Livium Ships Solar Panels to Won Kwang S&T in First Step Toward Unlocking Silver and Other Critical Materials

Highlights

- **Livium has collected, packed and shipped 600 end-of-life solar panels to strategic partner, Won Kwang S&T, satisfying Livium's Phase 1 responsibilities under the solar recycling collaboration**
- **Won Kwang S&T's novel technology increases the recoverability of critical materials, with Livium separately pursuing extraction technologies to recover materials such as silver, silicon and silica**
- **Silver recovery from solar panel recycling in Australia alone represents a significant economic opportunity, with current gross annual economic value of A$110M, estimated to grow to A$165M by 2030[5]**
- **Federal Government's announced A$24.7M commitment to a national solar panel recycling pilot provides signals for supportive regulatory framework**
- **The collaboration with Won Kwang S&T seeks to establish a joint venture to build and operate an Australian PV recycling plant, using Won Kwang S&T's technology**
- **In parallel, Livium is working with IonDrive on downstream silver extraction using its IONSolv™ technology[1]**

Livium Ltd (ASX: LIT) ("Livium" or the "Company") is pleased to announce the significant progress of Phase 1 of its collaboration with Won Kwang S&T Co., Ltd ("**Won Kwang S&T**"), demonstrated by the collection, packing and shipment of end-of-life (**EoL**) solar panels from Australia to South Korea for recycling. These panels were shipped in accordance with the non-binding Memorandum of Understanding ("**MOU**"), which was executed in September 2025[2].

Approximately 600 panels were collected from Envirostream's site on Friday, 16 January, and are expected to arrive in South Korea on Thursday, 12 February. On delivery of the panels, Envirostream's Phase 1 responsibilities under the MOU are complete. Won Kwang S&T will use these panels to validate their technology for large-scale solar panel recycling.

Livium CEO and Managing Director, Simon Linge commented

"The first shipment under the Won Kwang S&T partnership represents an important step toward unlocking critical materials from end-of-life solar panels using proven international recycling technology. The Federal Government's recently announced plans to support solar panel recycling adds to our belief that there is a great opportunity in this area.

Livium's role is to aggregate feedstock and work with specialist partners to share the economic benefits across the value chain. Won Kwang S&T's technology enables efficient isolation of solar cells, while Iondrive is applying its extraction technology to assess recovery of critical materials such as silver. Initial results from these partner activities are expected in the near term and we look forward to updating the market as validation progresses."

Silver Recovery as an Economic Driver

Silver represents one of the most economically compelling metals recoverable from end-of-life solar panels in Australia.

Australia is entering a period of rapidly increasing solar panel end-of-life volumes, with current national waste generation estimated at 60,000 tonnes per annum and rising above 90,000 tonnes per annum by 2030, driven primarily by early replacement of small-scale rooftop systems in New South Wales, Victoria and Queensland[3].

[1] Refer announcement "*Livium Signs Binding Term Sheet with Iondrive related to DES Technology for Clean Energy Waste Recycling*", dated 17 September 2025.
[2] Refer announcement "*Livium Expands Clean Energy Waste Recycling Capabilities through Strategic Partnership with Won Kwang S&T*", dated 18 September 2025.
[3] Source: *Scoping Study: Solar Panel End-of-Life Management in Australia* (Australian Centre for Advanced Photovoltaics (ACAP), UNSW), March 2024.

Crystalline silicon photovoltaic (**PV**) modules, which dominate the Australian installed base, typically contain silver as a critical conductive material[4]. While representing a small mass fraction, silver accounts for a disproportionately large share of recoverable material value, reflecting its high unit value relative to bulk materials such as glass and aluminium (with silver contributing ~34% of recoverable material value in end-of-life PV panels)[2].

Australia's current annual end-of-life solar panel stream is estimated to contain ~0.8 million ounces of silver, with gross contained economic values ~A$110 million at current spot prices. By 2030, gross annual contained economic values are estimated to increase to ~A$165 million, highlighting the material addressable domestic market and the potential for silver recovery to become a meaningful contributor to the economics of domestic solar panel recycling as processing volumes scale and recovery technologies advance[5].

