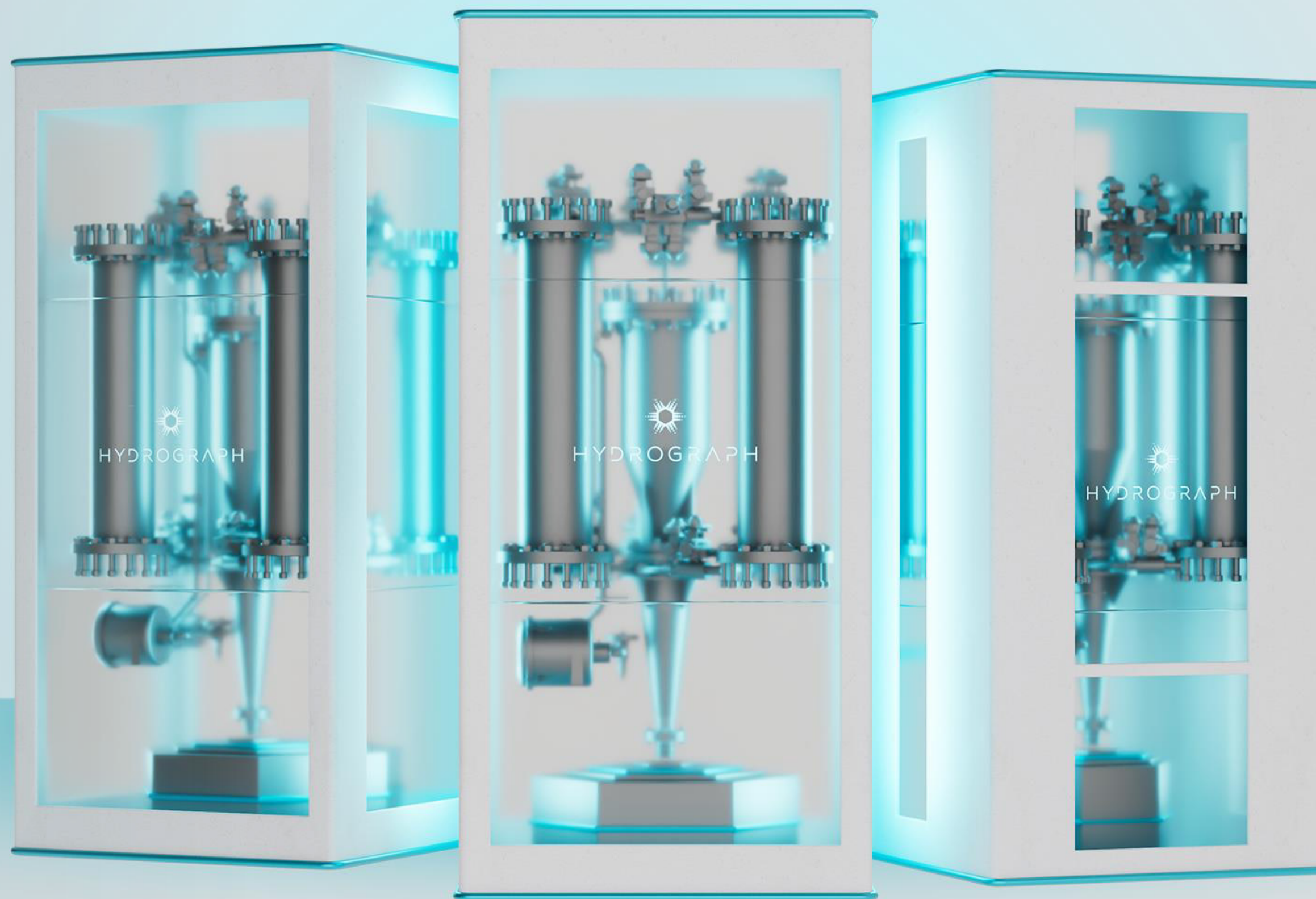




HYDROGRAPH

# UNLOCKING THE POTENTIAL OF GRAPHENE



Investor presentation

CSE: HG | OTCQB: HGRAF | FRA: M98



# FORWARD LOOKING STATEMENT

This deck contains certain “forward looking statements” and certain “forward-looking information” as defined under applicable Canadian securities laws. Forward-looking statements and information can generally be identified by the use of forward-looking terminology such as “may”, “will”, “expect”, “intend”, “estimate”, “upon” “anticipate”, “believe”, “continue”, “plans” or similar terminology. Forward-looking statements and information include, but are not limited to: the use of the net proceeds from the previously announced private placement, anticipated benefits resulting from the Marketing Services Agreement, the future exercise of the Options, ability to successfully increase commercial scale production at its manufacturing facility, and the timing thereof, the potential valuation of Company, any EBITDA predictions, the commercialization of HydroGraph’s products that lead to customer contracts resulting in our potential valuation and EBITDA predictions, and the Company’s business plans and strategies.

Forward-looking statements and information are based on forecasts of future results, estimates of amounts not yet determinable and assumptions that, while believed by management to be reasonable, are inherently subject to significant business, economic and competitive uncertainties and contingencies. Forward-looking statements and information are subject to various known and unknown risks and uncertainties, many of which are beyond the ability of HydroGraph to control or predict, that may cause HydroGraph’s actual results, performance or achievements to be materially different from those expressed or implied thereby, and are developed based on assumptions about such risks, uncertainties and other factors set out herein, including but not limited to: HydroGraph’s ability to implement its business strategies; risks associated with general economic

conditions; adverse industry events; stakeholder engagement; marketing and transportation costs; loss of markets; volatility of commodity prices; inability to access sufficient capital from internal and external sources, and/or inability to access sufficient capital on favorable terms; industry and government regulation; changes in legislation, income tax and regulatory matters; competition; currency and interest rate fluctuations; and other risks. HydroGraph does not undertake any obligation to update forward-looking information except as required by applicable law. Such forward-looking information represents management’s best judgment based on information currently available. No forward-looking statement can be guaranteed, and actual future results may vary materially. Accordingly, readers are advised not to place undue reliance on forward-looking statements.



