QUARTERLY REPORT

December 2023

Funds Received for Sale of 25% of Altech Industries Germany

- Final instalment received of €1,583,333 of Deferred Consideration from Altech Advanced Materials AG (AAM), in relation to the sale of 25% of Altech's subsidiary Altech Industries Germany GmbH (AIG)

Outstanding DFS Silumina Anodes™ Battery Materials Project

- Highly positive Definitive Feasibility Study (DFS) - 8,000tpa Silumina Anodes™ project
- 8,000 tpa alumina-coated metallurgical silicon only
- Customers to blend coated silicon (10%) with their uncoated graphite source
- Means expansion from 15 gigawatt-hours (GWh) to 120 gigawatt-hours (GWh)
- Increase of battery energy density by at least 30%
- Capital cost estimated at €112 million with outstanding economics
- Pre-tax Net Present Value (NPV_{10}) of €684 million
- Attractive Internal Rate of Return (IRR) of 34%
- Payback period is 2.4 years
- Forecast 18% CAGR growth of silicon in battery anodes till 2035
- Green accredited project using renewable energy
- Pilot plant construction in final stages for product qualification
- NDAs executed with two German automakers, two US automakers, one US battery materials supply company and one European battery maker

Silumina Anodes™ Project DFS Expands Output 8-Fold to 120GWH

- 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

CERENERGY® Battery Project Upgraded to 120MWh

- Annual output will now reach 120 1MWh GridPacks per annum
- GridPack stacking allows triple stacking with a simple electrical connection
- Small footprint conserving valuable land area
- Minimal maintenance required for GridPacks

Optimised Design of CERENERGY® Battery Packs Completed for DFS

- Optimised design of 60 KWh battery pack completed
- Sleek stainless-steel exterior – maintains finish in all weather conditions
- Battery base incorporates high-temperature-resistant electrical cables
- Upgraded design to cell connector plates using mica insulation
- Two working prototype 60 KWh batteries in full production
- First stainless-steel battery case delivered – undergoing heat loss testing

Funds Received for Sale of 25% of Altech Industries Germany

Altech received the final instalment of Deferred Consideration from Altech Advanced Materials AG (AAM), in relation to the sale of 25% of Altech's subsidiary Altech Industries Germany GmbH (AIG). The amount received was €1,583,333.

On 23 December 2020, Altech announced that it had finalised the sale of 25% of its German subsidiary AIG for €5.0 million, with the Company to retain ownership of the remaining 75%. The Initial Cash Consideration of €250,000 was received upon the signing of the Share Sale and Purchase Agreement, with Deferred Consideration amounting to €4.75 million, payable in three equal instalments of €1.583 million. Altech had previously received the first two instalments, with the final instalment of €1.583 million now also received.

Managing Director Iggy Tan commented that *"We are very pleased with the support of AAM in relation to the acquisition of the 25% of AIG, with AIG being the holder of Altech's Silumina Anodes™ battery materials project. Altech continues with the construction of the Silumina Anodes™ pilot plant on Altech's land in Saxony, Germany, and has recently announced the Definitive Feasibility Study for the full-scale 8,000tpa plant, that includes an impressive $NPV_{(10)}$ of €684 million and a payback period of 2.4 years. Altech intends to produce 120kg per day of the Silumina Anodes™ product from the pilot plant, which will then be used to assist in securing an offtake agreement with an end user. Altech already has Non-Disclosure Agreements in place with some of the world's biggest automobile manufacturers. The receipt of the Deferred Consideration for €1,583,333 is well received and will be used for advancing Altech's Silumina Anodes™ battery materials project as well as the CERENERGY® sodium-chloride solid state battery project"*.

Outstanding DFS Silumina Anodes™ Battery Materials Project

Altech is pleased to announce the exceptional results from a Definitive Feasibility Study (DFS) conducted for an 8,000tpa (120 GWh) alumina-coated metallurgical silicon plant planned for Saxony, Germany. This facility, spearheaded by Altech Industries Germany GmbH (AIG) with ownership split of 75% Altech and 25% Frankfurt stock exchange listed Altech Advanced Materials AG (AAM), is set to produce cutting-edge and patented alumina-coated silicon battery anode materials known as "Silumina Anodes™." This product, manufactured exclusively under license from Altech, is strategically aimed at meeting the escalating demand in the European and US electric vehicle and grid storage battery market.

Project Economics

With a capital investment of €112 million, Altech's DFS projects a net present value of €684 million (NPV_{10}), with net cash of €105 million per annum generated from operations. The internal rate of return is estimated at 34%, with investment capital paid back in 2.4 years. Total annual revenue at the 8,000tpa full rate of production is estimated €328 million per annum.

Figure 1: Proposed 8,000 tpa Silumina Anodes™ Plant at Saxony, Germany

All Alumina-Coated Silicon Project

A Preliminary Feasibility Study (PFS) was completed in April 2022 based on 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% silicon mix). Since then, during the preparation of the Silumina Anodes™ project DFS, Altech has expanded the project's output by eightfold, increasing the capacity from 15 gigawatt-hours (GWh) to 120 GWh, all with the same plant and equipment. 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. Consequently, Altech's Silumina Anodes™ plant is now solely focused on producing 8,000 tpa of alumina-coated metallurgical silicon product. This product will be integrated into the graphite by the customers within their battery plants, rather than at Altech's facility.

See the Silumina Anode™ Plant Design at **https://youtu.be/F15UzyoYC8I**

Silicon in Anodes is the Future

Tesla, a global leader in the electric vehicle and lithium-ion battery industry, has declared that the required step change to increase lithium-ion battery energy density and reduce costs is to introduce silicon in battery anodes, as silicon has ~ ten times the energy retention capacity compared to graphite.

Metallurgical silicon has been identified as the most promising anode material for the next generation of lithium-ion batteries. However, until now, silicon was unable to be used in commercial lithium-ion batteries due to two critical drawbacks. Firstly, silicon particles expand by up to 300% in volume during battery charge, causing particle swelling, fracturing and ultimately battery failure. The second challenge is that silicon deactivates a high percentage of the lithium ions in a battery (first cycle loss). Lithium ions are rendered inactive by the silicon, immediately reducing battery performance and life. The battery industry has been in a race to crack the silicon barrier. One of the main barriers limiting future Li-ion battery improvements in the areas of vehicle range, battery weight, charging speed, and cost, is the inherent energy capacity and performance of graphite as the anode material. Graphite anode material has a theoretical capacity of 372 mAh/g, and a volumetric capacity of approximately 700 mAh/cc, and takes up more space than any other component in the battery cell. As a result, many believe the next breakthrough in Li-ion battery technology will relate to anode performance, specifically, the replacement of graphite with ultra-high-capacity silicon metal.

Metallurgical silicon anodes have a theoretical capacity of 3,579 mAh/g, and a volumetric capacity of approximately 2,100 mAh/cc, meaning the mass and volume of anode material required to construct an equivalent kWh battery pack is significantly reduced. This equates to important reductions in the $/kWh costs of the Li-ion battery, reduced battery weight, or extended vehicle range capability. Another major benefit is that thinner silicon anodes will enable much faster charging; thinner electrodes enable lithium ions to reach anode particles much faster. This decrease in the ion diffusion time results in significant improvements in charge speed.

Despite the significant performance improvements offered by high-capacity silicon anodes, Li-ion battery manufacturers are yet to adopt their use in large volumes due to a number of critical technical challenges. Silicon anodes undergo volumetric expansion of 300% when reacting with lithium ions during charging, and a corresponding 300% contraction during battery discharge. In contrast, graphite expansion/contraction is in the order of 7%. Such changes in the anode volume result in fracture and pulverisation of the large silicon particles typically used, and damage to the passivating nature of the SEI layer, increasing lithium-ion loss and resulting in a rapid loss of battery capacity. Most of the development in silicon anodes to date has focussed on high cost nano-sized particles which do not build up sufficient mechanical stress to fracture, and also the blending of relatively small amounts of silicon into existing graphite anode products to achieve relatively modest capacity increases.

Altech Alumina Coating Technology

Through in-house research and development, Altech has cracked the “silicon code” and successfully achieved 30% higher energy retention in a lithium-ion battery, with improved cyclability and battery life. At shorter cycle life the energy retention could be as high as 50-70% energy retention in a lithium-ion battery. Higher-density batteries result in smaller, lighter batteries and substantially less greenhouse gases, and are destined for the EV market. To achieve its breakthrough, Altech successfully coated silicon particles with a high-purity nano layer of alumina, producing the Silumina Anodes™ product. Altech's alumina coating technology resolves the expansion defragmentation, as well as curbing the significant first-cycle loss associated with silicon. The Company believes that its technology will be a “game changer”, which would pave the way for increased lithium-ion battery energy density, battery lifespan, and reduced first-cycle lithium loss.

