12 September 2025

ALTECH – CERENERGY® CELL AND BATTERY PACK PROTOTYPES REACH KEY MILESTONES

Highlights

- **650+ cycles with no capacity loss**, proving exceptional material stability and long operational lifespan compared to conventional batteries
- Near **100% Coulombic efficiency**, confirming minimal side reactions and strong intrinsic safety of sodium nickel chloride chemistry
- High energy **efficiency of up to 92%**, surpassing typical 70–80% levels of competing battery technologies
- Proven **safety under extreme conditions** – cells remained stable during overcharge, deep discharge, and thermal cycling up to 300 °C with no gassing, leakage, or rupture
- Robust and reliable chemistry – sodium nickel chloride avoids flammable electrolytes and runaway risks, confirming suitability for safe, large-scale grid and renewable energy storage
- **ABS60 prototype** validated under real-world conditions –tested across diverse load profiles, high-current pulses up to 50 A, and thermal variations
- Stable, efficient performance – **achieved ~88% round-trip efficiency** with **no observable capacity fade over 110+ cycles**

Altech Batteries Limited (ASX: ATC, FRA: A3Y) is pleased to announce the latest performance results of the CERENERGY® cell and battery pack prototypes. These results confirm the technological maturity and robustness of the CERENERGY® technology and mark another decisive step towards industrialisation.

CELL PERFORMANCE

The CERENERGY® prototype cells have successfully completed over **650 charge–discharge cycles without any detectable capacity loss.** Cycle life is a critical measure of battery durability, as most conventional batteries experience gradual degradation with every cycle. Achieving such performance highlights the outstanding stability of the materials and points to the potential for a long operational lifespan. For stationary energy storage systems (ESS), this translates into fewer battery replacements, lower lifetime operating costs, and greater reliability for end users.

The cells also delivered nearly **100% Coulombic efficiency** alongside an **energy efficiency of up to 92%** across 650 cycles. Coulombic efficiency reflects the proportion of charge recovered during discharge relative to what was supplied during charging. A **value approaching 100% indicates minimal side reactions** or parasitic losses, confirming the intrinsic stability and safety of sodium nickel chloride chemistry. This high efficiency demonstrates that the cells are not expending energy on unwanted

processes such as electrode degradation. Such performance is vital for scalability, ensuring reliable, long-term operation in commercial energy storage applications.

Energy efficiency represents the proportion of energy delivered relative to the energy supplied. Competing technologies, including conventional high-temperature batteries and many flow batteries, typically achieve only around 70–80%. **By reaching 92%,** CERENERGY® positions itself in a highly competitive class, offering more cost-effective energy storage, stronger economics for grid operators, and seamless compatibility with the requirements of renewable energy integration.

The cells achieved a nominal capacity of 100 Ah and 250 Wh, with reliable performance even at higher discharge rates. A key feature is their ability to support **multiple daily charge–discharge cycles within the 20–80% state of charge (SoC) range at 25 A**. This capability positions CERENERGY® as a highly flexible solution for grid operators and energy storage providers, enabling cost-efficient, long-life performance in applications that demand frequent cycling such as renewable integration, peak shaving, and backup power.

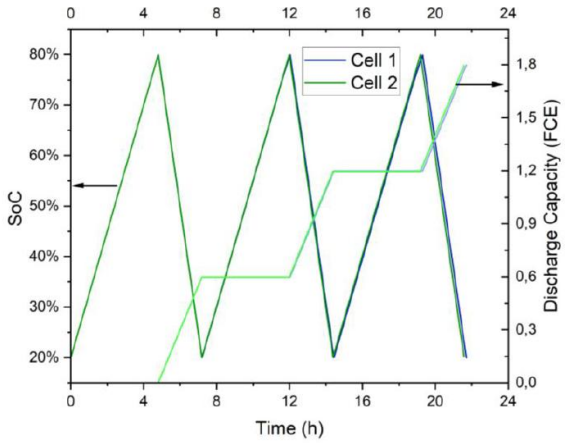

Figure 1 – Cycle Data showing State of Charge and Discharge Capacity

CERENERGY® prototype cells underwent rigorous **abuse testing**, including overcharge to 4 V, deep discharge to 0.2 V, and thermal cycling between room temperature and 300 °C. In all cases, the cells remained stable with **no gassing, leakage, or rupture** —clear proof of their outstanding safety. These results highlight the **intrinsic stability** of sodium nickel chloride chemistry, which avoids the flammable electrolytes and runaway risks common in lithium-ion batteries. The ability to withstand extreme electrical and thermal stress demonstrates CERENERGY®'s robustness and confirms its suitability for safe, large-scale deployment in grid, renewable, and industrial energy storage applications. This was achieved over 3 cycles with 1.8 Full Charge Equivalent (FCE) into 22 hours.

