18 June 2025

LU7 SECURES RIGHTS TO TRANSFORMATIVE PV SOLAR CELL RECYCLING TECHNOLOGY

Highlights

- Agreement to acquire global rights photovoltaic (PV) solar panel recycling technology
- "Microwave Joule Heating Technology" (MJHT) from Macquarie University
- Utilises microwave technology to selectively heat and delaminate PV cells
- 60-78 million tonnes of waste photovoltaic (PV) modules cumulated by 2050[1]
- Today only 15% of waste solar cells are recycled worldwide[2]
- Most end up in land fill as valuable waste
- Hard to recycle, high temperature furnace, toxic chemicals, low recovery
- MJHT and Delamination enables selective separation of materials – higher recoveries
- To investigate further recovery of silver, silicon, gallium and indium
- Binding commitments received to raise $1.7 million via placement to existing and new sophisticated and professional investors

Lithium Universe Limited (referred to as "Lithium Universe" or the "Company," ASX: "LU7") has entered into a binding agreement to acquire the global rights to commercially exploit a **patented photovoltaic ("PV") solar panel recycling technology** known as **"Microwave Joule Heating Technology"** ("**MJHT**" or the "**Technology**"). The rights will be secured via an **exclusive licensing agreement ("Licensing Agreement") with Macquarie University** ("**MQU**"), held through an Australian-incorporated holding company, New Age Minerals Pty Ltd ("NAM"). The key terms of the Licensing Agreement are set out in Schedule 1. The transaction will be effected by LU7 acquiring 100% of the issued share capital of NAM ("**Proposed Transaction**").

The basis of the technology platform utilises **microwave technology** to selectively heat silicon thereby softening the EVA encapsulant in solar panels, enabling **easy delamination and potential recovery of valuable materials** at room temperature. This approach avoids the need for extreme heat (1400°C) typically required for separating materials like glass and silicon as well as the use of costly hazardous chemicals in traditional processes. **Delamination enables selective separation of materials** without the need for mechanical crushing, whereas traditional crushing methods often result in cross-contaminated material and lower recovery rates.

A report published by the International Energy Agency Photovoltaic Power Systems Programme[1] projected that global waste PV modules will amount to 1.7–8.0 million tonnes cumulatively by 2030 and **60–78 million tonnes cumulatively by 2050**. By 2035, Australia is expected to accumulate 1 million tonnes of solar panel waste worth

1.TASK12, End of Life Management of Photovoltaic Panels Trends in PV Module Recycling Technologies, International Energy Agency over A$1 billion, while the global CIGS (Copper, Indium, Gallium, Selenide) solar cell market is projected **to grow to US$12.23 billion by 2032**.

Currently, only **15% of used PV cells are recycled**, with the **rest accumulating in landfills**.[2] This low recycling rate is due to complex processes, high-temperature furnaces, toxic chemicals, and poor recovery yields. The Technology, developed by MQU, **enhances the extraction of valuable metals** such as silver, silicon, gallium, and indium from discarded PV panels using **microwave and delaminating techniques.** The breakthrough technology offers a promising new approach for enhanced recovery of valuable metals like **Silver, Silicon, Gallium, and Indium**. The Company plans to initiate further research and development in this area.

Message from Executive Chairman

THE PROBLEM TODAY

The world's renewable energy transition is moving fast, with large-scale PV solar panels playing a central role in national energy strategies. The **global solar cell market is projected to hit US$39.81 billion by 2037**, growing at a compound annual **growth rate (CAGR) of around 8.2%**.[3] Approximately 37% of Australian households have installed solar panels. This represents over 4 million homes and small businesses with solar power systems. The Clean Energy Council reports that **12.4% of Australia's electricity generation** in 2024 came from rooftop solar.[4] However, as these panels approach the end of their 25–30-year lifespan, the industry faces a growing challenge: managing solar panel waste and recovering valuable materials. A report published by International Energy Agency Photovoltaic Power Systems Programme (IEA PVPS) Task12 and the International Renewable Energy Agency (IRENA) in 2016 projected world's waste PV modules globally to amount to 1,7–8,0 million tonnes cumulatively by 2030 and to **60-78 million tonnes cumulatively by 2050**. By 2035, Australia alone is expected to accumulate 1 million tonnes of end-of-life solar panels, with a total material value of over $1 billion. By 2045, Australia could be looking at 34.6 GW of serviceable panels that will need to be recycled or repurposed, equivalent to the total installed solar capacity in the country as of August 2024.

Figure 1 – The Accumulation of PV solar panels in Land Fill

2. National Renewable Energy Laboratory. (2021). To Toss, Repair, or Recycle? How Human Behavior Affects the Fate of Aging Solar Panels.
3. Sircel Pty Ltd. 2025. https://sircel.com/services/solar-panel-recycling/
4. Clean Energy Australia Report 2025, Clean Energy Council

LOW RECYCLING RATES

The global recycling rate for PV solar panels is around 15%, driven by several challenges. The recycling process is complex, requiring high temperatures and toxic chemicals, making it costly and energy intensive. Economic incentives are limited as the recovery of valuable materials like silicon does not provide sufficient financial returns. However, if recycling technologies can effectively attract and recover critical materials like silver, silicon, gallium, and indium, the financial viability of recycling improves, driving higher recycling rates. Additionally, the lack of recycling infrastructure and the diverse materials in panels further complicate efficient separation, but advancements in technology are addressing these issues.

