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Gelion plc
("Gelion", "Company" or the "Group")

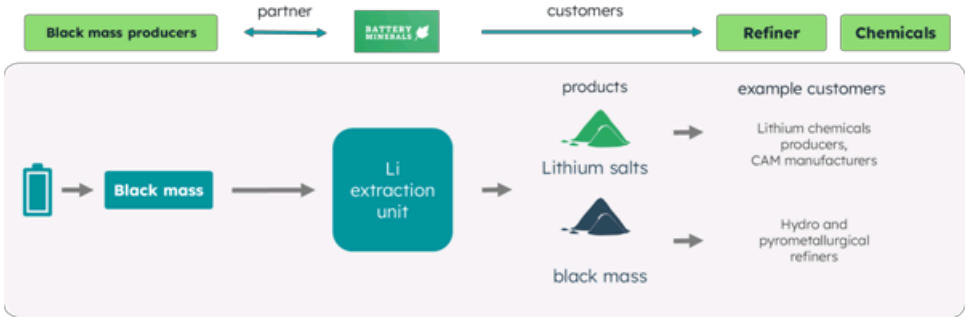
Successful Completion of Phase 1 of Battery Recycling Accelerator Programme
Secures Phase 2 Grant and Additional Booster Funding

Gelion (AIM: GELN), the Anglo-Australian battery innovator, announces that its UK subsidiary, Battery Minerals Ltd ("Battery Minerals"), has successfully completed Phase 1 of the Advanced Propulsion Centre UK's (APC) Technology Developer Accelerator Programme (TDAP) and has subsequently secured £100,000 of Phase 2 grant-funding along with an additional £75,000 booster grant from the UK's Department for Business and Trade (DBT) as part of the programme to accelerate commercialisation of its recycling technology. Battery Minerals is developing Lithium-Ion ("Li-Ion") recycling, a subset of the package of battery related technologies that Gelion acquired from Johnson Matthey in 2023.

The focus of TDAP Phase 1 was to demonstrate commercial traction by engaging prospective customers and partners to support the scale-up and commercial deployment of the technology, which has been achieved.

During Phase 1, Battery Minerals successfully demonstrated:
- commercial demand for its recycling technology offering;
- the technology design concept for a modular unit that:
    - integrates with existing black mass producers, enabling lithium extraction with significantly lower capital investment requirements;
    - enables localised processing to reduce dependence on external supply chains;
    - aims to provide a cost-effective operation, even at smaller scales.

These milestones reinforce the potential of Gelion's technology to drive sustainable, efficient, and economically viable battery recycling solutions.



The technology would circumvent the need for large-scale refineries, which are significantly higher cost and have a longer build time and allow localised processing of battery waste. It is timely given the EU's minimum recycled content targets for batteries (minimum 6% lithium from recycled sources in 2031)[1] and shift by battery makers and OEMs to increase recycled content in their cells.

Progression to Phase 2 of the programme indicates the validation from the APC and partners for Battery Minerals technology's potential and the commercial traction achieved.

Phase 2 of TDAP, running between February 2025 and November 2025, focuses on 'Technology Validation' and will involve the further development of the recycling process with partners to increase the technology-readiness level ("TRL") and potentially support a feasibility study for a larger scale pilot plant. The booster grant was awarded to selected participants moving into Phase 2 and will enable Battery Minerals to accelerate research by establishing a dedicated laboratory facility and expanding the research team.

The growing volume of battery waste presents an environmental challenge, an economic opportunity (projected to be worth 30-40 billion globally by 2030[2]) and a strategic opportunity (self-sufficient minerals supply).

Gelion CEO John Wood said: *"We are excited to be progressing to Phase 2 of TDAP to accelerate our Lithium-Ion recycling technology suite to be investment and market-ready and to have received support with additional grant funding. The development of this cutting-edge, advanced recycling process is critical to the future of the European battery industry, and APC's support is helping us advance toward bringing our solution to market."*

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About Gelion

Gelion ("gel: ion") is a global energy storage innovator, supporting the transition to a more sustainable economy by commercialising two globally important next generation technologies: Lithium-Sulfur (LiS) and Zinc-based (Zn) hybrid cells to electrify mobile and stationary applications. Gelion plc (the Group) is listed on the London Stock Exchange's Alternative Investment Market and wholly owns Australia based Gelion Technologies Pty Ltd and UK based OXLiD Ltd. Gelion is designing and delivering innovative battery technologies and integrated systems solutions to enable that transition and return value for its customers and investors.

Lithium Sulfur

Gelion's effort is directed at the potential for the Li-S chemistry to deliver double the gravimetric energy density of standard Lithium-ion chemistries, whilst concurrently reducing cost and increasing safety, targeting the EV and e-aviation market, helping to make global transport, energy consumption and storage more sustainable.

Gelion is developing a GEN 3 Lithium-Sulfur cell product for its high energy density sulfur cathode at its expanded R&D facilities in Australia and UK, enabling it to integrate with a variety of anodes ranging from graphite to silicon to lithium-metal, depending on the targeted application.

Gelion's GEN 3 cell is unlocking the potential of sulfur batteries for a wide range of global mobile applications including electrical vertical-take-off-and-landing (eVTOL), drone markets, electric vehicles (EVs) and stationary energy storage (ESS).

