ASX ANNOUNCEMENT

17 September 2025

Livium Signs Binding Term Sheet with Iondrive related to DES Technology for Clean Energy Waste Recycling

HIGHLIGHTS

- **Livium has signed a binding Term Sheet with Iondrive to advance the recycling of clean energy waste using Iondrive's innovative Deep Eutectic Solvent (DES) technology**
- **Livium will supply Iondrive with end-of-life solar panels, lithium-ion battery black mass, rare earth element (REE) magnets, to support evaluation of Iondrive's high-recovery DES process**
- **Partnership combines Livium's customer and feedstock access with Iondrive's novel technology, positioning both to become leaders in Australian clean energy waste processing**
- **Partnership compliments the recently announced collaboration with the University of Melbourne[1], which also relies on the sourcing of waste by Livium**
- **This significant step further advances Livium's strategic aim of deploying its recycling capabilities into broader waste markets**

Livium Ltd (ASX: LIT) ("**Livium**" or the "**Company**") is pleased to announce it has signed a binding term sheet ("Term Sheet") with Iondrive Limited (ASX: ION) ("Iondrive"), an Australian company developing an innovative metal extraction process using Deep Eutectic Solvent technology (DES), via their subsidiary Iondrive AU Pty Ltd.

In accordance with the Term Sheet, Livium will supply Iondrive with a range of end-of-life materials, including solar panels, lithium-ion battery black mass, rare earth magnets, and other samples. This collaboration will support the continuous development and commercialisation of Iondrive's DES process, which already demonstrates over 95% recovery rates in testing and offers a sustainable, closed-loop alternative to conventional methods[2].

This deal, which follows the recently announced partnership with the University of Melbourne, is a significant step in strengthening the Company's recycling capabilities across a range of adjacent market opportunities. The results of these programs will inform techno-economic assessments and pave the way for future commercial supply and co-location agreements.

Summary of Key Terms:

- Livium will provide Iondrive with defined waste streams of solar panels, lithium-ion battery black mass, rare earth magnets, and other samples.
- Iondrive will apply its DES processes to evaluate recovery pathways and commercial scalability.
- Iondrive will retain ownership of all DES intellectual property (IP) and results, Livium retains IP in Sample generation.
- Both parties will use their best endeavours to commence negotiations of binding commercial agreements for supply and co-location of DES processing units within 21 months.
- The Term Sheet includes limited exclusivity provisions in Australia during the evaluation period.
- Either party may terminate the agreement on 30 days' notice, subject to customary conditions.

[1] Refer announcement "Livium Signs Term Sheet to Secure Exclusive Global Rights to Microwave Technology for Rare Earth Elements Extraction", dated 9 September 2025
[2] Based on analysis by Iondrive

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Adjacent Market Opportunities

Australia's transition to a clean energy future is creating a wealth of adjacent market opportunities in e-waste recycling, with the country's early adoption of renewable technology now generating a substantial and growing stream of end-of-life products.

The most prominent of these is solar panel (PV) recycling, where an estimated 100,000 tonnes of PV waste is projected annually by 2030[3], creating a significant feedstock opportunity for a nascent industry. Australia stands to unlock over A$1 billion in recoverable materials from end-of-life solar panels by 2035[4]. Capturing this market domestically presents a major opportunity to secure a local supply of critical minerals like lithium, cobalt, and nickel.

The market for lithium-ion battery black mass recycling also represents a major growth opportunity within the circular economy. As a key component of end-of-life batteries, black mass is rich in critical minerals such as lithium, cobalt, and nickel. The global market, valued at US$14.4 billion in 2024, is projected to surge to US$51.7 billion by 2032[5], driven by the explosive adoption of electric vehicles and a global push for sustainable supply chains.

Beyond solar and batteries, the growing e-waste stream is also creating a business case for rare earth element (**REE**) recycling. While the global REE recycling market is still relatively small, valued at around US$248 million in 2021, it is projected to surpass US$422 million by 2026[6]. This growth is driven by the demand for magnets in EVs and wind turbines, coupled with a global push to reduce reliance on primary REE mining and strengthen supply chain security. Despite low current recycling rates of less than 1%, the high value and critical importance of REE elements create a strong commercial incentive to develop innovative recycling solutions in Australia, ultimately helping to close the loop on the nation's strategic mineral supply.

Comment from Livium CEO and Managing Director, Simon Linge

"We are pleased to partner with Iondrive on this initiative. Our core focus remains the recycling of lithium-ion batteries. Our strategy for solar and rare earths leverages our core capabilities, which includes accessing and processing customers' problem waste. Combining Iondrive's innovative DES technology with our current reliable supply of black mass with the emerging capability in solar panels, and rare earth magnets, has the potential to unlock new recovery pathways and accelerate the development of a domestic processing of Australia's clean energy waste."

Comment from Iondrive CEO, Dr Ebbe Dommisse

"Partnering with Livium provides us with access to real-world feedstocks and a direct channel to scale our DES technology. This agreement aligns perfectly with our strategy to target battery, solar and magnet recycling – markets where sustainable solutions for recovering valuable metals are urgently needed."

Authorised for release by the Livium Board.

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[3] 'Scoping study: Solar Panel End-of-Life Management in Australia'
[4] https://apvi.org.au/scoping-study-solar-panel-end-of-life-management-in-australia
[5] https://www.marketsandmarkets.com/Market-Reports/black-mass-recycling-market-114706852.html
[6] Rare earth metals recycling market

Forward-looking statements

This announcement contains forward-looking statements. Forward-looking statements are subject to a variety of risks and uncertainties that it is beyond the Company's ability to control or predict and which could cause actual events or results to differ materially from those anticipated in such forward-looking statements. Investors should be aware that past performance should not be relied upon as being indicative of future performance.

About Livium

Livium is aiming to lead and enable the global transition to sustainable lithium production. The Company operates Australia's market leading battery recycler, Envirostream, a revenue and profit generating business which is well-placed to capitalise on growing lithium-ion battery demand. Additionally, the Company aims to commercialise patented lithium extraction technology (LieNA®), through a 50:50 joint venture with Mineral Resources Ltd (ASX: MIN), and critical battery material lithium ferro phosphate (LFP), through wholly owned subsidiary VSPC.

About Iondrive

Iondrive is developing an innovative metal extraction process using Deep Eutectic Solvent technology (DES). Its initial business case is focussed on battery recycling where the proprietary method is designed to efficiently recover critical metals, including nickel, cobalt, lithium, and manganese, from black mass in a closed-loop, environmentally friendly process. Unlike conventional hydrometallurgical and pyrometallurgical approaches, Iondrive's DES technology operates at lower temperatures, eliminates the need for aggressive acids, and offers a tuneable chemistry that can selectively extract individual metals. Whilst progressing the battery recycling application for its DES technology, Iondrive is actively seeking to expand the commercialisation opportunities into other markets, including mineral processing and Urban mining of e-waste.

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