# GRAPHENE

A nano material, is made up of pure carbon atoms and is the strongest and most conductive material known to man. As a supermaterial, it will help usher in an age of nanotechnology, which will touch virtually every known industry.





# HYDROGRAPH

## Overview

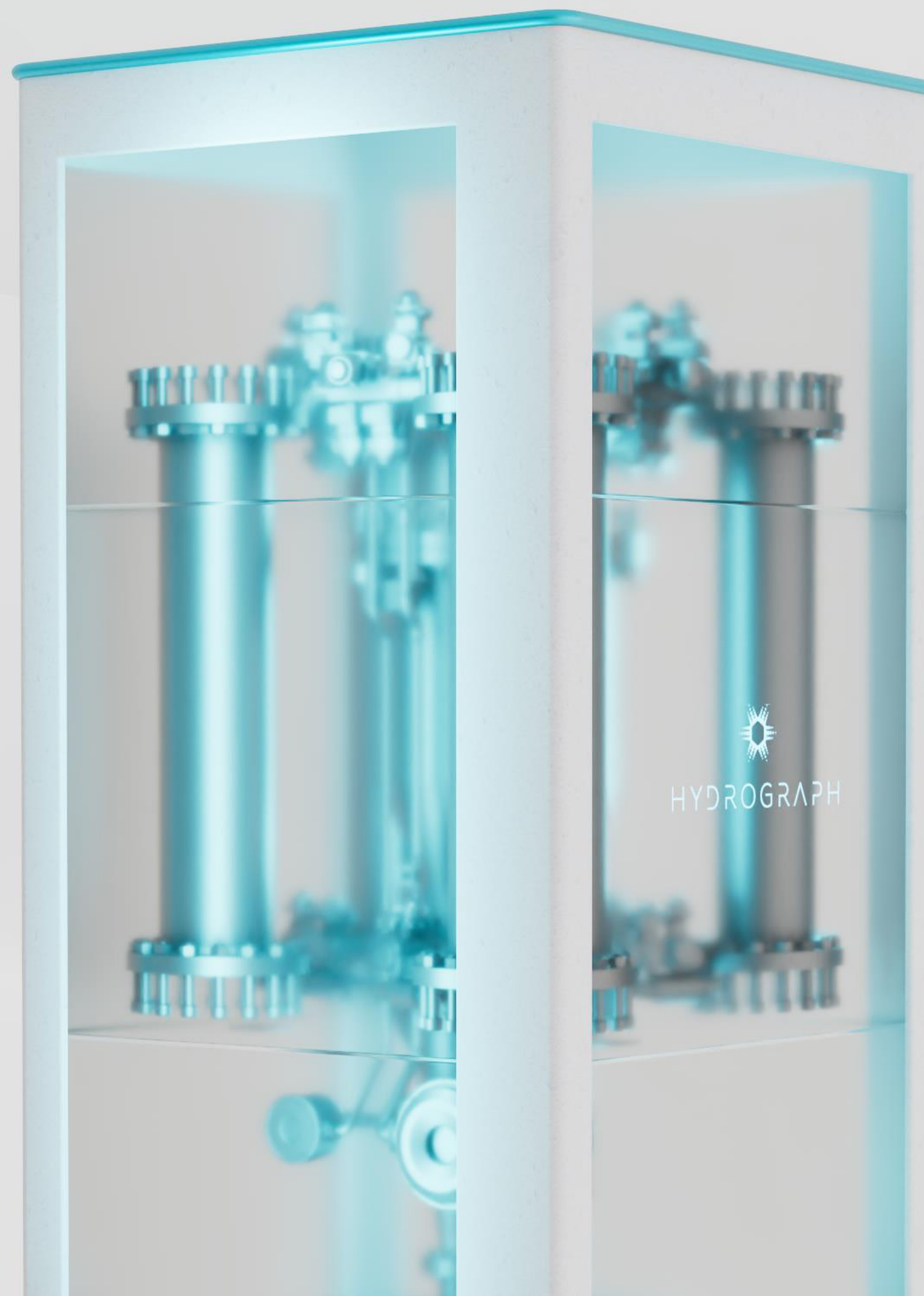
We produce the highest quality graphene in the industry at the greatest cost efficiency

HydroGraph uses a patented “explosion synthesis process”, which yields the highest purity, most powerful graphene in the industry.

- ✓ Our production process is the most environmentally friendly process in the world, and **commercialization has begun**
- ✓ HydroGraph graphene is being tested by more than **60 active customers**
- ✓ Our current scalable production capacity is **10 tons per year**
- ✓ New production units **can be built in 2-3 months**
- ✓ **Low capital intensity** – US\$10M to US\$15M of capex to generate US\$100M+ of sales
- ✓ 2025 will be focused on increasing the application development data set, scale up initiatives, and commercial relationships



HYDROGRAPH



## HydroGraph Highlights



2017  
Founded



16  
Employees



3 Patents Granted  
8 Pending



11  
Graphene Products



# WHAT MAKES GRAPHENE A SUPERMATERIAL



**Thermal Conductivity**  
Highest ever measured  
at  $\sim 4000 \text{ Wm}^{-1} \text{ K}^{-1}$



**Electron Mobility**  
As high as  $200,000 \text{ cm}^2/\text{V}\cdot\text{s}$ , much higher  
than silicon



**High Surface Area**  
As much as  $2,630 \text{ m}^2/\text{g}$ ,  
very high surface area



**Impermeability**  
Blocks all other elements,  
even hydrogen



**Strength**  
Graphene has a strength  
of  $130 \text{ GPa}$ , higher  
than steel



**Electrical Resistance**  
Graphene electrical  
resistivity of just  
 $0.2 \times 10^{-6} \Omega \cdot \text{cm}$



**Flexibility**  
Graphene can stretch  
up to 25% of its original  
length



**Thinness**  
A single layer of graphene  
is just  $0.345 \text{ nm}$



**UV Resistance**  
Blocks harmful UV rays  
by up to 70%



**Flame Resistant**  
Graphene significantly  
reduces flammability if  
added to polymers



**Transparent**  
Single layer graphene  
transmits approximately  
97.2% of light



**Stiffness**  
Young's modulus  $0.95$   
to  $1.1 \text{ TPa}$ , some of the  
highest ever measured





# BEST-IN-CLASS EXECUTIVE TEAM

- ✓ Multiple start-up experiences
- ✓ 100+ years of combined industry experience
- ✓ Deep understanding of nanomaterials
- ✓ CAD ~\$2.0M personal funds committed to date



