whitfield received his Masters in Business Administration (majoring in Finance and Strategy) from Columbia Business School (New York) and his Bachelor of Economics from The University of Exeter (UK).



**HEXAGON** 

# Mike Rosenstreich

## CEO & Managing Director

Mr. Rosenstreich is an international mining executive with more than 30 years' experience, including 13 years as an exploration and mine geologist with Homestake Gold and Dominion Mining, 6 years Corporate Finance with Rothschild Australia, 9 years as founding Managing Director of ASX-listed Bass Metals Ltd. from pre-IPO stage, exploration success and more than 5 years of base and precious metals production, and 3 years as Principal at Keystone Resource Development, providing corporate, technical and financial consulting services.

During this time he has been involved in a wide range of commodities from gold and base metals to industrials such as tantalum, feldspar and mineral sands across the globe. He joined Hexagon in early 2017 and has been instrumental in charting the Company's path to creating a downstream energy graphite and critical materials business.

Mr. Rosenstreich is a Fellow of the AusIMM and a member of the AICD. He holds a BSc (Hons) in Geology (Otago) and Masters in Mineral and Energy Economics (Macquarie).



**HEXAGON** 

# Dr. Gareth Hatch

## Chief Technical Officer

Dr. Hatch is the CEO, Chairman and Co-Founder of Innovation Metals Corp. (IMC) and co-inventor of the RapidSX™ technology to separate and purify rare-earth elements (REEs). He was previously served as CEO and Executive Director of TSX Venture-listed Alabama Graphite Corp, and Director of Technology at Dexter Magnetic Technologies. Dr. Hatch holds five US patents on various inventions based on REE permanent magnets.

Dr. Hatch holds a BEng (Hons) in materials science & technology and a PhD in metallurgy & materials, both from the University of Birmingham. He is a Fellow of the Institute of Materials, Minerals & Mining, a Fellow of the Institution of Engineering & Technology, and is a Chartered Engineer through the UK Engineering Council.

During 2014-2016, Dr. Hatch led a major US-DoD-funded research program, overseeing research on new processes for critical materials. He is a member of a NATO STO strategy team on REEs and is a member of the Canadian ISO TC/298 Mirror Committee on standards for REEs.



**HEXAGON** 

# Contact

## Hexagon Resources Limited

**Mike Rosenstreich**  
CEO and Managing Director

[info@hexagonresources.com](mailto:info@hexagonresources.com)  
+61 (08) 6244 0349

[www.hexagonresources.com](http://www.hexagonresources.com)





**Thank you.**

*SEM cross-section image of HXG's graphite foil*

**HEXAGON** 

A scanning electron microscope (SEM) image showing a dense, layered structure of graphite. The layers are dark and appear to be peeling or flaking, revealing a rough, fibrous texture. The overall appearance is that of a highly textured, multi-layered material.

# Next-Generation Graphite Starts Here.

Find out more at  
[www.hxg-energy.com](http://www.hxg-energy.com)

**HEXAGON** 