Lithium Universe LIMITED
Building a Lithium Future

ASX ANNOUNCEMENT AND MEDIA RELEASE

4 June 2026

LU7 GOLD & COPPER EXTRACTION FROM E-WASTE DEVELOPMENT PROGRAM

Highlights

- Developmental plan for GCDE technology commercialisation
- Review all historic research, reports and datasets
- Source optimal high-volume e-waste feed materials
- Optimise particle size, density and flowability characteristics
- Complete washing, milling and dewatering testwork programs
- Compare HCl/H_2O_2 leaching against aqua regia systems
- Optimise gold precipitation and ligand recovery circuits
- Develop copper precipitation and electrowinning recovery flowsheet
- Commercialisation program

Lithium Universe Limited (ASX: LU7) ("Lithium Universe" or "the Company") is pleased to announce that following the acquisition of the exclusive global licence from the University of Edinburgh for a breakthrough process to recover gold and copper from E-waste, **a development program** has been established.

Developed by the University of Edinburgh's School of Chemistry with support from Edinburgh Innovations, the Gold Copper Diamide Extraction (GCDE) process is an innovative hydrometallurgical technology designed to selectively recover gold and copper from electronic waste using selective, reusable, organic reagents. The process uses a diamide compound to selectively precipitate gold from acidic leach solutions, followed by copper recovery using pyrazine-2,3-dicarboxylic acid (PDCA). Unlike conventional smelting and pyrolysis, the technology avoids high-temperature, energy-intensive processing, offering potential environmental and cost advantages. The process is suited to **smaller-scale applications** with lower capital intensity and supports growing demand for sustainable e-waste recycling as global e-waste generation continues increasing rapidly. The development work program is as follows:

1. REVIEW ALL HISTORIC RESEARCH, REPORTS AND DATASETS

The Company (in conjunction with Edinburgh University) will conduct a comprehensive review of all existing technical reports, metallurgical studies, laboratory testwork and historical datasets generated by Professor

Jason Love's research team at the University of Edinburgh and associated collaborators. The review will assess gold and copper extraction performance from e-waste, including reagent consumption, precipitation behaviour, solids-liquid separation and reagent recycling, while identifying technical gaps requiring further work. Existing intellectual property, academic publications and prior development activities will also be evaluated to support commercialisation strategies. The Company believes this process may reduce duplicated testwork, shorten development timelines, lower research costs and benchmark the technology against conventional e-waste recycling processes.

2. SOURCE OPTIMAL HIGH-VOLUME E-WASTE FEED MATERIALS

The Company intends to identify and secure suitable high-volume e-waste feed materials to support future commercial operations. Initial evaluation will focus on printed circuit boards, telecommunications waste, computer components and other precious-metal-bearing electronic waste streams from industrial and consumer recycling markets. Feedstocks will be assessed for gold and copper grades, impurity levels, handling characteristics and long-term availability. Global e-waste generation trends and recycling supply chains will also be reviewed to identify attractive commercial opportunities. Representative samples will undergo metallurgical testing at the University of Edinburgh to assess metal recoveries and processing performance, while discussions may commence with recyclers and potential strategic feedstock partners.

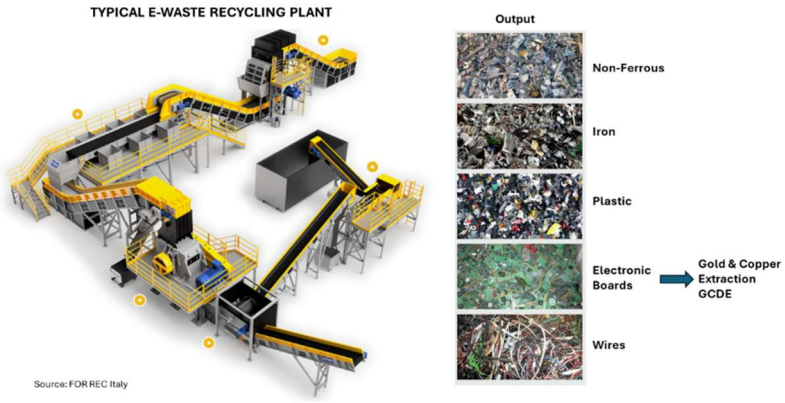
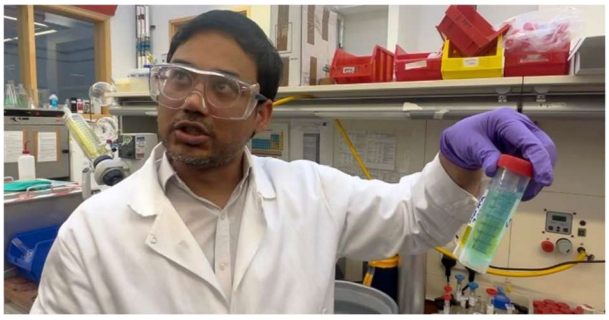