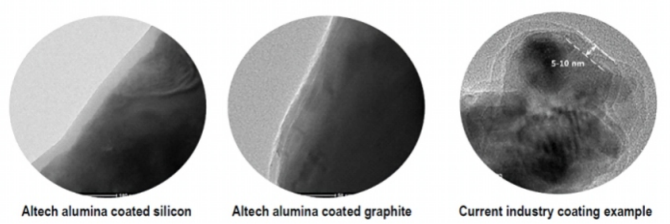


Figure 2: Alumina layer coating (2 manometer) of metallurgical silicon and graphite under SEM

Figure 3 – Research and Development Laboratory in Perth, Western Australia

Benefits to Battery Suppliers

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. The reduction in graphite usage will become a major imperative.

Altech Coating Process

There is extensive research and literature in the field that demonstrates the use of alumina coatings in anode applications. Alumina-coated graphite has been shown to improve battery cycle and safety performance. The test results show that the alumina coating forms an artificial SEI layer and prevents 8-10% of lithium ions from being inactive at the commencement of battery life. Altech has applied this technology to coat metallurgical silicon with nano-layer alumina coatings. Such films need to be ultrathin to have high Li+ and electron conductivities while excellent conformality is needed to be sufficiently protective. The coatings serve as an artificial solid electrolyte interface (SEI), and can reduce lithium loss during each battery charge and discharge cycle, and also retards the silicon expansion and degradation of battery capacity throughout battery life.

There are several methods by which alumina coating can be applied to a graphite or silicon surface. This includes atomic layer deposition (ALD), solid method, and hydrothermal method. In general, it has been suggested that ALD is costly and complex, and not suitable for mass production processes. Other coating methods such as hydrothermal and mechano-chemical processes have been developed but have significant drawbacks such as low yield or poor coating uniformity. However, some liquid coating methods such as the Altech coating technology have demonstrated a simple and low-cost treatment method. The Altech process utilises aluminum chloride solution to coat sub-micron metallurgical silicon particles and then calcine insitu to form nano layers on the surface of the silicon. The technology was developed by Altech and is protected by a series of worldwide patents.

Patent Protection

Altech is committed to protecting its intellectual property. Patent protection for Silumina Anodes™ battery materials technology is in place which covers an Australian provisional patent application originally filed on 13 May 2021. Since then, there have been broader filings to extend reach and protection including National Patent filings in the United States, Europe, China, Japan, and Korea. The International Patent filing has covered up to 156 countries. On 13 May 2022, an international patent application preserving the right to file national applications in up to 156 countries was filed. National patent applications have also been filed in the United States, Europe, China, Japan, and Korea. All of these applications claim priority from the Australian provisional patent application filed on 13 May 2021.

Silumina Certified as a Green Project

As announced on 18 November 2021, CICERO was engaged by AIG to conduct an independent evaluation of the Company's Silumina Anodes™ plant that would be located at the Schwarze Pumpe Industrial Park, Saxony, Germany. The plant is being designed with a specific focus on minimising environmental impact and in accordance with prevailing German, European, and International environmental standards. CICERO provided a rating of "Medium Green" to the project. This positive project evaluation, formally termed a "Green Bond Second Opinion", confirms that the project would be suitable for future green bond financing.

In determining the overall project framework rating of *"Medium Green",* CICERO assessed the proposed governance procedures and transparency as "Good" and confirmed that the project aligns with all green bond principles. In assessing the proposed plant design and coating process, CICERO noted *"The plant has near zero Scope 1 and 2 emissions as the plant's processes, including steam generation, are fully electrified, and it will use renewable electricity sourced from renewable energy certificates".*

°CICERO Medium Green

A CO_2 footprint assessment of the proposed 8,000tpa plant determined that, when compared to the incumbent lithium-ion battery technology that uses a graphite-only anode, coated silicon anode material could result in a CO_2 emissions reduction of ~35% where 10% coated silicon is used in a battery anode, and a reduction of up to ~ 52% if 20% coated silicon was used (refer Table 1).

Silicon Content %	Reduction in CO_2 footprint in LIB (equivalent power)
5%	18.7%
10%	34.9%
15%	44.9%
20%	51.8%

Table 1: Estimated reduction in CO_2 footprint from use of coated silicon in Lithium-ion battery anode

Plant Location - Saxony Germany

Land has been purchased for the project within the Schwarze Pumpe Industrial Park (ISP), which straddles the border between the federal states of Brandenburg and Saxony, approximately 120 km from Berlin and only 78 km from Dresden. The proposed AIG site is situated in the southern portion of the ISP, on the Saxony side of the border, and within the municipality of Spreetal. The total project site area is 14 hectares located within the Schwarze Pumpe Industrial Park.

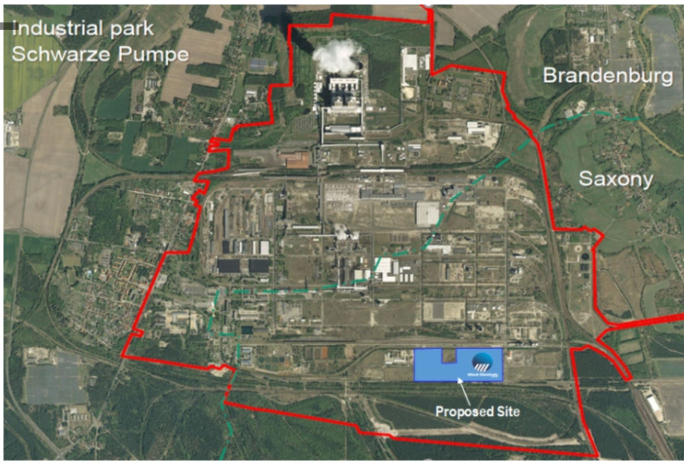


Figure 4: Silumina Anode™ Project Location

Metallurgical Silicon Supply

For silicon supply, the Company has a MoU with Ferroglobe Innovation S.L. (Ferroglobe), a leading producer of high-purity metallurgical silicon in Europe. The executed non-binding MoU details the relationship whereby Ferroglobe would supply silicon anode material to AIG battery material plant in Saxony. Ferroglobe is a leading producer of silicon metal with a proven ability to create new solutions and applications using state-of-the-art technology to drive innovation. It has technologies to produce high-purity grade silicon and is specifically developing tailor-made silicon powders for the anode of lithium-ion batteries.

By securing high quality silicon from a leading European-based materials supplier, transport emissions attributed to feedstock shipments are reduced, and supplier production facilities have the potential to utilise the extensive green electricity market in Europe. Importantly, these suppliers will, like AIG, be governed by the same stringent European Union (EU) environmental regulations. Both companies have a strong corporate focus on sustainability and reducing the environmental impact of their operations. Finally, the selection of EU-based feedstock suppliers is expected to reduce any potential future supply chain risks, when compared with non-European suppliers.

NDAs with Potential Customers

Altech has executed non-disclosure agreements (NDAs) with prominent automotive conglomerates in Europe and the United States, who have shown keen interest in Altech's Silumina Anodes™ technology. They have requested commercial samples for their testing and qualification procedures. NDAs executed with two German automakers, two US automakers, one US battery materials supply company, and one European battery maker. 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 mid-2024.

Commencement of Permitting

Altech appointed ARIKON Infrastruktur GmbH (Arikon) to manage the approval process, site infrastructure requirements, and the balance of the plant. Arikon has been responsible for managing the application process and working with relevant regulatory bodies to obtain all necessary approvals for the project. This includes securing necessary permits and licenses, coordinating with local authorities, and arranging utility connections. Additionally, Arikon has been responsible for designing the site infrastructure requirements for the site. Arikon has commenced the permit and environmental application process. Subject to financing for the project, the Company has decided to concurrently develop the project while the funding process is underway. The process will likely take until mid-2024 and it is important that the Company keeps advancing the project.

Figure 5: Front end section of Silumina Anodes™ plant design

Definitive Feasibility Study - Engineering

German engineering firm Küttner GmbH & Co. KG (now Hatch) was awarded the contract to conduct the engineering associated with the DFS for the Silumina Anodes™ project. Küttner is a German-based industrial plant engineering and EPC contractor, with strong experience in design, procurement, project and construction management, and plant commissioning across a range of industries. Küttner is now part of the Hatch Group. They have previously completed metallurgical plant, water, and off-gas treatment projects in Germany. Küttner brought valuable local knowledge to the execution of the project.

