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ALTECH AND AMPOWER LAUNCH NEXT-GENERATION 384 V / 15 KWH UPS BATTERY DESIGN FOR EUROPEAN PIPELINE INFRASTRUCTURE

Highlights

- Altech launches a design for **384 V / 15 kWh sodium-nickel-chloride UPS battery system**
- Specifically engineered for Europe's pipeline infrastructure purposes, such as **Gas and Hydrogen transportation** & production control and safety infrastructure
- **Fireproof, explosion-proof, maintenance-free battery** designed for ATEX-classified explosive operating environment
- True **drop-and-play design** to target replacement of lead-acid systems
- **No hydrogen emissions**, ventilation systems, or **external cooling equipment** required for operation
- Reliable performance across extreme temperatures from –20 °C to +60 °C operating range.
- Fully certified to CE, UN38.3, IEC 62619, and RoHS international safety standards

Altech Batteries Limited (ASX: ATC; FRA: A3Y) ("Altech" or "the Company"), in partnership with AMPower, is proud to unveil a major design development in its mission to deliver safe, sustainable, and commercially robust energy storage solutions. The Company is launching a new **384 V / 15 kWh sodium nickel chloride (SNC) UPS battery system**, specifically engineered for **European gas and hydrogen pipeline infrastructure**—one of the most demanding and safety-critical environments in the world.

Gas pipelines are the lifelines of Europe's energy system. Stretching across hundreds of thousands of kilometres, these networks carry explosive gases at high pressure, monitored and regulated by control stations, compressors, valves, and safety systems. Every component in this chain depends on **uninterruptible power supply (UPS) systems** to ensure that safety equipment, emergency lighting, fire and gas detection, communication systems, and critical control systems continue to function under all circumstances—including grid outages or external shocks.

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Until now, the industry has relied heavily on **lead-acid** and **nickel-cadmium** batteries to ensure back-up power for these UPS installations. However, both chemistries have major drawbacks: lead acid suffers from limited lifespan, hydrogen gas emissions, frequent maintenance, and sudden failure risk; nickel-cadmium is costly, environmentally hazardous, and requires dedicated cooling and housing. **Lithium-ion battery systems have been banned from these EX Zones, and ATEX-classified** explosive environments. Against this backdrop, Altech has launched its design for a **drop-in, explosion-proof sodium nickel chloride battery system** that represents not just an incremental improvement, but a transformative solution for the European heavy Industry sector.

A UPS BATTERY BUILT FOR EXPLOSIVE ENVIRONMENTS

The new Altech–AMPower UPS battery has been designed from the ground up with explosive environments in mind. The core sodium nickel chloride chemistry is **inherently safe**, eliminating the risks that plague alternative chemistries. Unlike lithium-ion, it contains no flammable liquid electrolytes. Unlike nickel-cadmium and lead acid, it does not emit hydrogen or toxic vapours during operation.

Each unit is a **sealed, pressure-tight system**. It requires no cooling systems, and no ventilation. This is a major advantage in ATEX and Ex-zones—areas where explosive gases or combustible dusts may be present. Conventional batteries often require specialised housings, air conditioning, or hydrogen venting infrastructure, all of which add to capital and operating costs. With Altech's system, operators eliminate these additional requirements, simplifying certification and dramatically reducing both **capex and opex.**

The batteries also withstand **extreme operating conditions**. With a working range from –20 °C to +60 °C, they remain reliable in the Arctic cold, desert heat, or confined compressor stations that often lack climate control. Extensive third-party tests have demonstrated SNC resilience under severe stress scenarios: 30-minute gasoline fires at 850 °C, saltwater immersion, bullet penetration, rod impact, and overcharge events. In each case, the battery did not explode, ignite, or release hazardous contents.

This robustness is why sodium nickel chloride has been used for years in telecoms harsh environments where temperature is very hard to manage, to secure the 48VDC back-up—but Altech's new 384 V / 15 kWh UPS system marks the first time this technology has been optimised for **large-scale European pipeline infrastructure**.

TECHNICAL OVERVIEW OF THE UPS SYSTEM

The system consists of **three 136 V SNC modules connected in series**, producing a combined nominal voltage of **384 VDC**. Each module uses advanced Zebra cell architecture, incorporating 53 ceramic electrolyte cells in series, with each cell delivering a stable nominal voltage of 2.56 V.