**Kjirstin Breure**  
President and CEO

A 10-year background in emerging technologies, Ms. Breure holds a Masters in Materials Science and Engineering and was the original architect of HydroGraph's initial strategies and commercial plan. As the first employee, she was brought on as COO in 2020, joined the board of directors and was promoted to President in 2022, and was formalized as CEO in 2024.



**Ranjith Divigalpitiya**  
Chief Science Officer

More than 25 years as a physicist; invented 3M's graphene-like carbon coatings and contributed to 190 invention submissions and 20 granted US patents. Ranjith has authored more than 33 peer-reviewed papers and has significantly contributed to HydroGraph's patent portfolio.



**Stephen Corkill**  
VP Operations

As former VP of Engineering, Stephen designed and built HydroGraph's Hyperion unit which has been awarded the Graphene Council Verified Producer certification as well as ISO9001 accreditation. His work has also led to the Company's global reputation high quality, consistent graphene.



**Matt Anderson**  
CFO

Over 15 years of accounting and CFO experience with private and public companies. He is the Managing Director of Malaspina Consultants Inc., where he has worked since 2009. Matt holds a Bachelor of Commerce from McGill University and earned his CPA, CA accreditation in 2008, providing CFO services to junior public companies across various sectors.



**Chris Sorensen**  
VP R&D

As the former Cortelyou-Rust University Distinguished Professor in the department of physics at Kansas State University, Chris invented the company's detonation synthesis technology, laying the foundation for commercial development. He has seven patents and nearly 300 publications and is a fellow of the American Physical Society.



**Stefan Bossman**  
Lead Chemist

Stefan a Distinguished Professor emeritus at K State. He received his B.S. and PhD in chemistry from the University of Saarland, Germany. Previous posts include postdoctoral research associate at Columbia University, an assistant professor and subsequently an associate professor-ship at the University of Karlsruhe, Germany. Stefan holds a PhD, has authored more than 200 publications and holds 14 patents.

## BOARD OF DIRECTORS

**David Williams**  
Chairman

**Kjirstin Breure**  
Director, President, and CEO

**David Morris**  
Director (Independent)

**Paul Cox**  
Director (Independent)



**James Baker**  
Advisory Board Member

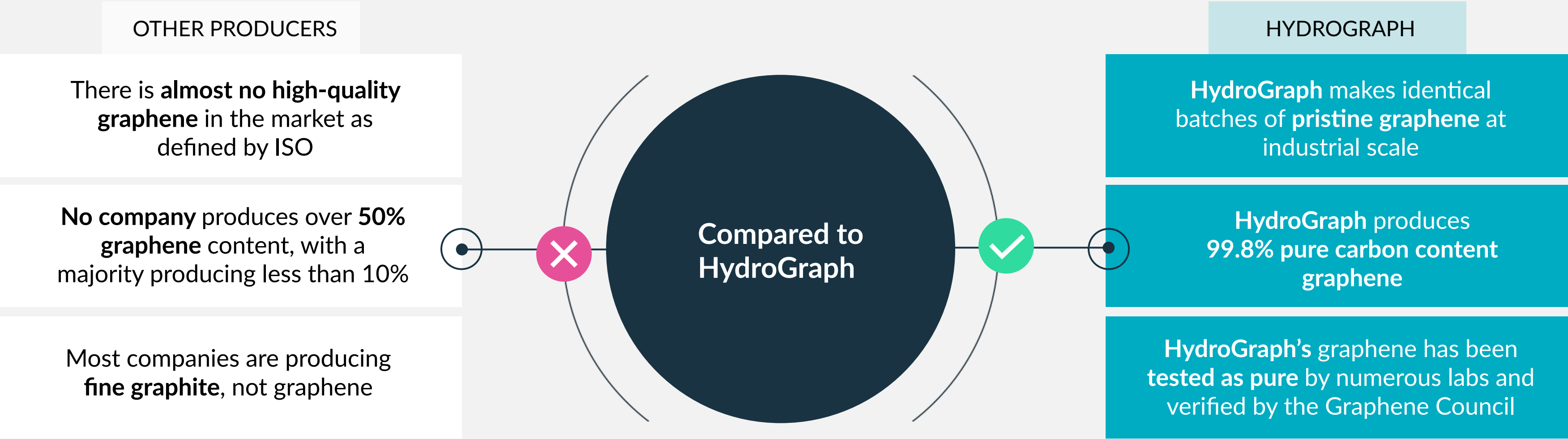
More than 25 years' experience in the defense, aerospace and security market leading and managing high technology businesses, and currently Professor of Practice at the University of Manchester and CEO of Graphene@Manchester, encompassing the Graphene Engineering Innovation Center (GEIC) and the National Graphene Institute (NGI). Responsible for business strategy development and delivery, including commercialization opportunities.



