



# H1 FY23 results presentation

Tuesday 28 February 2023

Presented by Tim Harris, CEO + Trudy Walsh, CFO

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# Delivered on growth strategy in H1 FY23

Successfully positioned to scale up and drive profitability

## High growth multi-GWh market

**Ready to benefit from accelerating shift to longer duration storage and proven lithium alternatives**

- + Market needs for longer duration storage accelerating in core markets – US and Australia.
- + Significant increase in enquiries, qualified pipeline and system size. Key reference deals progressing.
- + Significant potential benefit from US and Australian stimulus measures – e.g. Inflation Reduction Act, QLD Energy and Jobs Plan.

## Delivering solutions using proven technology

**Proven operational experience supporting critical infrastructure - 3+ GWh energy delivered and 250+ deployments**

- + Southern Ocean Lodge – 50% of batteries delivered with remainder expected over coming months.
- + Completed deployment to Bureau of Meteorology and third Knox City Council system.
- + Achieved 1 year milestone since commissioning Anergia 2 MWh energy storage solution.

## Building blocks established for larger systems

**Investing in core capabilities that will enable large scale systems at competitive cost**

- + Energy Pod – 200 kWh system core platform for large scale systems ready for sale.
- + Critical UL certification for US market progressing into second stage.
- + High value Levelised Cost of Storage (LCOS) model developed for customer engagements.

## Ready to scale and drive margin and profitability

**Thailand facility well positioned to scale to 80 MWh p.a. end 2023 / beginning 2024**

- + ZBM3 enabling core cost down. Further design iterations underway to reduce key bottlenecks and cost.
- + Ongoing investment to test and validate alternative materials and suppliers to enable performance and cost impacts.
- + Scoping options for scale up beyond Thailand to meet demand profile and stimulus opportunities.

# 1H FY23 highlights

## Revenue

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1H FY23 \$695k

## Qualified pipeline

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2.8 GWh

## Order backlog

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1.3 MWh

## Energy delivered

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>3 GWh

## Active deployments

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>250

## Cash

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\$11.4m

# Momentum to actively seek solutions beyond lithium

Fundamental drivers for energy storage and Redflow have never been stronger



Rapid increasing renewable energy commitments and installations.



Lithium supply chain challenges, risks and price increases.



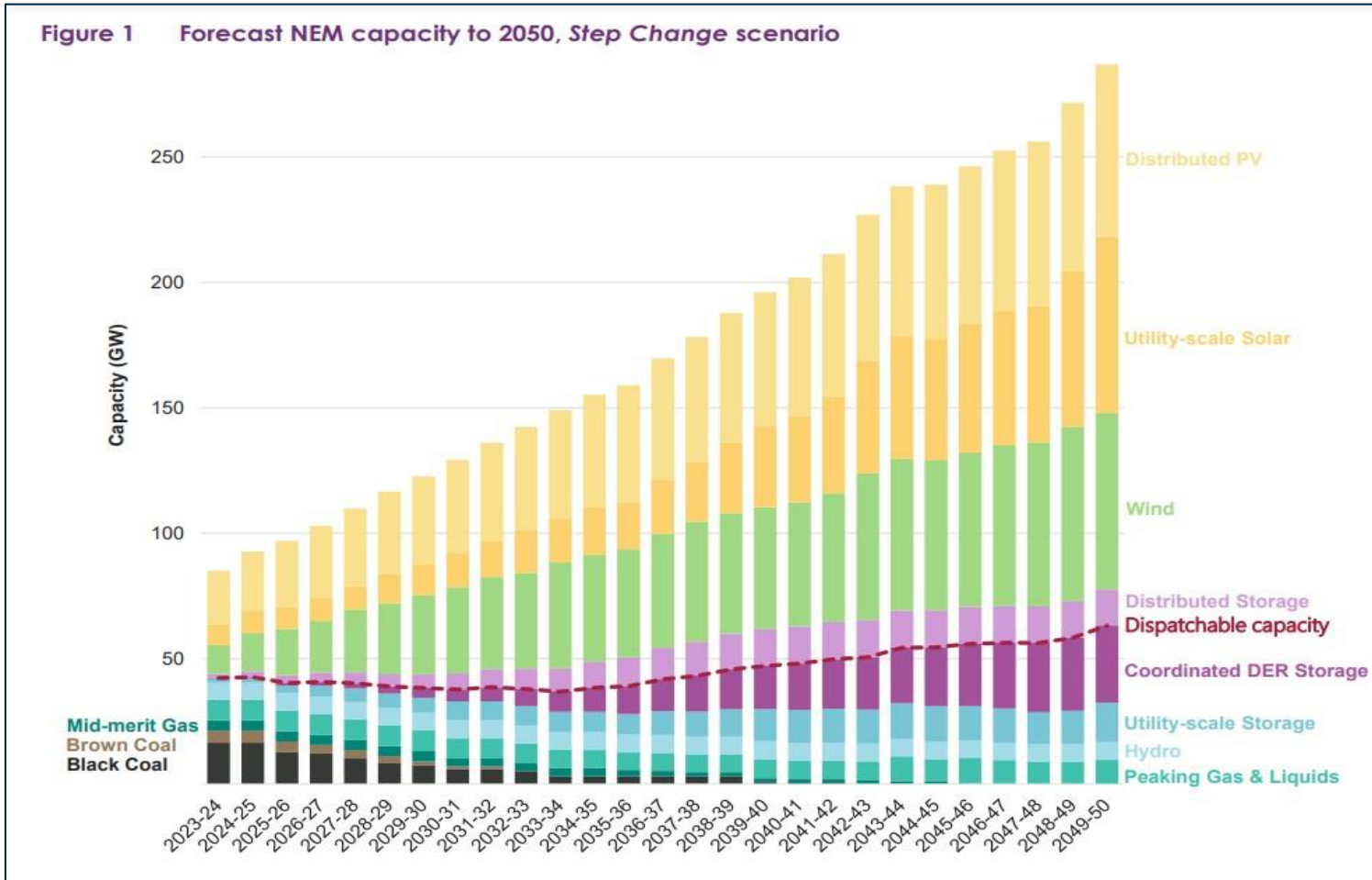
Lithium fire incidents and safety issues.