Only
15%
Recycled

"Australia is about to be hit by a Tsunami of Solar Waste" (International Energy Agency)[7]

When waste PV cells aren't recycled, they often end up in landfills, causing numerous environmental problems. Panels can contain harmful materials like cadmium and lead, which may leak into the ground and water, posing risks to both ecosystems and human health. Valuable metals like silver, silicon, gallium, and indium are lost, adding to the strain on natural resources. As more solar panels reach the end of their life, landfills fill up, and the energy stored in these materials is wasted. Recycling can help solve these issues by recovering critical materials and cutting down on pollution.

POTENTIAL GROWTH OF PV RECYCLING INDUSTRY

The nascent PV solar panel recycling industry is experiencing rapid growth due to the increasing demand for critical metals such as silicon, silver, and indium, which hold substantial economic value. As the market for end-of-life (EoL) solar panels expands, driven by both economic opportunities and environmental needs, the recovery of these materials is becoming a lucrative business. The market for recyclable materials from EoL solar panels is projected to reach over $2.7 billion by 2030 and could approach $80 billion by 2050, according to Rystad Energy[6]. This growth is further fuelled by the fact that recovering materials from used panels can offset the need for costly and environmentally damaging virgin material extraction. Additionally, recycling helps secure a domestic supply of critical metals, reducing reliance on volatile foreign sources. Advancements in recycling technology, particularly in recovering high-value materials like silicon and silver, are making these processes more economically viable and environmentally necessary. Research has demonstrated that up to 98% of silver and nearly all of copper, lead, and other valuable metals can be recovered efficiently, enhancing the profitability of the recycling industry[6]. As technology improves, the recycling of PV panels will play a crucial role in supporting the transition to a circular economy and sustainable energy future.

CRITICAL METALS IN PV CELLS

As the demand for critical minerals continues to rise with the global shift to clean energy, the need to recover valuable materials from these panels becomes increasingly urgent. Solar panels are made up of 95% recyclable materials, including silver, aluminum, silicon, copper, indium, and gallium—all of which are vital to global clean energy supply chains. Rare metals like gallium are essential for solar fuel cells, semiconductor chips, and other high-tech applications, making their recovery from e-waste a key priority. Some of the critical minerals found in PV solar panels include:

5. Australian PV Institute, Scoping Study - Solar Panel End of Life management in Australia
6. Rystad Energy - Reduce, reuse: Solar PV recycling market to be worth $2.7 billion by 2030

- **Silicon** (used as a semiconductor)
- **Silver** (provides electrical conductivity)
- **Gallium** (enhances energy efficiency)
- **Indium** (aids in energy absorption)

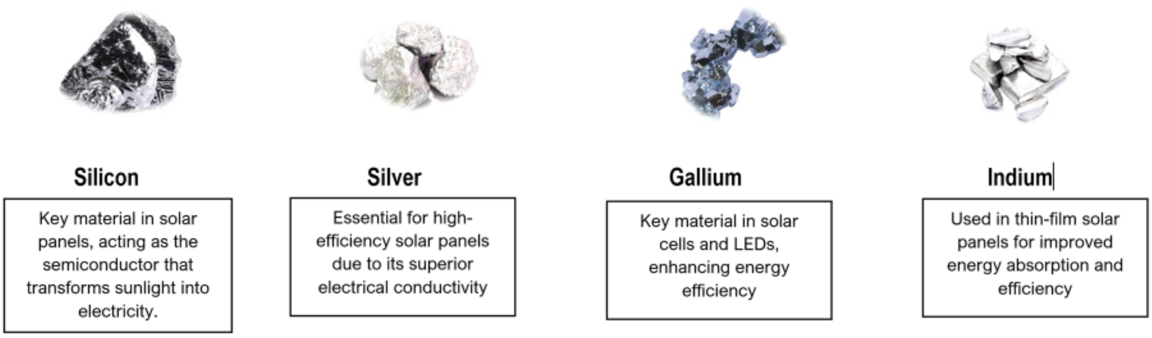

Figure 2 – Critical metals used in PV Cells and their function

Shortage of Critical Components

The extraction and potential shortage of critical metals like silicon, silver, gallium, and indium are growing concerns as global demand for renewable energy technologies, particularly solar panels, continues to rise. These materials are essential for the efficiency and performance of PV solar cells.

Silicon (Used as a Semiconductor)

Silicon is the primary material used in solar panels, making up about 95% of the market. It acts as the semiconductor that converts sunlight into electricity. While silicon is abundant in the Earth's crust, refining it to the high purity needed for solar cells is energy intensive. The extraction process requires mining quartz and refining it through high-temperature methods. Despite its abundance, the refining process contributes to a significant carbon footprint, and as demand for silicon grows across industries, the competition for this material increases, leading to potential supply bottlenecks.

Current Price: As of May 2025, silicon metal prices range from $1.79 to $2.05 per kilogram, depending on purity and region.

Silver (Provides Electrical Conductivity)

Silver is essential in solar panels for its excellent electrical conductivity. It is used in conductive pastes that connect individual solar cells. However, silver is expensive and relatively scarce. The extraction of silver mainly involves mining ores like argentite, which are then processed through smelting or chemical methods. As demand for solar energy and electronics increases, the supply of silver may struggle to keep pace, driving up prices and potentially hindering the growth of the solar industry.

Current Price: As of May 2025, silver is priced at approximately $1,099.77 per kilogram.

"In Fact, the Silver that's contained inside Solar Modules equates to in its totality, Australia's Biggest Silver Mine" (Australia Smart Energy Council)[8]

7. ABS News - Solar waste problem looms following rooftop panel boom, with batteries to add to the pile
8. Smart Energy Council - https://smartenergy.org.au/

Gallium (Enhances Energy Efficiency)

Gallium enhances the energy efficiency of solar panels and is key in producing high-efficiency PV cells like gallium arsenide (GaAs). It is mostly extracted as a byproduct of aluminum refining. Gallium is rare, and its growing demand in solar technology and high-tech industries raises concerns about supply shortages. The limited availability and complex extraction processes make gallium increasingly expensive.

