

ASX Announcement

24 October 2019



Andromeda Metals Limited
ABN: 75 061 503 375

Corporate details:

ASX Code: ADN

Cash: \$1.669 million
(as at 30 June 2019)

Issued Capital:

1,357,618,035 ordinary shares
702,469,339 ADNOB options
20,000,000 unlisted options

Directors:

Rhod Grivas

Non-Executive Chairman

James Marsh

Managing Director

Nick Harding

Executive Director and
Company Secretary

Andrew Shearer

Non-Executive Director

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Commonwealth Funding Approved for Research into Halloysite-Kaolin for Hydrogen Storage

Summary

- Commonwealth matched funding has been secured which will see up to **\$100,000** committed to research into Halloysite-Kaolin for Hydrogen Storage Application.
- The initial research project will run for **12 months** at the Global Innovative Center for Advanced Nanomaterials (GICAN), based at the University of Newcastle, NSW.
- Commercialisation of hydrogen storage infrastructure has been limited by the non-availability of economic, safe and efficient hydrogen storage systems for long distance transportation. Naturally occurring halloysite nanotubes (HNTs) present a unique opportunity as a potential hydrogen storage material.
- Any intellectual property rights developed from this research will be owned by Natural Nanotech Pty Ltd, the recently incorporated company formed with Minotaur Exploration Limited (ASX: MEP) to identify and develop emerging high-tech uses for halloysite, of which Andromeda is currently earning a 50% equity interest.
- A positive outcome from this research will lead to further commercially focussed work to be undertaken by Natural Nanotech.
- Final assays from the Poochera aircore drilling program undertaken in May have now been received allowing commencement of an update to the Mineral Resource at Carey's Well.
- Work on the Poochera Project Prefeasibility Study has now commenced while an optimisation to the Scoping Study to consider wet-processing at site is underway.

Discussion

Hydrogen is the lightest and most abundant element that possesses the highest calorific value and burns cleanly, producing water as a by-product. It is regarded as a promising alternative energy source. The reducing cost of hydrogen production from various technologies, and a global transition towards minimising the use of fossil-based energy sources have created a major economic opportunity for hydrogen. Five key aspects of the hydrogen

industry are: Production, Delivery, Storage, Conversion, and Application, that are in different stages of technological advancement. Commercialisation has been limited by the non-availability of an economic, safe and efficient hydrogen storage system for long distance transportation.

Conventional hydrogen storage technologies such as gas compression and cryogenic liquid are costly, less energy efficient, and require high capital infrastructure. Hence storage of hydrogen in solid state materials has become attractive for meeting transportation requirements. Numerous materials are currently being tested, but all have deficiencies making them unable to meet the economies of scale required. Naturally occurring halloysite nanotubes (HNTs) present a unique opportunity for hydrogen storage due to a balance of distinctive natural characteristics.

Andromeda Metals (ADN: ASX, Andromeda, the Company) has a large resource of halloysite rich kaolin at the Carey's Well deposit and exploration has identified other areas of very high-purity halloysite across the Poochera Project and also at Camel Lake and Mount Hope, all located in South Australia. It is Andromeda's vision is to become a world leading producer of halloysite-kaolin and a leader in halloysite technologies.

The Global Innovative Centre for Advanced Nanomaterials (GICAN), University of Newcastle, has been using sophisticated techniques to characterise halloysite, and preliminary trials on the hydrogen storage ability of HNT has shown better adsorption capacity than the reported values for graphene, and an innovative strategy has been devised to significantly enhance the hydrogen adsorption capacities of HNTs, supervised by the head of GICAN Professor Ajayan Vinu, who has been working in this area for many years.

Energy Networks Australia and the Australian Pipelines and Gas Association (APGA) recently released the '*Hydrogen Innovation — Delivering on the Vision*' report that shows the significant progress made in Australia with big trials already underway, and some networks have made clear plans to blend hydrogen into existing gas infrastructure. Producing renewable hydrogen is already being demonstrated in Canberra and Perth, and by early 2020 two more projects, in Adelaide and Sydney, will come online. In South Australia, Hydrogen Park will be Australia's largest renewable gas project and the first to blend hydrogen with natural gas for supply to customers using the existing gas network. Commercial operation is due to begin in June next year.

Andromeda has been successful in securing a matched Commonwealth grant that will see a total of up to \$100,000 spent on research conducted by GICAN into the use of halloysite nanotubes for use as a safe means for hydrogen storage. The intellectual property developed will be owned by Natural Nanotech Pty Ltd, the recently incorporated company formed with Minotaur Exploration Limited (ASX: MEP) to identify and develop emerging high-tech uses for halloysite, of which Andromeda is currently earning a 50% equity interest. Future potential commercialisation of the intellectual property developed from the research undertaken with respect to hydrogen storage using halloysite nanotubes will be a focus for Natural Nanotech going forward.

The next few years of development are crucial if Australia is to have a world-leading hydrogen industry, and safe storage/transport will be a crucial factor. This is part of a global movement with 19 separate hydrogen roadmaps underway or completed around the world, making the timing of this ground-breaking halloysite research perfect to capture any emerging commercial opportunities.



Managing Director

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