

ASX Announcement

26 June 2018

First Graphene joins the University of Manchester as Founding Partner in World's leading Graphene Engineering & Innovation Centre

Highlights

- FGR has joined the world's leading Graphene Engineering & Innovation Centre (GEIC) at the University of Manchester, UK, to accelerate graphene technology development and the commercial adoption of FGR products.
- The GEIC is a £60 million facility in the heart of the Advanced Materials Engineering campus and widely known as the "home of graphene". It will drive the commercialisation of graphene and 2D materials and complements the existing £61 million National Graphene Institute, also at the University of Manchester.
- The GEIC has a 8,400 m² facility equipped with state-of-the-art application and engineering equipment which will enable graphene technology development in composites, batteries, building materials and membranes. It's mode of operation is to develop collaborative projects between university researchers, graphene suppliers, formulators and end users.
- FGR will now have access to the most advanced equipment and personnel on a collaborative basis, providing significant efficiencies and cost savings. FGR will utilise its membership of the GEIC to accelerate the development and commercialisation of industry leading products and build relationships with downstream partners and customers.

Advanced materials company, First Graphene Limited ("**FGR**" or "**the Company**") (ASX: FGR) is pleased to advise it has committed to becoming a Tier 1 Partner at the University of Manchester's new Graphene Engineering Innovation Centre (GEIC).

This represents a major step forward for FGR, and it is a strong affirmation of the Company's leadership in the graphene sector. During the last three years the Company has made excellent progress in the development and refinement of its very low-cost graphene production process such that it is now the most economical, commercial scale graphene production methodology available. This new initiative transforms the Company from an Australian-based supplier to an international competitor in the global graphene industry. It amounts to the coming of age for FGR as a world leader in the graphene business.

first graphene

Australia's leading graphene company

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ASX Code

FGR

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GEIC is all about taking graphene into industry. Diagram 1 below plots the Technology Readiness Level curves, showing the steps which new technology goes through on the path to commercialisation. The initial experimentation was undertaken by university academics. The National Graphene Institute was then established to further refine the concept and the processes. Now, GEIC has been formed to take graphene technology to industries doorstep by employing personnel with real materials and manufacturing industry experience.