Figure 1 - Design of the 384 V / 15 kWh Sodium Nickel Chloride (SNC) UPS battery system

Key technical highlights include:

- **Nominal Voltage:** 384 V, perfectly aligned with standard pipeline UPS requirements across Europe.
- **Capacity:** 15 kWh, sufficient for long-duration redundancy and full back-up of critical systems.
- **Battery Chemistry:** Sodium nickel chloride (SNC) solid-state ceramic cell; non-flammable, explosion-proof, hydrogen-free.
- **Cycle Life:** More than 5,000 cycles with service life exceeding 15 years, minimising replacement cycles.
- **Maintenance:** Fully sealed, maintenance-free; no impedance checks, or charge cycling needed.
- **Operating Temperature Range:** –20 °C to +60 °C, with passive cooling (no HVAC required).
- **Enclosure:** Industrial Stainless-steel cabinet.
- **BMS:** A master–slave battery management system monitors state of charge, state of health, per-cell voltages, and temperatures. Communication protocols include RS485, CAN Bus, and Modbus, ensuring seamless integration with existing SCADA systems.
- **Certification:** CE, UN38.3, IEC 62619, RoHS; further certifications such as ABS and DNV for marine and offshore applications are in progress.

The cabinet is designed for **drop-in replacement**. Existing UPS cabinets and inverter systems remain unchanged; operators simply remove their ageing lead-acid banks and install the SNC units. This dramatically reduces downtime and eliminates the high capital costs associated with full UPS cabinet replacement

THE DROP-AND-PLAY ADVANTAGE

In the world of pipeline infrastructure, downtime is not an option. Every hour of system interruption can cost millions in lost throughput while increasing operational and safety risks. Traditionally, replacing ageing lead-acid batteries with next-generation sodium-nickel-chloride (SNC) systems has required costly and complex **reconfiguration of the battery management system (BMS) due to voltage mismatches**.

Altech's innovative 384 V DC battery architecture eliminates this problem. By designing the SNC packs to operate at the same voltage range used by global UPS manufacturers, **Altech ensures complete compatibility with existing BMS configurations**. This means operators can directly replace legacy lead-acid batteries with Altech's higher-performance SNC units—without rewiring, reprogramming, or system redesign.

The result is a genuine *drop-and-play* solution: seamless installation, zero modification to critical control systems, and immediate performance improvement. For operators of gas pipeline and other mission-critical infrastructure, this compatibility translates into faster deployment, reduced engineering downtime, and a safer, more reliable power backup system.

MARKET OPPORTUNITY AND GROWTH POTENTIAL

Europe's gas pipeline network is vast and aging. Control stations, valve nodes, and compressor plants all rely on UPS banks installed 10–20 years ago. Most of these systems use lead-acid batteries, now failing or requiring costly maintenance. Analysts forecast **tens of thousands of battery replacements** across Europe in the next decade.

Altech's solution directly aligns with operator needs:

- **Regulatory compliance.** EU directives increasingly discourage hazardous chemistries, pushing operators away from cadmium and lead.
- **Sustainability.** SNC is salt-based, cobalt-free, and far less hazardous to recycle.
- **Cost efficiency.** Longer lifespan means fewer replacements; total cost of ownership is significantly lower than NiCd or lead acid.
- **Safety in ATEX zones.** Fireproof, explosion-proof chemistry provides peace of mind in explosive environments.
- **Scalability.** Modular BMS architecture allows adaptation for telecoms, data centres, transport hubs, and manufacturing facilities.

ROLE OF ALTECH AND AMPOWER

The system has been developed under the technical leadership of **Arnoud Blijleven, Altech's Chief UPS Back-up Systems Engineer**, who brings two decades of experience in European critical power systems. Mr. Blijleven defined the technical specifications, and will oversee extreme-condition testing, to ensure CE/IEC compliance whilst maintaining alignment with customer needs.

For AMPower, the project represents a natural extension of its production expertise. As the world's largest producer of sodium nickel chloride batteries (originating from the GE Durathon® program), AMPower operates at 100 MWh per annum capacity, scalable to 200 MWh. The move into 15 kWh / 384 V systems broadens its market reach and drives greater cell output efficiencies

Together, Altech and AMPower form a powerful partnership: Altech brings European market access, customer relationships, and engineering expertise, while AMPower provides scalable manufacturing and proven SNC cell technology.

