

Q4 Report - Redflow at forefront of growing demand for long-duration energy storage

31 July 2024

Redflow Limited (ASX: RFX) (**'Redflow'**) is pleased to provide its quarterly activities and cashflow reports for the three months ended 30 June 2024 (**Q4 FY24**).

Key highlights of the quarter and subsequent significant events include:

- **Strategic MOU signed with Stanwell Corporation**

Redflow and Stanwell will partner on the development and deployment of Redflow's new X10 battery solution for use in a large-scale project of up to 400 MWh.

- **Second contract secured with US Department of Defense (DoD)**

Secured second contract in 12 months reflecting the strength of Redflow's solution and the growing need for non-lithium long-duration energy storage (LDES) batteries.

- **Funding approved for Barona project in US**

Redflow named in A\$20m Barona Tribe solar and long-duration energy storage project to deliver improved resiliency and sustainability with 6.6 MWh flow battery system.

- **Australian National Battery Strategy recognises need for LDES and flow batteries**

The Federal Government's 'Battery Breakthrough Initiative' commits A\$523m to promote the development of battery manufacturing in Australia. The strategy specifically refers to flow batteries as suitable for large stationary energy storage deployments and zinc bromine-based solutions.

- **X10 Program advancing**

On track to achieving its first target milestones by the end of Q2 FY25.

- **Secured A\$3.12m in funding**

Funds secured provide Redflow with additional capital as it progresses with discussions to source non-dilutive financing to fund delivery of our product development and growth strategy.

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Commenting on the progress made YTD in FY24 Redflow CEO and Managing Director Tim Harris said:

“Redflow has made significant progress over recent months. Specifically, this includes a major development with our MOU partnership with Stanwell and ongoing progress against our X10 product, which will become the foundation of our future commercial success delivering large MWh scale deployments. We now have a key set of reference projects for delivery over the coming months, notably US DoD and 4 MWh Energy Queensland projects, and have aligned Thailand manufacturing to meet customer requirements.

We are also seeing clear indications the LDES sector is accelerating in markets where Redflow is well placed to capture this growth, specifically in the US and Australia. Notably, this includes an announcement by the California Public Utilities Commission (CPUC) earlier this month that it plans to procure 2 GW of LDES projects in 2026 for delivery from around 2030. Critically it is proposed this procurement will exclude lithium-ion batteries or pumped hydro energy storage.¹ Redflow believes that the total addressable market opportunity from this initiative could be worth in the order of A\$2bn. We note Redflow is only one of a small number of LDES companies which the California Energy Commission is currently supporting at multi-MWh scale through its LDES program and the only Australian company in the program.

In parallel, the launch of the National Battery Strategy by Australian Prime Minister Albanese in Brisbane in May represents a breakthrough for the industry. Redflow is a proud Australian company with locally developed world-leading technology and a recognised global leader in long-duration energy storage. The strategy focuses on supporting local businesses and local manufacturing, and the significant funding announced could have an important impact on Redflow’s ambition to continue investing in Australia, establish domestic manufacturing and create more jobs locally.”

Redflow secures new projects and partnerships driven by the growing demand for non-lithium LDES technology

Redflow continues to expand its position as a leader in the rapidly growing LDES industry. The Company has announced over 60 MWh of projects funded by government and companies including the US California Energy Commission, the US Department of Defense, Energy Queensland, Stanwell Corporation, Acciona, Horizon Power and the US Department of Energy. Key customer developments and announcements during the quarter and subsequently include:

Redflow and Stanwell collaborate on development Redflow's new X10 solution – July 2024

Redflow and Stanwell signed a MOU to collaborate on the development and deployment of Redflow's new X10 battery solution for use in a large-scale project of up to 400 MWh which will serve as a potential anchor order for Redflow’s proposed manufacturing facility in Queensland.

Stanwell and Redflow will undertake a preliminary due diligence pre-feasibility study for an initial 5 MWh project using Redflow’s new X10 battery at the Stanwell Future Energy Innovation Training Hub near Rockhampton, Queensland.

The feasibility study is scheduled to be completed in the second half of FY25 followed by a decision to proceed with the 5 MWh X10 battery project expected to be deployed in the second half of FY26.

¹ Energy Storage News [California eyes central procurement of 2GW of LDES to help scale novel technologies](#), 23 July 2024

Second contract with US Department of Defense – April 2024

Redflow was awarded a second contract to supply non-lithium LDES to the United States Department of Defense to deploy 400 kWh Redflow energy storage solution at the Sigonella Naval Air Station in Italy. This is the second contract awarded to Redflow within 12 months of our first project win. Delivery of batteries is currently planned for the second quarter of FY25 with commissioning expected shortly after.