Technology Design

One of the key areas of technology that is required for the coating process is the front-end calciners. The calciners, which have been designed in-house, are of the packed bed type and are intended to operate at temperatures around 600 degrees celsius. These calciners play a crucial role in the Silumina Anodes™ process, wherein they facilitate the conversion of aluminum chloride present on the surface silicon particles into alumina. This patented and innovative coating technology has been developed by Altech. Notably, a distinct feature of these calciners is the utilisation of 3D-printed silicon carbide linings. These linings are employed to effectively handle the acidic atmosphere during the calcination process. Altech's process places significant emphasis on managing impurities, highlighting its importance in the overall production process.

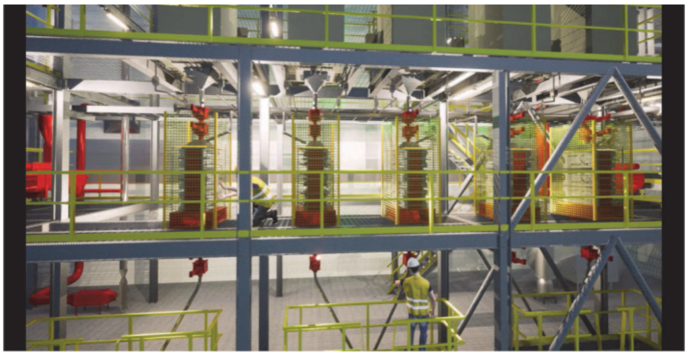


Figure 6: In-house designed packed bed calciners

Plant Layout

The design of the 8,000tpa Silumina Anodes™ plant incorporates one main production building, and a further three ancillary buildings, to be constructed on the Schwarze Pumpe plant site. These include:

- Administration and Engineering building, which will include staff office areas, process control centre and QA laboratory facilities;
- Maintenance workshop and Stores building, which will include office areas for the maintenance team and mechanical, electrical and instrumentation workshop areas; and
- Guardhouse building, which will include security offices, visitor training areas and first aid facilities.

The site buildings and associated access roads and carparking areas take up approximately one fifth of the available Schwarze Pumpe 16ha site, refer to Figure 7 below.

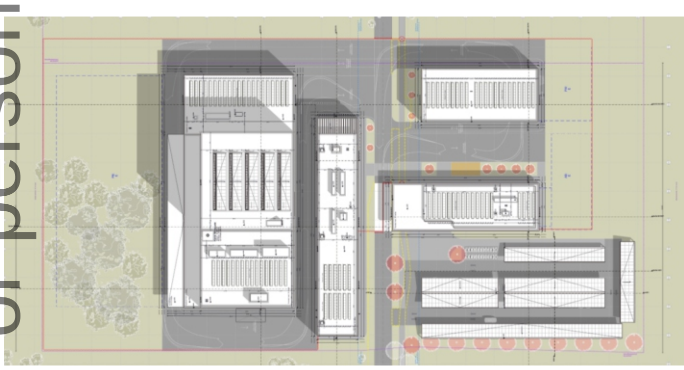


Figure 7: Site Layout of Silumina Anodes™ Plant

Capital Costs Estimation

The capital costs for the Silumina Anodes™ project are estimated at €112.5M (See Table 1). The major capital cost component for the project is the construction of the Silumina Anodes™ facility and the associated site infrastructure, such as the administration building, maintenance workshop, and on-site QA laboratory. The engineering design and cost estimate for the battery materials coating facility has been based on the process design and equipment required to process 8,000tpa of anode materials and utilises equipment design and building layouts specifically developed during the DFS. AIG has assessed its capital estimate for the Silumina Anodes™ plant to be accurate to ± 15% and can be defined as an Authorisation Budget class Estimate (AACE Class 3).

	Capital Cost EUR	
Plant	88.3	Million
Contingency	13.3	Million
Insurances	3.6	Million
Commissioning	6.8	Million
Corporate	0.5	Million
Total	112.5	Million

Table 2: Project Capital Cost Estimate

Basis of Estimate

The basis for the Schwarze Pumpe plant capital cost estimate is the mechanical process equipment required for the 8,000 tpa facility. Hatch Kuettner, a German-based engineering consultancy, was selected as the EPCM partner for the DFS, responsible for all process equipment design, specification, and estimating. Altech provided the process flow sheet and mass balance, which was used to develop plant Process and Instrumentation Diagrams (P&IDs), and mechanical equipment lists, with pricing enquiries sent to equipment suppliers in Germany and Europe for the majority of items. Vendor quotations were reviewed and total equipment pricing was compiled. Costs associated with the preparation of the site and construction of plant buildings were engineered and generated by a local preferred contractor Arikon GmbH. Arikon has been engaged due to their extensive local design and construction experience and their intimate knowledge of local and state permitting authorities and processes.

Estimating Methodology

The capital cost estimate has been prepared as per the Association of Cost Engineers UK Standard Class III and American Association of Cost Engineers Class 3 for engineering studies, with estimates calculated to a degree of accuracy of +/- 15%. The estimate has been developed based on detailed process equipment costs per the mechanical equipment list. Material take-off (MTO) estimates and detailed engineering for the various disciplines of earthworks, civil and structural, were completed based on the plant configuration at Schwarze Pumpe. These material quantity estimates were provided to a number of nominated construction contractors who then provided local unit rates to develop total capital costs for these areas. The remainder of the plant's direct costs have been estimated by discipline, as is appropriate for the level and accuracy of the study being completed.

Indirect project costs have been calculated using factors in line with those typical for chemical production facilities of similar size and complexity. The factor used to calculate total freight cost considered the location of the site and the high proportion of process equipment and construction materials which would be sourced locally from German companies or neighbouring European countries. EPCM costs have been estimated based on the DFS scope, final equipment selection and the execution strategy.

Mechanical Equipment Costs

The capital cost estimate for mechanical equipment is based on vendor quotations received for all major equipment items after enquiries were sent during 2023. Equipment sizing has been determined from process data for the 8,000tpa design basis. The mechanical equipment installation hours/costs have been estimated based on the equipment lists and industry experience, norms, and Hatch Kuettner's current construction industry knowledge and experience.

Earthworks, Concrete and Structural Works

Concrete and structural steel quantities have been calculated using material take-offs developed from the 3D plant layout design and supporting design calculations for concrete, structural steel, platforms, walkways and cladding. Estimates for bulk earthworks, access road, and in-plant road quantities have also been based on the DFS 3D plant layout. Local material and labour rates have been prepared by Arikon and have then been used to develop the total costs for these areas. Site building cost estimates have been determined using unit rates developed during the design and engineering phase supplied by Arikon. These costs include the construction of administration offices with complete staff facilities, process operations offices, control rooms, a laboratory, and the maintenance workshop/warehouse. Costs associated with the fitout of the plant QA laboratory equipment have been based on vendor quotations from German suppliers and are also included in this direct cost item.

Electrical & Instrumentation Equipment Costs

The capital cost estimate for electrical equipment is based on vendor quotations received for all major equipment items after enquiries were sent during 2023. Equipment sizing has been determined from process data for the 8,000 tpa design basis. The electrical equipment installation hours/costs have been estimated based on the equipment lists and industry experience, norms, and Hatch Kuettner's current construction industry knowledge and experience.

Direct Costs Other Disciplines

Direct costs for the remaining disciplines and ancillary items have been included but have generally been based on a factor applied to the total installed mechanical equipment cost where material take offs have not yet been developed as part of the detailed engineering design. Additional direct costs included are:

- Critical spares - Factored as 4% of installed equipment costs;
- Mobile Equipment – Estimated from equipment price database from previous quotations for forklifts; and
- First Fills – Calculated for major reagents from vendor minimum order quantities and unit costs.

Indirect Costs

The following indirect costs have been determined by evaluation of the required scope and estimation of costs. These costs are in line with industry averages for complex hydrometallurgical plants in developed countries:

- Site temporary facilities - 2% of Direct Costs;
- Mobilization and demobilization – 0.5% of Direct Costs;
- Freight – 0.5% of Direct Costs;
- Vendor representation and site commissioning – 2.5% of Direct Costs; and
- Extras incl. Taxes and Insurance – 2.5% of Direct Costs ensure that it is meeting stakeholders' needs.

Contingency

The contingency has been calculated on a line-by-line equipment basis, with allowances included for estimated design growth, pricing accuracy factors, and overall equipment/area scope contingency required, based on the level of engineering, equipment quotations received, and associated project risk. The estimate has been built up from first principles, based on the process design and equipment list, with significant vendor and contractor quotations and input. The contingency accounts for variations that may result from minor adjustments to the plant flowsheet expected during the detailed phase of engineering, geotechnical conditions of the Schwarze Pumpe site or local building regulations that require modification to the civil and structural design, and price fluctuations during procurement negotiations. The capital cost as presented includes a contingency of 15% of all estimated capex.