COMPARISON WITH ALTERNATIVE BATTERY CHEMISTRIES

The European pipeline industry has long relied on batteries that now face increasing scrutiny. Altech's SNC solution solves many of the long-standing problems

- **Lithium-ion:** High energy density but unsuitable for ATEX zones. Thermal runaway leads to sparks, flames, and gas venting. **Banned in explosive atmospheres**. Insurance costs prohibitively high.
- **Nickel-cadmium:** Long float life but **toxic cadmium, hydrogen emission**, large footprint, and high upfront cost. Requires regular maintenance and dedicated cooling/housing.
- **Lead acid:** Low cost but short life, **high failure risk, large housing requirement**, hydrogen emission, and constant checks.
- **Sodium nickel chloride:** Fireproof, explosion-proof, sealed, maintenance-free, long life (15–20 years), wide temperature range, inherently safe, and suitable for ATEX zones.

A side-by-side comparison shows SNC outperforms in almost every category of relevance to explosive infrastructure—from safety and environmental compliance to lifecycle cost and reliability.

Table 1 - BATTERY COMPARISON – EXPLOSIVE ENVIRONMENTS

Parameter	Ni-Cd	Lead-Acid	Sodium-Nickel-Chloride (SNC)
Energy Density (Wh/kg)	40–60	30–50	90–120
Volumetric Density (Wh/L)	~50–150	60–110	150–250
Float Life	15–20 years (with maintenance)	≤12 years (VRLA/AGM: 3–10; Flooded: 15+)	15–20 years (stationary use)
Cycle Life	2,000–3,000	500–1,500	3,500–5,000
Operating Temp. Range	–20 °C to +50 °C	0 °C to +40 °C	–20 °C to +60 °C
Maintenance	High (topping, equalization)	Medium (flooded need topping; VRLA lower)	Low (sealed, maintenance-free)
Safety	Toxic Cd, risk of venting	Acid spills, gassing risk	Inherently safe, sealed
Environmental Issues	Cadmium toxic, costly disposal	Lead toxic, regulated disposal	Salt + nickel, less hazardous recycling
Capital Cost ($/kWh)	High (~$600–800)	Low (~$150–300)	Medium (~$300–500)
Efficiency	70–80%	70–85%	80–90%
Self-Discharge	Moderate (10–20%/month)	Low (3–5%/month)	Very low (<1%/month)
Best Applications	Aviation, rail, emergency backup	Starter, UPS, backup storage	Grid-scale ESS, UPS, renewables

Altech Batteries' new 384 V / 15 kWh sodium nickel chloride UPS battery is more than a new product—it is a **paradigm shift for pipeline safety and energy security**. By directly addressing the unique challenges of explosive ATEX environments, the Company is targeting itself as the preferred solution provider for Europe's critical infrastructure operators.

As Europe accelerates its energy transition, safety and resilience in its existing infrastructure remain paramount. Altech's SNC UPS battery delivers precisely what the market demands: **a fireproof, explosion-proof, drop-in solution with unmatched longevity and reliability**.

Altech Managing Director Iggy Tan stated:

"This launch represents a pivotal moment for Altech as we deliver a safe and practical energy solution into one of Europe's most sensitive sectors. Gas pipeline infrastructure demands absolute reliability and explosion-proof technology. Our new 384 V / 15 kWh UPS battery not only meets these demands—it exceeds them, offering operators a true drop-in replacement for lead-acid and nickel-cadmium systems. We are proud to partner with AMPower on this breakthrough, and with the first order already secured, we anticipate strong and rapid adoption across Europe".

End

Authorised by: Iggy Tan (Managing Director)

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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.

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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 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.

AMPower Sodium Nickel Chloride Battery Sales Project

Altech Batteries Ltd has immediate entry into the sodium nickel chloride (SNC) battery market in Australia, Europe and United States of America through a strategic collaboration and distribution agreement with the current largest SNC battery manufacturer AMPower, a subsidiary of the Chilwee Group. Chilwee is the third largest e-mobility battery manufacturer in China, with an annual turnover of US$20 billion, 23,000 employees, and production capabilities spanning lead-acid, lithium-ion, sodium-ion, and next-generation battery technologies. AMPower currently manufactures conventional Zebra-type sodium nickel chloride ($Na/NiCl_2$) solid-state batteries—using the same chemistry as CERENERGY®—but mainly for the small Uninterrupted Power Supply (UPS) industrial market. AMPower was originally established as a joint venture with General Electric to produce sodium nickel chloride UPS batteries under the Durathon brand.

AMPower will produce sodium nickel chloride solid state UPS batteries for Altech which will be under Altech brand, supervision and specification for distribution across Australia, Europe, and the USA.

Silumina Anodes™ Battery Materials Project

Altech Batteries Ltd has licenced its proprietary high purity alumina coating technology to 100% 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 has completed a Definitive Feasibility Study for the construction of a 8,000tpa Silumina Anodes™ material plant at AIG's 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.