

# Archer Materials Ltd

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## Archer Exploration pursues quantum computing and resources projects

- Archer's quantum computing solution could be a first mover in solving qubit-processing temperature problems
- The company's \$1.35 million Sugarloaf sales contract will further grow the budget for Archer's quantum computing efforts
- Asset sales will enable development efforts
- Research and commercialisation successes will help build uses and demand for Archer's Campoona graphite

### What does Archer Exploration do?

Archer Exploration Limited (ASX:AXE) (FRA:38A) specialises in advanced materials and battery metals resources exploration and development. It is run by Dr Mohammad Choucair, a nanotechnology specialist and inventor who has more than 12 years experience in commercialisation and research and whose achievements include inventing the first material known to overcome a known quantum technology limitation by allowing quantum information (qubits) to be processed at room temperatures.

Archer is now developing the licensed University of Sydney (USyd) technology which can hold quantum information and allow it to process the qubits at ordinary room temperatures.

### What does Archer Exploration own?

The key advanced materials asset is Choucair's invention, which is exclusively-licensed from USyd for developing and commercialising the technology for room-temperature quantum computing uses.

Choucair invented a carbon cube for the qubit processing, and Archer and its partners plan to develop a device chip that can process information at room temperature.

Critical componentry of the chip is housed in Archer's wholly-owned subsidiary Carbon Allotropes which the parent company took over in December 2017.

Choucair founded the resource exploration company's advanced materials subsidiary and became Archer CEO at the time of the takeover.

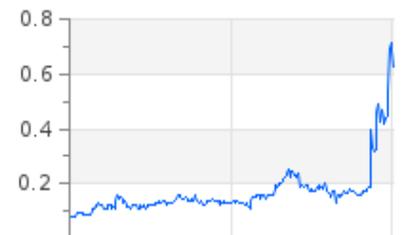
If Archer successfully develops the device chip it can become a first mover and crack the lucrative \$US500 billion semiconductor market and the emerging quantum computing market set to reach \$US29 billion by 2021.

Room temperature data processing is tipped to be the catalyst for making quantum computing mainstream and facilitating its widespread adoption by consumers.

**Price:** 0.65

**Market Cap:** \$138.68 m

### 1 Year Share Price Graph



May 2019 November 2019 May 2020

### Share Information

**Code:** AXE

**Listing:** ASX

**52 week High Low**  
0.815 0.076

**Sector:** Hardware & electrical equipment

**Website:** archerx.com.au

### Company Synopsis:

Archer Materials Ltd (ASX:AXE) is a materials technology company developing and integrating materials in quantum computing, biotech and Li-ion batteries.

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Archer hopes to license out and directly sell to a variety of markets, including Australia, Europe, the USA, Japan, Korea and China, where patents have been filed.

The company also holds a graphite-focused resources industry portfolio, with its cornerstone asset being the Campoona Graphite Project on the Eyre Peninsula in South Australia.

Archer and the University of New South Wales embarked on a research collaboration and demonstrated that Campoona graphite can be used in commercially-scalable lithium-ion batteries.

Lithium-ion batteries from Campoona graphite have full-cell configuration.

The company has a reliable energy MOU with Urbix Resources, LLC for graphite toll processing, an MOU Archer has previously said it expects could bring more than \$14 million of capital cost benefits to the project over its lifetime.

Another reliable energy collaboration, FlexeGRAPH, could provide an opportunity to convert graphite from the project into high-value graphene material, as the collaborators seek to thermally manage electric vehicle batteries.

A biosensors human health collaboration with the ARC Research Hub for Graphene Enabled Industry Transformation at the University of Adelaide could help Archer reach an ageing global population whose health bills are set to reach US\$27 billion by 2022.

The Australian research centre developed graphene-based conductive inks derived from Campoona graphite for printing electronic circuits on transparent and flexible substrates which act as basic bio-electrochemical-sensing device componentry.

Archer viewed its Campoona graphite as process agnostic for graphene production after the material was used for the biosensing technologies printing.

Last Friday the company announced tAT a \$1.35 million contract to sell off its Sugarloaf farmland in South Australia had become unconditional after the buyer had obtained finance.

Archer's Sugarloaf contract will take effect on July 1 and will put proceeds from the divestment of its non-core assets at \$3.35 million this financial year.

The company hopes to use the proceeds from these sales to advance the quantum technology side of its business.

Archer's exploration projects encompass critical minerals and have included graphite, cobalt, manganese, copper and magnesite projects.

Drilling at the Hood Prospect at the Blue Hills Copper-Gold Project in South Australia was tipped to finish this week, with first assays showing 24 metres grading 0.1% copper in the first drill hole.

The second hole 51 metres away intersected 46 metres grading 0.05% copper from 40 metres in similar geology to the first hole.

These assays support Archer's geological model and suggest a large intrusive-related copper-gold mineralising event.

Archer directed \$508,000 towards its operating activities in the December quarter, using \$200,000 for exploration and evaluation and \$377,000 for other costs.

The company also collected \$9,000 from share issues in the quarter and ended December with \$1.6 million cash.

Archer reported in late January it expected \$700,000 of cash outflows in the March quarter after budgeting \$400,000 for its exploration and evaluation efforts.

### Inflection points

- On-time settlement of the Sugarloaf sale contract
- Continued success in collaboration and commercialisation efforts
- Campoona graphite exploration and development milestones, including feasibility study funding and successes
- Wider development of the quantum computing sector and the viability of competing **efforts to solve qubit-processing temperature problems**

### CEO Dr Mohammad Choucair confident of continued progress

"Although we're across three areas — quantum technologies, reliable energy supplies and human health — our focus is on the advanced materials that underpin these technologies," Archer chief executive officer Dr Mohammad Choucair told Proactive Investors.

"The (intellectual property) for us it needs to be very materials-centric — a material that either underpins a technology or a technology itself that has materials critical to its function.

"We're working with materials that we're trying to integrate and develop into technologies that are applied in some really high-growth markets that are affected by reliable energy, human health and quantum technology."

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