

RENAISSANCE ONE: LITHIUM ION BATTERY MANUFACTURING FACILITY



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**AUSTRALIA'S NORTHERN TERRITORY
INVESTMENT OPPORTUNITY**



Location: East Arm, Darwin, Northern Territory

Sector: Energy

Investment type: Offtake, debt or equity

Estimated total project cost: US \$150 million

Investment amount sought: Negotiable, depending on partner arrangements

Project status: Major Projects status in progress, financial close April 2018



Project description:

With a vision to change the way we power organisations and industry, Renaissance One will be Australia's first large-scale lithium ion battery manufacturer, producing semi solid state lithium ion batteries uniquely optimised for warm climates. The 30,000sqm facility in East Arm, Darwin, will house seven independent production line clean rooms, each capable of producing 150MWh per year of lithium ion battery cells. This modular design enables Renaissance One to manufacture different battery chemistries (LFP, NMC) and to offer bespoke manufacturing on site. Renaissance One will employ automated production line systems and will house an on-site visitors centre and a dedicated Charles Darwin University (CDU) innovation 'campus' connecting CDU students with Energy Renaissance specialists. Renaissance One will source battery-grade raw materials from Australian suppliers, in the short term processed overseas and in the longer term from processing facilities within Australia.

When fully operational, Renaissance One will create 350 direct jobs and a further 700 indirect jobs in Darwin and the surrounding area.

Almost all commercially available lithium ion batteries perform best up to 25 degrees Celsius, at which point performance begins to degrade. To counter this, today's battery energy storage systems (BESS) are housed within air conditioned environments which are powered by the energy stored in the BESS itself. In most parts of the world this is an acceptable solution, but in hot or humid climates this can result in this 'parasitical' energy consumption accounting for 30% of the stored energy. The result for organisations in these climates is an increased lifetime cost of energy compared to those in cooler climates. This acts as a barrier to the adoption of large-scale BESS in hot or humid climates. Energy Renaissance's goal is to manufacture the world's best performing commercial and electronic vehicle (EV) batteries for hot and humid climates.

Energy Renaissance will open its 1GWh facility, Renaissance One, to manufacture, sell and support high performance lithium ion batteries with several distinct advantages;

- Lowest lifetime cost per KWh in hot and humid markets

- High performance (high cycle life, long calendar life and temperature resilient)
- Safe (passes UL, UN and USABC safety tests and all crush tests)
- The unique ability to customise and fabricate to client specifications
- Manufactured in Australia for shorter delivery times and faster service and support
- Producing the most recyclable lithium ion battery on the market
- Uniquely optimised for hot and humid climates, operating at 45°C with no cooling to deliver the longest lifecycle in the market.

Project proponent:

Energy Renaissance is an Australian company currently developing a 1GWh lithium ion manufacturing facility in East Arm, Darwin ('Renaissance One'). Energy Renaissance is supported by founding shareholder UGL Limited, ANZ (mandated finance lead), PwC (advisory services) and the Northern Territory Government. Energy Renaissance is not a battery inventor.

Instead Energy Renaissance employs battery chemistries under license from leading battery chemists in the market, subsequently adding IP in the form of heat and humidity management. Energy Renaissance will be manufacturing semi-solid LFP and NMC batteries under license from 24M, with other licenses pending.

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