Iondrive Achieves Milestone as Independent Economic Modelling Confirms Compelling Investment Returns for DES Process

Highlights

- **Commercial Plant Economics:** Iondrive's Pre-Feasibility Study (PFS) plant configuration of a commercial Deep Eutectic Solvent (DES) black mass recycling plant has undergone a comprehensive independent economic analysis, reaffirming its strong potential to revolutionise battery mineral recovery
- **Excellent Financial Metrics:** With an impressive post-tax NPV of $249M (€149M) and a robust IRR of 17.4%, Iondrive's project presents a highly compelling and attractive investment opportunity in the fast-growing battery materials sector, adding to its attractive value proposition as a more environmentally friendly process for battery recycling
- **Independent Endorsement:** Third-party economic modelling by Model Answer - using cost inputs from Wood and market pricing from Benchmark Minerals International - has confirmed the exceptional profitability and commercial potential of the DES process.
- **High-Efficiency Processing:** The PFS was based on a plant designed to efficiently process 21,000 tonnes of raw black mass annually, yielding 10,000 tonnes of upgraded black mass and producing high-value battery-grade minerals.
- **Capital Efficiency:** Capital expenditure of $16m (€9.6m) per tonne throughput capacity per annum includes both pre-treatment and solvometallurgical deep eutectic solvent (DES) processes.
- **Strategic Milestone:** Pilot Plant Construction - On track for CY 2025, marking a major step toward full-scale commercial deployment of Iondrive's industry-leading technology.

Iondrive Limited (ASX: ION) ("Iondrive" or the "Company") is pleased to announce the final stage of the PFS study[1] namely the completion of third-party economic modelling by independent consultancy Model Answer, providing further validation of the financial viability of its innovative battery recycling technology.

The modelling incorporates cost inputs provided by leading engineering consultancy Wood, covering both operational (OPEX) and capital expenditure (CAPEX) requirements. Wood performed early engineering design as Concept Studies (Class 5 AACEI) for the black mass

[1] Refer to Iondrive ASX Announcement 1 November 2024:
https://announcements.asx.com.au/asxpdf/20241101/pdf/069y2psc6htrnq.pdf

pretreatment plant and the DES recycling plant at ±50% cost estimate accuracy for a German-based operation. These cost estimates are complemented by pricing assumptions sourced from Benchmark Minerals International (BMI), a globally recognised authority on metals forecasting. The economic modelling assumed a 20-year operating period at a 10% discount rate (real).

CEO Dr. Ebbe Dommisse said:

"We are extremely pleased with the results of the independent economic modelling. The attractive NPV and IRR metrics underscore the commercial potential of our process and the significant opportunity ahead.

These economic results, combined with the extensive technical work already completed—including over 98% recovery rates in our bench scale testing, provide a compelling foundation for the pilot plant construction planned for 2025."

The results reinforce Iondrive's strong environmental value proposition. The economic modelling for the PFS plant configuration, based on processing 21,000 tonnes of raw black mass annually, demonstrates significant profitability with a post-tax Net Present Value (NPV) of $249m (€149m) and an Internal Rate of Return (IRR) of 17.4%. By converting 21,000 tonnes of raw black mass into 10,000 tonnes of treated black mass and ultimately into battery-grade metals, Iondrive's process ensures cost-efficiency while addressing the growing demand for critical materials in the battery industry.

The economics demonstrate typical sensitivity expected of such a process with the key sensitivity for the economics linked to the prevailing metal prices at the time. Sensitivity analyses (post-tax) are shown for Net Present Value (NPV) in Figure 1, and Internal Rate of Return (IRR) in Figure 2.

The modelling is considered conservative with respect to both CAPEX and OPEX and does not factor in potential economies of scale.

Key Assumptions for the modelling are presented in the Appendices.