Industry actively looking to next era of energy storage solutions.

# Requirement for 640 GWh of despatchable energy storage in Australia by 2050

Figure 1 Forecast NEM capacity to 2050, Step Change scenario

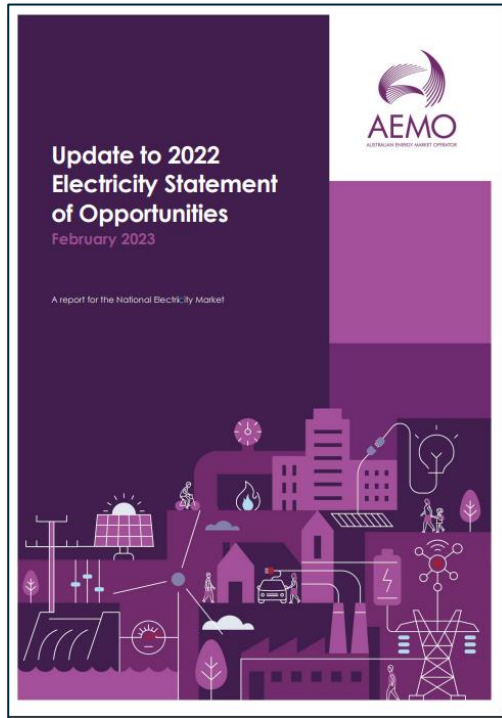


Forecasted NEM capacity to 2050 under AEMO's Step Change scenario. Source: AEMO.

- + Australian Energy Market Operator (AEMO) has launched its Integrated System Plan (ISP) in July 2022.
- + Analysis shows share of solar PV and wind – which are both variable sources of generation – grows in the NEM's generation mix, other resources are needed to integrate that capacity and balance the grid.
- + AEMO foresees a firming capacity mix by 2050 that includes 46 GW/640GWh of dispatchable energy storage.
- + Increasing concerns around system stability as coal generation assets are set to be retired early - accelerating requirements for storage.

# The urgent need long duration storage identified

AEMO sees urgent need for investment in long-duration energy storage and National Battery Strategy



Australian Energy Market Operator  
market update (AEMO), 21 February  
2023

Firm capacity solutions such as electricity storage are needed, **particularly longer duration storage solutions most able to meet the breadth of system challenges that may lead to reliability risks.**

While short duration batteries, for example, may provide some level of firming capacity, **the capability to service reliability risks of longer durations is needed to replace retiring dispatchable capacity** through longer and broader risk coverage that addresses these gaps.

- + The Australian Government's recognition of the critical role of energy storage.
- + Commitment to develop a national battery strategy to build scale and competitiveness and local manufacturing.
- + Current consultation process underway.