Current Price: As of May 2025, gallium prices range from $208.76 to $405 per kilogram, depending on purity and region.

Indium (Aids in Energy Absorption)

Indium is critical in thin-film solar technologies like CIGS (copper indium gallium selenide) and CdTe (cadmium telluride). It improves energy absorption, boosting solar cell efficiency. Indium is typically extracted as a byproduct of zinc mining but is limited in supply. Its scarcity, combined with growing demand, could result in future supply constraints.

Current Price: As of May 2025, indium is priced at approximately $743.70 per kilogram.

NEED FOR RECYCLING

Extracting these critical metals is becoming more challenging as demand for solar energy and other high-tech applications rises. While these materials are essential for producing PV cells and energy-efficient technologies, their limited availability and environmental impact are growing concerns. To tackle potential shortages and reduce harm to the environment, the industry needs to focus on improving recycling rates, developing alternative materials, and investing in more sustainable extraction methods. This will help ensure a steady supply of these vital resources and support the ongoing growth of renewable energy. Recycling these materials is key to minimizing the environmental impact of solar panel disposal and making solar energy more sustainable. As solar energy expands worldwide, recovering and reusing these valuable resources helps create a circular economy, reducing the need for new raw materials. This not only benefits the environment but also lowers the carbon footprint involved in producing solar panels.

PHOTOVOTAIC PV SOLAR PANEL

A typical PV solar panel is made up of solar PV cells, which are made from silicon wafers. These silicon wafers are the core component that absorbs sunlight and converts it into energy. Around these wafers, there are other critical materials, such as silver, copper, and semiconductors, that help improve efficiency. These materials are all encapsulated in a layer of ethylene vinyl acetate (**EVA**), which acts as an adhesive to hold everything together and protect the components. The whole assembly is sandwiched between two glass sheets: the front glass sheet protects the solar cells from the elements, while the back sheet is at the rear of the panel, providing insulation and extra durability (see Figure 3).

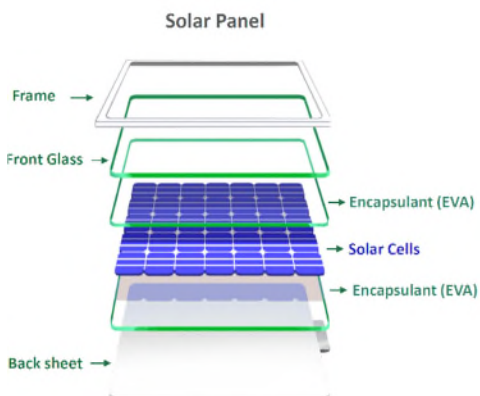

Figure 3 - PV Solar Panel Components

9. Powerhouse Recycling – Solar Panel Composition - https://powerhouserecycling.com/solutions/solar-recycling/

CONVENTIONAL RECYCLING PROCESS

Conventional recycling methods for solar panels typically rely on mechanical crushing or shredding, which often results in the loss of high-value materials such as silver and silicon. These materials become embedded in mixed, contaminated waste streams, making recovery difficult or uneconomical. A 2024 life-cycle analysis by MINES Paris and ROSI Solar highlighted that traditional shredding processes recover only the bulk materials (glass, aluminium, copper), leaving silver, silicon, gallium, and indium unrecovered—ultimately lost to landfills.

To recover valuable materials from solar panels, several steps are involved, see Figure 4. First, the aluminum frame around the panel must be removed. This frame is crucial because aluminum is a recyclable material, making it a necessary first step in the process. Specialized tools are used to cut and separate the frame from the rest of the panel. Next, the glass sheets need to be separated from the panel. This is done by "de-knifing" the EVA layer that binds the glass to the silicon cells. EVA is a strong adhesive, so this process often involves heating the panel to soften the EVA, making it easier to remove the glass. Once the glass is removed, the EVA layer still holds the silicon cells in place, requiring further work to separate them.

After separating the glass, the panel must be ground to remove any glass powder. This step is crucial for ensuring that the remaining materials, such as the silicon, are not contaminated. The glass itself is a valuable material that can be recycled for use in new solar panels or other industries. Once the glass is removed, the silicon cells can be extracted from the EVA. This process involves further cleaning to eliminate the remaining adhesive and isolate the silicon wafers. It requires pyrolysis in high-temperature furnaces and energy-intensive chemical treatments such as Nitric Acid (HNO_3), Sulfuric Acid (H_2SO_4), and Hydrogen Fluoride (HF). Once cleaned, the silicon can be purified and reused in the creation of new solar cells or other electronics. However, valuable metals like silver, silicon, gallium, and indium, which are critical components in solar panels, are often discarded as waste and end up in landfills. This loss of valuable materials highlights a significant gap in the recycling process. Additionally, other materials such as copper (from the wiring) can also be recovered and reused, but the full potential of material recovery from discarded panels remains largely untapped.