Strengthening in silver prices over the past 6-12 months, alongside structurally growing demand in photovoltaics from electrification, further supports the strategic rationale for an integrated, circular solar panel recycling solution.

National Solar Panel Recycling Pilot

In January 2026, the Australian Government announced a A$24.7 million National Solar Panel Recycling Pilot, including up to 100 collection sites nationwide, aimed at reducing end-of-life solar panel waste, increasing the recovery of valuable materials and informing the development of a sustainable national recycling solution in line with Productivity Commission circular economy recommendations.

Livium views this pilot as a positive and practical step toward establishing the collection, logistics and policy frameworks required to support a scalable domestic solar panel recycling industry. As volumes of end-of-life panels increase, initiatives that improve collection pathways and reduce landfill leakage are expected to support the commercial viability of advanced material recovery solutions over time.

Recent CEO Visit to South Korea

Livium CEO and Managing Director, Simon Linge, visited Won Kwang S&T's South Korean facility in November 2025. The visit focused on refining the logistics for the first shipment of solar panels and exploring concepts for future joint venture structures and other collaboration opportunities. The trip confirmed the shared commitment to advance sustainable PV recycling solutions.

Overview of the Won Kwang S&T Collaboration

Under the agreement, Livium will supply end-of-life solar panels collected in Australia to Won Kwang S&T for processing using its proprietary PV recycling technology. The collaboration is structured in three phases:

1. Livium will supply PV modules, collected in Australia, to Won Kwang S&T to be recycled in South Korea. This phase will determine market viability and demonstrate the suitability of Won Kwang S&T's technology.
2. Livium will collect PV modules, partially dismantle them and supply the frameless panels to Won Kwang S&T.
3. Establishment of a joint venture to build and operate an Australian PV recycling plant, using Won Kwang S&T's Technology.

This phased, asset-light approach leverages Livium's existing infrastructure and customer relationships while positioning the Company to capture a fast-growing segment of the clean-energy waste market.

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[4] Industry and academic sources indicate that crystalline silicon PV modules typically contain ~15–20 grams of silver per panel (0.03–0.05%), depending on panel design, manufacturer and vintage. This implies silver content representing a low single-digit fraction of total panel mass. (Sources: The Silver Institute, *Silver and the Solar Industry*; and above referenced Scoping Study from ACAP / UNSW).

[5] Company analysis: Volume estimated based on above sources. Australian dollar silver spot prices are based on published market spot prices as at 19 January 2026 (source: Bullion-Rates.com). Values represent gross contained metal value and do not reflect recovery efficiency, processing costs or commercial arrangements.

- 2025: ~59,000 tonnes × 0.03–0.05% silver content = ~0.6–1.0 million oz contained silver (Average: 0.8 million oz); at spot prices of ~A$135–A$140/oz, the contained value is ~A$80–140 million (Average: ~A$110 million).
- 2030: ~91,000 tonnes × 0.03–0.05% = ~0.9–1.5 million oz contained silver; at ~A$135–A$140/oz, contained value is ~A$120–210 million (Average: ~A$165 million).

Authorised for release by the Managing Director and CEO.

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About Livium

Livium Ltd (ASX: LIT) is Australia's leading battery recycler through its wholly owned subsidiary Envirostream — a profitable business focused on the recovery of valuable materials from end-of-life batteries.

Building on this foundation, Livium is expanding into adjacent opportunities including recycling of rare earth elements and solar panels, and the processing of black mass — strengthening Australia's clean-energy supply chain.

The Company also holds a portfolio of complementary technologies, including LieNA®, a patented lithium extraction process in joint venture with Mineral Resources Ltd (ASX: MIN), and VSPC, a developer of next-generation lithium ferro phosphate (LFP) cathode materials — the leading global battery chemistry.

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.