Feedstock, Reagent and Utility Costs

Project operating costs for the supply of boehmite feedstock, all major process reagents, electricity, and potable water have been based on quotations from local suppliers or utility providers, received during 2023.

Electricity Supply Costs

The Schwarze Pumpe facility plans to be operated using 100% green electricity. This is most commonly provided to industrial consumers by way of power purchase agreements (PPUs), or by the supply of Guarantees of Origin (GoOs) as part of a supply agreement with any of the energy retailers in the market. Due to the nature of the Silumina Anodes™ plant demand, with high availability requirements for its nominal load, GoOs are proposed as the most appropriate method to purchase green electricity supply to the plant.

Labour Costs

A detailed manning schedule for the plant during both the construction and operations phases has been developed, including operators, process engineering staff, administration, maintenance, and management. Operating costs have subsequently been determined using local German labour rates provided by labour consultants, including all on-costs for items such as health, pension, unemployment, and LTI benefits required under German labour laws.

Sustaining Capital

Sustaining capital of approximately 2.5% per annum of the initial plant buildings and equipment cost has been allowed over the life of the project.

Financial Modelling

The capital costs for the Silumina Anodes™ project is estimated at €112.5M. The construction period of the plant is over 24 months and the production ramp-up of the plant is over 3 years. The total annual revenue of the facility at the full rate of production of 8,000 tonnes per annum (tpa) is estimated at €328M. Production costs including all chemical processing, corporate overheads and sales costs are estimated at €222.4M per annum. This represents a net margin of the product of approximately 32%.

Annual average earnings before interest, tax and depreciation (EBITDA) for the project at full production is estimated to be €105.6M. Pre-tax net present value (NPV) for the Silumina Anodes™ project is €684.8M, at a discount rate of 10%. The internal rate of return (IRR) is calculated to be 34.6%, with a payback of capital of 2.4 years.

Production		8,000	tonnes
Exchange Rate		0.91	EUR/USD
Capex Exchange Rate		0.91	EUR/USD
Project Capex	€	112.5	million
Corporate Costs	€	0.5	million
Opex p.a.	€	221.9	million
NPV (pre-tax)	€	684.8	million
Discount Rate		10.0%	
Payback		2.4	years
IRR (from construction start)		34.6%	
IRR		48.4%	
Revenue p.a.	€	328.0	million
Costs p.a.	€	222.4	million
EBITDA p.a.	€	105.6	million
Revenue (Project Life)	€	9,463.8	million
Costs (Project Life)	€	6,380.7	million
EBITDA (Project Life)	€	3,083.1	million

Pilot Plant

As Altech accelerates its efforts to introduce its patented technology to the market, it is in the final stages of construction of a pilot plant in an existing building in Dock3 at Schwarze Pumpe. The product has generated significant interest in the market with NDAs been executed with two German automakers, two US automakers, one US battery materials supply company and one European battery maker. They have requested commercial samples for their testing and qualification procedures. The pilot plant's primary objective is to support the qualification process for the Silumina Anodes™ product.
A YouTube video update of the pilot plant can be seen at **https://youtu.be/IRWCDLx6UTI**

Figure 8: Pilot Plant in Dock3 facility, Schwarze Pumpe Industrial Park, Saxony, Germany

The on-site laboratory has been established and is fully commissioned. The laboratory enables Altech to conduct necessary testing and analysis of the Silumina Anodes™ product from the pilot plant. Additionally, Altech established an on-site glove box, which facilitates the production of lithium-ion battery coin half cells. These half-cells will be used to test the performance of the Silumina Anodes™ produced from the pilot plant. This is a crucial component of the product qualification process and will provide important data on the product's performance characteristics.

The pilot plant is designed to produce 120kg per day of coated battery anode material, which will be made available to selected European and US battery manufacturers and auto-makers.

Figure 9 - Pilot Plant calciner and test equipment

Growth of the Lithium-Ion Battery Market

From 2023 till 2035 the global demand for batteries – measured by its energy capacity in GWh - supplied to electric passenger cars and electric commercial vehicles grows at a pace of 16% CAGR (See Figure 10). Due to the expansion of battery manufacturing capacities in Europe, to balance battery supply and battery demand of the automotive industry in Europe, higher growth rates are expected in Europe. Based on data of BNEF and industry publications, Altech expects that 14% of the global battery production capacities in GWh will be located in Europe after 2033; up from about 8% in 2023.

Lithium-ion cell manufacturing capacity by region of plant location

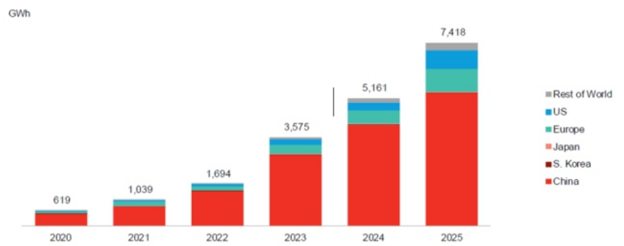


Figure 10: Global Battery Production Capacity

Source: BloombergNEF Note: Based on current announcements without de-risking. Values have been rounded.

Supply Gap of Anode Materials in Europe

In 2023, Europe still suffers from a substantial gap in anode material production capacities, as most anode material required by the battery manufacturers were sourced from China. Global graphite anode markets have been dominated by Chinese producers, which have accounted for more than 90% of installed capacities, see Figure 11, depicting the Lithium-Ion Battery Components capacity Ratio by region of origin.

Lithium-ion cell manufacturing capacity ratio by component and plant location

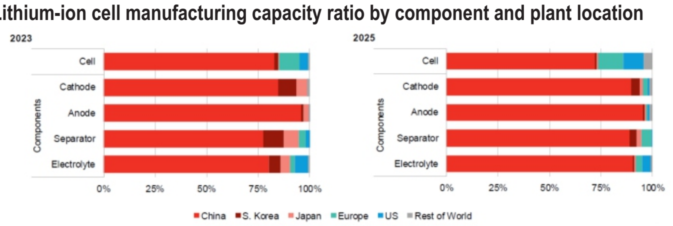


Figure 11: Lithium-ion Battery Components Capacity Ratio

Source: BloombergNEF Note: 2023 includes facilities commissioned up to the end of October 2023. Based on current announcements without de-risking. Values have been rounded.

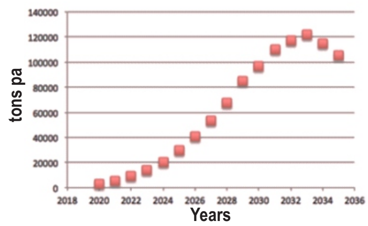
The recently announced restrictions on anode graphite exports to the European Union (EU) by China will accelerate the development of the European anode materials industry. SGL Carbon is one of the most significant producers of synthetic graphite and graphite-based battery products in Europe.

Anode Silicon Market

Calculations based on the BNEF Base Case (ETS) outlook predicts global anode silicon demand – measured by weight including all silicon-based materials - from battery makers will grow at an accelerated pace of 18% CAGR from 2023 to 2035 to a total of 106ktpa. It is expected that the overall battery grade silicon demand stays at circa 100kt pa after 2032, while continuing to shift towards high value engineered silicon anode materials.

According to BNEF Base Case (ETS) the continued growth until 2033 is driven by the incremental substitution of anode graphite by silicon-based materials to improve the energy density of the anode, refer to Figure 12 below:

Figure 12: Global demand for Silicon Based Products for electric vehicles



The dynamics of the demand for silicon-based materials result from the growth of electric vehicles and from the shift to silicon-rich chemistries. Based on the BNEF Base Case (ETS) demand outlook for battery anode chemistry, the relative amount of silicon being used for anodes, forecast to triple from 2020 till 2032, from less than 6g per kWh to a total of circa 21g per kWh, partially substituting for (some of) the graphite used in anodes.

Project Financing

Altech has embarked on a preliminary multi-faceted financing process based on a grant applications, debt and green bond financing process.

Grant Process

Saxony State Government Grants

- State employment grants for a total maximum sum of €7.48M.
- Federal German Government Grants
- Environmental and/or Federal Technology Grants or R&D Grants up to €15M provided through Kreditanstalt für Wiederaufbau KfW.
- Federal investment funding for special projects referred to as 'Resilience and Sustainability of the Battery Cell Manufacturing Ecosystem' up to €50M provided through KfW with a 50% government guarantee.

European Government Grants

Important Project of Common European Interest (IPCEI) for not less than €50M that involves a projection of a potential build up until 2030. This application has been made and will only become accessible for expansion of capacity beyond the 8,000 tpa capacity.