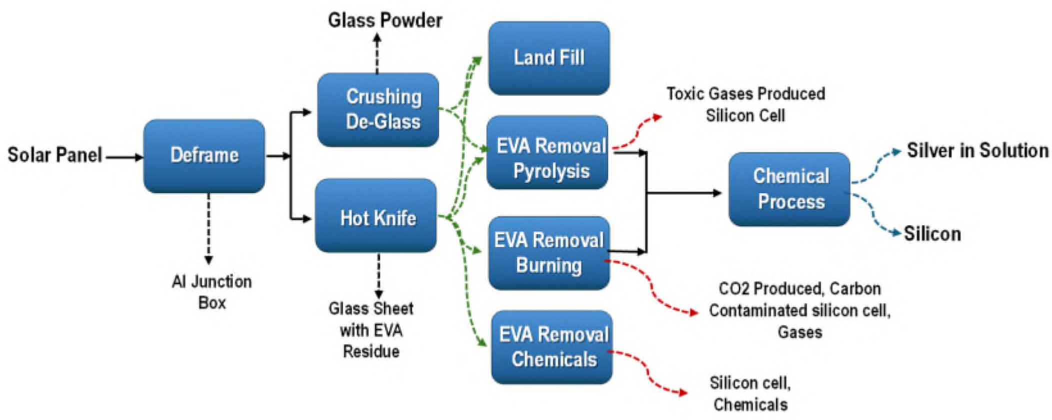

Figure 4 – Conventional Crushing PV Solar Panel Recycling Flow Sheet

The complexity of the recycling process, involving high temperatures, toxic chemicals, and poor recovery rates, contributes to the low global recycling rate of around 15% for PV solar panels. This process is both costly and energy-intensive, presenting significant challenges to improving recycling efficiency.

MACQUARIE UNIVERSITY (MJHT) TECHNOLOGY

The team from the School of Engineering at MQU, led by Dr. Binesh Puthen Veettil, has developed a new microwave technology (MJHT) aimed at addressing the challenge of electronic waste from end-of-life solar panels. Dr. Puthen Veettil's research, in collaboration with the School of Photovoltaics at UNSW and the Australian Centre for Advanced Photovoltaics, is further supported by the Australian Government through the Australian Renewable Energy Agency. This collaboration highlights the significant need and potential impact of the technology.

Dr Binesh Puthen Veettil, MQU with MJHT prototype

MJHT Tedam: From Left, Prof. Darren Bagnall, Prof. Shujuan Huang, Dr. Binesh Puthen Veettil and Dr. David Payne

In this new method, microwave energy is used to selectively heat the materials within a solar panel. The silicon cells and other components that absorb microwaves heat up quickly, while the surrounding materials stay relatively cool. This targeted heating causes the plastic encapsulant, EVA, which binds the layers of the panel together, to soften and break down.

As the EVA loses its adhesion, the glass, silicon, and metal components can be easily separated through mechanical peeling, rather than through extensive processing. This method removes the need for traditional high-temperature baking or energy-intensive chemical treatments like Nitric Acid (HNO_3), Sulfuric Acid (H_2SO_4), and Hydrogen Fluoride (HF). As a result, the delamination process becomes more efficient and environmentally friendly. The entire process can be carried out at room temperature, reducing the risk of contamination.

This breakthrough technology offers a promising new way to recover valuable materials such as silver and silicon from solar panels—critical components in both solar and semiconductor technologies.

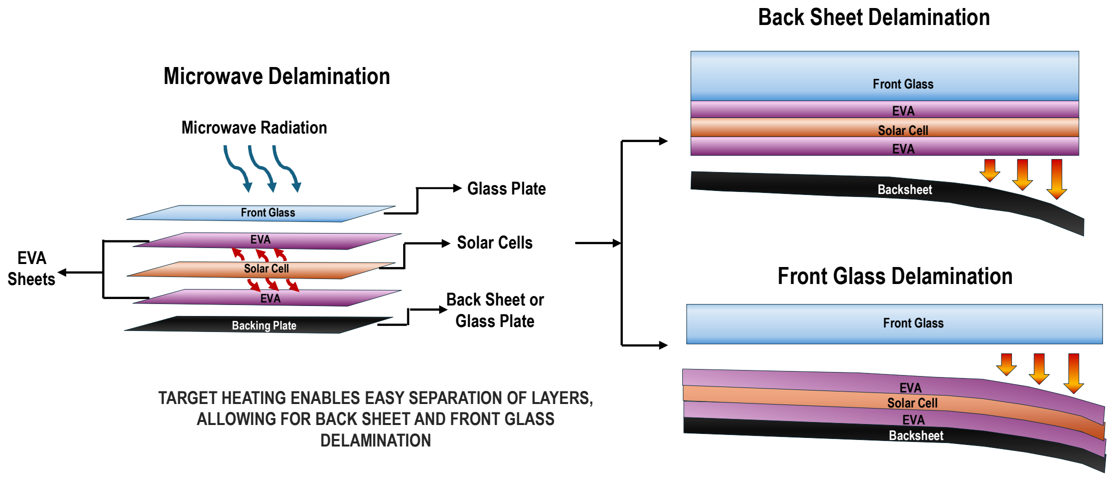

Figure 5 – Microwave Radiation selectively targets the plastic encapsulant (EVA) in solar panels, softening it to enable the delamination of solar cells while leaving other materials largely unaffected