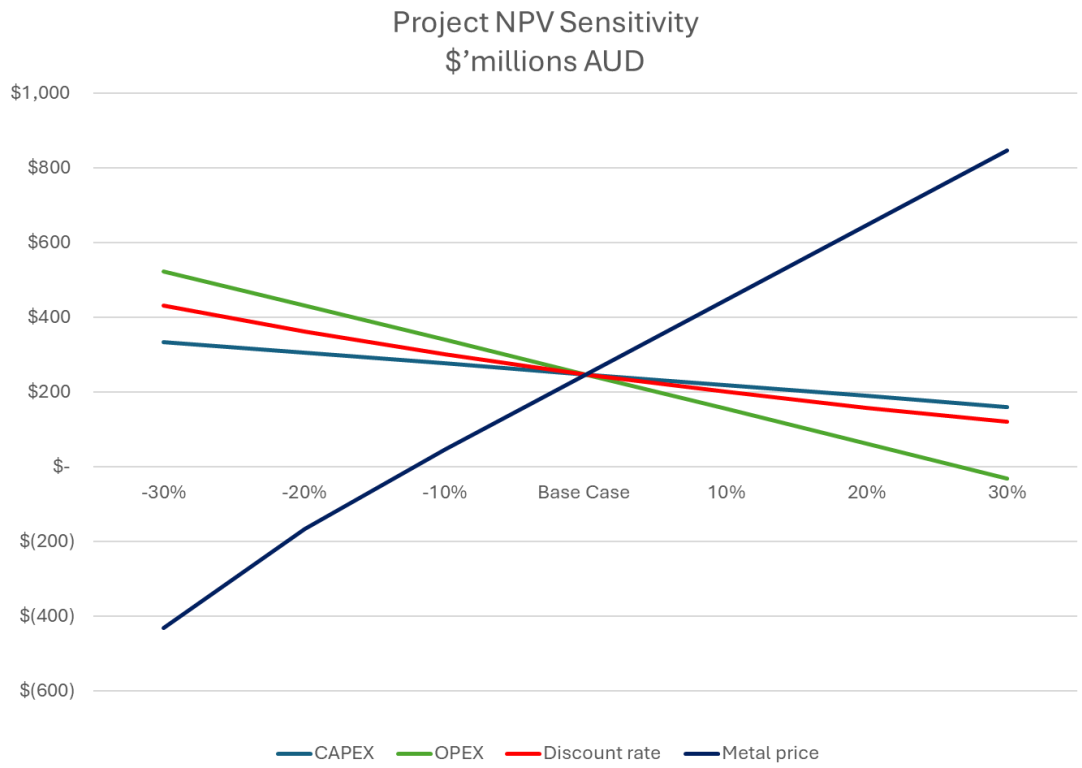
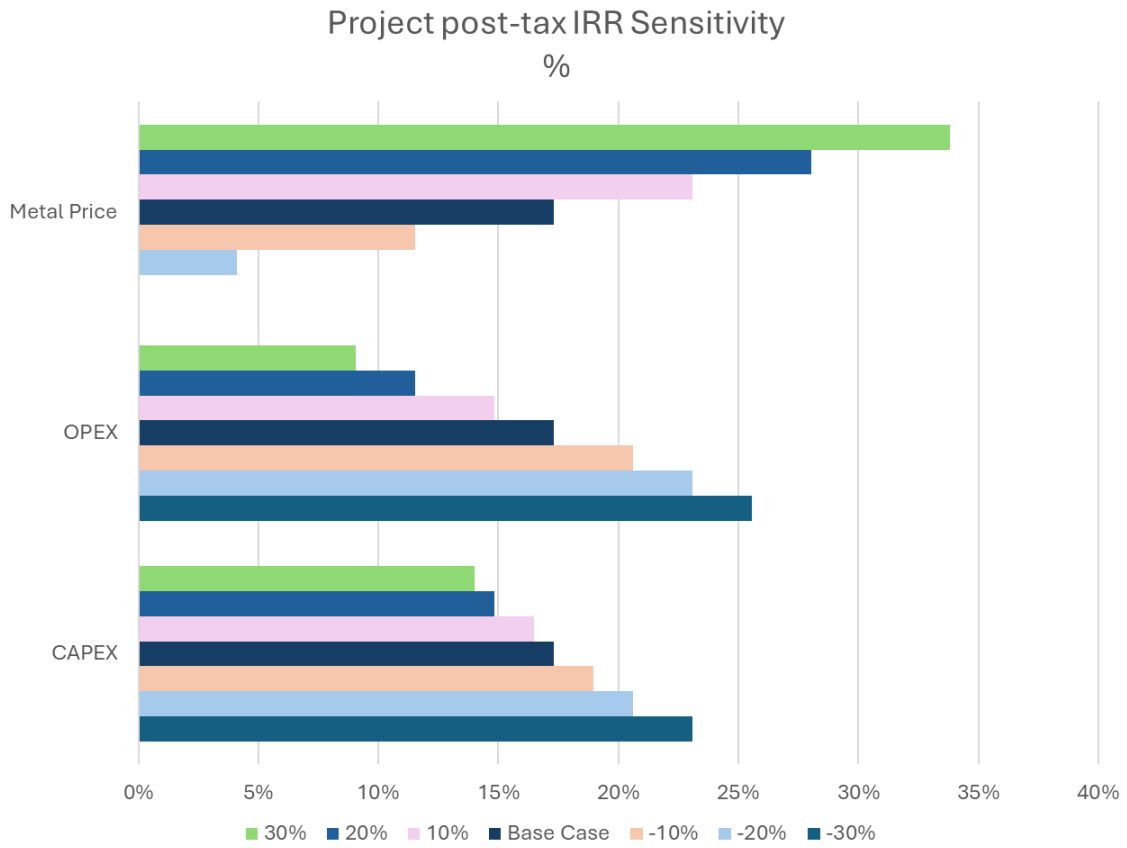


