



**ASX ANNOUNCEMENT | PERIOD ENDING 30 JUNE 2024**

# **QUARTERLY REPORT**

## Quarterly Activities Report: June 2024

First Graphene Limited (ASX: FGR; “First Graphene” or “the Company”) is pleased to provide an update on the financial and operational performance for the quarter ending 30 June 2024.

### Highlights

- Trial of new PureGRAPH-CEM<sup>®</sup> product planned with UK’s largest cement producer, Breedon
- Strategic partnership signed with Vector Homes to develop sustainable construction materials
- Two projects launched into graphene enhanced electrocatalysts for hydrogen generation
- New equipment delivers improvements to product and processes at Henderson facility in WA
- Ongoing global market expansion for PureGRAPH<sup>®</sup> through new distribution agreement
- Relocation begins to commercialisation and research facility in Manchester Innovation District

### Financial performance

First Graphene reported revenue for the final quarter of FY2024 of circa A\$125,000 (unaudited). This revenue was generated from a broadening range of clients, representing a more diversified demand for PureGRAPH<sup>®</sup> across a multitude of industries, including coatings, polymers, and composites.

The growing diversification in client base will underpin the Company’s revenue in FY2025 across graphene and development sales. With new applications set to move into production, including lubricants and waterproof coatings, FY2025 is set to further assist the Company’s journey towards positive cashflows.

The Company has made significant progress in reduction of cash out-flow from operating activities, with approximately 60% decrease in operational costs over four years (refer to following graph).

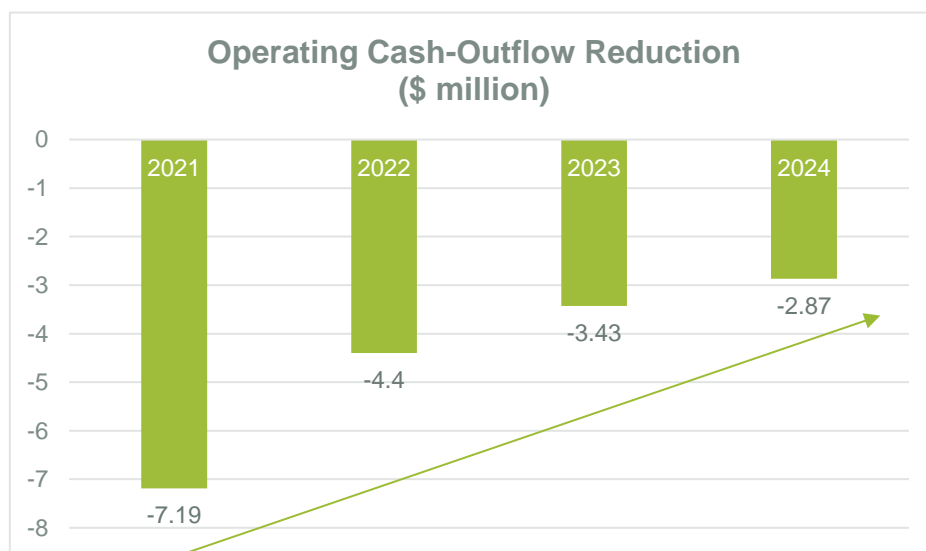


Figure 1 - Cash-outflow reduction trend FY21-24

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This reduction has resulted from continued optimisation of resourcing, driven by First Graphene's focus on core application developments including the cement and concrete segment, and continued growth in diversified applications related revenue.

Further expansion of a distributor network has also increased the volume of new customers and is building positively within the start of FY2025.

First Graphene's immediate focus remains on the aim of growing profitable revenue, utilising levers such as optimisation of manufacturing processes to increase margins, as the Company progresses towards breakeven. The combination of increasing recurring revenue, a tightly controlled cost base, and strengthening margins, helps create a more predictable and exciting path forward.

## Segment updates

### Cement and concrete

First Graphene has remained focused on testing and trialling PureGRAPH® products within the cement and concrete segment, as the demonstrated benefits of graphene enhanced cement continue to gain traction.

This includes embarking on a third trial with the UK's largest cement producer, Breedon Group plc ("Breedon"), under the Joint Development and Commercialisation Agreement signed in Q2 FY24.

This trial will test First Graphene's PureGRAPH-CEM® product, which has an optimised formulation designed for use in cement grinding mills.

More than three tonnes of this new grade of graphene will be tested under full-scale cement production conditions at Breedon's Hope Cement Works facility.

First Graphene's Henderson facility commenced manufacturing of the PureGRAPH-CEM® quantity required for the trial, which has been scheduled for September with results due by the end of 2024.