Figure 1 – E-Waste available from market processed through typical recycling plant

3. OPTIMISE PARTICLE SIZE, DENSITY AND FLOWABILITY CHARACTERISTICS

The Company plans to undertake detailed physical characterisation studies on selected e-waste feed materials to optimise particle size distribution, density and flowability for downstream processing. Testwork will assess how pulverisation and milling conditions influence leaching efficiency, reagent contact and solids handling performance. Laboratory analysis will include laser particle sizing, scanning electron microscopy and high-resolution imaging techniques. Additional studies will evaluate whether coatings, laminates or polymer layers inhibit metal leaching and require further liberation stages. Density and flowability testing will support future engineering design. The Company believes optimisation of feed preparation could improve recovery efficiency, reduce reagent consumption and enhance filtration performance.



4. COMPLETE WASHING, MILLING AND DEWATERING TESTWORK PROGRAMS

The Company intends to undertake a comprehensive pretreatment program focused on washing, milling, filtration and dewatering optimisation of e-waste feed materials prior to leaching. Studies will assess contaminants such as oils, dusts and organics that may impact downstream recovery processes and recovered product quality, while comparing deionised water and dilute acid washing performance. Wash liquors will be analysed to ensure precious metals are not lost during pretreatment. The Company will also evaluate optimum residence times, solids-to-liquid ratios and washing configurations. Additional milling, filtration and dewatering studies will support future engineering design. The Company believes optimised pretreatment stages could improve leaching kinetics, reduce reagent losses and minimise downstream impurities.

5. COMPARE HCl/H_2O_2 LEACHING AGAINST AQUA REGIA SYSTEMS

LU7 plans to conduct comparative metallurgical testing between hydrochloric acid and hydrogen peroxide (HCl/H_2O_2) systems and conventional Aqua Regia leaching processes to determine the preferred extraction route for gold and copper recovery from e-waste. Testing will evaluate metal recoveries, reagent consumption, impurity behaviour, operating conditions and environmental performance. The Company intends to optimise reagent concentrations, temperatures, residence times and acid-to-solid ratios to maximise recovery efficiency while minimising costs and waste generation. Filtration and washing behaviour following leaching will also be assessed. Additional studies may investigate acid recycling, reagent regeneration and residue valorisation to improve process economics and support future pilot-scale development.

6. OPTIMISE GOLD PRECIPITATION AND LIGAND RECOVERY CIRCUITS

The Company intends to optimise the gold precipitation and diamide ligand recovery circuits forming a key part of the proprietary extraction process developed at the University of Edinburgh. Testwork will establish optimum conditions for precipitation of the gold-bearing yellow solid complex, including ligand-to-gold ratios, reaction kinetics and filtration performance. Additional studies will assess washing requirements to improve product purity and remove impurities. The Company also plans to examine stripping and recovery of the diamide ligand, including operating temperature, residence time and reagent recovery efficiency. Further work will investigate ligand degradation and long-term stability during recycling operations to support lower operating costs and improved process economics.

7. DEVELOP COPPER PRECIPITATION AND ELECTROWINNING RECOVERY FLOWSHEET

The Company plans to develop and optimise the copper recovery circuit associated with the e-waste processing technology, including copper precipitation, ligand regeneration and final copper metal production pathways. Testwork will evaluate copper precipitation using 2,3-pyrazinedicarboxylic acid (2,3-PDCA), focusing on reagent concentration, temperature and reaction time. Filtration and washing characteristics will also be assessed to determine product quality and impurity removal efficiency. Additional studies will investigate ligand regeneration and compare electrowinning with alternative processing methods for producing metallic copper. Physical and chemical characterisation of recovered copper products will also be undertaken. The Company believes an efficient copper recovery circuit could significantly improve overall project economics.

8. EVALUATE REAGENT RECYCLING AND ENVIRONMENTAL MANAGEMENT SYSTEMS

The Company intends to evaluate reagent recycling, waste minimisation and environmental management strategies to improve the sustainability and commercial performance of the proposed process technology. A key focus will be maximising recovery and reuse of reagents including diamide ligands, 2,3-PDCA and process acids to reduce operating costs and waste generation. Laboratory studies will investigate reagent degradation mechanisms and practical operating limits for continuous reuse cycles. The Company also plans to develop treatment flowsheets for barren liquors and process effluents, including acid neutralisation, dissolved metal removal and water recycling opportunities. Additional work may investigate commercial uses for solid residues to further reduce disposal requirements and support future permitting activities.

