

## Iondrive Quarterly Activities Report December 2024

Iondrive Limited (ASX: ION) ("Iondrive", "ION" or the "Company") is pleased to present its report for the quarter ended 31<sup>st</sup> December 2024 (the "Quarter").

### Highlights

- **Pre-Feasibility Study (PFS) completed**
  - Validating the economic and technical feasibility of its proprietary Deep Eutectic Solvent battery recycling technology.
  - Key outcomes:
    - 36% reduction in capital costs compared to conventional hydrometallurgical methods.
    - Recovery rates exceeding +95% for critical minerals (lithium, cobalt, nickel, and manganese).
    - Scalable technology with minimal solvent losses.
    - Strong demand for sustainable battery recycling solutions as global EV adoption accelerates.
  - Successful PFS paves the way for pilot plant construction in 2025.
- **\$6 million capital raise to fund:**
  - Pilot plant development, technology advancement, and market entry.
  - Secured participation from new institutional investors, including Terra Capital, with placement completed at a 16.7% premium to the last traded price.
- **Signed MOU with TNO, a leading Dutch R&D organisation, focussing on:**
  - Deployment of DES technology in Northwestern Europe.
  - Development of critical battery materials supply chain.
  - Alignment with EU regulatory standards.
- **Key Role in the Australian Research Council's (ARC) Battery Recycling Training Centre programme:**
  - Largest industry partner in the \$15 million ARC Battery Recycling Training Centre.
  - Supporting DES technology refinement, advanced recycling pathways, and production of ultra-high-purity battery materials
- **Two key leadership appointments strengthened the team:**
  - Hugo Schumann joined as Non-Executive Director, bringing expertise in critical metals and strategic investments.
  - Lewis Utting was appointed as Commercial Director, with extensive experience in technology commercialisation, capital markets, strategic partnerships and investor relations.

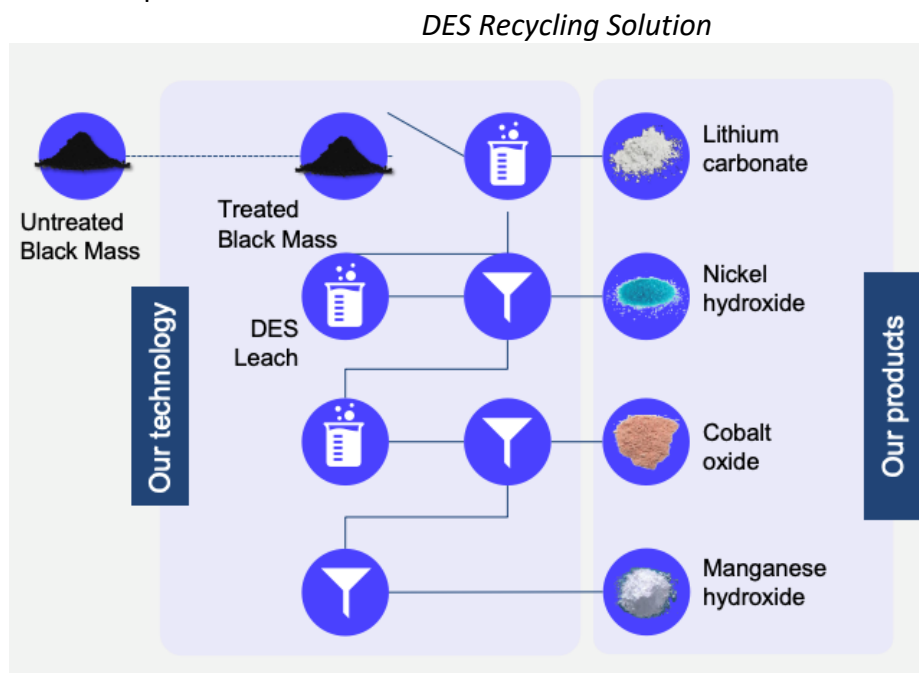
## DES Battery Recycling Technology Background

Iondrive's Deep Eutectic Solvent (DES) technology provides an innovative approach to lithium-ion battery recycling. Developed through research at the University of Adelaide, this solvometallurgical process uses biodegradable, reusable solvents to extract critical metals from black mass in a closed-loop system.