Funding approved for US Barona 6.6 MWh LDES project – June 2024

Redflow's zinc-based battery technology, was announced as the preferred energy storage technology for the Barona Band of Mission Indians' 6.6 MWh LDES project. During the quarter the project formally received grant funding approval from the California Energy Commission (CEC). The CEC has approved funding for \$A13.5m with matched funding by the Barona Tribal Community of \$A6.1m for the project with a total project budget of approximately \$A19.6m.

Anticipated deployment of the system is expected in FY26 with formal timetable to be agreed with the end customer. Redflow expects its revenue on a \$/kWh basis for this project would be roughly consistent with similar projects delivered in the US and payment milestones to be broadly consistent with other US projects announced.

Australian Government National Battery Strategy represents a major development

In May 2024, the Australian Government launched their National Battery Strategy in Brisbane, formally recognising the critical importance of energy storage to Australia's energy transition.² The strategy is directly relevant to Redflow and strongly reflects the level of government engagement Redflow has had over the past 12 – 18 months.

There are four critical aspects of the strategy significant for Redflow:

1. The strategy recognises Australia needs short, medium and long duration batteries to achieve the over 43 GW of energy storage Australia requires by 2040 to meet net zero targets.
2. The strategy highlights flow batteries alongside lithium batteries and specifically mentions zinc-bromine chemistry as one of a handful of battery technologies that are cheaper to scale, have long cycle-life and are specifically relevant for large-scale systems.
3. The strategy sets out a clear objective to build sovereign battery manufacturing capability and move beyond minerals extraction with A\$523m allocated via the 'Battery Breakthrough Initiative'. Redflow notes it is currently conducting a pre-feasibility study to develop the business case for a manufacturing facility for the X10 battery in Queensland.
4. The strategy highlights a strong focus - and allocated A\$1.7bn – for battery technology development and battery manufacturing in Australia.

The strategy and subsequent industry discussions align with Redflow's growth plans and the ongoing development of Redflow's technology through its next generation large-scale solution and the potential creation of local manufacturing and large-scale deployments in Australia.

Redflow confirms it has continued to progress discussions with Australian state and federal organisations regarding its plans to manufacture in Queensland and potential government support across the multiple stages required to reach a final investment decision, targeted in

² Australian Government, [National Battery Strategy](#), May 2024

early FY26.

Update on production and previously announced projects

- Redflow continues to align production at its Thailand manufacturing facility with latest customer delivery timeline requirements.
- US DoD microgrid at Stewart Air Force Base – Engineering and design of this A\$3.4m project is on track to meet the US DoD milestones, with system delivery is now expected to commence in Q2 FY25.
- Energy Queensland – Contract negotiation for this 4 MWh project has now been completed with battery delivery expected in Q2 FY25. The initial invoice for this project has also now been submitted.
- Paskenta microgrid project – Formal notice to proceed has been provided to Faraday Microgrids from the CEC and passed onto Redflow. Redflow has received the initial deposit of AUD\$6.42m. An adjusted delivery timetable based on latest EPC and customer discussions indicates battery production and delivery is expected to commence in Q3 FY25. Revenue expected to be recognised in FY26.
- US Department of Energy, Valley Children's Hospital – Negotiations between the US DOE, CEC, Faraday and the end customer for this ~34 MWh LDES project are continuing and Redflow expects final contracting to be completed in H1 FY25. Delivery is now expected to be in early 2027 and will use Redflow's X10 utility scale product.
- Contract negotiations with Horizon Power for the reference 400 kWh project announced on 25 March 2024 are progressing with final agreement expected in the coming weeks. Redflow expects to deliver these systems in Q3 FY25.

X10 program update

As previously announced in its strategy update in April 2024, Redflow's X10 program is the natural evolution of its current system and designed for larger scale projects. The X10 solution is designed to achieve market competitive capex at target 8h+ duration, enable the adoption of volume-based manufacturing and allow rapid scalability as well as ease of deployment and in-life serviceability.

In Australia, the potential 5 MWh project under the Stanwell partnership will form the initial demand for the X10 solution and will provide an important validation to other utilities, developers and companies focused on implementing LDES solutions. Redflow has also been in active engagement with numerous US project developers and Independent Power Producers around the X10 technology, as well as with a handful of EU generation companies, all of whom have expressed strong interest in the X10 solution and potential large-scale demand.

Significant progress has been made by the engineering team over the quarter in the ongoing development of our X10 product. Hydraulic testing has been successfully undertaken providing important data around pressure and flow performance across multiple ZBM3 stacks working simultaneously. The next stage of the design process is a working prototype focused on analysing multiple stack performance using a centralised electrolyte tank. This is expected to be tested in Q2 FY25 to assist the project team with design progression.