Debt Process

Altech has been in discussion with European banks for debt financing of the Silumina Anodes™ project, including the European Investment Bank (EIB). EIB specialises in zero valley special economic zone for projects of competitive importance.

Green Bond Financing

CICERO has provided a rating of “Medium Green” to the Silumina Anodes™ project. This evaluation, formally termed a 'Green Bond Second Opinion', confirms that the project is suitable for future green bond financing. Altech is in the process of considering debt via the green bond capital market and has advisers working on this process.

NDAs with Potential Customers

Altech has executed non-disclosure agreements (NDAs) with prominent automotive conglomerates in Europe and the United States, that have shown keen interest in Altech's Silumina Anodes™ technology. NDAs have been executed with two German automakers, two US automakers, one US battery materials supply company, and one European battery maker. Altech will seek to secure offtake agreements with these potential strategic customers once commercial samples can be provided.

Operating Costs Breakdown

The total operating costs is estimated to be €222.4 million per annum at the full production rate. The operating costs breakdown per kilogram is as follows:

Activity	EUR
Labour	€0.21
Electrical power	€0.42
Anode Feedstock (Silicon)	€24.31
Boehmite, HCL and other reagents	€0.25
Maintenance	€0.18
TOTAL per Kg	**€25.37**
Product Selling Costs & Misc.	€2.09
Corporate Overheads (Germany)	€0.17
G&A	€0.12
TOTAL per Kg	**€27.75**

Sensitivity Analysis

A sensitivity analysis of the Silumina Anodes™ project, prepared at +/- 15%, is provided in the following table.

Sensitivity Analysis	-15%	DFS NPV EUR M	+15%
Product Price	315	685	1054
Capex	701	685	669
Opex	936	685	433
FX Rate EUR:USD	685	685	685
Product Output (8ktpa)	503	685	796
Power Price	689	685	680

Using these sensitivities, the analysis indicates that the project is most sensitive to the final product price followed by operating costs. The capital costs have a limited impact on the project returns. The majority of the capital and operating expenses are quoted in euros, and as such, there is minimal impact on the euro NPV of the project if there is a change in the EUR:USD exchange rate.

Life of the Project

The life of the project, as reflected in the financial model, is thirty (30) years, being typical of chemical processing plants. With regular maintenance and sustaining capital every year, these chemical plants often last beyond 30 years. The model assumes annual sustaining capital expenditure of 2.5% per annum of the initial plant buildings and equipment cost over the life of the project.

CO_2 Footprint Assessment

A CO_2 footprint assessment of the proposed 8,000tpa plant determined that, when compared to the incumbent lithium-ion battery technology that uses a graphite-only anode, coated silicon anode material could result in a CO_2 emissions reduction of ~35% when 10% coated silicon is used in a battery anode, and a reduction of up to ~ 52% if 20% coated silicon was used (refer Table 1 below). Additional calculation details are attached in Table 2.

Silicon Content %	Reduction in CO_2 footprint in LIB (equivalent power)
5%	18.7%
10%	34.9%
15%	44.9%
20%	51.8%

Table 1: Estimated reduction in CO_2 footprint from use of coated silicon in Lithium-ion battery anode

Explanation of Eightfold Expansion

During the preparation of the Silumina Anodes™ project DFS, the project's output expanded by eightfold, increasing the capacity from 15 gigawatt-hours (GWh) to 120 GWh, all within the same plant and equipment requirements. In the previous PFS, the production of alumina-coated silicon, which is the active ingredient, was 1,000 tpa. In the DFS, this is now 8,000 tpa. By increasing the production of the active ingredient silicon, the impact on the capacity to the battery industry is now eightfold, as the previous graphite production had a neutral impact on the battery density increase. Also refer to the ASX announcement dated 14 November 2023 for further information in relation to the expanded increase in capacity.

Silicon Supply

For silicon supply, Altech has a MoU with Ferroglobe Innovation S.L. (Ferroglobe), a leading producer of high-purity metallurgical silicon in Europe. The executed non-binding MoU details the relationship whereby Ferroglobe would supply silicon anode material to the Silumina Anodes™ battery material plant in Saxony. Ferroglobe is a leading producer of silicon metal, accounting for 14% of the global production capacity. Ferroglobe have 26 electrometallurgy production centers and mine sites on four continents with 69 furnaces worldwide. Last year Ferroglobe produced a total of 328,160 tonnes of silicon metal from Spain, France, North America and South Africa. The grade of the silicon required by Altech is one of Ferroglobe's standard product grading at 99.9% Si grade with a particle size of 0.5 um. Ferroglobe have indicated that they are capable of supplying the 8,000 tpa required for the project.

Material	CO2eq Emissions per kg	Energy Capacity (mAh/g)	g CO2eg perAh
Synthetic Graphite	4.9	375	13.07
100% Silicon	9.9	4200	2.36
10% Silicon	5.92	654	9.05
20% Silicon	6.41	948	6.76
30% Silicon	6.90	1242	5.56

1. Synthetic graphite CO_2eq. emmissions per kg sourced from **https://elements.visualcapitalist.com/natural-graphite-the-material-for-a-green-economy//**
2. Carbon equivalent calculated in the first row: 4.9kg CO_2/kg graphite divided by 375 mAh/g = 4,900g CO_2/kg divided by 375 Ah/kg = 13.07g CO_2/Ah

Table 2: Detailed calculations of CO2 footprint from use of coated silicon in Lithium-ion battery anode

DFS Project Risks

The following sections discuss the major risks associated with the success of the Silumina Anodes™ project.

Silumina Anodes™ product fails to perform as expected

A fully scaled laboratory has been operating in Perth, Western Australia where Silumina Anodes™ material has been incorporated in half cell lithium-ion batteries and undergoing long term cycling trials. Testing to date shows at least 30% increase in energy capacity for the anode materials. Early testwork also shows a doubling of the energy capacity. Full cell batteries and pouch cell batteries will also be used to undertake battery performance trials. Altech is confident that the product will ensure higher energy anode materials. Independent battery performance has also been undertaken during the DFS period using Fraunhofer Institute of Germany. The results of this independent testwork have validated the early laboratory testwork conducted in Perth.

To permit further larger scale independent Silumina Anodes™ testing, Altech has designed and nearly completed construction of its research plant in Saxony, Germany. The research plant will produce larger product samples that can undergo qualification trials with potential customers. This plant also incorporates an onsite laboratory, capable of completing preparation of test cells to validate the larger scale production. The onsite laboratory is now operational and conducting testwork based on techniques and procedures developed in the Perth Laboratory. This test work provides three independent laboratories, all confirming the production process and the results of the Silumina Anodes™ test cells.

Sales achieving 8,000tpa Silumina Anodes™ material

If Altech is not able to sell all it stated capacity of 8,000tpa at desired prices, it will affect the profitability and pay back of the project. Altech will use the research plant in Saxony in order to produce larger product samples that can undergo qualification trials with potential customers. Altech has executed Non-Disclosure Agreements (NDAs) with German automakers as well as a European battery producer. The plan is to produce commercial samples for these three groups as well as potential long-term customers. The longer-term plan is to convert these interests to off-take agreements for total output required for financing. The global demand for battery graphite, silicon, and graphite substitution by silicon engineered products is forecast to grow at accelerating rates from 2023 through 2035. Altech's Silumina Anodes™ product is tailored to suit the silicon engineered product market which is forecast to peak at 80,000 tpa by 2032.

Increased competitiveness of competitors

Altech appears to be one of the early movers to market with an alumina-based silicon product and there appears to be limited competitors in this space. To protect its intellectual property, Altech has patent applications pending in Europe, USA and Australia. Altech has not disclosed to any party, not bound by Contract or under Confidentiality agreements, its formulation and coating process for silicon and graphite with alumina.

Financial Related Risks

Macro-economy control leads to financing difficulties. Current global banking industry and equities market is difficult due to the Ukraine crisis. This change in geo-economic conditions could lead to project finance difficulties for the project. Due to the relative small capital costs of EUR112.5 million, and due to the interest in businesses relating to EV batteries, Altech believes that the project could be funded by pure equity. Due to Silumina Anodes™ being a new product, any debt process will be held up by product risk uncertainties. Any grants achieved by the project via Saxony state government and EU grants will reduce the equity requirements. Any offtake with a name auto company will make equity funding quite achievable.

Lack of Future Capital Raising to Commence Execution

The Company has a clear development plan, clear marketing and engagement strategy, and constant news flow as a lead up to next capital raising. Based on the robust DFS results, the Company is confident that it will be able to raise the project funding and to roll into project execution.