Most battery recycling processes involve pre-treating waste batteries to create black mass, a powdered mixture of critical metals, including lithium, cobalt, nickel, and manganese. Black mass is typically exported to Asia for further processing using conventional methods such as pyrometallurgy and hydrometallurgy. These methods are energy-intensive: pyrometallurgy relies on high-temperature smelting, while hydrometallurgy involves mineral acid leaching. Both approaches dominate in Asia but come with high environmental and energy costs.

The DES process offers a sustainable alternative, with key attributes of the solvometallurgical process including:

- **Selective Recovery:** Separately extracts lithium, cobalt, nickel, and manganese efficiently, ensuring minimal downstream refining steps.
- **Lower Environmental Impact:** Produces fewer emissions and hazardous waste compared to traditional recycling methods.
- **Cost and Scalability Advantages:** Reduces costs while offering a scalable solution for industrial adoption.



The DES process aligns with the growing global demand for sustainable recycling solutions, particularly driven by the expansion of the electric vehicle (EV) and energy storage markets. This technology is positioned to support industry efforts to meet regulatory and environmental standards effectively.

## Review of Operations

### Pre-Feasibility Study

During the quarter, Iondrive completed its Pre-Feasibility Study (PFS), which represented a major milestone in the development of its DES battery recycling technology. The study confirmed that the DES process can lower capital costs by an estimated 36% compared to conventional hydrometallurgical methods.

Key findings of the PFS included highly competitive operating costs and recovery rates exceeding 95% for critical minerals such as lithium, cobalt, nickel, and manganese. These results were consistent across various black mass feedstocks, including lower-grade materials, highlighting the robustness and adaptability of the DES technology. Additionally, the trials confirmed minimal solvent losses, which supports the scalability and cost-efficiency of the process for commercial applications.

The PFS also confirmed the growing market demand for sustainable recycling technologies, driven by the increasing adoption of electric vehicles (EVs) and regulatory requirements for critical mineral recovery. This demand underpins the significance of the DES process in addressing supply chain challenges while supporting environmental goals.

The findings of the PFS provide a strong foundation for Iondrive's next key milestone: the construction of a pilot plant, which is scheduled to be completed in 2025. This plant will be critical in demonstrating the scalability of the technology and solidifying partnerships to advance commercialisation.

### Strategic Partnership with TNO

In October, Iondrive formalised a strategic Memorandum of Understanding (MOU) with TNO, a leading Dutch research organisation. This collaboration aims to validate and enhance the DES battery recycling technology for large-scale applications. The agreement focuses on establishing a supply chain for critical battery materials while ensuring compliance with emerging EU regulatory standards. The partnership reinforces Iondrive's strategic position in the European market.

### ARC Battery Recycling Initiative

During the Quarter, Iondrive announced its participation as the largest industry partner in the Australian Research Council's (ARC) \$15 million ARC Battery Recycling Training Centre programme. This federally funded program focuses on refining and optimising Iondrive's DES battery recycling technology.

The initiative aims to achieve ultra-high-purity battery materials and develop advanced recycling pathways for evolving battery chemistries. Through collaboration with research partners, Iondrive is addressing key technical challenges and accelerating the scalability of the DES process.