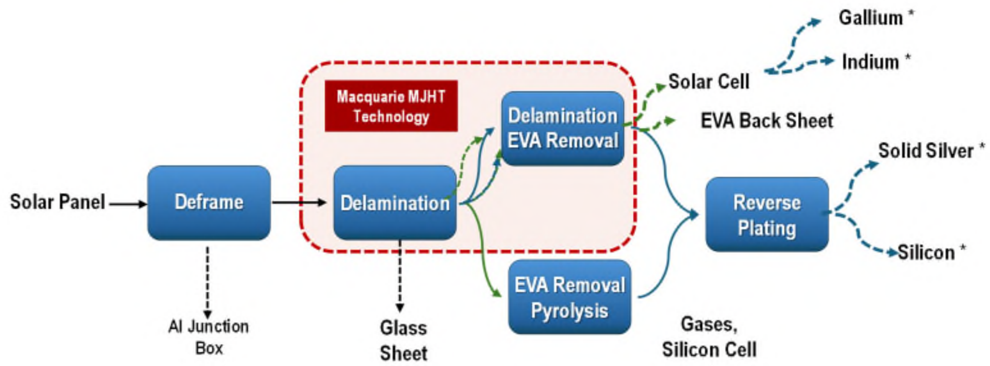

Figure 6 – MQU "Microwave Joule Heating Technology" (MJHT)

(MJHT) MICROWAVE RECYCLING TECHNOLOGY

Microwave recycling has a much lower environmental impact compared to traditional methods. One of its main advantages is significant energy savings, which greatly reduces the carbon footprint of the process. By removing the need for high-temperature furnaces and chemical treatments, this method minimizes greenhouse gas emissions and completely eliminates the risk of toxic chemical waste streams. The only emissions generated may come from minor fumes released as the encapsulant plastic is heated. However, since the plastic is softened rather than burned, these **emissions are much lower than those produced by thermal incineration**. Additionally, no chemical effluent is created, making the process cleaner and safer than acid-based or solvent-based extraction methods.

By using microwave-based separation, solar panels can be recycled more effectively, preserving valuable materials such as high-purity silicon, silver, and other critical metals for reuse. This innovation marks a breakthrough in sustainable solar panel recycling, reducing energy consumption while improving material recovery rates.

This innovation offers several key advantages:

- Instantly heats silicon through targeted energy transfer, dramatically reducing energy consumption compared to conventional thermal annealing while maintaining material integrity.
- Enables the exploration and potential of extraction and purification of high-grade silicon, a key material in semiconductors and microelectronics, supporting supply chains for chips, solar panels, and advanced technologies.
- Preservation of valuable materials, including glass, silicon and other critical materials such as, copper, indium, and gallium, enabling the possibility of higher recovery rates and reduced contamination.
- Softens the EVA encapsulant, enabling easy mechanical separation without the need for aggressive chemical treatments.
- Unlike acid or solvent-based recycling, this process produces no toxic byproducts, reducing the need for complex waste management.
- Operates at room temperatures as opposed to conventional high-heat (1,400°C) and chemical-based recycling methods, making it a more cost-effective and sustainable alternative.

The MQU team believes that the Technology can be easily integrated into existing solar panel recycling facilities and scaled for mass production without requiring expensive infrastructure changes.

DELAMINATION VS TRADITIONAL METHODS

In contrast, delamination-based recycling offers a more advanced approach by cleanly separating key layers such as the front glass and back sheet without compromising the integrity of the underlying materials. This allows for targeted extraction of valuable components, significantly improving both recovery rates and material purity.

A 2024 life-cycle analysis by MINES Paris and ROSI Solar highlighted the dramatic difference: while traditional shredding processes recover only the bulk materials (glass, aluminium, copper), they leave silver and silicon unrecovered—ultimately lost to landfill. In contrast, ROSI Solar's thermal delamination process applies a controlled heat treatment to separate the panel layers without damaging the embedded materials. This enables the full recovery of previously unrecovered elements, particularly silver and silicon, pushing total material recovery to over 95% by value. Importantly, the recovered material value was shown to be 3–4 times higher than that of traditional shredding.

Table 1 - Comparison between Crushing vs MJHT Delamination PV Solar Cell Recycling

Method	Crushing	MJHT Delamination
Process	Mechanical shredding & crushing of full panel	Layer-by-later separation (thermal, chemical or mechanical)
Material Integrity	High contamination mixed fragments	Preserves materials in cleaner separable form
Silver Recovery	<5% (often lost in residue)	Up to 95-100% recovery possible
Economic Value	Approx 35% of panel value recovered	Potential for 3-4x higher value recovery compared to crushing
Environmental Impact	Higher waste, more landfill	Enables circular economy, reduces environmental burden

SILVER METAL MARKET

Silver is a critical material in solar panel manufacturing due to its exceptional conductivity, directly impacting the efficiency of PV cells. As the global push for renewable energy accelerates and older solar panels begin to reach end-of-life, the urgency for sustainable silver recovery is rising.

Delamination-based processes have proven particularly effective for silver recovery. By cleanly separating the cell layers, these methods preserve the silver contacts embedded within, enabling nearly complete extraction. In comparison, traditional crushing methods tend to scatter or destroy the fine silver content, making recovery economically unviable.

In 2025, silver demand is set to reach a record 680 million ounces, driven by a 7% increase in industrial demand. This surge reflects the growing use of silver in various sectors, with photovoltaics and AI emerging as the fastest-growing drivers of consumption. As demand continues to rise, it is expected to outpace supply, leading to significant price increases. See Figures 7 and 8. The silver market is facing a shortfall, which is pushing prices upward, highlighting the growing importance of silver recovery from recycling. As traditional mining struggles to meet demand, recycling will play an increasingly vital role in securing the supply of this critical metal. The continued expansion of industries reliant on silver, coupled with supply constraints, suggests that silver's value will likely remain high in the coming years.