Operational Related Risks

Feedstock supply risk

A Memorandum of Understanding (MoU) has been executed by Altech with a European based supplier of lithium-ion battery grade anode materials. For silicon, AIG and Altech has a supply MoU with Ferroglobe Innovation S.L. (Ferroglobe), a leading producer of high purity metallurgical silicon in Europe. The executed non-binding MoU details the relationship whereby Ferroglobe would supply silicon anode material to the AIG Silumina Anodes™ plant in Saxony. Ferroglobe is a leading producer of silicon metal with a proven ability to create new solutions and applications using state-of-the-art technology to drive innovation. It has technologies to produce high purity grade silicon and is specifically developing tailor made silicon powders for the anode of lithium-ion batteries.

Not achieving plant utilisation rate

If the utilisation target is not achieved in operation, capacity is adversely affected, the unit cost will be higher, impacting the profitability and delaying the achievement of positive cash flow. Altech has designed a very robust plant and considered maintenance and downtime requirements in the plant capacity. The main counter measure for plant failure is conservative utilisation, with the plant designed for 85% overall utilisation. The downtime includes a fortnightly 24-hour preventative maintenance shutdown together with an annual outage of two weeks which accounts for 11% downtime. The design caters for a further 4% for unscheduled shutdowns including loss of power supply. Overall, the risk is managed by a conservative utilisation design and Altech's effective preventative maintenance programs. Furthermore, Altech has plant a slow ramp up over the first two years, with a planned production target of 50% in the first year and 75% in the second year of production, only targeting nameplate production in the 3rd year of operation.

Major production throughput bottlenecks

Major production bottlenecks can cause the plant output to be restricted. This restricted capacity results in the unit cost being higher, impacting the profitability and delaying the achievement of positive cash flow. Most plants during start up encounter these bottlenecks. Altech believes that the problem stems from the design phase. Major plant equipment have design factors incorporated however, the process lines, valves, pumps and instruments between these major equipment often miss out on the extra design capacity. Bottlenecks usually occur in between the major equipment items. During the DFS, further engineering has been completed to size primary equipment and to confirm interface equipment concepts and sizes.

Lower purity of Silicon and Boehmite

The feedstock supply of silicon and boehmite are bought supply materials with tight specifications (refer specifications in supply section. The plant will be operated under ISO quality standards which means normal quality monitoring of key supply materials will be part of the quality program.

Packed Bed Calciner

The coating process of silicon involves mixing with aluminium chloride solution, drying and then calcination at 400 degrees to form an amorphous alumina layer. Altech has chosen to design a calciner to use renewable electricity instead of the conventional natural gas supply. The calciner uses silicon carbide tubes that contain heating elements which heat up when a current is applied. As this piece of equipment is relatively new technology, the equipment will be tested in the recently constructed research plant. Component testing commenced in quarter 4, 2023, to validate thermal operation of the new equipment. Results received to date are within Altech expectations. Testing is ongoing and will be comprehensive once the research plant dryer and calciner equipment is fully commissioned.

Cautionary and Forward-Looking Statements

The DFS contains forward-looking statements based on the estimates provided by independent consultants and engineering firms. The forward-looking statements are not historical facts but rather are based on the Company's current expectations, estimates and projections about the battery anode industry, and beliefs and assumptions regarding the Company's future performance.

The statements are subject to a number of known and unknown risks, uncertainties and other factors that may cause actual results to differ materially from those anticipated in the forward-looking statements. Factors that could cause such differences include changes in global silicon supply, equity markets, technological advancements in battery materials, costs and supply of materials relevant to the project, and changes to regulations affecting them. Although Altech believes that the expectations reflected in these forward-looking statements to be reasonable, Altech does not guarantee future results, levels of activity, performance or achievements.

Although the forward-looking statements contained in the DFS are based upon what management of the Company believes are reasonable assumptions, the Company cannot assure investors that actual results will be consistent with these forward-looking statements. The forward-looking statements are made as at the date of the DFS being published, and are expressly qualified in their entirety by this cautionary statement. Subject to applicable securities laws, the Company does not assume any obligation to update or revise the forward-looking statements contained within the DFS to reflect events of circumstances occurring after the date of the DFS.

Silumina Anodes™ Project DFS Expands Output 8-Fold to 120GWH

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.

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**

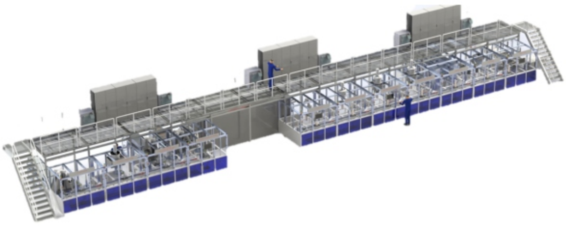


Figure 9: Cell Production Line for CERENERGY® Plant

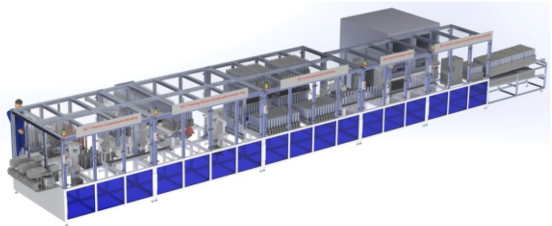


Figure 10: Typical Module Assembly Units

CERENERGY® Battery Project Upgraded to 120MWH

Altech announced that, after the final stages of facility design, the Company has successfully increased the output capacity of the CERENERGY® project from 100 MWh to 120 MWh per annum. This enhancement was achieved with the lead engineering company Leadec and joint venture partner Fraunhofer. Interview with Managing Director, Iggy Tan can be found at **https://youtu.be/bXTzcWsz5_Y**

Through technical design optimisation, the plant output has been enhanced by 20% without incurring any additional capital costs. Consequently, the annual output will now reach 120 1MWh GridPacks. Despite the relatively small size of the plant, most equipment sizes were standard off-the-shelf capacities, offering ample additional capacity. Upon reviewing the equipment throughput with each supplier, Leadec has advised that the rated output of the plant can be conservatively increased to 120 MWh.

In a recent announcement, Altech revealed the updated design of the 60 KWh battery pack, now featuring a sleek stainless-steel exterior instead of the previous blue paint. This modification has instilled a greater sense of confidence, as the stainless-steel finish is expected to withstand extreme temperature variations better, whether in snowy or desert conditions, whilst maintaining its pristine appearance.

A significant design update involves the stacking method of the 1MWh GridPacks. The enhanced design now permits triple stacking and facilitates seamless interconnection between each GridPack. These GridPacks can be conveniently stacked atop one another, using a simple electrical connection. The connection leads will be incorporated within the GridPack frames, enabling an effortless "plug and play" setup. This configuration allows for the parallel or series connection of GridPacks to augment the operational voltage. This ingenious design substantially minimises the space occupied by grid storage battery packs and eliminates the necessity for separate cooling airflow around the GridPacks, conserving valuable land area. These advantages position the CERENERGY® GridPacks as a more advanced alternative to lithium-ion battery solutions.

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Figure 11: Triple Stacking Design of 1 MWh GridPack

Group Managing Director Iggy Tan commented on the DFS upgrade to 120 MWh annually. *"From the beginning, we recognised a considerable margin built into the different equipment designs. Initially, our approach to facility design was quite conservative. However, as we've progressed in finalising the overall equipment operations, it has become evident that we possess the capability to increase our production rate. We are currently in the final stages of the DFS, where we are meticulously reviewing all cost factors, including operating consumables and purchased items"* he said.

Optimised Design of CERENERGY® Battery Packs Completed for DFS

Altech, following final design collaborations with component suppliers, has optimised the design of the Company's 60KWh battery pack.

The 60 KWh battery pack design has undergone a makeover, now sporting a sleek stainless-steel exterior (previously painted blue) with the prominent CERENERGY® logo on top and "ALTECH Batteries" engraved at the bottom. The Company has increased confidence that the stainless-steel finish will have a better ability to endure extreme temperature variations, be it in snowy or desert conditions, while maintaining its pristine appearance.

Figure 12: Altech's sleek design for the 60KWH battery pack

The battery's casing is equipped with a vacuum-sealed, double-sided enclosure that provides optimal insulation. Operating at approximately 270 degrees Celsius internally, it is crucial to minimise heat transfer losses and ensure the safety of human contact with the battery's exterior. The base of the battery has been further reinforced to accommodate high-temperature-resistant electrical cables and connectors, minimising heat loss to the outside environment.

To counter the issue of cold starting, heating pads have been integrated into the internal vacuum-packed casing. The heating process typically takes around ten hours before the battery is fully activated. Once initialised, the battery efficiently sustains its internal temperature with minimal reliance on the heating pads. Further enhancements have been made to the five internal frames each housing 48 cells, optimising their performance. The connector plates, responsible for electrically linking the cells while maintaining insulation (using mica insulation), have been meticulously designed by the Altech team. The cells are connected through precise laser-targeted welding. Figure 2 shows the cross-section of the pack casing and assembly frames holding 48 cells in each frame.