BATTERY PACK ABS60 (60 kWh) PROTOTYPE

The first ABS60 battery pack prototype has been successfully validated under real-world operating conditions, marking a major step forward in product readiness. Testing included diverse load profiles, continuous discharges at 25 A (equivalent to C-rate of C/4 (discharges in 4 hours), or one-quarter of the pack's rated capacity per hour) at 80% depth of discharge (DoD), short-duration high-current pulses up to 50 A, and carefully controlled thermal variations.

The pack consistently demonstrated stable performance, achieving **~88% round-trip efficiency** while maintaining reliable thermal management. Efficiency refers to the proportion of input energy that can be retrieved during operation—a critical measure of economic viability for large-scale storage. Over more than **110 cycles, results showed no observable capacity fading** and only a slight increase in internal resistance. Capacity fading refers to the gradual decline in usable energy over repeated cycles, while internal resistance influences power delivery and heat generation.

Photo: Altech team at IKTS Test Facility

The absence of meaningful degradation confirms the durability and electrochemical stability of the ABS60 design. These outcomes are highly significant as they demonstrate that the pack can withstand real-world duty cycles while retaining performance and efficiency, translating into longer service life, fewer replacements, and lower total cost of ownership.

For grid operators and renewable integration projects, this combination of robust cycling capability, efficiency, and thermal stability underscores the ABS60's commercial readiness and competitive advantage in the stationary energy storage market.

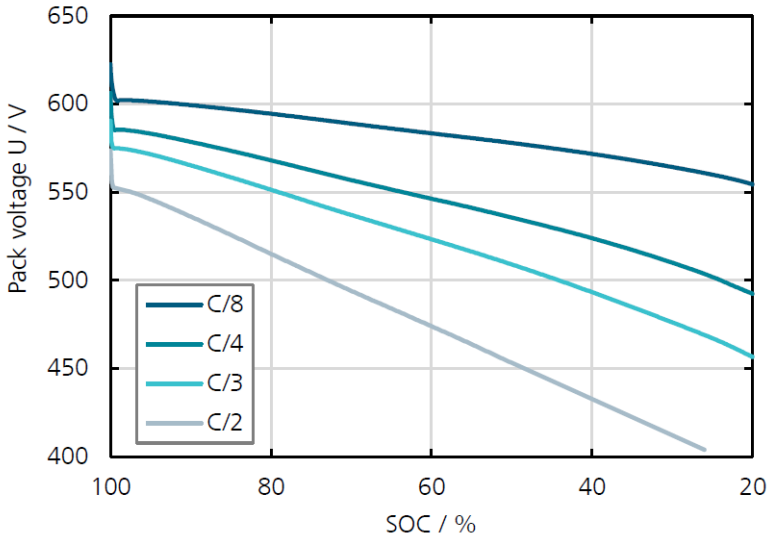

Figure 2: Pack discharge at various C-rates and State of Charge (SOC)

Photo: ABS60 Prototype undergoing cycling tests

These results are a strong confirmation of CERENERGY®'s technological leadership and a clear signal of the technology's competitiveness and robustness for future applications in energy storage and industrial markets.

Group Managing Director, Iggy Tan said "***These results confirm CERENERGY®'s robustness and readiness for market adoption. Demonstrating long cycle life, high efficiency, and unmatched safety, we are now strongly positioned to deliver a competitive and sustainable alternative for grid and industrial energy storage***."

Authorised by: Iggy Tan (Managing Director)

Altech Batteries Interactive Investor Hub

Altech's interactive Investor Hub is a dedicated channel where management interacts regularly with shareholders and investors who wish to stay up-to-date and to connect with the Altech Batteries leadership team. Sign on at our Investor Hub https://investorhub.altechgroup.com or alternatively, scan the QR code below.

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 government 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 120 MWh 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 Chloride 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 finalised a Definitive Feasibility Study to commercialise an 8,000tpa silicon alumina coating plant in the state of Saxony, Germany to supply its Silumina Anodes™ product to the burgeoning European electric vehicle market.

This Company's game changing technology incorporates 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 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 Definitive Feasibility Study for the construction of a 8,000tpa Silumina Anodes™ material plant at AIG's 14-hectare industrial site within the Schwarze Pumpe Industrial Park in Saxony, Germany. The European silicon feedstock supply partner for this plant will be 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 German and North American automakers and battery material supply chain companies.

Silumina Anodes™

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