The new grade of graphene will also help meet emission reduction targets, with the product containing up to 50% less embodied CO<sub>2</sub> compared to other grades used in previous trials.

Supporting the expedition of this trial were results from lab-scale milling of PureGRAPH-CEM® by Kirton Concrete Services ("Kirton"). These results showed an increase in compressive strength of graphene enhanced cement of up to 16%, indicating the new product is compatible with existing grinding aids.

This work also determined the product can improve Blaine fineness by up to 12%, which would allow for increased cement throughput at a mill.

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**Figure 2: PureGRAPH-CEM® ready for shipment ahead of third trial with Breedon Group**

The Company also received further positive results from the first world-leading field trial conducted with Breedon earlier this quarter, with the graphene enhanced concrete slab maintaining strength and integrity with no defects, damage or deterioration detected after 200 days in operation.

The slab was part of a wheel washing facility at a major highway infrastructure project in south-east England, providing a challenging environment to test the strength and permeability of the material.

These results demonstrated long-term strength of graphene enhanced cement in a real-world aggressive environment, showcasing the potential of PureGRAPH® as a strong, emission-reducing cement additive.

First Graphene has also continued discussions with Morgan Sindall Infrastructure (“Morgan Sindall”) regarding a live trial of graphene enhanced cement in a National Highway project in the UK.

Planning for this project has been ongoing and follows the successful world-leading trial of graphene enhanced cement in 2023, which identified a 10% increase in compressive strength and 15% reduction in carbon emissions.

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First Graphene remains in a strong position to supply graphene to cement producers around the world, helping the segment achieve its industry-wide carbon emission reduction commitment of 25% by 2030. Interest in this segment continues to grow across Europe, Asia, the Middle East and the US.

**Energy generation and storage**

**Pivotal role in hydrogen storage solution**

First Graphene has joined a nine-member consortium to develop low-carbon graphene enhanced cryogenic hydrogen storage tanks, as part of a cross-sector project utilising Australian and UK expertise.

Starting in July, the HyPStore project is valued at more than A\$3.7 million and supported by A\$1.73 million in funding via Innovate UK’s UK – Australia Renewable Hydrogen Innovation Partnership Programme.

First Graphene will develop graphene enhanced resins, which will be incorporated into a Type-V tank to reduce hydrogen permeability and increase strength in composite systems (see below).



*Figure 3: Five common pressure vessel types including Type-V tank.*

By combining dry filament with graphene nanoplatelets, a protective barrier can be created in the structure of the tank, which has demonstrated a reduction in hydrogen permeability of up to 48 times.

First Graphene will also look to introduce other application benefits such as enhanced fire retardancy and strength, as announced subsequent to quarter’s end.

**Multiple studies into electrolyser performance**

First Graphene embarked on two separate studies investigating the potential uses of incorporating base metals into graphene-based electrocatalysts for use in energy production.

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The first project is exploring the optimal process to produce graphene enhanced electrolyzers, with the goal of identifying in-house end-to-end development of the final product by First Graphene.

The 12-month project, in collaboration with the Centre for Process Innovation and NPL Management Limited, is valued at approximately A\$247,000 including grant funding from the Centre of Expertise in Advanced Materials and Sustainability.

Catalysts currently in market are expensive due to the types of minerals used, which is why the Company is investigating the performance of more cost effective graphene-based catalysts.

The second project is a broader research opportunity with the Greater Manchester Electrochemical Hydrogen Cluster (GMEHC) to explore the performance of different transition metal combinations within a graphene-based electrocatalyst.

The four-month study is valued at approximately A\$106,180 and will result in the publication of results and associated data to showcase the impact of different metal combinations on performance.

These new projects follow positive results from an independent study into the performance of graphene-based electrocatalysts for generation of green hydrogen, funded by the Net Zero Tees Valley program.

The global market for electrocatalyst materials is forecast to reach USD \$1.2 billion by 2030<sup>1</sup>.

## **Other applications**

### **Agreement to deliver sustainable housing materials**

First Graphene signed a Strategic Partnership Agreement with UK-based Vector Homes to produce sustainable construction materials, utilising PureGRAPH<sup>®</sup> to enhance homes of the future.

The two-year deal means First Graphene will continue to supply PureGRAPH<sup>®</sup> for the development of structural beams for use in Vector Homes' eco-homes, which are designed to be mass-produced and easily assembled.

PureGRAPH<sup>®</sup> has been used by Vector Homes previously to improve structural beams by increasing fire-retardancy, strength, durability, thermal and acoustic performance.