Figure 13: Cross section of 60 KWh ABS60 showing vacuum-sealed pack and cell frames

Prototype Battery Packs

As announced previously, two working prototype ABS60 KWh batteries have been ordered from the Fraunhofer Institute partners. These packs are already in production, with roughly half of the required cells completed. The production capacity is limited by the size of pilot plant equipment and kiln capacity at the Fraunhofer Institute but excellent progress has been made. To date, completed cells are performing as expected.

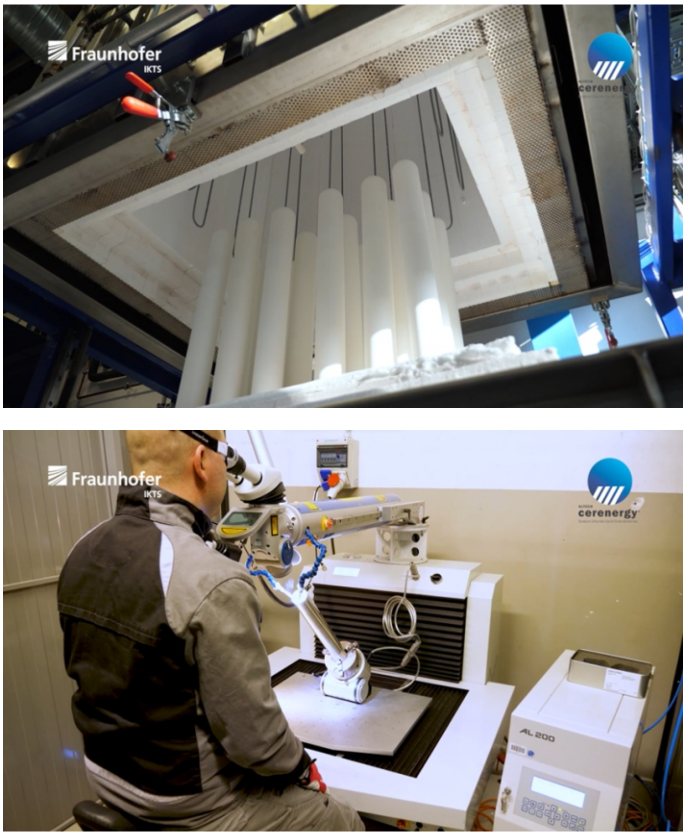
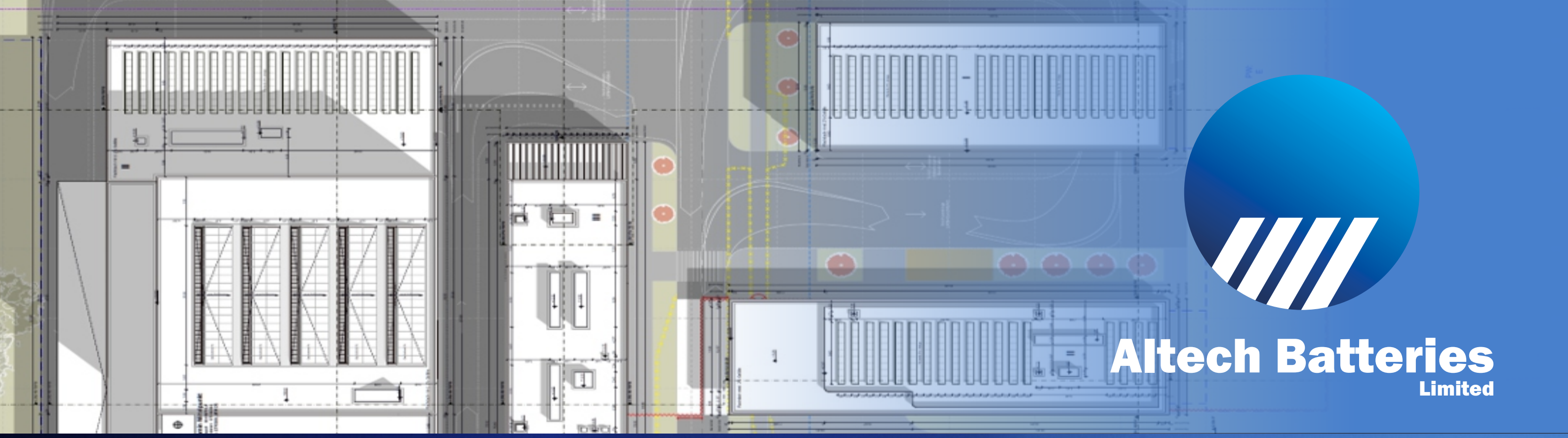


Figure 14: Production of cells at Fraunhofer Institute

Whilst the cells are being fabricated, the first stainless-steel vacuum-sealed battery case has been delivered to the Fraunhofer Institute in Dresden. Prior to assembly of the battery cells, the battery casing will undergo comprehensive heat transfer loss testing as well as temperature profiling by the Fraunhofer scientists. The cells will be assembled in the pack once they are completed and further cycling and long-term performance tests will be conducted on the battery packs.

Following a recent workshop in Germany, Group Managing Director Iggy Tan commented on the optimisation of the battery design and progress of the prototypes and stated *"We are extremely pleased with the new stainless-steel design of the 60 KWh batteries. These will be able to operate in the snow, as well as desert conditions, without the finish being affected. The vacuum-sealed casing will provide the perfect insulation and minimise any heat loss, which is the key benefit of our sodium chloride solid-state batteries. The production of the prototype batteries is progressing well. The produced cells are performing well under bench performance testing and it will be great to see the whole 60KWh unit under performance load. This is the first time our partner Fraunhofer has made such a large battery unit".*



Altech Batteries
Limited

QUARTERLY REPORT

December 2023

Company Snapshot

Altech Batteries Limited (ASX:ATC) (FRA:A3Y)
ABN 45 125 301 206

FINANCIAL INFORMATION
(as at 31 December 2023)

Share Price:	$0.068
Shares:	1,653.3m
Options:	Nil
Performance Rights:	119.6m
Market Cap:	$112.4m
Cash:	$9.3m

DIRECTORS

Luke Atkins	Non-executive Chairman
Iggy Tan	Managing Director
Peter Bailey	Non-executive Director
Dan Tenardi	Non-executive Director
Tunku Yaacob Khyra	Non-executive Director
Uwe Ahrens	Alternate Director
Hansjoerg Plaggemars	Non-executive Director

CHIEF FINANCIAL OFFICER & COMPANY SECRETARY
Martin Stein

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Western Australia, 6008 T +61 8 6168 1555
info@altechgroup.com
www.altechgroup.com

SCAN ME
to join the
Altech Batteries
Investor Community

FORWARD-LOOKING STATEMENTS
This announcement contains forward looking statements that involve a number of risks and uncertainties. These forward-looking statements are expressed in good faith and believed to have a reasonable basis. These statements reflect current expectations, intentions or strategies regarding the future and assumptions based on currently available information. Should one or more risks or uncertainties materialise, or should underlying assumptions prove incorrect, actual results may vary from the expectations, intentions and strategies described in this announcement. The forward-looking statements are made as at the date of this announcement and the Company disclaims any intent or obligation to update publicly such forward looking statements, whether as the result of new information, future events or results or otherwise.

COMPETENT PERSONS STATEMENT
The information in this announcement that relates to Mineral Resources at the Kerrigan Project is based on information reviewed by Ms Sue Border. Ms Border is the Principal Advisor of Geos Mining and is a Fellow of the Australasian Institute of Mining and Metallurgy. Ms Border has sufficient experience that is relevant to the style of mineralisation under consideration to qualify as a Competent Person as defined in the 2012 Edition of the “Australasian Code for Reporting on Exploration Results, Mineral Resources and Ore Reserves”. Ms Border consents to the inclusion in this announcement of the matters based on the information in the form and context in which it appears.

SCHEDULE OF TENEMENTS

As per ASX Listing Rule 5.3.3, the Company held the following tenements (exploration and mining leases) as at 31 December 2023:

Tenement ID	Registered Holder	Location	Project	Grant Date	Interest end of quarter
E70/4718-I	Canning Coal Pty Ltd	WA Australia	Kerrigan	01/12/2015	100%
M70/1334	Altech Meckering Pty Ltd	WA Australia	Meckering	19/05/2016	100%

RELATED PARTY TRANSACTIONS (APPENDIX 5B – ITEM 6.1)

The amount shown in the item is for the payment of directors’ fees (inclusive of superannuation, where applicable), to the Company’s Managing Director, Non-Executive Directors and Alternate Director, during the quarter.

