Lithium Universe LIMITED
Building a Lithium Future

ASX ANNOUNCEMENT AND MEDIA RELEASE

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LU7 REPORTS SUCCESSFUL RECOVERY RESULTS OF JET ELECTROCHEMICAL SILVER EXTRACTION (JESE) TECHNOLOGY

Highlights

- LU7 and Macquarie University successfully completed comprehensive laboratory-scale trials
- Validating recovery of the Jet Electrochemical Silver Extraction (JESE) technology
- Near-complete recovery of silver greater than **95%** being achieved
- With 90.2% recovered in as little as 7 minutes under low voltage (5 V) and dilute nitric acid conditions
- Technology demonstrated precise, selective extraction of silver
- Tests confirm JESE offers lower energy demand, reduced acid consumption, and substantially less waste generation
- Next step is to check deposited silver purity levels

Lithium Universe Limited (ASX: LU7, "Lithium Universe" or "the Company") is pleased to report the successful completion of technical validation trials on the Jet Electrochemical Silver Extraction (JESE) technology, developed in partnership with Macquarie University. The JESE method has undergone rigorous laboratory testing to assess its ability to efficiently and selectively recover silver from end-of-life silicon solar cells. These results mark an important step in the commercialisation pathway of this breakthrough process, reinforcing LU7's commitment to innovation in critical metal recycling and circular economy solutions.

The Company's focus on silver recovery is aligned with broader strategic objectives in the renewable energy sector. With solar panel waste expected to grow exponentially over the coming decades, the ability to recover high-value materials such as silver and silicon will be essential in reducing landfill, lessening dependency on virgin mining, and capturing billions in untapped economic value. The test program was therefore designed to demonstrate both the technical feasibility and scalability of JESE under practical operating conditions, while benchmarking it against conventional recycling approaches.

SUMMARY OF TEST PROGRAM

The test program was executed by the Macquarie University engineering team, led by Dr. Binesh Puthen Veettil and Dr. David Payne. Silicon solar cells were carefully prepared for evaluation by laser cutting. These samples were laser-cut into representative sizes to expose the silver fingers and busbars commonly used in solar cell metallisation. This preparation enabled accurate measurement of silver recovery efficiency, uniformity, and wafer preservation.