9. ADVANCE PILOT PLANT DESIGN AND COMMERCIAL SCALABILITY STUDIES

The Company plans to utilise results from metallurgical optimisation programs to advance pilot plant design and commercial scalability studies for the technology. Engineering work will focus on integrating the preferred process flowsheet into a continuous pilot-scale operation capable of demonstrating stable gold and copper recovery performance under representative conditions. Key design areas will include feed preparation, leaching, filtration, precipitation, reagent recycling, copper recovery and effluent treatment systems. The Company intends to assess throughput, reagent consumption, equipment sizing and operational stability as part of future scale-up activities. Preliminary capital and operating cost estimates may also be prepared to evaluate the commercial viability of larger industrial-scale operations.

10. COMMERCIALISATION PROGRAM

The commercialisation program will focus on establishing the key foundations required to transition the technology from laboratory development to a viable industrial business. Work will include development of a feedstock supply strategy to secure long-term access to e-waste and other suitable recycling materials, together with a product offtake and marketing strategy targeting refiners, metal traders and end-users. A detailed techno-economic assessment will be undertaken to evaluate capital costs, operating costs, project economics and scalability. In parallel, a comprehensive market opportunity assessment will examine global e-waste growth, competitive technologies, potential customers and regional deployment opportunities to identify the most attractive pathways for future commercial development and value creation.

BACKGROUND OF TECHNOLOGY

The Gold Copper Diamide Extraction (GCDE) process developed by the University of Edinburgh is an innovative hydrometallurgical technology designed to recover gold and copper from electronic waste under mild operating conditions. In the process, pulverised electronic waste is halide leached at room temperature, dissolving metals such as gold and copper into solution as chloride complexes including $HAuCl_4$ and $CuCl_2$.

A specially designed reusable diamide ligand is then introduced to selectively recover gold from the acidic leach solution. Under acidic conditions, the diamide forms a protonated cationic structure that strongly interacts with tetrachloroaurate ions through favourable supramolecular bonding. This interaction causes a gold–diamide complex to rapidly precipitate as a distinctive yellow solid, while impurity metals such as copper, iron and nickel remain dissolved in solution. The precipitated gold complex is subsequently washed and refined to produce high-purity metallic gold, with the diamide reagent recovered and recycled for multiple reuse cycles. Following gold removal, the remaining copper-rich liquor undergoes a second selective recovery stage using 2,3-pyrazinedicarboxylic acid (2,3-PDCA), a chelating agent that preferentially binds copper ions. The resulting copper complex precipitates from solution and can subsequently be processed through electrowinning or chemical stripping to produce metallic copper.

The staged GCDE process avoids the high temperatures, energy intensity and environmentally hazardous reagents associated with conventional smelting and pyrometallurgical recycling methods. The technology offers potential advantages including lower energy consumption, reagent recyclability, high selectivity, reduced waste generation and the production of high-purity gold and copper products from complex e-waste streams.