The new agreement is a significant milestone for the Company, solidifying First Graphene's entrance into the residential construction market alongside work already occurring within the cement and concrete industry at industrial scale.

This also shows the Company's commitment to helping the development of affordable and energy-efficient housing, while capitalising on the immense value of the UK housing construction market.

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## Other activities to note

### Agreement signed with global distributor

First Graphene has commenced working with multi-national distributor Bisley & Company (“Bisley”) following the signing of a five-year Distribution Agreement during the quarter.

The non-exclusive deal will see PureGRAPH® distributed throughout Australia and New Zealand for use in research, development and manufacturing.

This collaboration supplements ongoing work with NeoGraf, that targets the United States market, and Keyser & Mackay, that supply First Graphene’s products to Europe.

The Company continues to investigate broader market opportunities for PureGRAPH® as part of First Graphene’s commercialisation strategy. First Graphene is focused on utilising a variety of distribution models which will be key to stable commercial representation and deliver access to target client bases.

## Operations

### Improved manufacturing process at Henderson

The Company has enhanced manufacturing capabilities at its dedicated Henderson facility in Western Australia, with the installation of a new Retsch mill delivering marked processing improvements.

In a significant move for First Graphene’s commercialisation strategy, the new equipment has enabled the milling process to be 67% more cost effective while also improving efficiency by 60%.

The mill has the capability to produce industrial-scale quantities of PureGRAPH®, with higher surface area and consistent morphology compared to previous milling methods.

This improvement to PureGRAPH®’s characteristics, in particular the more uniform particle size distribution, will enhance dispersion of the product into materials like cement, polymers and composites.

First Graphene also utilised a grant received from the Australian Federal Government under the Manufacturing Modernisation Fund (MMF) to invest in a Micrea microwave.

The technology rapidly speeds up drying times of wet graphene, requires less energy to operate and reduces the labour involved, which ultimately reduces the unit production cost of PureGRAPH®.

This is an important step forward in the pathway to scaling up efficient production of graphene while simultaneously improving the function and grade of the final products.

Phase 2 trials of Electrochemical Cell optimisation were also conducted during the quarter, with initial key improvements including a 32% increase in overall PureGRAPH® production rate and a 25% reduction in

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power consumption compared to Phase 1.

When combined, these improvements to the Company's manufacturing and processing capabilities have reduced production costs, increased efficiency, and improved the PureGRAPH® product.

### **Relocation to dedicated Manchester facility**

During the quarter, First Graphene's UK-based team started relocating to a new research and commercialisation facility located in the Manchester Innovation District. The space occupies 251m<sup>2</sup> and contains a dedicated cement laboratory, general laboratory, meeting room and office space.

The new building has been designed for commercial chemistry development and customer support work as First Graphene increasingly shifts focus from research to commercial opportunity.

The relocation follows the Company's departure from the Graphene Engineering Innovation Centre at the University of Manchester, as First Graphene focuses on growth with commercial clients.

The Company's UK-based team will fully relocate into the new premise by October 2024. This will lead to the Company working closely with clients' research and development teams and associated facilities.

**- ENDS -**

### **References**

<sup>1</sup> Skyquest Marketing (2023) Global Hydrogen Production Catalysts Market Insights. Available at: [https://www.skyquestt.com/report/hydrogen-production-catalysts-market#:~:text=What%20is%20the%20global%20market,period%20\(2023%2D2030\)](https://www.skyquestt.com/report/hydrogen-production-catalysts-market#:~:text=What%20is%20the%20global%20market,period%20(2023%2D2030))

**This release has been approved for release by the Chairman.**

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## About First Graphene Ltd (ASX: FGR)

*First Graphene Limited is focused on the development of advanced materials to help industry improve. The Company is a leading supplier of graphitic materials and product formulations with a specific commercial focus on large, high-growth global markets including cement and concrete; composites and plastics; coatings, adhesives, sealants and elastomers (CASE); and energy storage applications.*

*One of the key outcomes that these advanced materials offer is the reduction of carbon dioxide emissions, whether directly through a reduction in output of these harmful greenhouse gases or lower energy usage requirements in manufacturing, or indirectly due to enhanced performance characteristics and extending the usable life of products.*

*First Graphene has a robust manufacturing platform based on captive and abundant supply of high-purity raw materials, and readily scalable technologies to meet growing market demand. As well as being the world's leading supplier of its own high performance PureGRAPH® graphene product range, the Company works with multiple industry partners around the world as a supplier of graphitic materials and partner to research, develop, test and facilitate the commercial marketing of a wide range of sector-specific chemical solutions.*