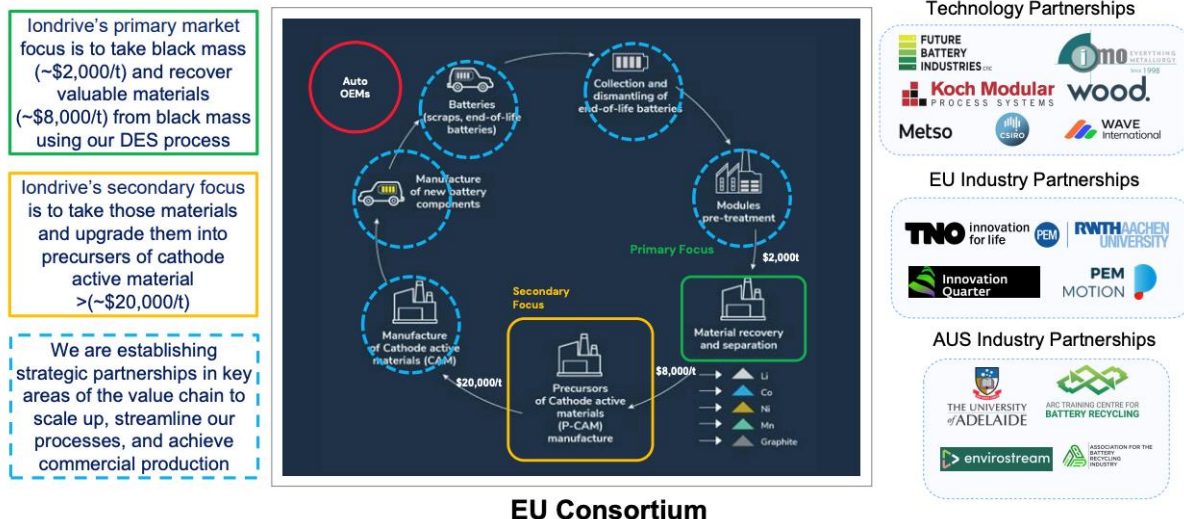
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## Outlook

Iondrive is positioned to achieve significant milestones in 2025 as it progresses toward commercialising its DES battery recycling technology. Key areas of focus include:

- Pilot Plant Development:** Iondrive plans to complete the construction of a ~1kg/hr continuous integrated pilot plant at the University of Adelaide by the end of calendar year 2025. This facility will validate the DES process at scale and provide critical insights into operational optimisation, including solvent recovery and black mass pretreatment.
- Economic Modelling:** Independent third-party economic modelling, including NPV and IRR assessments, will be finalised in the March quarter, expected to underline the financial viability of the DES process.
- Consortium Membership Announcement:** In the March quarter, Iondrive will announce the full membership of its European consortium, which spans the entire battery recycling value chain. The consortium will play a critical role in validating and scaling the DES process.
- Strategic Collaborations:** Iondrive continues to expand its network of technology and industry partners in the EU and USA, focusing on localised solutions and formalising partnerships to support commercialisation.
- Non-Dilutive Funding:** Iondrive is actively seeking non-dilutive funding opportunities across Australia and the EU to support its initiatives. These efforts aim to secure additional financial resources to accelerate the development and commercialisation of its technology.
- Ongoing Test work:** Preparations for the pilot plant are supported by scale-up testing and an expanding pipeline of recycling technologies. This includes optimising solvent ratios, advancing LFP recycling, and exploring direct recycling techniques.

### Business Model & Strategic Partnerships



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## Corporate Placement

In December Iondrive received commitments to raise \$6 million through a capital placement at \$0.014 per share, representing a 16.7% premium to the last traded price. Tranche 1 of the placement was completed on 10 December 2024, raising \$2 million, utilising available placement capacity. Tranche 2 of the placement, being \$4 million, is subject to approval by shareholders at a general meeting scheduled for 20 February 2025. The placement attracted participation from all Directors, new institutional investors, including Terra Capital, and received strong support from cornerstone shareholders such as Strata Investment Holdings Plc and Ilwella Pty Ltd. The funds will be directed towards pilot plant development, market expansion, and operational activities.

## Management

Two leadership appointments further strengthened the Company's team during the quarter:

- **Hugo Schumann** joined as Non-Executive Director, bringing extensive expertise in strategic investments and critical metals. Hugo's track record in capital markets and his focus on sustainable technologies align well with Iondrive's growth strategy.
- **Lewis Utting** was appointed as Commercial Director. With significant experience in technology commercialisation, investor relations, and operational management, Lewis will play a key role in driving the DES battery recycling technology towards commercialisation.

During the quarter, **Mr. John Rock** announced his decision to withdraw his nomination for re-election as Non-Executive Director. He retired from the Board following the Company's Annual General Meeting.