# DIFFERENTIATED PRODUCT- RAPIDLY GROWING MARKET

A serious issue in a market projected to reach \$7 billion by 2034 with a 31%+ CAGR

~300 companies worldwide claim to produce graphene  
An analysis of 60 companies by Advanced Materials journal found:



<https://www.thegraphenecouncil.org/page/Registry>



# HYDROGRAPH

## Investment thesis

1

### Highest purity

HydroGraph produces the highest performing graphene in the industry at industrial scale



2

### Consistent quality

Unlike other graphene producers, HydroGraph produces identical batches



3

### Green footprint

The Hyperion System, the Company's production unit, uses the lowest energy in the industry and produces no waste



4

### Global reach

HydroGraph's high-performance graphene can improve virtually every industry and has near unlimited potential impact



5

### Strong economics

HydroGraph unlocks value for the customer by strengthening competitive advantage



6

### Significant valuation upside

Low CAPEX process, large end markets, rapid market growth and differentiated products all lead to significant upside



HYDROGRAPH



# STRATEGIC PARTNERSHIP

HydroGraph partnership extended in 2024

- ✓ HG entered into a partnership with leading graphene R&D centre, the GEIC, in 2023
- ✓ The GEIC, contains all relevant industrial prototyping machines and characterization devices needed to commercialize graphene materials, is expediting the path to market
- ✓ As a university-affiliated institution, GEIC staff must maintain impartiality when selecting graphene for customer projects
- ✓ This cost-effective gateway facilitates customer engagement for the Company
- ✓ HG to explore new application areas and attract new customers through partnership
- ✓ HG's business development team utilizes data obtained from new materials testing
- ✓ HG collaborates on application development with both the GEIC and our own HydroGraph team onsite, gaining access to customers through the GEIC network



**James Baker**  
HydroGraph Advisory Board



**HydroGraph Graphene Production Facility**  
Manhattan, Kansas, US

**Graphene Engineering Innovation Centre (GEIC)**  
Manchester, UK – Birthplace of graphene

Manchester, where graphene was discovered in 2004, remains a hub for graphene activity and talent.

The GEIC serves as a key hub for customers to interact with graphene experts.





# ESTABLISHED RELATIONSHIPS

In Large Global Target Markets

A close-up, high-speed photograph of a mechanical engine part with oil splashing, creating a dynamic and energetic scene.

**LUBRICANTS**

**\$160B**  
Global Market

- 80% reduction of wear
- 24X improvement of lifetime
- 70% increase of lubricity
- Environmental benefit: longer life means less oil extracted and less spent oil to be disposed of
- Applicable to greases, motor oils, machining fluids, and more uses
- Ultra-low loadings

A close-up photograph of a carbon fiber composite material, showing its characteristic woven texture and a circular opening.

**COMPOSITES**

**\$90B**  
Global Market

- 8 orders of magnitude increase in conductivity
- Low (< 1-wt%) loading for double digit mechanical improvement
- Improves barrier properties
- 25 – 30% improvement in strength in PET and epoxy
- Indication that graphene enhances recyclability

A photograph showing a spray gun applying a fine mist of coating material onto a dark, flat surface.

**COATINGS**

**\$200B**  
Global Market

- Enhanced durability
- Light-weighting
- Enhanced electrical conductivity (static dissipative)
- Anti-corrosion
- EMI shielding capable
- Anti-fouling coatings
- UV protection
- Multi-functional improvements

A photograph of a concrete mixer truck discharging a large volume of wet concrete into a pile.

**CEMENT/CONCRETE**

**\$860B**  
Global Market

- 21% increase strength with 0.02 wt-% to binder
- 15% reduction in energy demand and Global Warming Potential as LCA benefits
- Reduced porosity leading to reduced water permeability, lowering freeze/thaw damage and rebar corrosion
- Significantly decreases the cure time allowing for 3D printing at scale

A 3D cutaway rendering of a car's chassis, highlighting the battery pack and energy storage components in orange and yellow.

**ENERGY STORAGE**

**\$250B**  
Global Market

- 47% increased Charge Acceptance Rate in lead acid batteries resulting faster charging
- Extends battery life by reduced sulfation
- Outperforms leading cathode catalyst in lithium-air batteries
- 4X capacity improvement in supercapacitors compared to high surface carbon black

# 2025: COMMERCIALIZATION IN PROCESS

<b>Large automotive company:</b> Multiple successful trials completed for automotive composites >>>	<b>Next:</b> Pilot industrial scale-up, followed by commercial scale-up negotiations targeting 2025. Tonnage volumes anticipated.
<b>Discussions with major PET producers:</b> Results have been replicated by multiple parties >>>	<b>Next:</b> FDA approval testing ongoing with customer support. Scale up expected to begin towards end of 2025. Global interest.
<b>Tactical Fibers:</b> Scale up order expected based on repeated results >>>	<b>Next:</b> Pilot industrial scale-up to commence at completion of current trial. Rapidly growing interest.



