

ASX Announcement (ASX:AXE)

12 July 2017

## Archer signs agreement for graphene commercialisation work

### Highlights

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- Partnership agreement signed with the Australian Research Council Research Hub for Graphene Enabled Industry Transformation (ARC Graphene Research Hub).
  - Archer's involvement is focussed on the development of commercial manufacture of graphene and graphene products.
  - Graphene produced from Archer's high purity graphite is shown to have a high quality and excellent electrical conductivity and other desirable properties.
  - Eyre Peninsula Graphite Project mining tenement applications are seeking consent for commercial graphite and graphene manufacture.
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Archer Exploration Ltd (ASX: AXE, Archer, Company) is pleased to announce that it has entered into an agreement with the Australian Research Council Research Hub for Graphene Enabled Industry Transformation (ARC Graphene Research Hub).

The aim of the ARC Graphene Research Hub is to provide leading knowledge, innovative research and development for commercialisation of graphene research to create future carbon based high-tech industries and technologies across broad sectors.

The main aim of Archer's work is the development of scalable graphene production processes for the Company's numerous graphite deposits. Under the agreement between Archer and the other ARC Graphene Research Hub participants, Archer will participate in the following projects:

- Development of a series of graphene based products to establish lab/pilot scale graphene production.
  - Develop processes for the scalable production of high quality graphene and the optimisation of production rate, yield, quality, purity, environmental impact, cost and sustainability.
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- Participation in the development of international standards and quality control criteria for graphene manufacture.
- Determine environmental risks related to the manufacture and commercial use of graphene.

## About the ARC Graphene Research Hub

The ARC Graphene Research Hub is funded by the Australian Government, through the Australian Research Council's *Industrial Transformation Research Hubs* scheme, to undertake a five-year interdisciplinary research program in partnership between four Australian leading universities together with six industry partners including Archer. The ARC Graphene Research Hub is led by The University of Adelaide, with The University of Melbourne, Monash University and the University of South Australia participating as collaborating organisations. Archer is also acting in collaboration with national and international companies, active in the mining and minerals, steel manufacturing, defence, and nanotechnology industries.

The ARC Graphene Research Hub will develop advanced materials, provide fit-for-purpose products and innovative solutions to a range of industries, such as advanced manufacturing, mining and minerals technology and services, medical technologies and pharmaceuticals, and defence.

## Eyre Peninsula Graphite

At Campoona, Archer can produce a form of graphite that can be manufactured into range of high quality (+99.9% pure) graphene products. Exfoliation of high purity Campoona graphite concentrate produced high quality and high-purity graphene (>99.9 %) with thickness ranging from single to few layers.

Previous work by The University of Adelaide has shown that graphene produced from concentrated Archer graphite has outstanding electrical properties that could be used in solar cells, photovoltaics, wearable/printable electronics, supercapacitors, batteries and sensors.

Archer has lodged a mining lease application (MLA) for the Campoona graphite mine and associated miscellaneous purpose licences for the Sugarloaf graphite and graphene processing facility (together the Mining Tenements). As part of the MLA, Archer is seeking approval for the manufacture of up to 100 tonnes per annum of graphene. The Company is anticipating the grant of the Mining Tenements by the end of the current Quarter.

The work with the ARC Graphene Research Hub in the development of an efficient large-scale graphene manufacturing facility and the proposed grant of the Mining Tenements which are expected to permit the manufacture of graphene, has Archer well placed to develop a commercial scale graphene manufacturing business.

On 19 September 2016, Archer released the results of a high-level Scoping Study that found that the Eyre Peninsula Graphite Project is capable of generating revenue of A\$858 million. The Scoping Study was based solely on the mining and processing of graphite and excluded any economic benefits from the manufacture of graphene. The commercial production of graphene has the potential to greatly enhance the Eyre Peninsula Graphite Project economics.

The worldwide consumption of graphene is expected to grow exponentially as more uses are found and graphene products are developed. For example, according to Business Wire (a Berkshire Hathaway Company) the graphene battery market is expected to grow to US\$116 million by 2021.

Archer is proud to be associated with the ARC Graphene Research Hub and is looking forward to developing processes and gaining approvals for the commercial manufacture of graphene and graphene related products.

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### Scoping Study

Information in relation to the Eyre Peninsula Graphite Project Scoping Study, including production targets and financial information, included in this document is extracted from an ASX announcement entitled "Positive results from SA Graphite Project scoping study", lodged with ASX on 19 September 2016 and is available to view at [www.arccherexploration.com.au](http://www.arccherexploration.com.au). Archer confirms that all material assumptions underpinning the production target and financial information set out in that announcement continue to apply and have not materially changed.

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