## South Korea Exploration

During the Quarter, the Company conducted ground reconnaissance activities exploring for potential Lithium targets, funded through the KoBold Metals Company (KoBold) earn-in and joint venture agreement.

Subsequent to the Quarter end, KoBold have advised the Company that it has elected to withdraw from the earn-in and joint venture agreement effective 8 February 2025. Through this agreement, KoBold had been funding the majority of exploration in South Korea. This is expected to have minimal impact on the Company's underlying cost base, as exploration activities are now being significantly scaled back.

The Company is also expediting negotiations with respect to the potential sale of the exploration business, and expects to provide an update to the market in the March quarter.

The Company has been moving further away from its exploration roots over the past 12 months and the sale of the business will allow the business to be wholly focussed on the battery recycling opportunity and other potential battery related technology development.

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### Quarterly Cashflows

For the Quarter, the Company reported total net cash inflows of \$1,476,000, represented by:

- net cash outflows from Operating activities of \$756,000, which included \$759,000 outflows associated with research & development activities (costs associated with progressing the battery recycling technology and PFS) and a \$406,000 inflow received from the Australian Government's R&D Tax Incentive for the fiscal year ending 30 June 2024. Outflows associated with exploration activities were more than offset by the \$250,000 in cost reimbursements received from KoBold;
- net cash inflows from Investing activities of \$3,000 related to a nonrefundable deposit received for the potential sale of the Deokon tenements offset by equipment purchases for the semi-continuous process work for the battery recycling technology and
- cash inflows from Financing activities of \$2,231,000, largely reflecting the placement proceeds of \$1,919,000 after capital raising costs, together with proceeds of \$319,000 from the exercise of options.

These cashflow movements in the Quarter resulted in a reported consolidated cash balance of \$4,071,000 as at 31 December 2024. Tranche 2 of the placement will raise additional funds of \$4,080,000 (before costs), subject the shareholder approval on 20 February 2025. This may be further supplemented by grant funding being applied for in Australia and the EU.

Cash flows for the Quarter include related party payments of \$86,000, comprising Non-Executive Directors fees.

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## Exploration Tenure

The following tenements information is provided in accordance with ASX Listing Rules. All tenements were 100% owned by the Company as at 31 December 2024:

Tenement Info				Register Info		
Project Name	Korean	English	Block ID	No.	Type	Date of Granting
Jangnam	자은	Jaeun	150	201483	Exploration	1/11/2024
Hampyeong	나주	Naju	136	200970	Exploration	1/11/2018
Aphae	무안	Muan	99	201136	Exploration	26/03/2019
Deokon	전주	Jeonju	70	201041	Exploration	31/07/2018
	전주	Jeonju	80	201040	Exploration	31/07/2018
	전주	Jeonju	60	201218	Exploration	17/12/2019
Dokcheon	영암	Yeongam	116	201143	Exploration	4/12/2019
	영암	Yeongam	114	201465	Exploration	19/01/2024
Janghwal	해남	Haenam	139	201302	Exploration	20/08/2021
Samgeun	현동	Hyeondong	46	201473	Exploration	5/07/2024
Goseong	충무	Chungmu	131	201439	Exploration	18/05/2023
	충무	Chungmu	136	201414	Exploration	22/11/2022
	충무	Chungmu	142	201440	Exploration	19/05/2023
	삼천포	Samcheonpo	1	201469	Exploration	19/04/2024

Authorised for release by the Board of Iondrive Limited.

### Further Information

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## Appendix 5B

### Mining exploration entity or oil and gas exploration entity quarterly cash flow report

Name of entity

IONDRIVE LIMITED

ABN

30 107 424 519

Quarter ended ("current quarter")

