Iondrive pursues E-Waste urban mining opportunity with South Australian grant award

Highlights

- Iondrive is evaluating the fast-growing e-waste Urban Mining market, and testing opportunity for its proprietary DES platform to recover valuable metals from Printed Circuit Boards (PCBs)
- The global e-waste market contained an estimated US$91 billion in recoverable metals in 2022[1] with only 22% being recycled – highlighting a significant market opportunity for recovery technologies
- PCBs identified as an ideal feedstock due to high value and compatibility with Iondrive's tunable DES chemistry
- DES technology has potential for the recovery of high-value metals such as copper, gold, silver and palladium
- Expansion builds on Iondrive's battery recycling program and seeks to broaden the application of this platform technology across critical mineral recovery
- Testing to commence in Q3 CY 2025 at the University of Adelaide, supported by a South Australian Government grant with commercial activities progressing in parallel

Iondrive Limited (ASX: ION) ("Iondrive" or "the Company") is pleased to announce it is evaluating the expansion of its proprietary Deep Eutectic Solvent (DES) platform into the fast-growing electronic waste (e-waste) urban mining market, targeting high-value materials such as copper, gold, silver, palladium and rare earth elements from printed circuit boards (PCBs).

PCBs were selected for their high recoverable metal content and proven compatibility with Iondrive's tuneable DES process — a sustainable alternative to traditional acid leaching or smelting. The project builds on Iondrive's work in battery recycling and leverages its existing knowledge and infrastructure to fast-track commercialisation.

Testing will be carried out at the University of Adelaide, funded by Green Industries SA grant awarded to Iondrive. The work will demonstrate how Iondrive's DES process can selectively extract metals from complex feedstocks such as PCBs using biodegradable, closed-loop chemistry. The work will also confirm whether Iondrive can establish an IP position for its DES technology in the e-waste application area clear of other existing patents in this space. The program is partially funded through the Green Industries SA's support of AU$100,000 and is expected to also be eligible for the Research and Development Tax Incentive.

Iondrive Limited Dr CEO Ebbe Dommisse commented:
"*This grant enables us to apply our DES process to a new high-impact market segment and fast-track commercial outcomes using infrastructure and expertise we already have in place. It's exciting to expand our environmentally friendly, closed-loop process to recover valuable metals beyond batteries. With a proven and scalable platform, strong relationships, and alignment with the South Australian Government's circular economy agenda, we're well-positioned to move quickly.*"

[1] Global E-Waste Monitor 2024, UNITAR, ITU, ISWA, UNEP: https://ewastemonitor.info/the-global-e-waste-monitor-2024

E-Waste: A Global Opportunity with Critical Mineral Value

Electronic waste continues to grow rapidly, driven by increased consumption of electronics and shorter product life cycles. In 2022, global e-waste generation reached an estimated 62 million tonnes, with volumes forecast to rise to 82 million tonnes annually by 2030[2]. Despite the growing scale, only 22% of this material is formally collected and recycled.