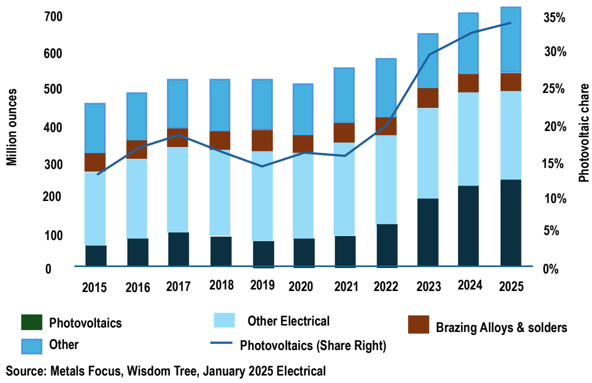

Figure 7 – Silver Demand Driven by PV Cells

Figure 8 – Silver 10-Year Price Trend

LU7, leveraging its expertise in precious metal extraction, is well-positioned to capitalize on this emerging opportunity. By combining its chemical knowledge with advanced recycling technologies, LU7 intends to play a key role in scaling up silver recovery from decommissioned solar panels.

SILICON METAL MARKET

Silicon is essential in both the semiconductor and solar energy industries, forming the foundation of microchips, PV cells, AI processors and 5G infrastructure. The global semiconductor silicon wafer market was valued at US$12.7 billion in 2023 and is projected to exceed US$17.8 billion by 2038, driven by rapid advancements in artificial intelligence, quantum computing, and renewable energy technologies.[10]

In solar panels, silicon is the primary semiconductor material, enabling the conversion of sunlight into electricity. Crystalline silicon (c-Si) is used in over 90% of all solar panels, making it the industry standard due to its high efficiency, durability, and abundance. However, the rising demand for both semiconductors and solar energy has led to supply chain constraints, increasing the urgency for sustainable silicon recovery and recycling.

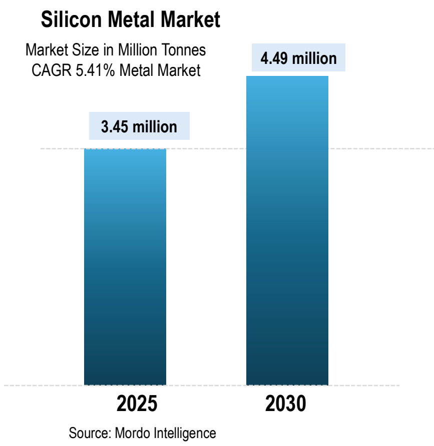

Figure 9 – Silicon Metal Growth Expected [10]

Delamination presents a viable pathway for preserving silicon's structural integrity during the recycling process. By separating the encapsulant layers without mechanical destruction, the silicon cells can be reclaimed in a

10. https://www.businessresearchinsights.com/market-reports/semiconductor-silicon-wafer-market-100105

purer, more usable form—supporting reuse in both solar and semiconductor applications. As market demand continues to surge, silicon recovery from end-of-life panels represents a major opportunity for LU7 to support material circularity, reduce dependency on virgin extraction, and contribute to a more resilient and sustainable supply chain.

CIGS (COPPER INDIUM GALLIUM SELENIDE) SOLAR CELLS

A key application for the new **MJHT** microwave technology are CIGS based solar cells which are a high-efficiency thin-film PV solution valued for their flexibility and performance. To unlock the full value of CIGS solar panels, delamination is an essential first step. Unlike traditional crushing methods, delamination separates the panel layers - such as glass, thin-film coatings, and backsheet - without compromising the integrity of critical materials like gallium, indium, and copper. This clean separation process enables targeted recovery and reduces contamination, improving both yield and material purity. When paired with microwave-based technologies, delamination enhances scalability and selectivity, positioning Lithium Universe to capture high-purity metals more efficiently.

The CIGS solar cell market was valued at US$2.09 billion in 2023 and is projected to grow to **US$12.23 billion by 2032, reflecting a compound annual growth rate of 17.8%**[11]. This rapid growth underscores the urgent need for a scalable and efficient recycling.

LU7 TO HELP COMMERCIALISATION OF TECHNOLOGY

Working with MQU, LU7 intends to help accelerate the research and development of the MJHT and develop a commercialisation pathway. The Company's Board and management are chemical specialists with extensive experience in the chemical extraction of critical materials, as well as in pilot plants, plant design, and feasibility studies. In particular, the Company will begin evaluating the viability of high-yield recovery efforts aimed at extracting valuable materials like silver, silicon, and other critical metals from end-of-life modules.

LU7 is also interested in applying the Technology to the calcination and sulphation of spodumene at its Bécancour Lithium Refinery in Québec. LU7 will investigate the use of MQU's microwave heating technology for calcination, sulphation of spodumene, and drying of final lithium carbonate. Currently, calcination occurs at 1080°C and sulphation at 280°C. The use of microwave conversion could reduce heating costs and lower the cost of materials used in construction.

Like lithium recovery from discarded batteries, this initiative aligns with LU7's strategy of securing and commercializing critical materials essential for the clean energy transition.

ACQUISITION DETAILS

The Company has entered into a binding share sale agreement to acquire 100% of the issued share capital of NAM for nominal consideration (**Acquisition**).

Completion of the Acquisition is conditional on the Company completing legal due diligence (to be completed by 27 June 2025 or such later date as mutually agreed between the parties) on NAM to its satisfaction and the Company, and the Company, NAM and MQU entering into a variation of the Licensing Agreement incorporating any amendments necessary or desirable to align its terms with the change in ownership of NAM, including amendments to provide that the milestone fees set out in Schedule 1 are to be satisfied by the Company (in place of NAM).

11. SkyQuest. 2024. https://www.skyquestt.com/report/copper-indium-gallium-selenide-solar-cell-market

The agreement is otherwise on terms and conditions considered customary for a transaction of this nature.

