

Item No. 10

GM LOCAL ENTERPRISE PARTNERSHIP BOARD

SUBJECT: Local Growth Deal Funding for the Graphene Engineering Innovation Centre (GEIC)

DATE: 19th September 2016

FROM: Simon Nokes, New Economy

PURPOSE OF REPORT

In 2014, GM's Growth and Reform Plan outlined a prioritised list of projects as GM's bid to the Local Growth Fund. The plan identified the Graphene Engineering Innovation Centre (GEIC) as a project of strategic importance, one which would fill a critical gap in the ecosystem for graphene and 2-D material research development and application in the UK. Although the GEIC project was not part of GM's initial funding allocation, increased flexibility within the programme has allowed GM to bring forward this project to be funded in the financial year 2016-17.

This short paper reminds the GM LEP of the GEIC's strategic significance and seeks formal approval of the "in principle" agreement given by GM LEP in May 2015, to grant £5m of Local Growth funding to the University of Manchester. This grant will also secure a further £5m of investment through a £5m European Regional Development Fund (ERDF) project secured by the University. Together this funding will be used to purchase equipment to fit out GEIC's laboratories. GMCA gave formal approval of this at its meeting of 26th August, 2016,

RECOMMENDATIONS:

The GM LEP is asked to:

- i) Note progress with delivering GEIC, and
- ii) Formally approve the "in principle" agreement of a grant of £5m of Local Growth Deal Funding to support the purchase of equipment to fit out GEIC's laboratories.
- iii) Agree that the GMCA Treasurer/Monitoring officer should finalise the terms of the grant agreement.

1. BACKGROUND

- 1.1 Greater Manchester's Growth and Reform Plan (2014) identified the GEIC as a project of strategic importance, one which would fill a critical gap in the ecosystem for graphene and 2-D material research development and application in the UK. The plan was approved by the GM LEP and the GMCA in March 2014.
- 1.2 Graphene is a game-changing University of Manchester (UoM) discovery. Its properties make it one of the most important breakthroughs in recent times. Early applications are already on the market. Amongst numerous applications, graphene has the potential to rejuvenate the whole electronics industry as silicon approaches the limits of its performance. It also has diverse biomedical applications. In the short-term, graphene's mechanical strength and ease of chemical modification offer new composite materials for light-weight transport, better batteries and energy storage, bendable gadgets, coatings, conducting ink, and ultra-high frequency electronics. Between these extremes exist hundreds of potential applications that are being developed.
- 1.3 UoM has the largest knowledge base in graphene, and its derivatives, globally and the most productive centre for graphene research (Nobel Prize 2010) and applications. UoM also holds a wide range of strategically placed patents and is engaged in partnership with many companies. To date UoM has attracted over £100m of research/industrial grants in the area of graphene, graphene derivatives and 2D materials, and hosts the National Graphene Institute. The university has started to attract inward investment with the first Chinese backed company (Bluestone) setting up its European production and marketing headquarters in Manchester.
- 1.4 The recent Northern Powerhouse Economic Review has confirmed graphene's importance within the wider economy of the north. Advanced manufacturing, with a particular focus on materials and processes, has been identified as one of the Northern Powerhouse's 'prime capabilities', key to this will be the translation of research expertise into commercial activity. The GEIC's work will contribute significantly to this aspiration.
- 1.5 The GEIC complements the UK National Graphene Institute and the soon to be developed Sir Henry Royce Institute for Materials Research and Innovation and will considerably strengthen the UK's international

leadership position in graphene research and development. The GEIC will contain substantial pilot production facilities and will be the world's leading test-bed for graphene process engineering and scale-up. It will be the place where graphene applications will be developed which will attract major business interest, develop IP (intellectual property) from basic science projects and link with international programmes for research project support such as the €1 billion Graphene Flagship which will fund discovery research and therefore build further the platform for the GEIC.

- 1.6 The GEIC will accommodate leading academics, from a range of engineering and science disciplines, working closely with industrial partners. It will extend the activities of UoM's National Graphene Institute. It will also attract further investment into Manchester from spin-out companies, licensing and relocating of industrial activities and will allow training of academic and technical staff together with PhD students.

2 FUNDING GEIC

- 2.1 Although GEIC was not funded in GM's first allocation of Local Growth Fund, government has since recognised the importance of giving LEP areas greater flexibility to locally determine when to bring forward capital projects. The initiation of the Area Review of further education (FE), part of government's reform of the FE sector in September 2015, led Greater Manchester to pause investment in the Local Growth funded Skills Capital programme. This delay of the Skills Capital element of Local Growth Deal Funding has given GM some headroom within its investment programme.
- 2.2 GEIC's total capital cost (building and initial equipment) is £60m of which £40m has been secured from private sources. The UoM has provided the land and will own and run the facility, and provide the basic running costs (e.g. facilities, but excluding costs of research projects) which are estimated at £2m per year. A minimum of £10m will be spent on equipment for the centre's laboratories, and the University have sought the GMCA and GM LEP's support to part fund this element of GEIC.
- 2.3 The University have been awarded £5m of ERDF to support the purchase of laboratory equipment subject to securing the match funding. The GM LEP and the GMCA supported this bid, and agreed to provide £5m of match funding from GM's Local Growth Fund allocation. This funding will be used to fund laboratory equipment. This was agreed at the GM LEP's meeting on May 18th 2015 and by the GMCA

on 29th May 2015. Formal approval is now sought by GM LEP to award a £5m grant to the University to purchase laboratory equipment. This was formally approved by GMCA at its meeting of 26th August, 2016. It should be noted that for planning purposes this item has already been included in the Capital Programme approved by the GMCA in January 2016.

- 2.4 The equipment funded by this project will support the following uses: Pilot Production Laboratory, Characterisation Facilities, Composites Laboratory, Solution Formulations and Coatings Laboratory, Energy Laboratory, Membranes Lab and the Electronics Lab. The equipment will be available for Open Access areas of the facility and will be used by large companies and SMEs on collaborative research.
- 2.5 It is anticipated that the GEIC will have a significant impact: based on the current track record of UoM it is expected that over £9m per year of research and development work will be attracted, which will be carried out within the GEIC. Enabling works on the GEIC building started on site in March 2015 and the building will be fully functional by March 2018.

3 RECOMMENDATIONS

See the front of the report.