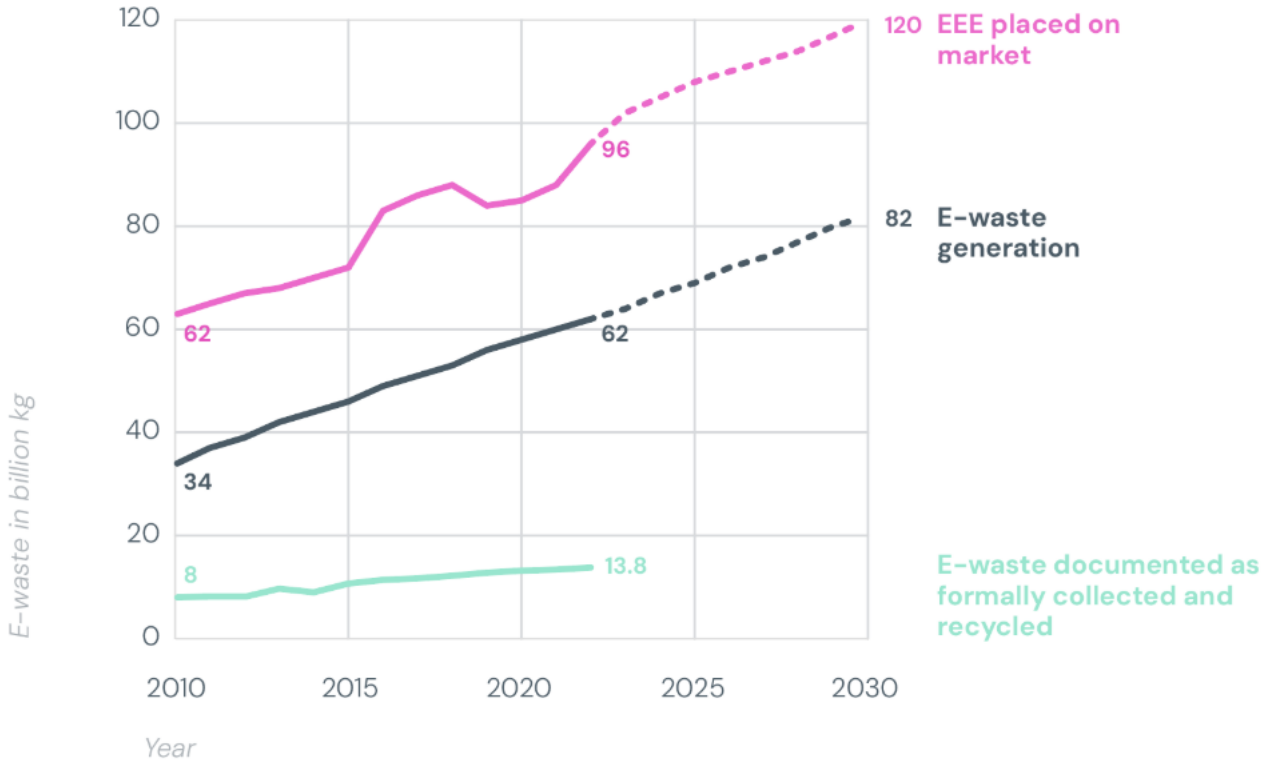

Figure 1: Global E-Waste Trends and Recycling Gap (2010–2030)
Projected growth in electrical and electronic equipment (EEE) placed on the market (pink), e-waste generation (black), and the limited volume formally collected and recycled (green). Source: Global E-Waste Monitor 2024 (UNITAR, ITU, ISWA, UNEP).[1]

[2] Global E-Waste Monitor 2024, UNITAR, ITU, ISWA, UNEP: https://ewastemonitor.info/the-global-e-waste-monitor-2024

In Australia, e-waste generation reached ~583,000 tonnes in 2022, equivalent to 22 kg per person—more than double the global average. Volume is expected to rise to 657,000 tonnes by 2030.[3]Recovery rates for key materials such as gold, copper, cobalt, and rare earths remain low due to export-heavy downstream processing chains and limited local processing capacity.

In 2022, the global e-waste stream contained an estimated US$91 billion worth of recoverable metals, yet only a fraction was recovered. The Iondrive opportunity with green solvents and the low permitting barriers to entry for it's Urban Mining DES concept.