Generate application development data via the GEIC



Collaborate w/ customers through the GEIC and through internal BD activity



Engage in product development, if successful, move to industrial trial



Sign customer contracts



Scale up production

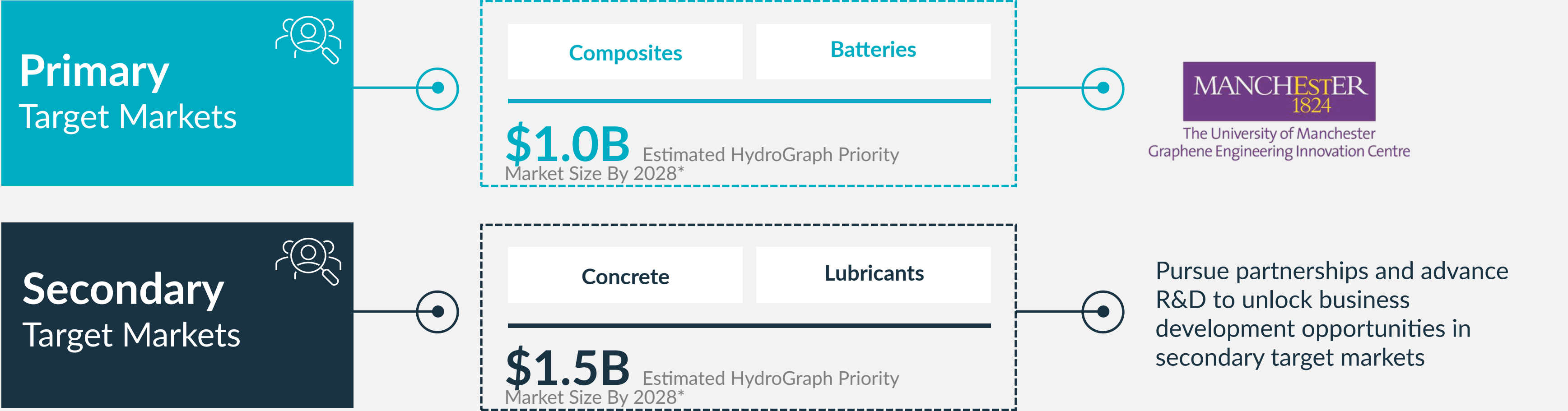
1-2 years



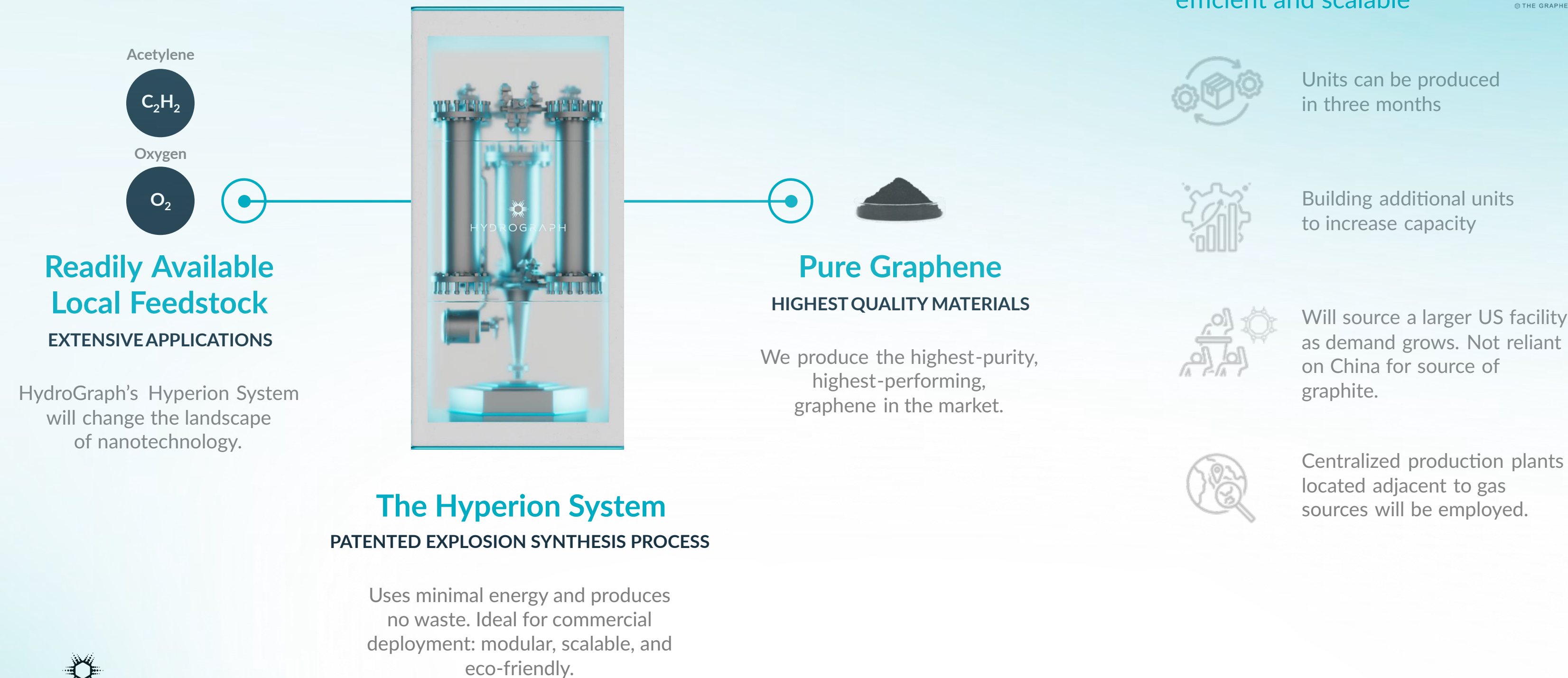


# HYDROGRAPH'S PATH TO MARKET

Targeting the right key markets for commercial scale



# OUR SOLUTION: THE HYPERION SYSTEM






HydroGraph's graphene helps customers increase the mechanical properties of their materials allowing for less to be used while reaching the same performance targets. This significantly reduced carbon emissions without increasing cost to the customer.