Figure 1:



Integrated Process: The economic results are based on a combined processing approach, integrating a black mass pre-treatment process with Iondrive's proprietary solvometallurgical process using deep eutectic solvent (DES) technology. The process at bench scale testing has

demonstrated exceptional recovery rates of critical battery metals such as lithium, nickel, cobalt, and manganese, with recoveries consistently above 95%. This integrated approach ensures the efficient transformation of raw black mass by first removing unwanted impurities and then converting into high-purity battery-grade materials while significantly reducing environmental impact compared to traditional hydrometallurgical methods.

Commercial Initiatives: Iondrive's strong network of partnerships forms a vital part of its strategy to commercialise its innovative battery recycling technology. The company is actively engaged in a consortium of industry leaders and technology developers, aimed at securing feedstock, streamlining operations, and delivering critical minerals to the growing global market. This collaborative approach ensures a seamless integration across the value chain, from raw material collection and pre-treatment to the production of high-purity battery-grade metals.

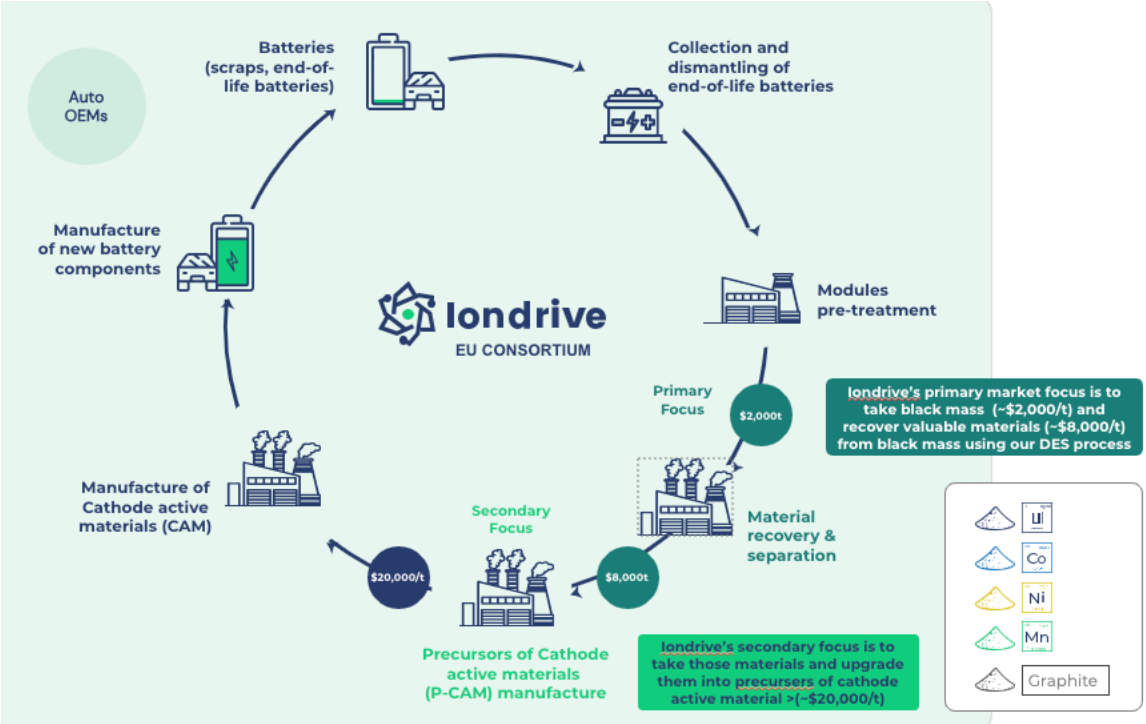


Figure 1: The full value chain from EV battery production to recycling, highlighting value uplift through black mass processing and critical mineral recovery

The value chain reflects Iondrive's commitment to sustainability and operational efficiency. By recovering key materials like lithium, nickel, cobalt, and manganese, Iondrive supports the circular economy and reduces dependence on traditional mining operations. Additionally, the company's closed-loop process minimises environmental impact while maximising resource recovery.

The completion of independent economic modelling concludes the PFS program to evaluate the potential at scale of the Iondrive's deep eutectic battery recycling technology and is a significant milestone in Iondrive's commercialisation pathway. The next steps include the

construction of a pilot plant in 2025, which aims to validate the scalability and efficiency of the company's technology in continuous operation. With strong financial metrics and an industry-leading consortium, Iondrive is well-positioned to address the increasing demand for sustainable battery recycling solutions on a global scale.

