ASX ANNOUNCEMENT

14th DECEMBER 2022

Grant funds supercapacitor research and move to commercialisation

Highlights

- **First Graphene and the University of Manchester secure grant funding through Innovate UK's "Accelerated Knowledge Transfer to Innovate" scheme for further supercapacitor materials research**
- **Provides circa A$65,000 to accelerate development of an optimised graphene-metal-oxide slurry for manufacturing high energy density supercapacitors**
- **The transition-metal-oxide particle has been proven to outperform activated carbon using an aqueous electrolyte, that is greener and safer than commercially available ones that typically rely on organic solvents**

First Graphene Limited (ASX: FGR; "First Graphene" or "the Company") is pleased to announce it has secured further grant funding, in conjunction with the University of Manchester ("UoM"), for the next stage of research into commercialising supercapacitor materials.

Awarded through Innovate UK's "Accelerated Knowledge Transfer to Innovate" scheme (AKT2I), the grant will be used to fund a project intended to accelerate development and optimisation of a graphene-metal-oxide slurry for manufacturing high energy density supercapacitors.

As previously announced, First Graphene developed a transition-metal-oxide particle which was proven by a team at UoM to outperform activated carbon using an aqueous electrolyte, which is greener and safer than commercially available ones that typically rely on organic solvents.

The team has demonstrated the validity of the concept using coin cell-sized prototypes that were proven to:

- Improve the energy density of supercapacitors over activated carbon at a range of voltages
- Enable the production of supercapacitors using non-volatile/non-flammable electrolytes
- Provide benefits as a catalyst in the oxygen reduction reaction in water electrolysis for green hydrogen generation

To enable the technology to be implemented at scale, electrode slurries containing the active materials need to be carefully formulated to enable manufacturing via conventional roll-to-roll (R2R) printing. Performance thus far has been limited by coating quality, preventing progress to R2R printing, which is an essential step for industry adoption.

The project will draw on the combined expertise of First Graphene and subject matter experts at UoM to produce and characterise a smoother, more robust slurry formulation that is specifically

optimised to a R2R manufacturing process.

This development work is therefore a natural progression and enabler to realise the full potential of these novel materials. A viable, robust coating produced using First Graphene's active material will enable testing to be carried out inside customer laboratories.

First Graphene will produce its graphene-metal-oxide material, while the UoM team, led by renowned supercapacitor expert Professor Robert Dryfe, will provide the optimized slurry for further testing.

The project commenced this month and will conclude at the end of March 2023.

First Graphene Managing Director and CEO Michael Bell said:

"This grant continues our preferred model of leveraging available funding to progress strategic R&D work towards viable commercial outcomes.

Currently, no commercial transition-metal-oxide supercapacitors are available and between First Graphene and the University of Manchester, we have the expertise and existing collaborative working relationships to capitalise on the opportunity.

We look forward to reporting the results of this project to the market in coming months."

University of Manchester Project Lead Prof. Robert Dryfe said:

"A step-change in capacitor chemistry is required to create more energy-dense supercapacitors.

This project builds on collaborative activity between First Graphene and the University of Manchester to develop novel graphene-metal-oxide hybrids for energy storage and electrocatalytic devices, combining First Graphene's expertise in the electrochemical exfoliation of graphene with the University's expertise in using graphene in energy storage devices."

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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, silicones and elastomers (CASE); and energy storage applications.

One of the key outcomes 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 a Tier 1 partner at the Graphene Engineering and Innovation Centre (GEIC), Manchester, UK, where it has a strong marketing and R&D capability.

With authority of the board, this announcement has been authorised for release by Aditya Asthana, Chief Financial Officer and Company Secretary.