COMMENTS: EXECUTIVE CHAIRMAN, IGGY TAN

> *"Now that we have completed our lithium refinery DFS and secured all necessary components—including land and partnerships—we are positioned and ready for a lithium price recovery. We are confident in our counter-cyclical strategy and firmly believe that LU7 will benefit significantly when the lithium market rebounds. While awaiting this recovery, we have been presented with an exciting opportunity to acquire a cutting-edge photovoltaic recycling technology".*
>
> *"I am thrilled about the acquisition of Macquarie University's Microwave Joule Heating Technology (MJHT) and the opportunity to potentially extract critical metals such as silver from solar panel recycling. The need for effective PV recycling has never been greater, with only 15% of panels currently being recycled. The mass accumulation of solar panel waste in landfills is a growing problem, as valuable critical metals like silver, silicon, gallium, and indium are left behind, contributing to both resource depletion and environmental harm. Microwave technology offers a promising solution to these challenges, enabling higher recovery rates and more sustainable recycling processes. We firmly believe that this technology represents the future of solar panel waste management. We are eager to collaborate with the Macquarie team to develop a more efficient and cost-effective recycling process".*

Placement Details

The Company has received binding commitments from sophisticated and professional investors pursuant to a placement to raise $1.70 million by the issue of 425,000,000 fully paid shares ("Shares") at an issue price of $0.004 per Share ("Placement"). The Placement is to be undertaken in two tranches:

- Tranche 1: issuing 150,000,000 Shares raising $600,000; and
- Tranche 2: issuing 275,000,000 Shares and raising $1,100,000, to be approved at a shareholders meeting, expected to be 23 July 2025 ("Shareholders Meeting").

The issue date of the Tranche 1 Placement Shares is to take place on 26 June 2025.

Participants in the Placement will also receive, subject to shareholder approval (to be undertaken at the Shareholders Meeting), free attaching options based on one (1) option for every two (2) shares issued, with each option having an exercise price of $0.008 expiring 36 months from issue date of options ("Options"). The Company intends to apply for quotation of the options, subject to satisfying the requirements of the ASX Listing Rules for a new class of listed options, including the requirement for a minimum spread of 50 option holders. The issue of the Tranche 1 Placement Shares will be made from the Company's existing placement capacity under Listing Rule 7.1.

Included in the Tranche 2 Placement is an amount of $57,000 from Iggy Tan, Patrick Scallan and Jingyuan Liu. The share issues will also be subject to shareholder approval at the forthcoming shareholders meeting.

The Placement was jointly managed by 62 Capital (Lead Manager), and Evolution Capital (Co Lead Manager). The costs associated with the Placement is a 6% fee on all funds raised plus 15m broker options on the same terms as the attaching Placement Options.

Additionally, the Company has executed a Corporate Advisor Mandate with 62 Capital. The Company will issue the following securities to the Corporate Advisor, subject to shareholder approval:

(a) 33,000,000 performance rights will vest and convert if the Company's volume weighted average share price on ASX for a period of 15 consecutive trading days (15-day VWAP) is at least $0.007.

(b) 33,000,000 performance rights will vest and convert if the (15-day VWAP) is at least $0.009.

(c) 33,000,000 performance rights will vest and convert if the (15-day VWAP) is at least $0.011.

The performance rights will lapse if the applicable milestones have not been satisfied within 5 years from the date of issue of the performance rights and will otherwise be issued on customary terms (and subject to any requirements under the ASX Listing Rules).

In accordance with the Mandate, 62 Capital will assist the Company in identifying and evaluating potential growth strategies for the Company including but not limited to corporate advisory, mergers and acquisitions, equity and debt raisings and value creating opportunities.

The Company will issue a prospectus in the coming days for the purposes of cleansing the Placement Shares and Options for secondary trading.

Executive Chairman, Mr Iggy Tan stated, "*We are pleased with the outcome of the Placement in a challenging market, which reaffirms support for the Company's strategic direction, and the acquisition of photovoltaic (PV) solar panel recycling technology.*"

Timetable

Below is the Placement timetable, unless otherwise varied by the Company:

ACTION	DATE
Announcement of Placement and Appendix 3B lodged with ASX	18 June 2025 (before open)
Prospectus lodged with the ASIC and ASX	20 June 2025
Allotment and trading of Tranche 1	26 June 2025
EGM to approve the issue of New Shares and Options under the Placement	23 July 2025
Allotment and trading of Tranche 2 Shares	29 July 2025

Use of funds

The expected use of funds from the Placement are as follows:

DFS for Bécancour Lithium Refinery and detailed design	$0.70m
Land Options Costs	$0.20m
Corporate, working capital and offer costs	$0.60m
Proposed Transaction (research and development)	$0.20m
Total Use of Funds	**$1.70m**