# Queensland Energy and Jobs Plan

Plan recognises energy storage will play the critical role in achieving renewable energy targets



**\$62bn**  
plan to achieve 70% renewables by 2032.

**22 GWh**  
market potential in Queensland by 2035 for grid, behind the meter and off grid stationary storage.

**\$500m**  
earmarked for large scale and community batteries by 2030.

**50 GWh**  
additional potential in rest of Australia by 2030 for grid, behind the meter and off grid stationary storage.

**“Long-duration, large-scale batteries are a central part of the Queensland Energy and Jobs Plan.”**

*The Honourable Dr Steven Miles  
Acting Premier and Minister for the Olympic and Paralympic Games*



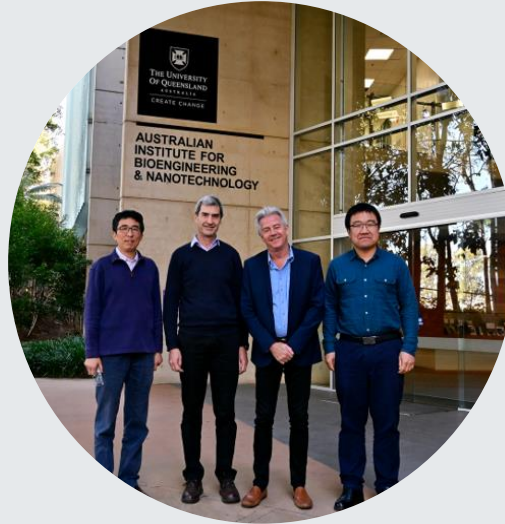


# We are well positioned to deliver Queensland's Plan

Accelerating engagement with government and industry in Queensland



Core research, product development, engineering resources and corporate functions based in Queensland.



Ongoing investment in key suppliers and broader ecosystem in Queensland, incl. University of Queensland.



Supporting in Queensland and Australia strategic zinc assets. Zinc mining industry supports over 5,000 jobs in Queensland alone.

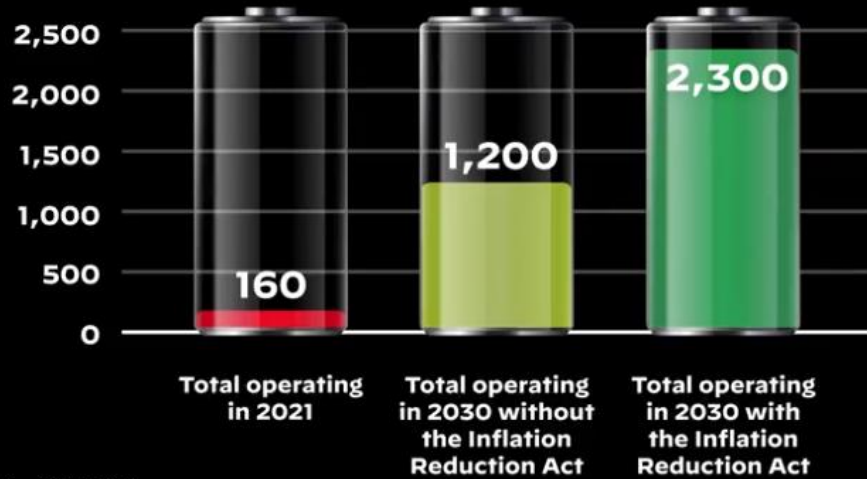


# US Inflation Reduction Act is transformational

Inflation Reduction Act and Infrastructure Bill to transform US long duration energy storage market



## The Inflation Reduction Act Will Double Battery Storage on the Grid



0:01 126.9K views  
Estimates based on Department of Energy analysis using 2021 data

Source: Twitter, The White House @WhiteHouse, 14 August 2022

**30%** base credit for storage projects.

**+10 - 40%** additional credits available.

Stationary storage **without solar** supported.

**US localisation** provides significant tax credits.

- + Accelerated industry focus on Lithium alternatives and longer duration systems.
- + Significant uplift in enquiries and qualified pipeline at multi-MWh scale.
- + Active qualification of US suppliers and materials – target eligibility in 2023.
- + Ongoing engagements with federal and State bodies around plans – e.g. US DOE.

# US market activity accelerating

Investment in US team and capabilities over last 12 months translating into commercial opportunities



- + 300 MWh+ of qualified opportunities in pipeline developed with a number of multi-MWh deals in advanced stages.
- + High visibility participation in the market incl. Intersolar North America and RE+ conferences.
- + Built strong relationships with key EPCs to build execution capabilities and channel to market sales channel.
- + Qualified and onboarding key suppliers for US deployment and IRA localisation needs.
- + Ongoing engagement with broader range of stakeholders e.g. US Department of Energy, California Energy Commission etc.