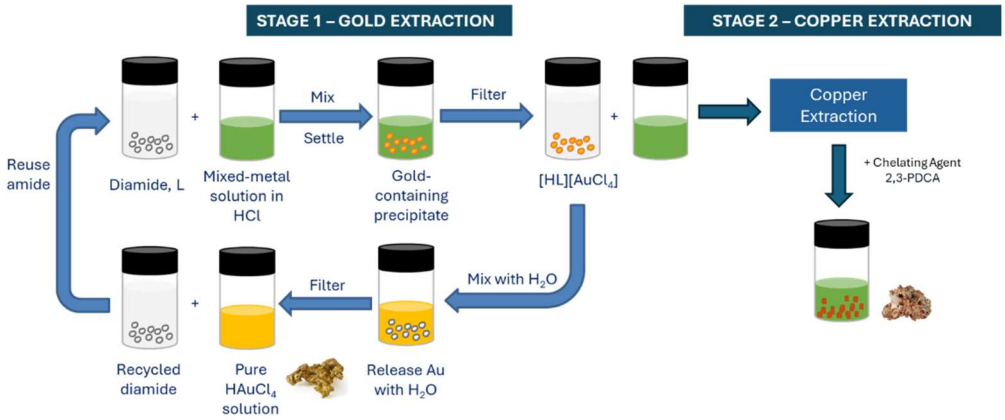


Figure 2 – Gold Copper Diamide Extraction (GCDE) Process

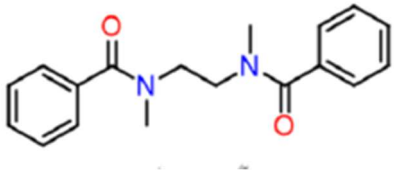


Figure 3 - Chemical structure of Diamide

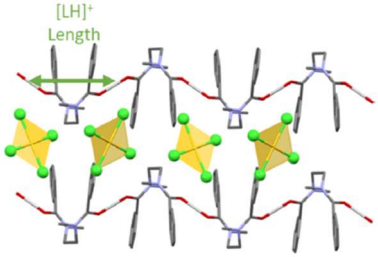


Figure 4 - Diamide extracting gold (yellow) $AuCl_4$

CHIEF EXECUTIVE OFFICER COMMENT

"We are extremely encouraged by the commercial potential of the GCDE technology and the development pathway now established with the University of Edinburgh," said Iggy Tan. "Significant additional metallurgical and engineering test work remains to optimise leaching conditions, reagent recycling, ligand stability, filtration performance, copper electrowinning and overall process scalability. This work is aimed at improving recoveries, lowering operating costs and advancing the technology toward pilot-scale commercial validation."

Watch the GCDE Explainer
https://youtu.be/O__fW8jLzLU

-End-

About Lithium Universe Limited (LU7)

Lithium Universe (ASX: LU7) is an emerging lithium development company focused on building a fully integrated lithium supply chain in North America. The company's flagship asset is the Bécancour Lithium Refinery project in Québec, which aims to produce battery-grade lithium carbonate. LU7 is led by a world-class team with extensive experience in lithium refining, project delivery, and global supply chain integration.

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:

Iggy Tan
CEO
Lithium Universe Limited
Email: info@lithiumuniverse.com

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 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) ("Lithium Universe" or "the Company") 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.

SILVER EXTRACTION - PV SOLAR PANEL RECYCLING STRATEGY

As the global demand for solar energy expands, solar panel waste is projected to reach 60–78 million tonnes by 2050, making efficient recycling solutions critical. Silver is essential for solar panels, electronics, and electric vehicles due to its unmatched electrical conductivity. Industrial demand has surged, especially from photovoltaics and AI technologies, creating a global supply deficit. With production lagging, silver prices have soared, reinforcing the economic importance of efficient recycling.

Lithium Universe has responded by acquiring Macquarie University's Microwave Joule Heating Technology (MJHT) and Jet Electrochemical Silver Extraction (JESE) method, a breakthrough in recovering valuable metals from end-of-life PV panels. The first stage, developed by Macquarie University, is Microwave Joule Heating Technology (MJHT), a process that uses microwave energy to selectively heat silicon cells softening the ethylene vinyl acetate (EVA) encapsulant that binds a solar panel's layers. This enables room-temperature delamination of glass, silicon, and metal layers without crushing, furnaces, or toxic chemicals. The result is a clean separation of materials, drastically reducing energy use, emissions, and chemical waste while preserving the integrity of high-value silicon and silver components. Following delamination, Lithium Universe applies its Jet Electrochemical Silver Extraction (JESE) process, a micro-jet electrochemical system that directs a fine stream of dilute nitric electrolyte onto the silver pads of solar cells. This method achieves over 95% silver recovery at 96% purity, while using 83% less acid and no chemical additives. The process operates at just 5 volts, recycles its electrolyte, and produces zero heavy-metal waste, establishing a true closed-loop recycling system. Together, MJHT and JESE form a sustainable, scalable recycling platform that converts discarded solar panels into a renewable source of silver, silicon, and other critical materials, a vital step toward circularity in the global clean-energy supply chain.

LITHIUM DIVISION

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 planning to build 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.

Second Refinery Strategy

Lithium Universe Limited has launched a second lithium refinery strategy in the Port of Brownsville, Texas, complementing its planned flagship Bécancour project in Québec. The initiative creates a binational refining platform to address North America's lithium conversion shortage and strengthen supply chain resilience. Strategically located near the Port of Brownsville, the site offers deep-water access, low labour costs, and streamlined permitting within one of the U.S.'s most business-friendly regions. Leveraging a "copy and paste" design from the proven Bécancour refinery, the Texas project can be rapidly deployed to serve nearby gigafactories, aligning with U.S. policy incentives under the Inflation Reduction Act.