Schedule 1- Key terms of the Licensing Agreement

Territory	Exclusive worldwide (registered patents pending in Australia & United States of America) right to commercialise the Technology. MQU retains a perpetual, royalty-free, worldwide, non-commercial licence to use the Technology (and any improvements) for research and education purposes.
Term	The longer of: • the date on which the last exclusive rights of MQU in the Technology lapse or expire; or • 20 years after the first commercial sale of any material, product, kit, method or use utilising the Technology, (**Term**).
Payments	The consideration payable by NAM to MQU for the use of Technology is: • an upfront payment of $33,900 as reimbursement for the costs associated with the registration of the Technology (**Reimbursement Registration Cost**); and • an annual payment of $20,000 in cash payable within 30 days of each anniversary of the commencement date of the Licensing Agreement (being, 9 June 2025) (**Commencement Date**), with payment commencing from 2027 and continuing until 2042.
Royalty	NAM will pay a 3% royalty on annual gross sales of products and/or services using the Technology achieved by or on behalf of NAM, payable quarterly to MQU, within 30 days of the end of each quarter during the Term (**Royalty**). The Royalty payment will be a minimum of $5,000 per annum commencing from the anniversary of the Commencement Date that falls within 2033.
Milestone Fee	NAM must notify MQU in writing of the achievement of each of the following milestones: • the successful commissioning and initial testing of the pilot plant, as reasonably determined by NAM; and • the commencement of production leading to the first commercial sale of the licensed product or process, (each a **Milestone**). Upon the occurrence of each Milestone, MQU will be entitled to receive either of the following as selected by MQU: • $100,000 cash by direct transfer to the bank account nominated by MQU; or • subject to the receipt of LU7 shareholder approval, fully-paid ordinary shares in NAM equal to the aggregate value of $100,000 based on a deemed issue price equal to 15-day volume-weighted average price preceding the date of issuance (**Milestone Equity**). MQU shall notify LU7 of its selection within 30 days of being notified by NAM of each Milestone achievement. NAM must complete payment of the relevant Milestone Fee within 30 days of the written notice of MQU's selection.

Improvements	All improvements to the Technology (whether made by MQU or NAM) during the Term are owned by MQU and automatically form part of the licensed intellectual property that is licensed to NAM under the Licensing Agreement.
Sublicensing	NAM may sublicense the Technology without MQU's prior consent, subject to conditions including that the sublicensee cannot further sublicense and must agree to novation of the sublicence to MQU if the head licence is terminated.
Impact/ Performance Criteria	NAM must at all times use reasonable and diligent efforts (including through approved sublicences) to pursue the development and commercialisation of the Technology and the development of the Products, including with a view to achieving the following: Phase 1: R&D completed by 2027 Phase 2: Pilot testing and validation completed by 2030 Phase 3: Commercial deployment and first sales by 2032. Within thirty (30) days after the end of each quarter during the Term, NAM must provide MQU with true, accurate and detailed written reports of the following information relating to that quarter: 1. Products and services sales figures achieved, including numbers of Products or service engagements, total billings, calculation of gross sales figures and Royalties due under the Licensing Agreement; and 2. details relating to activities to develop and commercialise the Technology and the development of Products, including work completed, key scientific discoveries and summary of work-in-progress and progress of the above criteria.
Termination	MQU may terminate the licence if the Company ceases to use reasonable and diligent efforts to commercialise the Technology for a continuous period of six months or the Company or its personnel engage in conduct reasonably likely to cause reputational harm to MQU. Either party may immediately terminate the Licensing Agreement by written notice if the other party commits a material breach that is not remedied within 30 days (if capable of remedy), commits a material breach that is incapable of remedy, or is subject to an insolvency event.

Lithium Universe LIMITED

Authorised by the Chairman of Lithium Universe Limited

Lithium Universe Interactive Investor Hub
Engage with Lithium Universe directly by asking questions, watching video summaries and seeing what other shareholders have to say about this, as well as past announcements, at our Investor Hub https://investorhub.lithiumuniverse.com/

For Information:

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Executive Chairman
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ABOUT LITHIUM UNIVERSE LIMITED

Lithium Universe is on a mission to close the 'Lithium Conversion Gap' in North America by developing a green battery-grade lithium carbonate refinery in Québec, Canada. Our primary focus is on supporting the supply chain needs of original equipment manufacturers (OEMs), particularly in the automotive sector, by converting spodumene supply into essential lithium chemicals for electric vehicle (EV) battery plants.

THE LITHIUM CONVERSION GAP

As North America anticipates a significant increase in battery manufacturing—over 20 major manufacturers planning to deploy an estimated 1,000GW of battery capacity by 2028—the demand for lithium is projected to reach approximately 850,000 tonnes of lithium carbonate equivalent (LCE) per annum. Currently, there are no operational converters in North America, with only 100,000t of LCE hard rock converters slated for construction by 2028. Our strategic approach aligns with national security goals to reduce dependence on Chinese lithium converters and onshore the lithium battery supply chain.

PROVEN LITHIUM TECHNOLOGY

Our Bécancour refinery will utilize the proven technology developed at the Jiangsu Lithium Carbonate Plant, which has set a global benchmark for lithium refineries. By leveraging this established technology, we aim to produce up to 18,270 tonnes/year of green battery-grade lithium carbonate, focusing initially on lithium carbonate production for LFP batteries. Our design employs a smaller, off-the-shelf plant model, ensuring ease of operation and implementation.

PROVEN LITHIUM EXPERTISE

Lithium Universe boasts a team of industry leaders known for expedient and quality lithium project delivery and operation. Chairman, Iggy Tan, a pioneer in the lithium industry, previously led Galaxy Resources to establish the first large-scale vertically integrated mine-to-refinery project. Other key figures include Patrick Scallan, who expanded production at the world-class Greenbushes Mine, and Dr. Jingyuan Liu, a technical expert in downstream lithium processing having worked on over 20 lithium converters worldwide. Their combined experience positions us to execute our strategy effectively.

THE LITHIUM UNIVERSE STRATEGY

Our positive and robust Bécancour Refinery Definitive Feasibility Study (DFS) demonstrates economic viability even in a low pricing environment. We maintain a counter-cyclical strategy, building projects through the cycle. This positions us to effectively close the Lithium Conversion Gap while maintaining exposure to the inevitable lithium price recovery given the strong worldwide lithium demand.