Authorised for release by the Board of Iondrive Limited.

Further Information

Ebbe Dommisse
CEO
08 8368 8888
info@iondrive.com.au

Aiden Bradley
Investor and Media Relations
+61 (0) 414 348 666
aiden@nwrcommunications.com.au

Appendix 1: Key Assumptions of the Economic Evaluation of the PFS Iondrive Battery Recycling Plant Configuration

Project life	years	21
Construction period	years	1
Operations period	years	20
Discount rate (real)	%	10
Total CAPEX*	AUDm	370m
Terminal Value	AUD	20%
Payback	years	5.8
NPV10	AUD	249m
IRR	%	17.4%
FX	EUR:AUD	1.66
	USD:AUD	1.57

*both Pretreatment and DES plants incl. 10% Owners Costs

Notes:

1. Location-specific electricity pricing sourced by Wood from third-party market references.
2. Other variables based on Wood data base and business judgement.
3. No Government funding, tax incentives or debt funding upside benefit included.
4. Assumes that the Iondrive Plant demonstrates that the Iondrive process technology is effective at producing recovered battery metals consistently and reliably with recoveries similar to bench scale test results
5. Economics are for a standalone plant; no royalties or licence fees are included in the economic assessment.

Appendix 2: Battery-grade Price Forecasting (Benchmark Minerals International)

Product Sales price	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year-10 21
Li Carbonate	$ 15,308	$ 19,233	$ 29,830	$ 45,530	$ 39,250	$ 34,540	$ 32,970	$ 32,970	$ 32,970	$ 32,970
Ni Hydroxide	$ 13,782	$ 14,112	$ 14,333	$ 14,733	$ 16,414	$ 17,215	$ 18,016	$ 18,416	$ 17,615	$ 16,302
Co Oxide	$ 29,779	$ 33,284	$ 37,495	$ 43,724	$ 48,820	$ 53,537	$ 58,172	$ 62,050	$ 65,564	$ 81,909
Mn Hydroxide	$ 1,413	$ 1,884	$ 2,434	$ 2,826	$ 2,591	$ 2,355	$ 2,041	$ 1,806	$ 1,806	$ 1,806

Appendix 3: Battery-grade Materials Annual Production

Production TPA	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10- 21
Li Carbonate	-	4,793	4,793	4,793	4,793	4,793	4,793	4,793	4,793	4,793
Ni Hydroxide	-	3,556	3,556	3,556	3,556	3,556	3,556	3,556	3,556	3,556
Co Oxide	-	2,603	2,603	2,603	2,603	2,603	2,603	2,603	2,603	2,603
Mn Hydroxide	-	2,335	2,335	2,335	2,335	2,335	2,335	2,335	2,335	2,335