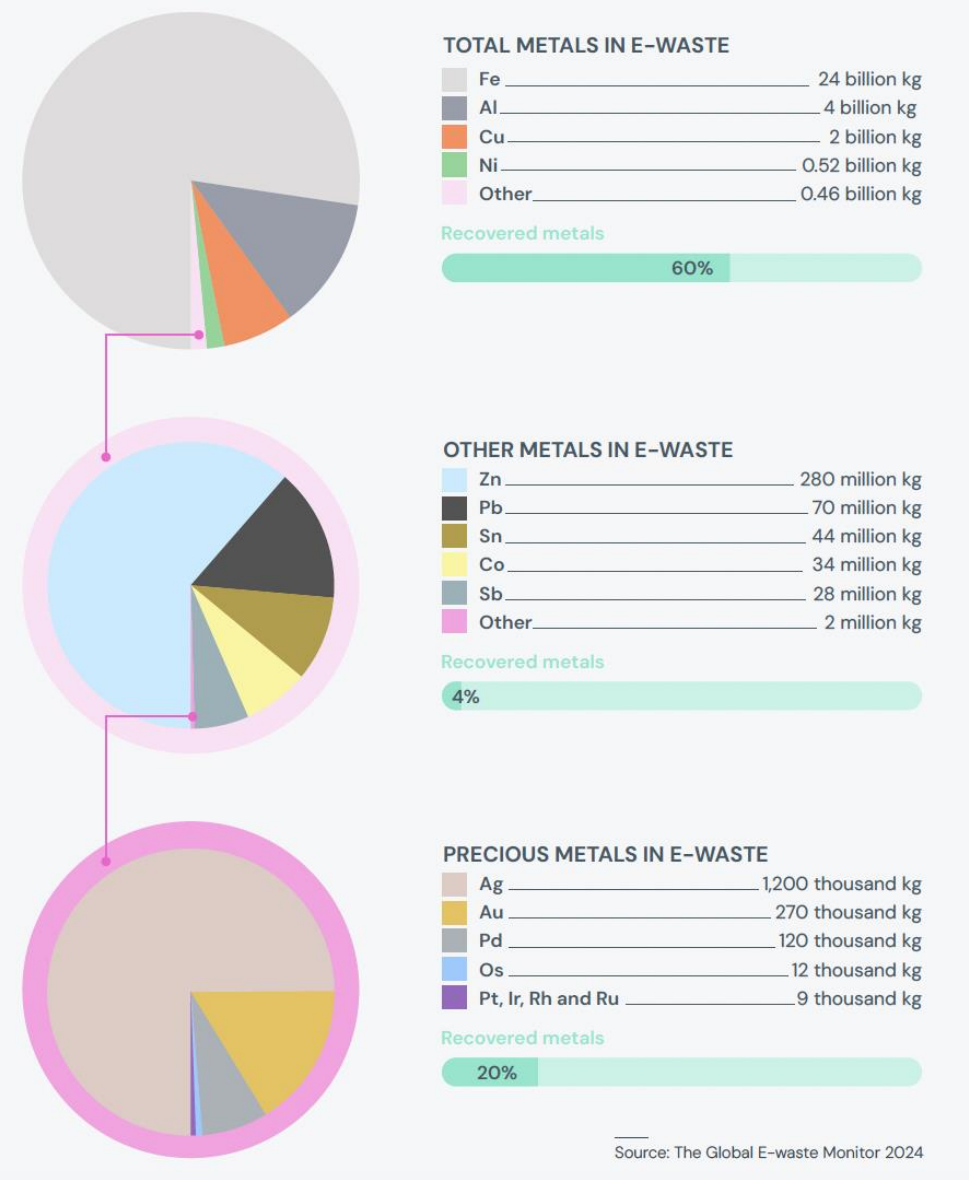

Figure 2: Metal volumes from global e-waste 2022.
A breakdown of recoverable metal volumes and values from the estimated 62 million tonnes of global e-waste.

[3] E-Waste Statistics Australia, All Gone Rubbish Removals: https://allgonerubbishremovals.com.au/e-waste-statistics-australia

PCBs are among the most valuable components of e-waste, with high concentrations of critical and precious metals that make them an ideal focus for resource recovery. Their metal content and concentration levels present a compelling case for environmentally sustainable, local processing using Iondrive's DES platform.