Advantages of Gelion's GEN 3 Lithium Sulfur

- **High energy density -** Energy density > 400 Wh/kg, when using a 10+ Ah pouch cell.
- **Semi-solid-state / Solid-State as a route to increased longevity/cycle life**: GEN 3 employs a semi-solid-state and solid-state mechanism which mitigates the major degradation factor associated with conventional Li-S technology.
- **Increased sulfur utilisation:** GEN 3 demonstrates the full theoretical capacity of sulfur, i.e. a much higher sulfur utilisation than found in conventional Li-S approaches.
- **Simplified supply chain:** The innovative cathode is produced by mixing commercially available materials with abundant sulfur using a low-energy, room-temperature process, with potential to eliminate the need for pre-fabrication of the sulfur composite (sulfur composite is related to cathode active material in conventional lithium-ion batteries), streamlining the associated supply chain and production process and enabling localised manufacturing.
- **Environmental and economic benefits:** The water-based, standard-atmosphere cathode production process eliminates the need for toxic solvents, leading to significant cost savings and enhanced manufacturability.

Glossary

1MPa	This level of pressure replicates real-world pressure conditions inside batteries and is crucial for ensuring the durability, efficiency, and performance of the separator in practical applications.
Ah	Ampere hours. A measure of capacity stored in the cell. The larger the number the higher the capacity.
Energy density (Wh/kg)	The ratio of energy stored per unit weight i.e. Watt-hours per kilogram. The higher the number the lighter the battery.
Pouch cell	An industry standard format of a battery which comprises a flat pouch-shaped design with a multi-layered laminate structure.
Solid-to-solid conversion	A low or polysulfide-free conversion of sulfur within the cathode. Polysulfides are a dissolved form of sulfur that is corrosive and reduces cycle life in traditional lithium-sulfur batteries. Solid-to-solid conversion helps mitigate the formation of these polysulfides.
Semi-solid state as a route to increased longevity/cycle life:	Gelion's GEN 3 technology can employ a semi-solid-state mechanism, maintaining the sulfur-based cathode materials in the cathode, preventing their diffusion into the electrolyte and diminishing associated battery degradation caused by reactive polysulfides. This approach mitigates the major degradation factor associated with conventional Li-S technology.
Solid state separator	A solid-state separator is a solid material that separates the anode and cathode in a battery, enabling ion transfer while preventing short circuits enhancing battery safety, supports higher energy densities, and allows stable use of a lithium metal anode, increasing capacity and lifespan.
Cycle life	The number of full charge and discharge cycles a battery can complete before its capacity falls below a specified level, typically 80% of the original capacity. Higher cycle life indicates longer-lasting performance.

Zinc

Gelion is adapting its zinc technology to comprise an alternate cathode technology, a zinc hybrid cell to develop complementary next-generation batteries for the lead-acid eco-system. Early testing indicates that this solution has the potential to maintain good energy density levels with enhanced cost and safety aspects. Once fully developed, Gelion intends for our zinc technology to provide a durable and sustainable market extension within the ecosystem that supports lead-acid batteries.

Recycling

Gelion is pioneering an innovative battery recycling technology designed to enhance and supplement current recycling methods. Our technology aims to significantly reduce the initial costs of recycling plants, minimize waste, and lower carbon emissions, while improving the purity of metal products and enabling efficient lithium extraction. This advancement will allow for a broader range of scrap materials to be recycled. Currently in the feasibility stage, Gelion is committed to advancing our technology to a pilot-scale demonstration, paving the way for commercialisation through material production and IP licensing.

Integration

Gelion leverages its significant integration and BMS capability to deliver bespoke BESS for Australian customers. These BESS are currently based on lithium-ion technology and will also include Gelion's next-generation batteries as these become available. Gelion will deploy BESS with our proprietary cloud-based battery monitoring system, which will provide real-time diagnostics and alerts to maximise performance and return on investment for our customers.

About the Advanced Propulsion Centre UK

The Advanced Propulsion Centre UK (APC) collaborates with UK government, the automotive industry and academia to facilitate funding and accelerate the industrialisation of technologies, supporting the transition to a net-zero automotive supply chain in the UK.

Since its foundation in 2013, APC, with the backing of the UK Government's Department for Business and Trade (DBT), has funded 264 low-carbon and zero emission projects involving 492 partners, working with companies of all sizes, and will have helped to create or safeguard over 58,000 jobs in the UK. The technologies developed in these projects are projected to save over 410 million tonnes of CO_2.

With its deep sector expertise and cutting-edge knowledge of new propulsion technologies, APC's role in building and advising project consortia helps projects start more quickly and deliver increased value. In the longer term, its work to drive innovation and encourage collaboration is building the foundations for a successful and sustainable UK automotive industry.

In 2020 UK Government established the Automotive Transformation Fund (ATF) to accelerate the development of a net-zero vehicle supply chain, enabling UK-based manufacturers to serve global markets. ATF investments are accessed through the APC and awarded by DBT to support strategically important UK capital and R&D investments that will enable companies involved in batteries, motors and drives, power electronics, fuel cells, and associated supply chains to anchor their future.

For more information go to www.apcuk.co.uk or follow us @theapcuk on X and Advanced Propulsion Centre UK on LinkedIn.

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[1] https://www.iea.org/policies/16763-eu-sustainable-batteries-regulation

[2] https://www.statista.com/statistics/1103263/li-ion-battery-recycling-market-size/

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