The X10 program is on track to achieve its target milestones by the end of Q2 FY25. These include initial completion of the first X10 prototype, plus significant progress against the core X10 technical design, updated commercial analysis and initial factory design.

Accelerating recognition of the critical role of LDES in the energy transition

Growing industry awareness of LDES as a critical component of a high-renewables power grid continues to accelerate.

In Australia, the Australian Energy Market Operator (AEMO) forecasted a need for approximately 12.7 gigawatts (GW) of utility-scale storage by 2030, with an optimal mix of deep, medium, and shallow storage solutions to achieve 82% renewable energy in the National Electricity Market by 2030. This shift is crucial to replace the energy reserves traditionally provided by coal and to maintain grid reliability as the share of renewable energy sources increases.

A report by the Australian Clean Energy Council 'The Future of Long-Duration Energy Storage', published in June 2024, emphasises the critical importance of Advanced Long-Duration Energy Storage (ALDES) technologies in supporting a high-renewables power grid. These technologies help balance supply and demand, especially during periods of low renewable generation, and support emission reduction targets by enabling a very high level of renewable energy penetration. The Clean Energy Council's modelling shows integrating ALDES can significantly lower system costs, reduce reliance on gas-powered generation, and facilitate the transition to a net-zero carbon power system.³

In the US, total battery energy storage systems demand was estimated to have been 27 GWh in 2023 with 15% annualised growth expected in the next five years. The Long Duration Energy Storage Council projects that long-duration (8-24 hours) battery storage capacity will increase by 440 GW in the US between 2025-2040.⁴ Supporting this development is recent announcements around LDES procurement, including the previously noted announcement by the California Public Utilities Commission on their target to procure 2 GW of LDES in 2026 which excludes lithium and pumped hydro solutions.

This transformation and demand for non-lithium LDES battery technologies, is driving an accelerated market growth and recognition of Redflow's position as a global leader in LDES solutions.

Redflow's pipeline continues to advance with a combination of projects focused on deployment in FY25 and FY26, and other engagements which are focused on the X10 product and large-scale multi-MWh projects from FY27 onwards.

³ Clean Energy Council, [The future of long duration energy storage](#), June 2024

⁴ Long-Duration Energy Storage Council, [Net Zero Power: Long Duration Energy Storage for a Renewable Grid](#), Exhibit 16, p.20 (2021)

Financial update

In Q4 FY24, net cash used in Operating and Investing Activities was A\$1.55 million

Redflow Cash Movement	AUD\$ 000
FY24 Q3 Cash Movement	-4,760
FY24 Q4 Cash Movement	4,529
Increase of	9,289
Due to	
Increased Advertising & Marketing	-29
Decreased Interest Received	-40
Increased product manufacturing and operating costs	-16
Decreased Staff Costs	58
Decreased Research and Development	1
Increased Administration and Corporate costs	-106
Increased Receipts from Customers	6,371
Increased Intellectual Property	-8
Decreased Plant & Equipment	46
Decreased Income Tax Paid	28
Increase in Equity Securities	3,124
Increased equity securities transaction costs	-142
Other Savings	2
Total	9289

Investor webinar Wednesday 31 July

Tim Harris (CEO & Managing Director) and Michael Hipwood (CFO) will hold a briefing via webinar for investors and analysts. Following their presentation on Redflow's Q4 FY24 operational progress and growth opportunities, there will be an opportunity for Q&A.

Participants can register for the webinar via:

https://us02web.zoom.us/webinar/register/WN_njjprc_ORlu9haEWU1MsdQ

This announcement was authorised for release by the Chairman of the Board of Redflow Limited.

-- ENDS --

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About Redflow

Redflow, a publicly listed Australian company (ASX: RFX) with offices in Australia and the US, designs and manufactures long-duration zinc-bromine flow batteries for stationary commercial, industrial, and utility applications. Redflow batteries are modular, scalable, fire-safe, and capable of 100% depth of discharge. They can also operate in a wide range of environments without supplemental heating or cooling and offer an extended life with minimal degradation over time. The company's smart, self-protecting storage technology offers unique advantages, including a hibernation feature, secure remote management, a simple recycling path, and sustained energy delivery throughout its operating life. Redflow's energy storage solutions have been in use for more than a decade at more than 250 sites globally. For further information, please visit: www.redflow.com

Appendix 4C

Quarterly cash flow report for entities subject to Listing Rule 4.7B

Name of entity

Redflow Limited

ABN

49 130 227 271

Quarter ended ("current quarter")