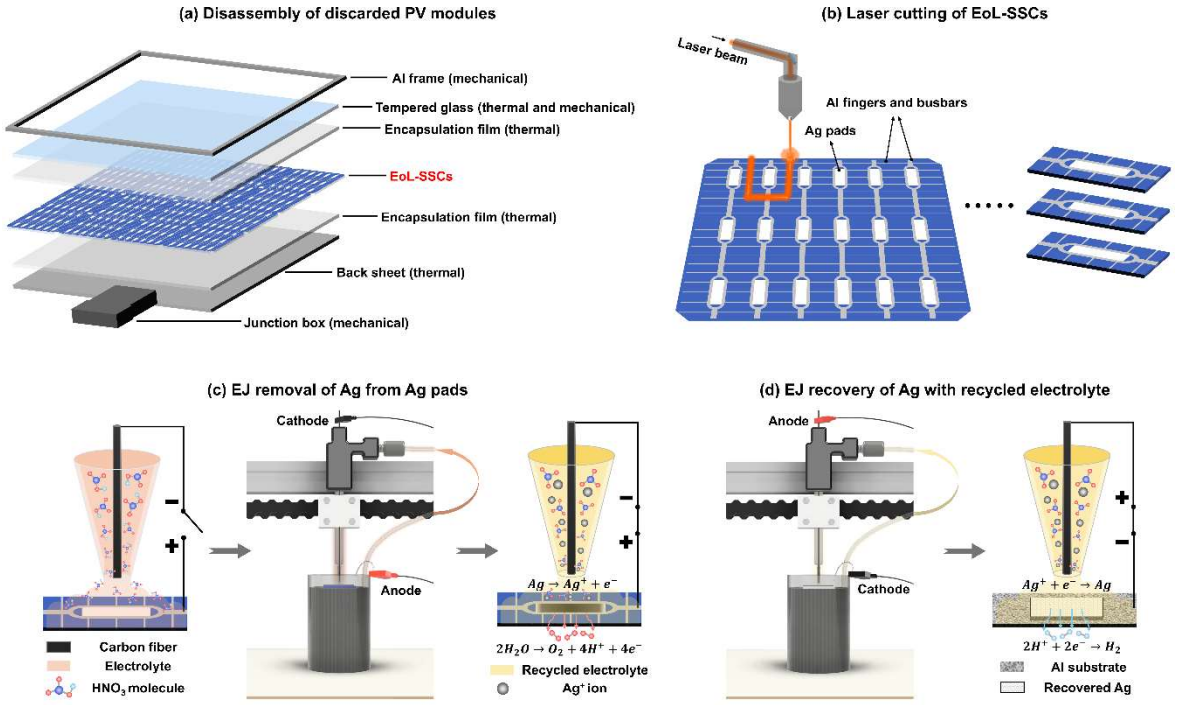

Figure 1 – Summary of test program

The JESE process utilises a precision-controlled jet of dilute nitric acid, delivered under low applied voltage, directly onto the silver contacts of the wafer. The process induces selective dissolution of silver into solution without significantly attacking aluminium busbars or the underlying silicon structure. Recirculation of the electrolyte ensures continuous removal of dissolved silver ions, which are subsequently recovered as metallic silver through electrochemical deposition. This closed-loop approach significantly reduces waste and enhances process efficiency.

Trials were conducted across a range of parameters including applied voltage, duration, cathode geometry, and electrolyte flow rates. These variables were optimised to maximise silver removal while minimising aluminium co-dissolution. Comparative tests using conventional hydrometallurgical acid leaching were also undertaken to benchmark JESE against the current industry standard.

RESULTS

The test campaign confirmed that JESE is highly effective in recovering silver from solar cell contacts. After only seven minutes of treatment, **90.2% of the silver was successfully dissolved and separated**. Extending the

duration to thirty minutes resulted in **near-complete recovery of over 95%.** These recovery rates were achieved using dilute nitric acid and an applied voltage of only 5 V, demonstrating the remarkable efficiency of the process.

Recovery tests also confirmed that dissolved silver ions could be redeposited as metallic silver through reverse-mode electrochemical jet deposition. This recovery step achieved more than 90% efficiency, producing usable silver metal that can be refined for industrial applications. In comparison, conventional bulk electrolysis achieved only ~36% recovery under similar conditions, reinforcing the superior performance of the jet-based system.

Crucially, silicon wafers subjected to JESE treatment remained intact and uncontaminated. Unlike conventional hydrometallurgical recycling, which destroys wafers through prolonged immersion in concentrated acids, JESE preserved wafer integrity. This opens the door to downstream processing of wafers into solar-grade silicon or conversion into nanosilicon for lithium-ion battery applications. Preserving wafer integrity therefore provides a significant secondary value stream.

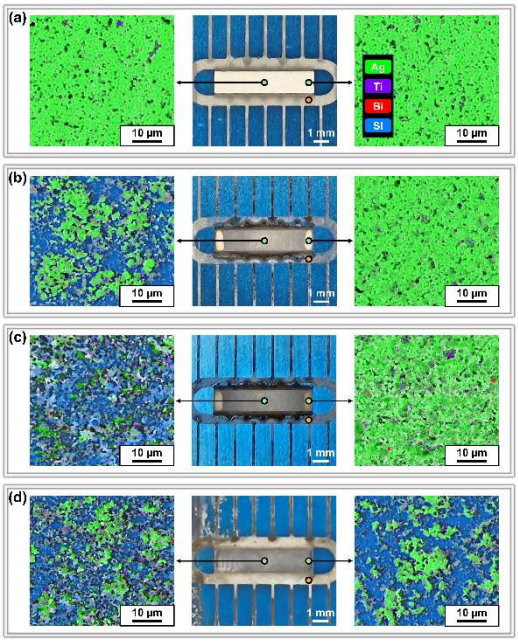

Figure 2 – Optical images of SSCs and SEM-EDS elemental maps of the Ag pads after treatments under varying conditions - Silver (green) eroding