# Anaergia site continuing to provide high value

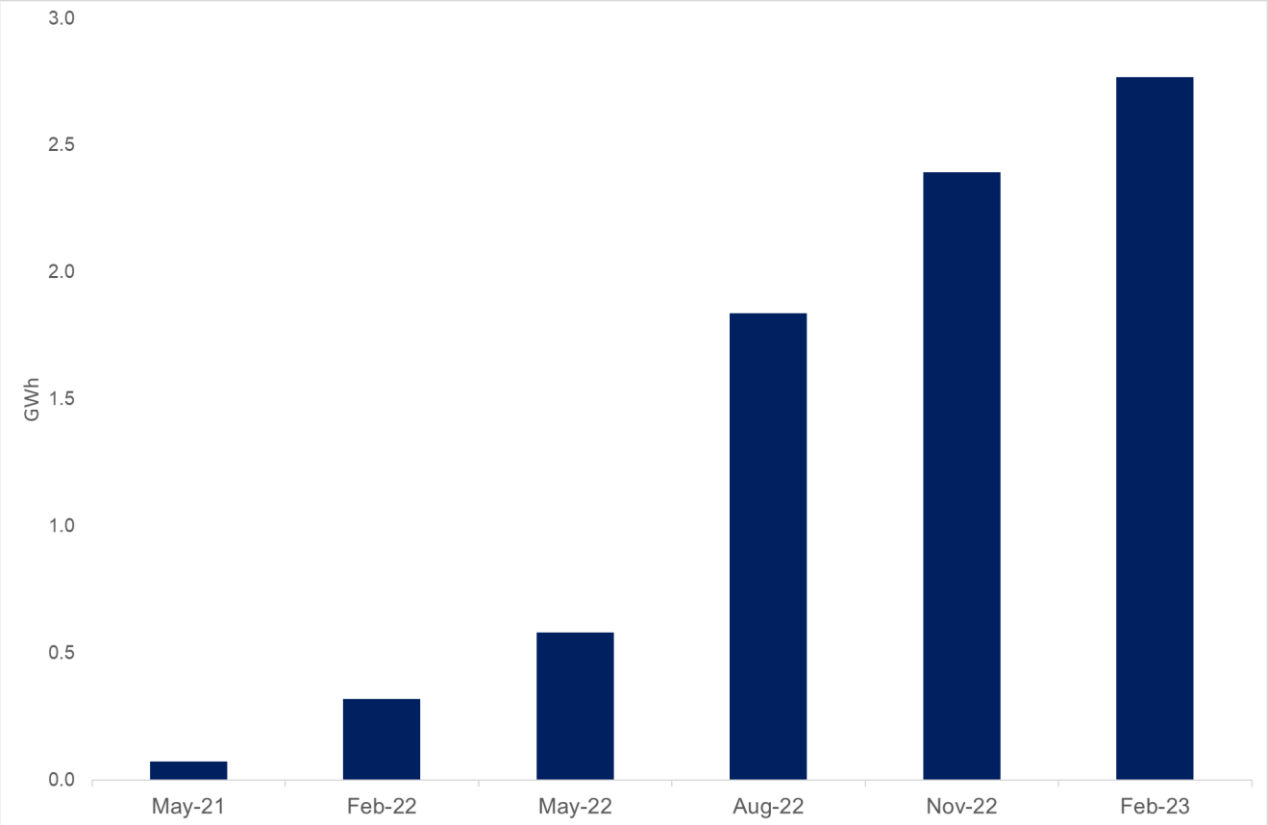
## Redflow's first 2 MWh energy storage system in California US

- + Over 12 months in operation.
- + First commercially proven zinc flow battery deployment at this scale.
- + Multiple hosted visits by end customers, EPC partners, investors and government entities.
- + Key learnings integrated into further Pod design.
- + Engagement with Anaergia and EPC partner on further deployments ongoing.



