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ALTECH – SILUMINA PROJECT DFS EXPANDS OUTPUT 8-FOLD FROM 15 GWH TO 120 GWH

Highlights

- Expanded the Silumina Project DFS output by eightfold
- 15 gigawatt-hours (GWh) to 120 GWh
- To produce 8,000 tpa alumina-coated metallurgical silicon only
- No change to plant and equipment used
- Customers to blend coated silicon (10%) with their uncoated graphite source
- Increase of battery energy density by at least 30%
- Potential reduction of graphite usage for potential customers
- China graphite export restrictions causing concerns
- Increased output meets long-term silicon anode demands

Altech Batteries Limited (Altech/the Company) (ASX: ATC and FRA: A3Y) is pleased to announce that during the finalisation of the Silumina Anodes™ project Definitive Feasibility Study (DFS), Altech has managed to expand the project's output by eightfold, increasing the capacity from 15 gigawatt-hours (GWh) to 120 GWh, with no change to plant and equipment. This significant expansion will effectively cater to the long-term demand for silicon-type anodes within the industry. Initially, as per the original DFS scope, Altech had proposed the production of 10,000 tons per annum (tpa) of Silumina Anodes™ product, comprising 1,000 tpa of high-purity alumina-coated metallurgical silicon incorporated into 9,000 tpa of similarly coated graphite (10% mix). The plant will now focus on solely producing alumina-coated metallurgical silicon product at a rate of 8,000 tpa. This product will be integrated into the graphite by the customers within their battery plants rather than at Altech's facility. As a result of this increased production of the 'active' component, the output has expanded by a significant eightfold, rising from 15 GWh to 120 GWh.

According to feedback from potential customers, utilising their existing qualified graphite source is a priority. Furthermore, although there is a marginal advantage in using alumina-coated graphite, the primary appeal for potential customers lies in integrating Altech-coated silicon into their battery products. Despite initial considerations regarding the benefits of coating graphite with alumina, such as the reduction of first-cycle loss, Altech's research has demonstrated that the cost-to-reward ratio for graphite is relatively minimal.

This recent adjustment to “all silicon” is expected to yield substantial improvements in the bottom-line economics. The most notable advantage lies in the ability to crack the silicon code, preventing expansion defragmentation, as well as curbing the significant first-cycle loss associated with silicon.

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Battery manufacturers have the choice to either produce batteries with higher energy density or maintain their current energy density while reducing the graphite content. By decreasing the use of graphite, the cost of producing batteries can be reduced. However, the recent news about China, which accounts for approximately 90% of the global production of lithium-ion battery graphite, imposing limitations on the worldwide export of graphite, has begun to create challenges for battery manufacturers in Europe and the USA.

Altech is currently in talks with Ferroglobe, the European silicon partner of Altech, to boost the supply of metallurgical silicon for the enhanced Silumina Anodes™ project. Moreover, the Company has executed non-disclosure agreements (NDAs) with prominent automotive conglomerates in Europe and the United States, who have shown keen interest in acquiring commercial samples for their testing and qualification procedures. Considering the limited production capacity of Altech's R&D laboratory in Perth, the larger samples will be procured from the Silumina Anodes™ Pilot Plant in Saxony. The Pilot Plant is nearing completion and is expected to be operational in the early part of the upcoming year.

Managing Director Iggy Tan emphasised that the substantial increase in Silumina Anodes™ output by eightfold, achieved without significant changes in the plant or capital costs, represents a notable advancement in Altech's business strategy. Mr Tan highlighted the increasing demand in the lithium-ion battery industry for higher-density batteries, emphasising the necessity to reduce reliance on graphite, particularly in light of the export restrictions imposed by China. Mr Tan expressed confidence that the incorporation of Altech's alumina-coated silicon would assist battery customers in addressing these concerns. Mr Tan further conveyed his enthusiasm regarding the enhanced business model, indicating a positive outlook for the company's future endeavours.

Watch the interview with Iggy Tan at https://youtu.be/E0u5__xGOPs

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About Altech Batteries Ltd (ASX:ATC) (FRA:A3Y)

CERENERGY® Batteries Project

Altech Batteries Ltd is a specialty battery technology company that has a joint venture agreement with world leading German battery institute Fraunhofer IKTS ("Fraunhofer") to commercialise the revolutionary CERENERGY® Sodium Chloride Solid State (SCSS) Battery. CERENERGY® batteries are the game-changing alternative to lithium-ion batteries. CERENERGY® batteries are fire and explosion-proof; have a life span of more than 15 years and operate in extreme cold and desert climates. The battery technology uses table salt and is lithium-free; cobalt-free; graphite-free; and copper-free, eliminating exposure to critical metal price rises and supply chain concerns.

The joint venture is commercialising its CERENERGY® battery, with plans to construct a 100MWh production facility on Altech's land in Saxony, Germany. The facility intends to produce CERENERGY® battery modules to provide grid storage solutions to the market.

ALTECH cerenergy®
Sodium Alumina Solid State Batteries

Silumina Anodes™ Battery Materials Project

Altech Batteries has licenced its proprietary high purity alumina coating technology to 75% owned subsidiary Altech Industries Germany GmbH (AIG), which has commenced a definitive feasibility study for the development of a 10,000tpa silicon/graphite alumina coating plant in the state of Saxony, Germany to supply its Silumina Anodes™ product to the burgeoning European electric vehicle market.

This Company recently announced its game changing technology of incorporating high-capacity silicon into lithium-ion batteries. Through in house R&D, the Company has cracked the "silicon code" and successfully achieved a 30% higher energy battery with improved cyclability or battery life. Higher density batteries result in smaller, lighter batteries and substantially less greenhouse gases, and is the future for the EV market. The Company's proprietary silicon graphite product is registered as Silumina Anodes™.

The Company is in the race to get its patented technology to market, and recently announced the results of a preliminary feasibility study (PFS) for the construction of a 10,000tpa Silumina Anodes™ material plant at AIG's 14-hectare industrial site within the Schwarze Pumpe Industrial Park in Saxony, Germany. The European graphite and silicon feedstock supply partners for this plant will be SGL Carbon and Ferroglobe. The project has also received green accreditation from the independent Norwegian Centre of International Climate and Environmental Research (CICERO). To support the development, AIG has commenced construction of a pilot plant adjacent to the proposed project site to allow the qualification process for its Silumina Anodes™ product. AIG has executed NDAs with two German automakers as well as a European based battery company.

Silumina Anodes™

HPA Production Project

Altech is also further aiming to become a supplier of 99.99% (4N) high purity alumina (Al_2O_3) through the construction and operation of a 4,500tpa high purity alumina (HPA) processing plant at Johor, Malaysia, and has finalised Stage 1 and Stage 2 construction of its HPA plant in Johor, Malaysia. Feedstock for the plant will be sourced from the Company's 100%-owned near surface kaolin deposit at Meckering, Western Australia and shipped to Malaysia. The HPA project is significantly de-risked with a bankable feasibility study completed, senior lender project finance from German government owned KfW IPEX-Bank approved, and a German EPC contractor appointed – with initial construction works at the site completed. In addition to the senior debt, conservative (bank case) cash flow modelling of the HPA plant shows a pre-tax net present value of USD 505.6million at a discount rate of 7.5%. The project generates annual average net free cash of ~USD76million at full production. Altech is in the final stages of project finance with a potential raising of US$100m of secondary debt via the listed green bond market. In addition, US$100m of project equity is being sought through potential project joint venture partners.