31 DECEMBER 2024

Consolidated statement of cash flows		Current quarter \$A'000	Year to date (6 months) \$A'000
<b>1.</b>	<b>Cash flows from operating activities</b>		
1.1	Receipts from customers	250	403
1.2	Payments for		
	(a) exploration & evaluation	(146)	(278)
	(b) research & development (battery technologies)	(759)	(1,376)
	(c) production		
	(d) staff costs	(163)	(307)
	(e) administration and corporate costs	(343)	(670)
1.3	Dividends received (see note 3)		
1.4	Interest received	6	14
1.5	Interest and other costs of finance paid	(1)	(1)
1.6	Income taxes paid		
1.7	Research and development refunds	406	406
1.8	Other (short term lease payments)	(6)	(15)
<b>1.9</b>	<b>Net cash from / (used in) operating activities</b>	<b>(756)</b>	<b>(1,824)</b>
<b>2.</b>	<b>Cash flows from investing activities</b>		
2.1	Payments to acquire or for:		
	(a) entities		
	(b) tenements		
	(c) property, plant and equipment	(38)	(40)
	(d) exploration & evaluation		
	(e) investments		
	(f) cash held by acquired entity		

Consolidated statement of cash flows		Current quarter \$A'000	Year to date (6 months) \$A'000
2.2	Proceeds from the disposal of:		
	(a) entities		
	(b) tenements	41	77
	(c) property, plant and equipment	-	8
	(d) investments		
	(e) other non-current assets		
2.3	Cash flows from loans to other entities		
2.4	Dividends received (see note 3)		
2.5	Other (provide details if material)		
<b>2.6</b>	<b>Net cash from / (used in) investing activities</b>	<b>3</b>	<b>45</b>

<b>3.</b>	<b>Cash flows from financing activities</b>		
3.1	Proceeds from issues of equity securities (excluding convertible debt securities)	2,045	2,978
3.2	Proceeds from issue of convertible debt securities		
3.3	Proceeds from exercise of options	319	319
3.4	Transaction costs related to issues of equity securities or convertible debt securities	(126)	(191)
3.5	Proceeds from borrowings		
3.6	Repayment of borrowings		
3.7	Transaction costs related to loans and borrowings		
3.8	Dividends paid		
3.9	Other (repayment of lease liability)	(7)	(15)
<b>3.10</b>	<b>Net cash from / (used in) financing activities</b>	<b>2,231</b>	<b>3,091</b>

<b>4.</b>	<b>Net increase / (decrease) in cash and cash equivalents for the period</b>		
4.1	Cash and cash equivalents at beginning of period	2,595	2,759
4.2	Net cash from / (used in) operating activities (item 1.9 above)	(756)	(1,824)
4.3	Net cash from / (used in) investing activities (item 2.6 above)	3	45
4.4	Net cash from / (used in) financing activities (item 3.10 above)	2,231	3,091

## Mining exploration entity or oil and gas exploration entity quarterly cash flow report

Consolidated statement of cash flows		Current quarter \$A'000	Year to date (6 months) \$A'000
4.5	Effect of movement in exchange rates on cash held	(2)	-
<b>4.6</b>	<b>Cash and cash equivalents at end of period</b>	<b>4,071</b>	<b>4,071</b>

5. Reconciliation of cash and cash equivalents at the end of the quarter (as shown in the consolidated statement of cash flows) to the related items in the accounts		Current quarter \$A'000	Previous quarter \$A'000
5.1	Bank balances	1,943	267
5.2	Call deposits	2,128	2,328
5.3	Bank overdrafts		
5.4	Other (provide details)		
<b>5.5</b>	<b>Cash and cash equivalents at end of quarter (should equal item 4.6 above)</b>	<b>4,071</b>	<b>2,595</b>

6. Payments to related parties of the entity and their associates		Current quarter \$A'000
6.1	Aggregate amount of payments to related parties and their associates included in item 1	86
6.2	Aggregate amount of payments to related parties and their associates included in item 2	

*Note: if any amounts are shown in items 6.1 or 6.2, your quarterly activity report must include a description of, and an explanation for, such payments.*

The above amount at item 6.1 relates to Directors fees, including the executive salary of the Company's Managing Director.