*First Graphene Ltd is publicly listed in Australia (ASX:FGR) and has a primary manufacturing base in Henderson, near Perth, WA. The Company is incorporated in the UK as First Graphene (UK) Ltd and is located at the new trailblazing Manchester Innovation District which is a science and technology ecosystem strategically placed in the heart of Manchester, UK.*

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## Appendix 4C

### Quarterly cash flow report for entities subject to Listing Rule 4.7B

Name of entity

First Graphene Limited

ABN

50 007 870 760

Quarter ended ("current quarter")

30<sup>th</sup> June 2024

Consolidated statement of cash flows	<b>Current quarter \$A'000</b>	<b>Year to date (12 months) \$A'000</b>
<b>1. Cash flows from operating activities</b>		
1.1 Receipts from customers	244	1,193
1.2 Payments for		
(a) research and development	(24)	(814)
(b) product manufacturing and operating costs	(136)	(611)
(c) advertising and marketing	(64)	(365)
(d) leased assets	-	-
(e) staff costs	(431)	(1,893)
(f) administration and corporate costs	(148)	(1,129)
1.3 Dividends received (see note 3)	-	-
1.4 Interest received	12	38
1.5 Interest and other costs of finance paid	(2)	(21)
1.6 Income taxes paid	-	-
1.7 Government grants and tax incentives	96	823
1.8 Other (provide details if material)	(25)	(92)
<b>1.9 Net cash from / (used in) operating activities</b>	<b>(478)</b>	<b>(2,871)</b>

<b>2. Cash flows from investing activities</b>		
2.1 Payments to acquire or for:		
(a) entities	-	-
(b) businesses	-	-

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Consolidated statement of cash flows	Current quarter \$A'000	Year to date (12 months) \$A'000
(c) property, plant and equipment	(6)	(54)
(d) investments	-	-
(e) intellectual property	-	-
(f) other non-current assets	-	-
2.2 Proceeds from disposal of:		
(a) entities	-	-
(b) businesses	-	-
(c) property, plant and equipment	-	-
(d) investments	-	-
(e) intellectual property	-	-
(f) other non-current assets	-	-
2.3 Cash flows from loans to other entities	-	-
2.4 Dividends received (see note 3)	-	-
2.5 Other (provide details if material)	-	-
<b>2.6 Net cash from / (used in) investing activities</b>	<b>(6)</b>	<b>(54)</b>

<b>3. Cash flows from financing activities</b>		
3.1 Proceeds from issues of equity securities (excluding convertible debt securities)	-	2,912
3.2 Proceeds from issue of convertible debt securities	-	-
3.3 Proceeds from exercise of options	-	-
3.4 Transaction costs related to issues of equity securities or convertible debt securities	-	-
3.5 Proceeds from borrowings	-	-
3.6 Repayment of borrowings	-	-
3.7 Transaction costs related to loans and borrowings	-	(16)
3.8 Dividends paid	-	-

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Consolidated statement of cash flows		Current quarter \$A'000	Year to date (12 months) \$A'000
3.9	Other (provide details if material)	-	-
	- reduction in lease liability	(18)	(80)
	- Cash received from third parties	-	-
<b>3.1</b>	<b>Net cash from / (used in)</b>		
<b>0</b>	<b>financing activities</b>	<b>(18)</b>	<b>2,816</b>

<b>4.</b>	<b>Net increase / (decrease) in cash and cash equivalents for the period</b>		
4.1	Cash and cash equivalents at beginning of period	3,670	3,226
4.2	Net cash from / (used in) operating activities (item 1.9 above)	(478)	(2,871)
4.3	Net cash from / (used in) investing activities (item 2.6 above)	(6)	(54)
4.4	Net cash from / (used in) financing activities (item 3.10 above)	(18)	2,816
4.5	Effect of movement in exchange rates on cash held	(8)	43
<b>4.6</b>	<b>Cash and cash equivalents at end of period</b>	<b>3,160</b>	<b>3,160</b>

5. Reconciliation of cash and cash equivalents at the end of the quarter (as shown in the consolidated statement of cash flows) to the related items in the accounts		Current quarter \$A'000	Previous quarter \$A'000
5.1	Bank balances	3,160	3,670
5.2	Call deposits	-	-
5.3	Bank overdrafts	-	-
5.4	Other (provide details)	-	-
<b>5.5</b>	<b>Cash and cash equivalents at end of quarter (should equal item 4.6 above)</b>	<b>3,160</b>	<b>3,670</b>