30-June-2024

Consolidated statement of cash flows		Current quarter	Year to date (12 months)
		\$A'000	\$A'000
1	Cash flows from operating activities		
1.1	Receipts from customers	6,817	7,507
1.2	Payments for		
	(a) research and development	-1,013	-4,491
	(b) product manufacturing and operating costs	-2,354	-8,164
	(c) advertising and marketing	-120	-456
	(d) leased assets	-43	-170
	(e) staff costs	-981	-3,959
	(f) administration and corporate costs	-558	-2,022
1.3	Dividends received (see note 3)		
1.4	Interest received	44	278
1.5	Interest and other costs of finance paid	-2	-7
1.6	Income taxes paid	0	-28
1.7	Government grants and tax incentives	0	2,457
1.8	Other (provide details if material)	0	0
1.9	Net cash from/(used in) operating activities	1,790	-9,055

		Current quarter	Year to date (12 months)
		\$A'000	\$A'000
2	Cash flows related to investing activities or for:		
2.1	Payment to acquire		
	(a) entities		
	(b) businesses		
	(c) property plant and equipment	-205	-730
	(d) investments		
	(e) intellectual property	-37	-123
	(f) other non-current assets		

Consolidated statement of cash flows		Current quarter \$A'000	Year to date (12 months) \$A'000
2.2	Proceeds from disposal of:		
	(a) entities		
	(b) businesses		
	(c) property plant and equipment	2	2
	(d) investments		
	(e) intellectual property		
	(f) other non-current assets		
2.3	Cashflows from loans to other entities		
2.4	Dividends received (see Note 3)		
2.5	Other (provide details if material)		
2.6	Net cash from/(used in) investing activities	-240	-851
3	Cash flows related to financing activities		
3.1	Proceeds from issues of equity securities (excluding convertible debt securities)	3,124	14,767
3.2	Proceeds from issues of convertible debt securities		
3.3	Proceeds from exercise of options		
3.4	Transaction costs related to issues of equity securities or convertible debt securities	-145	-901
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 (provide details if material)	0	0
3.10	Net cash from/(used in) financing activities	2,979	13,866
4	Net increase (decrease) in cash and cash equivalents for the period	4,529	3,960
4.1	Cash and cash equivalents at beginning of period	4,939	5,513
4.2	Net cash from/(used in) operating activities (Item 1.9 above)	1,790	-9,055
4.3	Net cash from/(used in) investing activities (Item 2.6 above)	-240	-851
Consolidated statement of cash flows		Current quarter \$A'000	Year to date (12 months) \$A'000
4.4	Net cash from/(used in) financing activities (Item 3.10 above)	2,979	13,866
4.5	Effect of movement in exchange rate on cash held	-162	-167
4.6	Cash and cash equivalents at end of the quarter	9,306	9,306

5	Reconciliation of cash and cash equivalents	Current quarter	Previous quarter
	at the end of the quarter (as shown in the consolidated statement of cash flows) to the related items in the accounts	\$A'000	\$A'000
5.1	Bank balances	9,306	4,939
5.2	Call deposits	0	0
5.3	Bank overdrafts		
5.4	Other (provide details)		
5.5	Cash and cash equivalents at end of quarter (should equal item 4.6 above)	9,306	4,939

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	200
6.2	Aggregate amount of payments to related parties and their associates included in item 2	
<i>Note: if any amounts are shown in 6.1 or 6.2 your quarterly report must a description and an explanation for, such payments</i>		
Payments of salary and fees to Executive and Non-executive Directors.		

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

8	Estimated cash available for future operating activities	\$A'000
8.1	Net cash from / (used in) operating activities (Item 1.9)	1,790
8.2	Cash and cash equivalents at quarter end (Item 4.6)	9,306
8.3	Unused finance facilities available at quarter end (Item 7.5)	0
8.4	Total available funds (Item 8.2 + Item 8.3)	9,306
8.5	Estimated quarters of funding available (Item 8.4 divided by Item 8.1)	N/A
	<i>Note: if the entity has reported positive net operating cashflows in item 1.9 answer item 8.5 as "N/A. Otherwise, a figure for the estimated quarters of funding available must be included in item 8.5</i>	
8.6	If Item 8.5 is less than 2 quarters, please provide answers to the following questions:	
	8.6.1 Does the entity expect that it will continue to have the current level of net operating cash flow for the time being and if not why not ?	
	Answer:	
	8.6.2 Has the entity taken any steps, or does it propose to take any steps, to raise further cash to fund its operation and , if so, what are those steps and how likely does it believe that they will be successful?	
	Answer:	
	8.6.3 Does the entity expect to be able to continue its operations and to meet its business objectives and , if so , on what basis?	
	Answer:	
	<i>Note: where item 8.5 is less than 2 quarters, all questions 8.6.1, 8.6.2 and 8.6.3 above must be answered</i>	

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 does give a true and fair view of the matters disclosed.

Date: 31-Jul-24

Authorised by: The Audit and Risk Committee

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 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 standard applies 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.