# A SUSTAINABLE SOLUTION FOR A SUSTAINABLE WORLD


HydroGraph produces pristine graphene with the smallest environmental footprint



No chemicals or solutions as part of the process



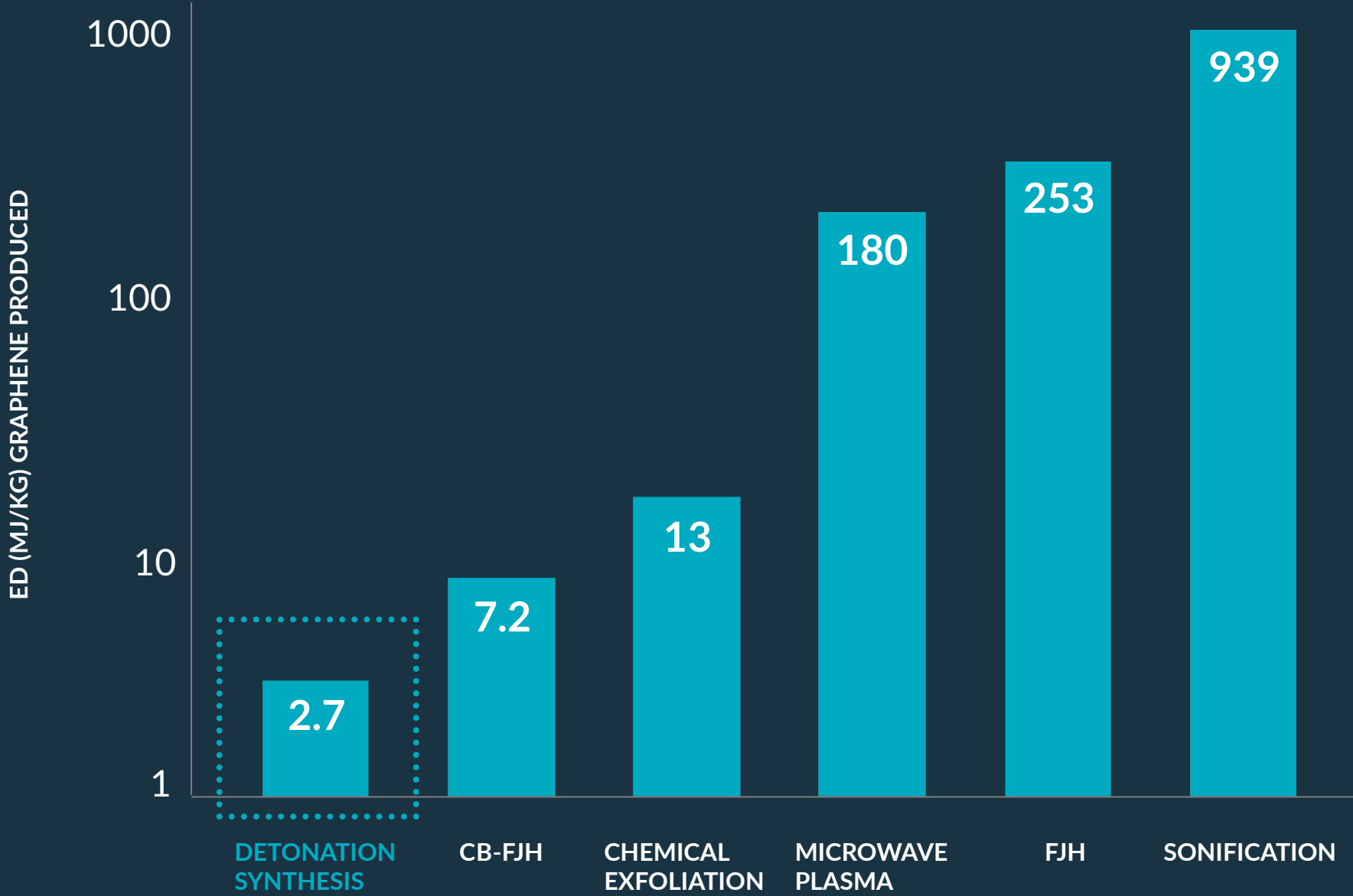
Minimal energy consumption



No greenhouse gas emissions



Energy Demand for Producing Graphene  
(Megajoule/Kilogram)<sup>1,2,3</sup>



Legend: CB-FJH: Carbon Black – Flash Joule Heating FJH: Flash Joule Heating

References: 1. Juong et.al., Nature | Vol577 | 30January 2020 | 647 2. Wyss et al., Communications Engineering, (2022) 3. US patent application US2017/0113935A1



# RAPID, LOW-COST PRODUCTION SCALABILITY

Become the leading global producer of high-quality graphene

1

Produce identical batches of pristine graphene at industrial scale

HydroGraph has the capability to produce the highest quality graphene at industrial scale in identical batches.

**This is an industry first.**

2

Employ centralized production model

To secure IP and boost margins, HydroGraph will build a centralized facility near an acetylene supply.

Gas costs mainly arise from compression and transport, while graphene is inexpensive to ship.

3

Establish production in key geographical regions

As customer demand grows through HydroGraph's application development activities, the Company will build additional centralized facilities to guarantee supply.

4

Expand capabilities to include formulation and masterbatch

To increase market penetration HydroGraph will include formulation and masterbatch offerings so customers can easily integrate graphene into their products without going through a testing process with the Company.



# PATENTED TECHNOLOGY

## Fractal Graphene Patented No: 9,440, 857 B2

The 2016 patent for the high-yield production of fractal graphene via detonation is the founding technology for HydroGraph. The detonation closed system produces the highest quality products, while conserving energy, preventing emissions and is modular and scalable for clients.

Additionally, the HydroGraph portfolio now contains patents relating to the production of nanomaterials, applications involving nanomaterials and clean energy.



HYDROGRAPH

### REACTIVE GRAPHENE

Disc. No.: 2019-064; Attorney Docket No.: 52468

Title: "Graphene/Graphene Oxide Core/Shell Particulates and Methods of Making and Using the Same"

PCT Application No.: PCT/US2020/038055

Filing Date: June 17, 2020

### GRAPHENE INK

RE: Disc. No. 2019-066

Title: "Nano-inks of Carbon Nanomaterials for Printing and Coating"

PCT Patent Application No.: PCT/US2020/039547

Filing Date: June 25, 2020

### GRAPHENE ENHANCED CARBON FIBER

Disc. No.: 2017-008; Docket No.: 49240-US

Title: "Additive Manufacturing of Continuous Fiber Thermoplastic Composites"

U.S. Application No.: 16/487,622 (PCT/US2018/018800)