COMPARISON TO CONVENTIONAL METHODS

Conventional silver recovery methods typically involve crushing solar cells into powder and immersing them in highly concentrated nitric acid or cyanides (very toxic) to dissolve silver. Concentrated Nitric acid generates hazardous NOx gases. While this approach can achieve high levels of silver removal, it permanently destroys the silicon wafer and consumes large volumes of chemicals, generating hazardous by-products. Processing times are long (often 24–48 hours), energy consumption is high, and additional purification steps are required to separate silver from aluminium and other impurities.

In stark contrast, JESE achieves faster recovery (minutes rather than days), uses dilute nitric acid, requires low energy input, and produces a high-value metallic silver product. Importantly, wafers remain intact, allowing for potential reuse. Together, these advantages create a compelling business case for JESE as the new benchmark in silver recovery from PV waste.

Table 1 – JESE Comparison with Conventional Methods

Feature	Conventional Hydrometallurgy	JESE Technology
Silver Recovery	60–90% over 24–48 hr	90.2% in 7 min; >95% in 30 min
Purity	AgCl/Ag_2O powders, <90%	Metallic silver, suitable for industrial use
Wafer Preservation	Destroyed by acid leaching	Intact and reusable
Acid Use	High concentration HNO_3 (5–7 M)	Dilute HNO_3 (12 wt%)
Energy Demand	High (grinding, heating, long processing)	Low (5 V, rapid process)
Waste Generation	High, toxic effluents	Low, electrolyte recirculated

JESE is cleaner and safer than current recycling methods. It uses low voltage and mild acids, avoiding the risks of harsh chemicals. Its closed-loop system cuts waste and costs. Most importantly, it potentially preserves silicon wafers, which has a higher value.

Economic and Market Implications

Silver is one of the most valuable materials contained in solar panels, with each module containing around 20 grams, worth approximately A$36 at current prices. With global solar deployment accelerating and panel lifetimes reaching their end-of-life, the scale of the recycling opportunity is enormous. One tonne of PV waste contains roughly one kilogram of silver. By 2050, PV waste is expected to reach between 60 and 78 million tonnes, representing a potential recoverable silver value of over A$154 billion.

At the same time, global silver demand is rising sharply, particularly in photovoltaics, electronics, and advanced technologies. In 2025, total demand is projected at 680 million ounces, with a forecast deficit of more than 100 million ounces due to constrained mining supply. Recycling is therefore becoming increasingly important in meeting industrial demand. LU7's JESE technology, now validated by laboratory trials, positions the Company at the forefront of this rapidly growing industry.

Executive Commentary

LU7 Executive Chairman, Iggy Tan, stated: "*The test results confirm the enormous potential of JESE. To achieve more than 90% recovery in just seven minutes is extraordinary, and doing so while preserving silicon wafers changes the game for recycling economics. This technology offers both efficiency and sustainability, supporting LU7's strategy of turning solar waste into a valuable resource stream.*"