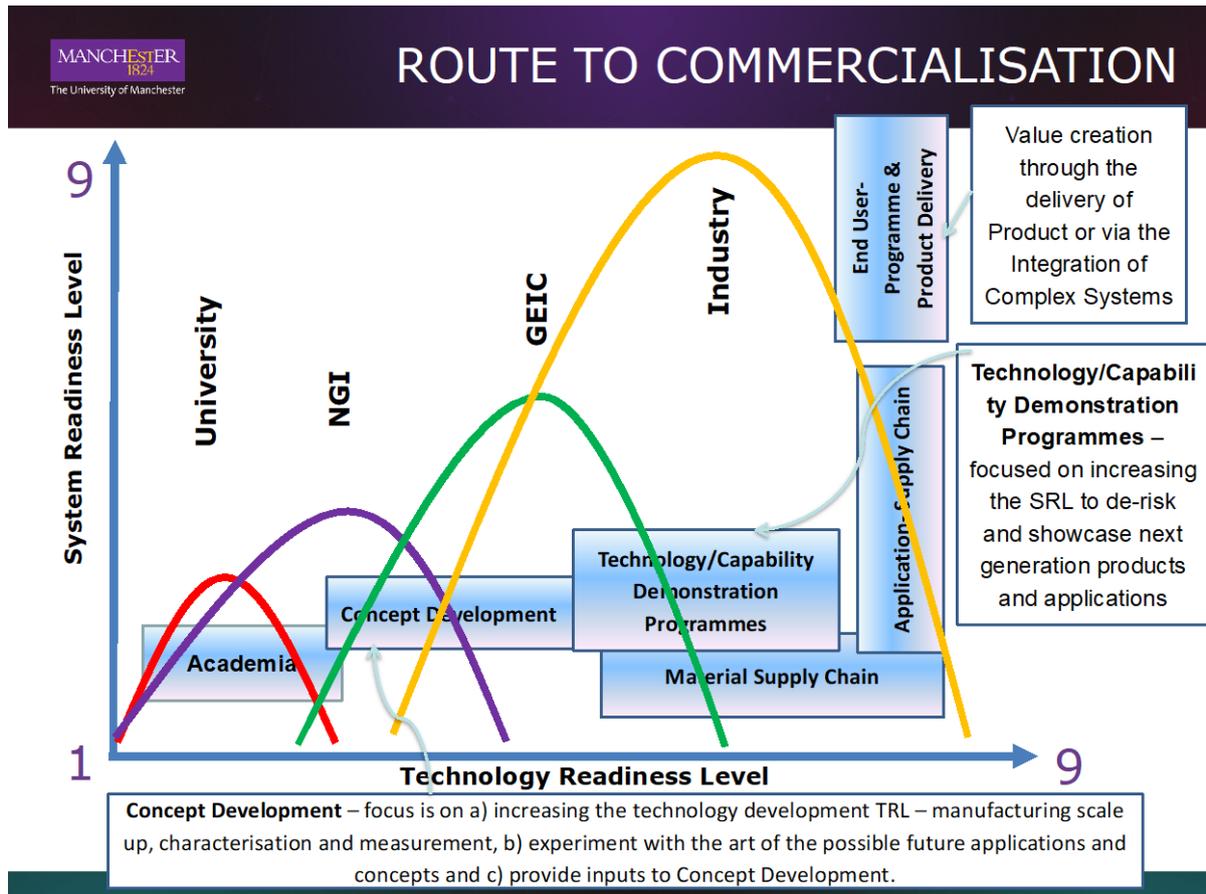


Diagram 1: Technology Readiness Level Chart

The strength of the University of Manchester, in "Graphene City" is demonstrated by its core competencies in the fields of;

- both top down and bottom up graphene production expertise,
- pilot scale facilities for preparation of structures and composite materials,
- facilities for development of electrode and cell products for energy storage devices and batteries,
- formulation and production of graphene membranes and filters,
- preparation of formulations and coating technologies and
- state-of-the-art analysis for measurement and characterisation of graphene products

As a Tier 1 partner at GEIC, FGR will have its own research laboratories and dedicated research programmes in collaboration with the world leading academic team at the University of Manchester. FGR will have access to the core capabilities and equipment of the centre and it will also have a seat on the Technical Advisory Board which guides the strategic direction of the centre. The GEIC will have leading edge equipment and facilities and is expected to be fully equipped and commissioned by year end 2018.

About the Graphene Engineering Innovation Centre (GEIC)

The GEIC will focus on industry-led application development in partnership with world leading academics, accelerating the commercial pace of graphene and 2D materials in Manchester and globally.

The first phase of the £60m Graphene Engineering Innovation Centre (GEIC) was handed over in May 2018, comprising an international research and technology facility. Works are well underway to fit out the laboratories ahead of the centre opening later this year.

Together, the National Graphene Institute (NGI) and GEIC will provide an unrivalled critical mass of graphene expertise. The two facilities will reinforce Manchester's position as the leading global knowledge base in graphene research and commercialisation.

Funding for the £60m facility has been provided by the Higher Education Funding Council for England's UK Research Partnership Investment Fund (£15m), Masdar, the Abu Dhabi-based renewable energy company owned by Mubadala (£30m) and three other UK and European government bodies.

GEIC Advisory Panel

The Graphene Engineering Innovation Centre Industry Advisory Panel has been set up to guide the early stage planning for The University of Manchester's second graphene facility.

A broad range of industrial partners are supporting the design and implementation of the GEIC and its business model.

The Advisory Panel Partners include multinationals such as Airbus, BAE Systems, BP, GKN Aerospace, GSK, Jaguar Land Rover and Siemens, to name but a few.