Table 1: Value of Recoverable Metals in PCBs

Metal	Typical yield per tonne	$ per tonne recovered
Copper	~250 kg	~$2,000–2,500
Gold	~300–400 g	~$30,000–40,000
Silver	~1–2 kg	~$500–1,000
Palladium	~200–300 g	~$1,000–2,000

Sources: Cui & Zhang, *Journal of Hazardous Materials* (2008)[2]; Kumar & Mazumder, *Heliyon* (2024)[4]

Strategic Expansion into E-Waste Recycling

Iondrive's evaluation of e-waste recycling aligns with the EU Circular Economy Action Plan, the Critical Raw Materials Act, and Australia's National Waste Policy Action Plan 2024[5]. By using DES—a biodegradable, low-toxicity solvent—Iondrive enables the closed-loop recovery of critical minerals without the environmental burden of traditional smelting or acid leaching methods.

Iondrive's proprietary DES technology platform is focused on the sustainable recovery of critical metals from battery recycling. Building on this, Iondrive is now evaluating its application into the broader e-waste market, targeting high-value materials such as copper, gold, and rare earth elements from end-of-life electronics. Iondrive is also progressing investigations into the application of its DES process for Mixed Hydroxide Precipitate (MHP) processing. Expansion into e-waste would further broaden Iondrive's addressable market and reinforce the versatility of its environmentally friendly technology should the program establish its potential.

[4] Kumar, A., & Mazumder, B. S. (2024). *E-waste recycling in an optimized way for copper recovery*, *Heliyon*: https://doi.org/10.1016/j.heliyon.2024.e24007

[5] https://www.dcceew.gov.au/environment/protection/waste/publications/national-waste-policy-action-plan

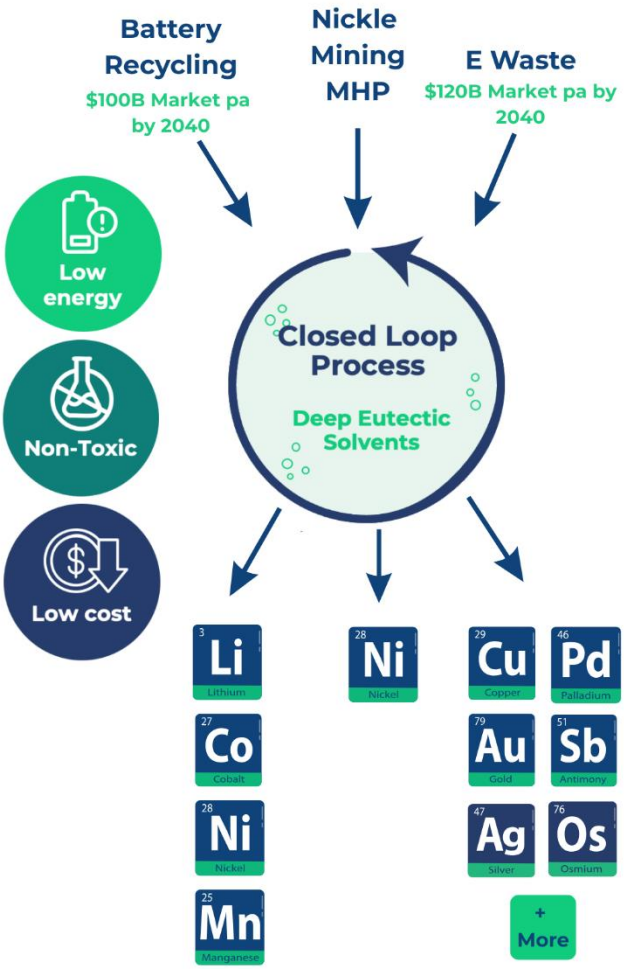

Figure 3 : Iondrive's DES Technology Platform – Expanding into E-Waste and Nickel Processing

Next Steps

The e-waste project will commence in Q3 2025, with initial results expected later in the year. These outcomes will inform the potential for a commercial-scale e-waste recycling facility and broader applications of Iondrive's DES platform across new feedstocks.

To support early-stage validation, Iondrive has received a $100,000 via the Green Industries SA Circular Business and Market Development Grants Program.

Approved for release by the Board of Iondrive Limited.

Further Information

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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 electronic waste.