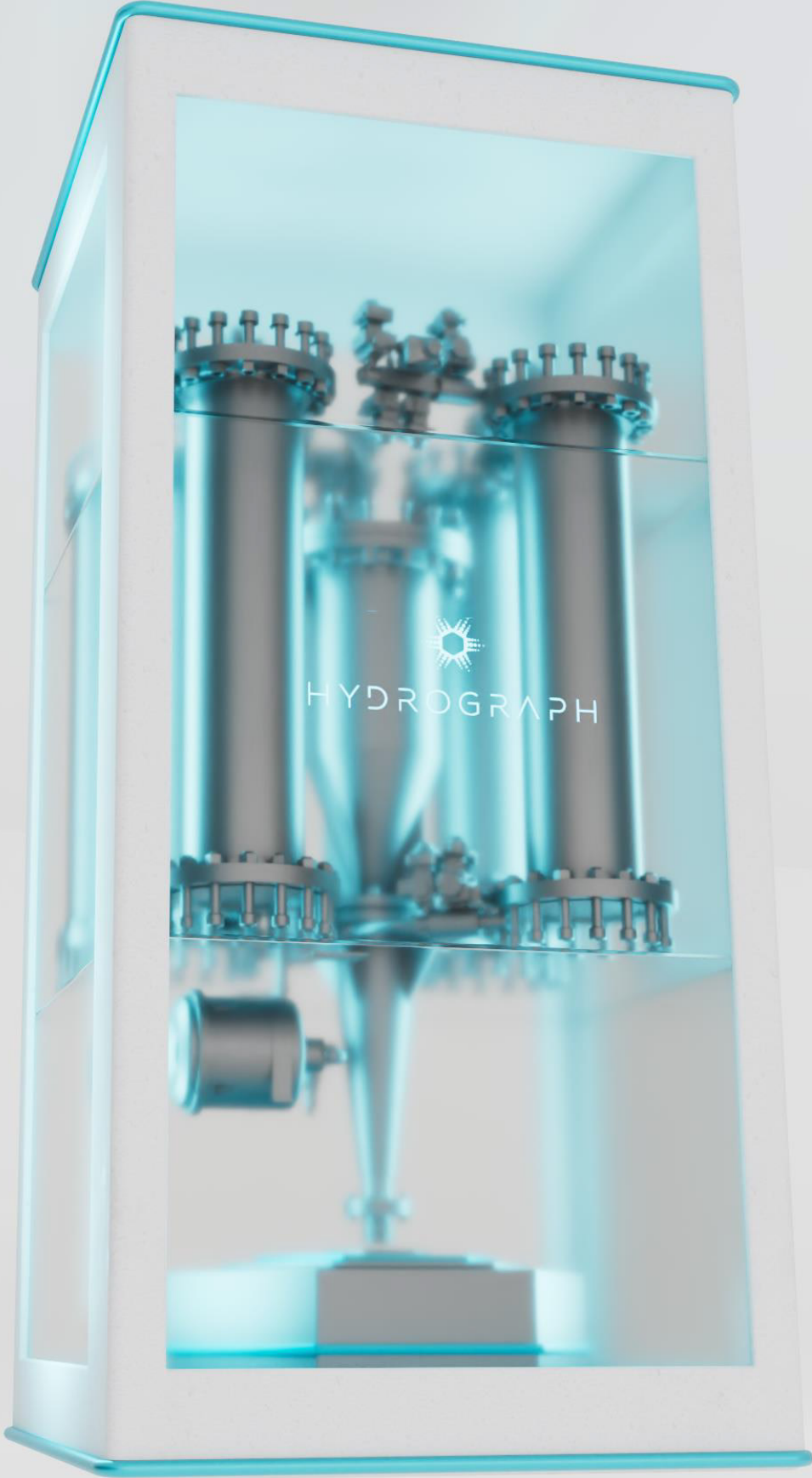
### HYDROGEN PRODUCTION

Disc. No.: 2021-027; Attorney Docket No.: 54713-PCT

Title: "Process for Synthesis of Syngas Component"