# Qualified pipeline rapidly growing and maturing

1 GWh: 100,000 ZBM3 batteries



**~2.8 GWh** at qualified and advanced engagement stages

**9x** increase over the last 12m

**~20 GWh** additional opportunities at prospect stage

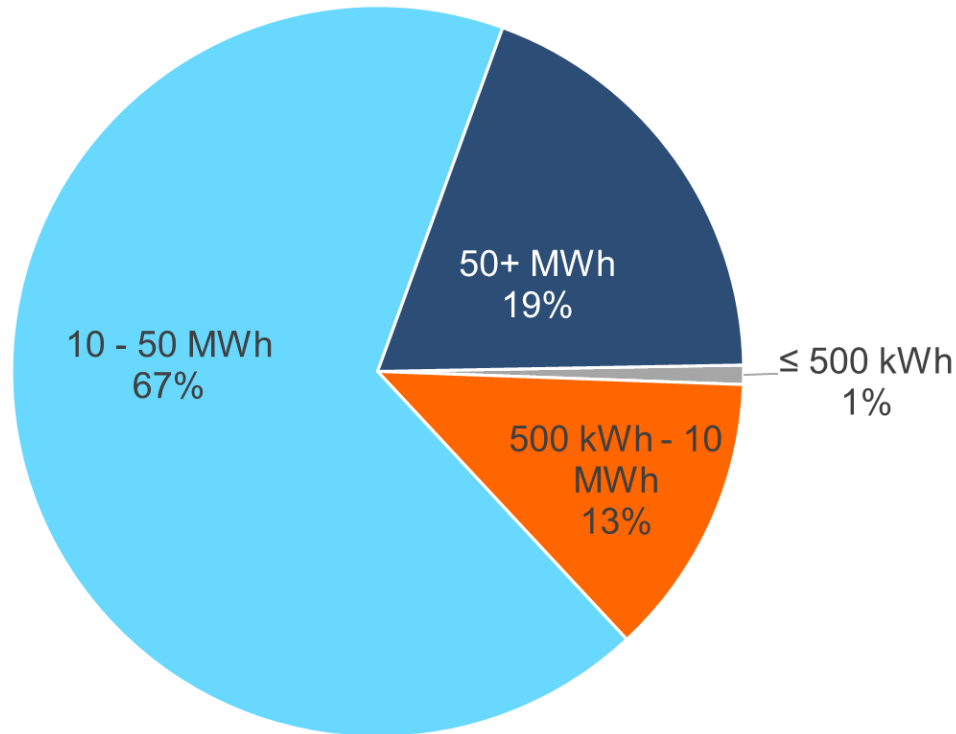
- Definition of qualified**
- + Clear understanding of customer storage requirements
  - + Detailed commercial and technical discussion
  - + Technical design and commercial framework presented
  - + Initial pricing provided



# Pipeline supporting C&I and larger system focus

1 MWh: 100 ZBM3 batteries

Summary of Advanced Engagement Opportunities by Deal Size,  
Feb 2023



**376 MWh** total opportunities at advanced engagement stages

**Multi-MWh** opportunities dominate pipeline at mature stage

**200%** increase in opportunities at advanced stages over last 12m

## Advanced engagement

- + Active customer engagement – technical & commercial
- + Detailed technical solution and contract pricing submitted
- + Delivery & implementation timetable agreed

# Sales pipeline highlights

## Anaergia Victor Valley

5.8 MWh / Target 2023-24 Deployment

LOI with Anaergia signed (March '22). Redflow partnered with Diode Ventures, a Black & Veatch Company, to deliver integrated microgrid and advance project development.

## Fortune 500 US financial

500MWh+ / 2023-26 Deployment

RFX named as preferred storage technology in RFI for bank branches. Advanced development of initial deployment at several retail sites to test installation configurations. Operations Centres under evaluation.

## Global mining company

100MWh+ / Target 400 kWh 2023 pilot

Large global mining and renewable companies. Engagement since late 2021. Targeting initial pilot projects at test centre in 2023.

## California microgrid

22 MWh / Target 2023-24 Deployment

Large behind-the-meter solar + storage microgrid for California Native American community.

## Community storage

20 MWh / Target 2024 Deployment

Community energy project under development in southwestern US. Interconnection secured. Permitting in progress

## Utility remote grid

400 kWh / Target 2023 initial deployment

Energy Pod-200 initial installation for fringe-of-grid application, providing resilience and power system stability and reliability.

## California IPP

600MWh / Target 2026 Deployment

Front of the meter (grid-scale) project for California load-serving company. Total project being scoped with RFX storage as a component.

## Hospital microgrid

20-25 MWh / Target 2024 Deployment

Large hospital program in disadvantaged community area in Northern California. Solar + storage microgrid for resilience, energy cost reduction and avoidance of diesel backup.