Authorised by: Iggy Tan (Managing Director)

Appendix 5B

Mining exploration entity or oil and gas exploration entity quarterly cash flow report

Name of entity	
ALTECH BATTERIES LTD	
ABN	**Quarter ended ("current quarter")**
45 125 301 206	31 December 2023

Consolidated statement of cash flows			Current quarter $A'000	Year to date (6 months) $A'000
1.	**Cash flows from operating activities**			
1.1	Receipts from customers		-	-
1.2	Payments for			
	(a)	exploration & evaluation	-	-
	(b)	development	-	-
	(c)	production	-	-
	(d)	staff costs	(1,813)	(2,777)
	(e)	admin and corporate costs	(721)	(3,953)
1.3	Dividends received (see note 3)		-	-
1.4	Interest received		30	74
1.5	Interest and other costs of finance paid		(61)	(61)
1.6	Income taxes paid		-	-
1.7	Government grants and tax incentives		-	-
1.8	Other (provide details if material)		-	-
1.9	**Net cash from / (used in) operating activities**		**(2,565)**	**(6,717)**

2.	**Cash flows from investing activities**			
2.1	Payments to acquire or for:			
	(a)	entities	-	-
	(b)	tenements	-	-
	(c)	property, plant and equipment	(2,476)	(5,245)
	(d)	exploration & evaluation	(112)	(129)
	(e)	investment in Altech Advanced Materials AG	-	-
	(f)	other non-current assets	-	-

Consolidated statement of cash flows		Current quarter $A'000	Year to date (6 months) $A'000
2.2	Proceeds from the disposal of:		
	(a) entities	-	-
	(b) tenements	-	-
	(c) property, plant and equipment	-	-
	(d) investments (deferred consideration from 25% sale of subsidiary Altech Industries Germany Gmbh)	2,596	2,596
	(e) other non-current assets	-	-
2.3	Cash flows from loans to other entities	-	-
2.4	Dividends received	-	-
2.5	Payments for research and development including on CERENERGY® battery	(1,258)	(3,167)
2.6	**Net cash from / (used in) investing activities**	**(1,250)**	**(5,945)**

3.	**Cash flows from financing activities**		
3.1	Proceeds from issues of equity securities (excluding convertible debt securities)	-	15,859
3.2	Proceeds from issue of convertible debt securities	-	-
3.3	Proceeds from exercise of options	-	-
3.4	Transaction costs related to issues of equity securities or convertible debt securities	(4)	(860)
3.5	Proceeds from borrowings (funding received for subsidiary companies from minority shareholders)	1,743	3,499
3.6	Repayment of borrowings	-	-
3.7	Transaction costs related to loans and borrowings	-	-
3.8	Dividends paid	-	-
3.9	Other - Lease repayments	(14)	(29)
3.10	**Net cash from / (used in) financing activities**	**1,725**	**18,469**

4.	**Net increase / (decrease) in cash and cash equivalents for the period**		
4.1	Cash and cash equivalents at beginning of period	11,473	3,571
4.2	Net cash from / (used in) operating activities (item 1.9 above)	(2,565)	(6,717)

Consolidated statement of cash flows		**Current quarter $A'000**	**Year to date (6 months) $A'000**
4.3	Net cash from / (used in) investing activities (item 2.6 above)	(1,250)	(5,945)
4.4	Net cash from / (used in) financing activities (item 3.10 above)	1,725	18,469
4.5	Effect of movement in exchange rates on cash held	(89)	(84)
4.6	**Cash and cash equivalents at end of period**	**9,294**	**9,294**

5.	**Reconciliation of cash and cash equivalents** at the end of the quarter (as shown in the consolidated statement of cash flows) to the related items in the accounts	**Current quarter $A'000**	**Previous quarter $A'000**
5.1	Bank balances	9,264	11,443
5.2	Call deposits	30	30
5.3	Bank overdrafts	-	-
5.4	Other (provide details)	-	-
5.5	**Cash and cash equivalents at end of quarter (should equal item 4.6 above)**	**9,294**	**11,473**

6.	**Payments to related parties of the entity and their associates**	**Current quarter $A'000**
6.1	Aggregate amount of payments to related parties and their associates included in item 1	(520)
6.2	Aggregate amount of payments to related parties and their associates included in item 2	-

Note: if any amounts are shown in items 6.1 or 6.2, your quarterly activity report must include a description of, and an explanation for, such payments.

7.	**Financing facilities** *Note: the term "facility' includes all forms of financing arrangements available to the entity.* *Add notes as necessary for an understanding of the sources of finance available to the entity.*	**Total facility amount at quarter end $A'000**	**Amount drawn at quarter end $A'000**
7.1	Loan facilities	-	-
7.2	Credit standby arrangements	-	-
7.3	Other (please specify)	-	-
7.4	**Total financing facilities**	-	-

7.5	**Unused financing facilities available at quarter end**	-
7.6	Include in the box below a description of each facility above, including the lender, interest rate, maturity date and whether it is secured or unsecured. If any additional financing facilities have been entered into or are proposed to be entered into after quarter end, include a note providing details of those facilities as well.	

8.	**Estimated cash available for future operating activities**	**$A'000**
8.1	Net cash from / (used in) operating activities (item 1.9)	(2,565)
8.2	(Payments for exploration & evaluation classified as investing activities) (item 2.1(d))	(112)
8.3	Total relevant outgoings (item 8.1 + item 8.2)	(2,677)
8.4	Cash and cash equivalents at quarter end (item 4.6)	9,294
8.5	Unused finance facilities available at quarter end (item 7.5)	-
8.6	Total available funding (item 8.4 + item 8.5)	9,294
8.7	**Estimated quarters of funding available (item 8.6 divided by item 8.3)**	3.47

Note: if the entity has reported positive relevant outgoings (ie a net cash inflow) in item 8.3, answer item 8.7 as "N/A". Otherwise, a figure for the estimated quarters of funding available must be included in item 8.7.

8.8 If item 8.7 is less than 2 quarters, please provide answers to the following questions:

8.8.1 Does the entity expect that it will continue to have the current level of net operating cash flows for the time being and, if not, why not?

Answer:

8.8.2 Has the entity taken any steps, or does it propose to take any steps, to raise further cash to fund its operations and, if so, what are those steps and how likely does it believe that they will be successful?

Answer:

8.8.3 Does the entity expect to be able to continue its operations and to meet its business objectives and, if so, on what basis?

Answer:

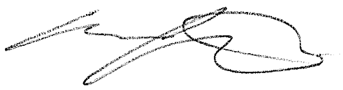
Note: where item 8.7 is less than 2 quarters, all of questions 8.8.1, 8.8.2 and 8.8.3 above must be answered.

Compliance statement

1 This statement has been prepared in accordance with accounting standards and policies which comply with Listing Rule 19.11A.

2 This statement gives a true and fair view of the matters disclosed.

Date: 30 January 2024



Authorised by: MARTIN STEIN – CHIEF FINANCIAL OFFICER & COMPANY SECRETARY

On behalf of the Board of Directors

Notes

1. This quarterly cash flow report and the accompanying activity report provide a basis for informing the market about the entity's activities for the past quarter, how they have been financed and the effect this has had on its cash position. An entity that wishes to disclose additional information over and above the minimum required under the Listing Rules is encouraged to do so.

2. If this quarterly cash flow report has been prepared in accordance with Australian Accounting Standards, the definitions in, and provisions of, *AASB 6: Exploration for and Evaluation of Mineral Resources* and *AASB 107: Statement of Cash Flows* apply to this report. If this quarterly cash flow report has been prepared in accordance with other accounting standards agreed by ASX pursuant to Listing Rule 19.11A, the corresponding equivalent standards apply to this report.

3. Dividends received may be classified either as cash flows from operating activities or cash flows from investing activities, depending on the accounting policy of the entity.

4. If this report has been authorised for release to the market by your board of directors, you can insert here: "By the board". If it has been authorised for release to the market by a committee of your board of directors, you can insert here: "By the [*name of board committee – eg Audit and Risk Committee*]". If it has been authorised for release to the market by a disclosure committee, you can insert here: "By the Disclosure Committee".

5. If this report has been authorised for release to the market by your board of directors and you wish to hold yourself out as complying with recommendation 4.2 of the ASX Corporate Governance Council's *Corporate Governance Principles and Recommendations*, the board should have received a declaration from its CEO and CFO that, in their opinion, the financial records of the entity have been properly maintained, that this report complies with the appropriate accounting standards and gives a true and fair view of the cash flows of the entity, and that their opinion has been formed on the basis of a sound system of risk management and internal control which is operating effectively.