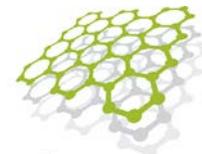
Henry Royce Institute for Advanced Materials

This new Institute will have its research centre in Manchester and has received total government funding of £235m

The Sir Henry Royce Institute for Advanced Materials will be a world-leading centre for advanced materials research and commercialisation. The Institute will allow the UK to grow its world-leading research and innovation base in the advanced materials, science and technology, which underpins all industrial sectors. The Centre will encompass nine key areas of materials research, including graphene.

Aims of the Sir Henry Royce Institute of Materials Research and Innovation

- Accelerate safely and with confidence the use of advanced materials in existing and emerging industrial sectors within the UK.
- Underpin and provide growth to the entire UK manufacturing base and reduce the time to market from invention to application for new materials, with significant knock-on impact for the national economy.
- Invent and innovate new materials in various sectors covering fabricating, testing, analysing and demonstration, under different operating environments, and provide the 'missing link' in the development of materials within the UK.



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Dr Andy Goodwin, James Baker (CEO Graphene@Manchester), Warwick Grigor and Craig McGuckin at the GEIC last week.



Graphene Engineering & Innovation Centre (GEIC) at the University of Manchester

Chairman, Warwick Grigor said

"The board of FGR strongly believes that to be the leading graphene supplier, we must have the best technologies developed in collaboration with the best research partners, suppliers and customers. First Graphene is very pleased to join with the University of Manchester team at GEIC, establishing a presence in the UK for the first time. The strong focus of GEIC on industry collaboration is an important step in taking graphene applications into manufacturing, thereby accelerating the commercialisation path."

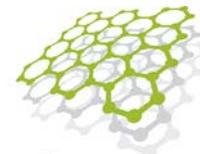
James Baker, CEO of Graphene@Manchester said

"The GEIC is a key component of the University's strategy for Graphene@Manchester. Our aim is to accelerate the commercialisation of real-world applications and transition graphene and other 2D materials from the lab to the marketplace. The GEIC will bring in an additional 30 staff in addition to academics to grow community to over 300 graphene-related staff at the University."

First Graphene is one of the first three companies to sign-up with the GEIC as a 'Tier One' partners. We anticipate that Tier One partners are likely to be larger SMEs and multinationals with interests that span multiple application domains."

Strong Graphite Inventory Levels Enable Suspension of Mining Activities

Given the strong levels of vein graphite inventories now achieved, the Company has decided to scale back mining operations in Sri Lanka for the time being. The Henderson stockpile and the impending shipments from the Government-owned Kahatagaha mine are now in excess of 400 tonnes. This is sufficient to give the Company a four to five year operating window at maximum graphene production capacity from the Henderson facility. Thus, the decision has been made to place mining operations on a care-and-maintenance basis until such time as regular graphene sales start to diminish graphite stockpile levels. All exploration and mining licences held by MRL Graphite (Pvt) Ltd will be maintained in good order to enable rapid re-commencement of mining when further inventories are required.



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About First Graphene Ltd (ASX: FGR)

First Graphene produces high quality graphene from high grade Sri Lankan vein graphite.

First Graphene seeks to develop graphene production methods and acquire graphene related intellectual property which can provide further revenue related opportunities.

About Graphene

Graphene, the well-publicised and now famous two-dimensional carbon allotrope, is as versatile a material as any discovered on Earth. Its amazing properties as the lightest and strongest material, compared with its ability to conduct heat and electricity better than anything else, means it can be integrated into a huge number of applications. Initially this will mean graphene is used to help improve the performance and efficiency of current materials and substances, but in the future, it will also be developed in conjunction with other two-dimensional (2D) crystals to create some even more amazing compounds to suit an even wider range of applications.

One area of research which is being very highly studied is energy storage. Currently, scientists are working on enhancing the capabilities of lithium ion batteries (by incorporating graphene as an anode) to offer much higher storage capacities with much better longevity and charge rate. Also, graphene is being studied and developed to be used in the manufacture of supercapacitors which can be charged very quickly, yet also be able to store a large amount of electricity.

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