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<b>6.</b>	Payments to related parties of the entity and their associates	<b>Current quarter \$A'000</b>
6.1	Aggregate amount of payments to related parties and their associates included in item 1	152
6.2	Aggregate amount of payments to related parties and their associates included in item 2	-
<p><i>Note: if any amounts are shown in items 6.1 or 6.2, your quarterly activity report must include a description of, and an explanation for, such payments.</i></p> <p>Amounts included in 6.1 relate to payment of executive Director salaries and consulting fees.</p>		

<b>7.</b>	Financing facilities <i>Note: the term "facility" includes all forms of financing arrangements available to the entity. Add notes as necessary for an understanding of the sources of finance available to the entity.</i>	<b>Total facility amount at quarter end \$A'000</b>	<b>Amount drawn at quarter end \$A'000</b>
7.1	Loan facilities	-	-
7.2	Credit standby arrangements	-	-
7.3	Other (please specify)	-	-
7.4	<b>Total financing facilities</b>	-	-
7.5	<b>Unused financing facilities available at quarter end</b>		
7.6	<p>Include in the box below a description of each facility above, including the lender, interest rate, maturity date and whether it is secured or unsecured. If any additional financing facilities have been entered into or are proposed to be entered into after quarter end, include a note providing details of those facilities as well.</p> <div style="border: 1px solid black; height: 40px; width: 100%; text-align: center;">-</div>		

<b>8.</b>	Estimated cash available for future operating activities	<b>\$A'000</b>
8.1	Net cash from / (used in) operating activities (item 1.9)	(478)
8.2	Cash and cash equivalents at quarter end (item 4.6)	3,160
8.3	Unused finance facilities available at quarter end (item 7.5)	-
8.4	Total available funding (item 8.2 + item 8.3)	3,160

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**8.5 Estimated quarters of funding available (item 8.4 divided by item 8.1)**

6.6

*Note: if the entity has reported positive net operating cash flows in item 1.9, answer item 8.5 as "N/A". Otherwise, a figure for the estimated quarters of funding available must be included in item 8.5.*

**8.6 If item 8.5 is less than 2 quarters, please provide answers to the following questions:**

**8.6.1 Does the entity expect that it will continue to have the current level of net operating cash flows for the time being and, if not, why not?**

Answer: n/a

**8.6.2 Has the entity taken any steps, or does it propose to take any steps, to raise further cash to fund its operations and, if so, what are those steps and how likely does it believe that they will be successful?**

Answer: n/a

**8.6.3 Does the entity expect to be able to continue its operations and to meet its business objectives and, if so, on what basis?**

Answer: n/a

*Note: where item 8.5 is less than 2 quarters, all of questions 8.6.1, 8.6.2 and 8.6.3 above must be answered.*

**Compliance statement**

- 1 This statement has been prepared in accordance with accounting standards and policies which comply with Listing Rule 19.11A.
- 2 This statement gives a true and fair view of the matters disclosed.

Date: 31<sup>st</sup> July 2024

Authorised by: With authority of the board, this announcement has been authorised for release, by;

Michael Bell  
Chief Executive Officer and Managing Director

**Notes**

1. This quarterly cash flow report and the accompanying activity report provide a basis for informing the market about the entity's activities for the past quarter, how they have been financed and the effect this has had on its cash position. An entity that wishes to disclose additional information over and above the minimum required under the Listing Rules is encouraged to do so.
2. If this quarterly cash flow report has been prepared in accordance with Australian Accounting Standards, the definitions in, and provisions of, *AASB 107: Statement of Cash Flows* apply to this report. If this quarterly cash flow report has been prepared in accordance with other accounting standards agreed by ASX pursuant to Listing Rule 19.11A, the corresponding equivalent standard applies to this report.

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3. Dividends received may be classified either as cash flows from operating activities or cash flows from investing activities, depending on the accounting policy of the entity.
4. If this report has been authorised for release to the market by your board of directors, you can insert here: "By the board". If it has been authorised for release to the market by a committee of your board of directors, you can insert here: "By the [*name of board committee – eg Audit and Risk Committee*]". If it has been authorised for release to the market by a disclosure committee, you can insert here: "By the Disclosure Committee".
5. If this report has been authorised for release to the market by your board of directors and you wish to hold yourself out as complying with recommendation 4.2 of the ASX Corporate Governance Council's *Corporate Governance Principles and Recommendations*, the board should have received a declaration from its CEO and CFO that, in their opinion, the financial records of the entity have been properly maintained, that this report complies with the appropriate accounting standards and gives a true and fair view of the cash flows of the entity, and that their opinion has been formed on the basis of a sound system of risk management and internal control which is operating effectively.

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