U.S. Provisional Patent Application No.: 63/161,625

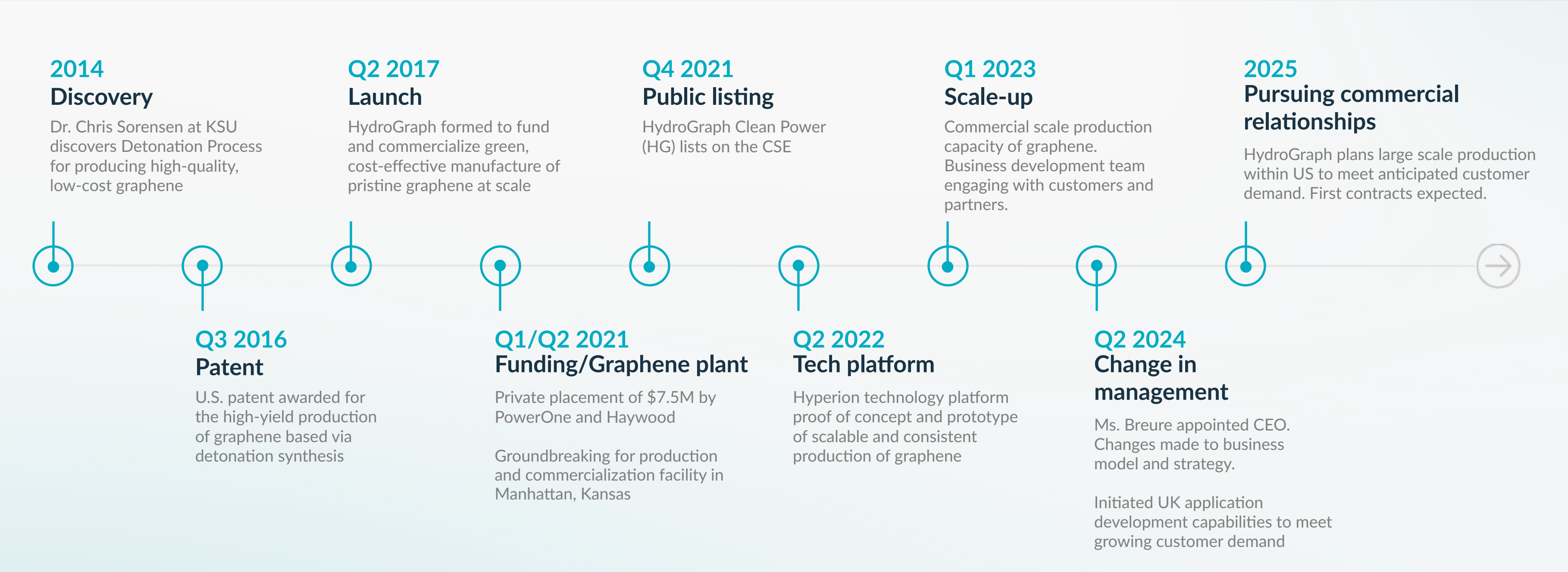
Filing Date: March 16, 2021





# HYDROGRAPH'S HISTORY

Product testing completed, entering commercialization in 2025



# HYDROGRAPH

Investment thesis

## Key Catalysts

- Expanded application development capabilities
- Close commercial supply contracts in 2025
- Expanded product line and new customer engagements

## Capital Structure

- 256M Basic Shares outstanding
- 21M Options Outstanding
- 70M Warrants Outstanding
- 347M Fully Diluted
- CAD\$79M Market Cap (as of Feb 27, 2025)



HYDROGRAPH



# THANK YOU

**Kjirstin Breure**

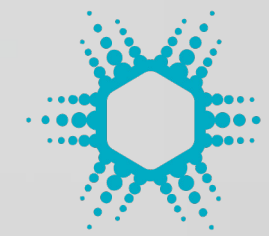
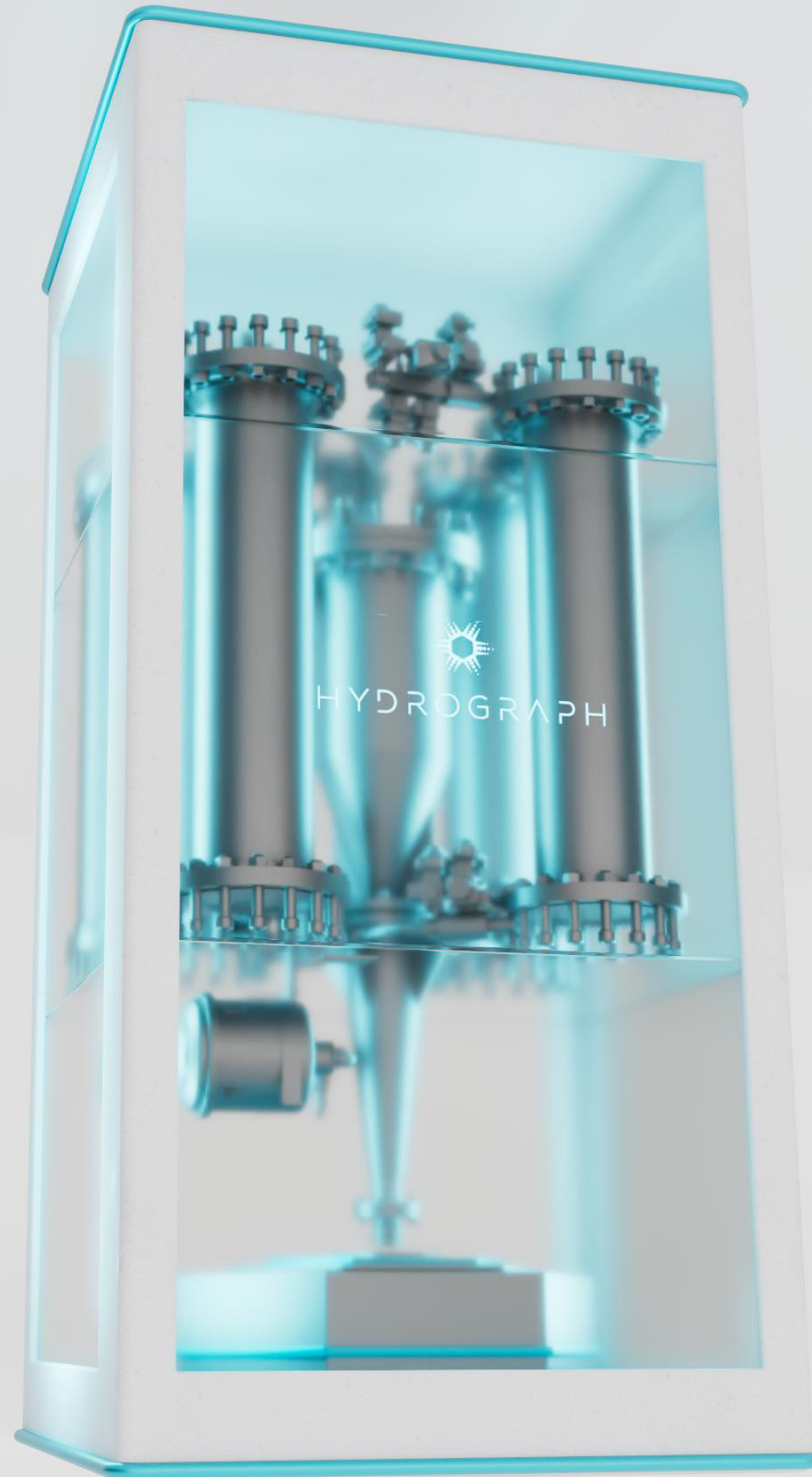
President and CEO

[kjirstin.breure@hydrograph.com](mailto:kjirstin.breure@hydrograph.com)

**Matt Kreps**

Managing Director Darrow IR

[mkreps@darrowir.com](mailto:mkreps@darrowir.com)



# HYDROGRAPH

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