## Mining exploration entity or oil and gas exploration entity quarterly cash flow report

7. <b>Financing facilities</b> <i>Note: the term "facility" includes all forms of financing arrangements available to the entity. Add notes as necessary for an understanding of the sources of finance available to the entity.</i>	<b>Total facility amount at quarter end \$A'000</b>	<b>Amount drawn at quarter end \$A'000</b>
7.1 Loan facilities		
7.2 Credit standby arrangements		
7.3 Other (please specify)		
7.4 <b>Total financing facilities</b>		
7.5 <b>Unused financing facilities available at quarter end</b>		
7.6 Include in the box below a description of each facility above, including the lender, interest rate, maturity date and whether it is secured or unsecured. If any additional financing facilities have been entered into or are proposed to be entered into after quarter end, include a note providing details of those facilities as well.		

8. <b>Estimated cash available for future operating activities</b>	<b>\$A'000</b>
8.1 Net cash from / (used in) operating activities (item 1.9)	(756)
8.2 (Payments for exploration & evaluation classified as investing activities) (item 2.1(d))	-
8.3 Total relevant outgoings (item 8.1 + item 8.2)	(756)
8.4 Cash and cash equivalents at quarter end (item 4.6)	4,071
8.5 Unused finance facilities available at quarter end (item 7.5)	-
8.6 Total available funding (item 8.4 + item 8.5)	4,071
8.7 <b>Estimated quarters of funding available (item 8.6 divided by item 8.3)</b>	5.4
<i>Note: if the entity has reported positive relevant outgoings (ie a net cash inflow) in item 8.3, answer item 8.7 as "N/A". Otherwise, a figure for the estimated quarters of funding available must be included in item 8.7.</i>	
8.8 If item 8.7 is less than 2 quarters, please provide answers to the following questions:	
8.8.1 Does the entity expect that it will continue to have the current level of net operating cash flows for the time being and, if not, why not?	
Answer:	
8.8.2 Has the entity taken any steps, or does it propose to take any steps, to raise further cash to fund its operations and, if so, what are those steps and how likely does it believe that they will be successful?	
Answer:	

**Mining exploration entity or oil and gas exploration entity quarterly cash flow report**

8.8.3 Does the entity expect to be able to continue its operations and to meet its business objectives and, if so, on what basis?

Answer:

*Note: where item 8.7 is less than 2 quarters, all of questions 8.8.1, 8.8.2 and 8.8.3 above must be answered.*

**Compliance statement**

- 1 This statement has been prepared in accordance with accounting standards and policies which comply with Listing Rule 19.11A.
- 2 This statement gives a true and fair view of the matters disclosed.

Date: .....21 January 2025.....

Authorised by: .....The Board of Directors.....  
(Name of body or officer authorising release – see note 4)

**Notes**

1. This quarterly cash flow report and the accompanying activity report provide a basis for informing the market about the entity's activities for the past quarter, how they have been financed and the effect this has had on its cash position. An entity that wishes to disclose additional information over and above the minimum required under the Listing Rules is encouraged to do so.
2. If this quarterly cash flow report has been prepared in accordance with Australian Accounting Standards, the definitions in, and provisions of, *AASB 6: Exploration for and Evaluation of Mineral Resources* and *AASB 107: Statement of Cash Flows* apply to this report. If this quarterly cash flow report has been prepared in accordance with other accounting standards agreed by ASX pursuant to Listing Rule 19.11A, the corresponding equivalent standards apply to this report.
3. Dividends received may be classified either as cash flows from operating activities or cash flows from investing activities, depending on the accounting policy of the entity.
4. If this report has been authorised for release to the market by your board of directors, you can insert here: "By the board". If it has been authorised for release to the market by a committee of your board of directors, you can insert here: "By the [name of board committee – eg Audit and Risk Committee]". If it has been authorised for release to the market by a disclosure committee, you can insert here: "By the Disclosure Committee".
5. If this report has been authorised for release to the market by your board of directors and you wish to hold yourself out as complying with recommendation 4.2 of the ASX Corporate Governance Council's *Corporate Governance Principles and Recommendations*, the board should have received a declaration from its CEO and CFO that, in their opinion, the financial records of the entity have been properly maintained, that this report complies with the appropriate accounting standards and gives a true and fair view of the cash flows of the entity, and that their opinion has been formed on the basis of a sound system of risk management and internal control which is operating effectively.

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