Authorised by the Chairman of Lithium Universe Limited

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Forward-looking Statements
This announcement contains forward-looking statements which are identified by words such as 'anticipates', 'forecasts', 'may', 'will', 'could', 'believes', 'estimates', 'targets', 'expects', 'plan' or 'intends' and other similar words that involve risks and uncertainties. Indications of, and guidelines or outlook on, future earnings, distributions or financial position or performance and targets, estimates and assumptions in respect of production, prices, operating costs, results, capital expenditures, reserves and resources are also forward-looking statements. These statements are based on an assessment of present economic and operating conditions, and on a number of assumptions and estimates regarding future events and actions that, while considered reasonable as of the date of this announcement and are expected to take place, are inherently subject to significant technical, business, economic, competitive, political and social uncertainties and contingencies. Such forward-looking statements are not guarantees of future performance and involve known and unknown risks, uncertainties, assumptions and other important factors, many of which are beyond the control of our Company, the Directors, and management. We cannot and do not give any assurance that the results, performance or achievements expressed or implied by the forward-looking statements contained in this announcement will occur and readers are cautioned not to place undue reliance on these forward-looking statements. These forward-looking statements are subject to various risk factors that could cause actual events or results to differ materially from the events or results estimated, expressed, or anticipated in these statements.

ABOUT LITHIUM UNIVERSE LIMITED

Lithium Universe Limited (ASX: LU7) is a forward-thinking company on a mission to close the "Lithium Conversion Gap" in North America and revolutionize the photovoltaic (PV) solar panel recycling sector. The company is dedicated to securing the future of green energy by addressing two major strategic initiatives: the development of a green, battery-grade lithium carbonate refinery in Québec, Canada, and pioneering the recycling of valuable metals, including silver, from discarded solar panels.

Lithium Strategy: Closing the Lithium Conversion Gap

Lithium Universe is at the forefront of efforts to meet the growing demand for lithium in North America. As electric vehicle (EV) battery manufacturers prepare to deploy an estimated 1,000 GW of battery capacity by 2028, the need for lithium is expected to rise dramatically. However, with only a fraction of the required lithium conversion capacity in North America, LU7 is determined to play a pivotal role in reducing dependence on foreign supply chains. The company is building a green, battery-grade lithium carbonate refinery in Bécancour, Québec, leveraging the proven technology developed at the Jiangsu Lithium Carbonate Plant. This refinery will produce up to 18,270 tonnes per year of lithium carbonate, focusing initially on the production of lithium carbonate for lithium iron phosphate (LFP) batteries. The refinery's smaller, off-the-shelf plant model ensures efficient operations and timely implementation, positioning LU7 as a key player in the emerging North American lithium market. With a strong leadership team, including industry pioneers like Chairman Iggy Tan, LU7 is well-positioned to deliver this transformative project. The company's strategy is counter-cyclical, designed to build through the market downturn and benefit from the inevitable recovery, ensuring sustained exposure to the growing lithium demand.

PV Solar Panel Recycling Strategy: Silver Extraction

As the global demand for solar energy expands, the issue of solar panel waste has grown exponentially. With an estimated 60–78 million tonnes of solar panel waste expected by 2050, the need for efficient recycling solutions is more critical than ever. Lithium Universe has responded by acquiring the Microwave Joule Heating Technology (MJHT) from Macquarie University, a groundbreaking innovation for extracting valuable metals from discarded PV solar panels. The company's first focus is on the recovery of silver, a critical component in solar panel manufacturing. Silver's excellent electrical conductivity makes it indispensable in photovoltaic cells, where it forms the electrical contacts for electricity flow. The technology developed by LU7 enhances the extraction of silver, silicon, gallium, and indium, addressing a major gap in the recycling industry. With the price of silver soaring due to increasing demand in solar and electronics, LU7's efforts in silver recovery are timely and essential for sustaining the global clean energy supply chain. This breakthrough technology significantly reduces the environmental impact of solar panel waste by offering a more efficient, cost-effective, and environmentally friendly recycling solution. As the company progresses, it plans to expand its focus to other critical metals like copper and indium, ultimately contributing to the global circular economy.

Lithium Universe is committed to ensuring that both its lithium and PV solar recycling strategies help meet the world's growing demand for clean energy, while offering a sustainable solution to the challenges of resource scarcity and waste management.