## Utility commercial

20 MWh / Target 2024 initial deployment


Initial front of the meter project to test and validate flow battery technology solution within distribution network

\* These are examples of sales opportunities. There is no guarantee or assurance that Redflow will secure any of these opportunities, or that, even if secured, they will generate material revenue or earnings.

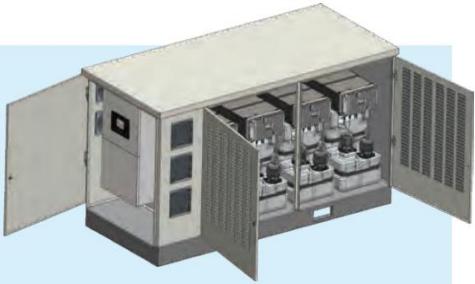
# Key capabilities established for scale up

Successfully industrialising our solution using a core modular approach

DATA SHEET



## QuadPod



The QuadPod is Redflow's small yet scalable energy storage solution. Capable of delivering up to 40 kWh of energy from the 4 ZBM flow batteries housed and pre-wired in the custom designed enclosure.

The solution provides battery management, electrical protection and optional power conditioning, enabling safe and reliable energy delivery.

- + Scalable solution for smaller deployments to be replicated across multiple sites.
- + Provides battery management, electrical protection and optional power conditioning.
- + Compatible with selected battery/hybrid inverters for off-grid and on-grid applications.

DATA SHEET



## Energy Pod200



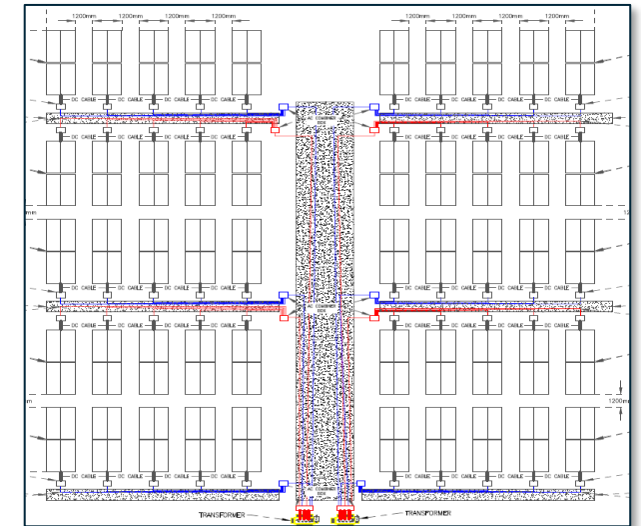
The Redflow Energy Pod200 is a scalable storage solution with the capability to store up to 200 kWh of energy. Our ZBM flow batteries are housed in a custom enclosure which provides electrical protection and power conditioning, enabling it to deliver energy safely and reliably in a range of applications.

**Key applications**

- + Peak shaving
- + Bulk energy shifting
- + Renewables integration
- + Smart grid support
- + Backup power
- + Microgrid

- + Core 200 kWh building block for larger systems.
- + Integrates learnings from Anaergia 160 kWh pod design to deliver improved operational performance and cost.
- + Qualified Australian owned Thailand based facility close to Redflow Thailand facility to manufacture and assemble.

5 MW/20 MWh example design



**95+%** of opportunities at Prospect Stage using Energy Pod200 solution



# Strong value proposition across flow battery peers



- + **Energy and power density** of zinc-based chemistry enables smaller system footprint and lower Balance of System costs.
- + **Modular scalable approach** delivers rapid deployment and lower on-site installation and commissioning cost benefits.
- + **Unique hibernation feature** drives high system flexibility for renewable variation generation.
- + **Depth and breadth of operational experience** across multiple environments and geographies.
- + **Ability to scale rapidly** to meet immediate delivery needs through established manufacturing facility and battery.
- + Core battery Bill of Materials provides **low risk cost down pathway with scale.**

# Focus on Thailand manufacturing scale up

Redflow Thailand well positioned to scale to 80 MWh p.a. end 2023 / early 2024



Australian Ambassador to Thailand Dr Angela Macdonald PSM visit to Redflow Thailand, February 2023.

- + Highly experienced management in place supported by stable workforce.
- + Short term output impacted by specific supplier quality issues and quality variation on one core process. Issues now addressed.
- + Planning for ramp up to ~80 MWh p.a. based on profile of expected delivery requirements from pipeline.
- + Specific engineering focus on key scale bottlenecks and inefficiencies in current processes – BBO, rib stitching, side welding.
- + Additional engagement with local suppliers around quality, scale up and diversification.

# Knox City Council Regional Netball Centre



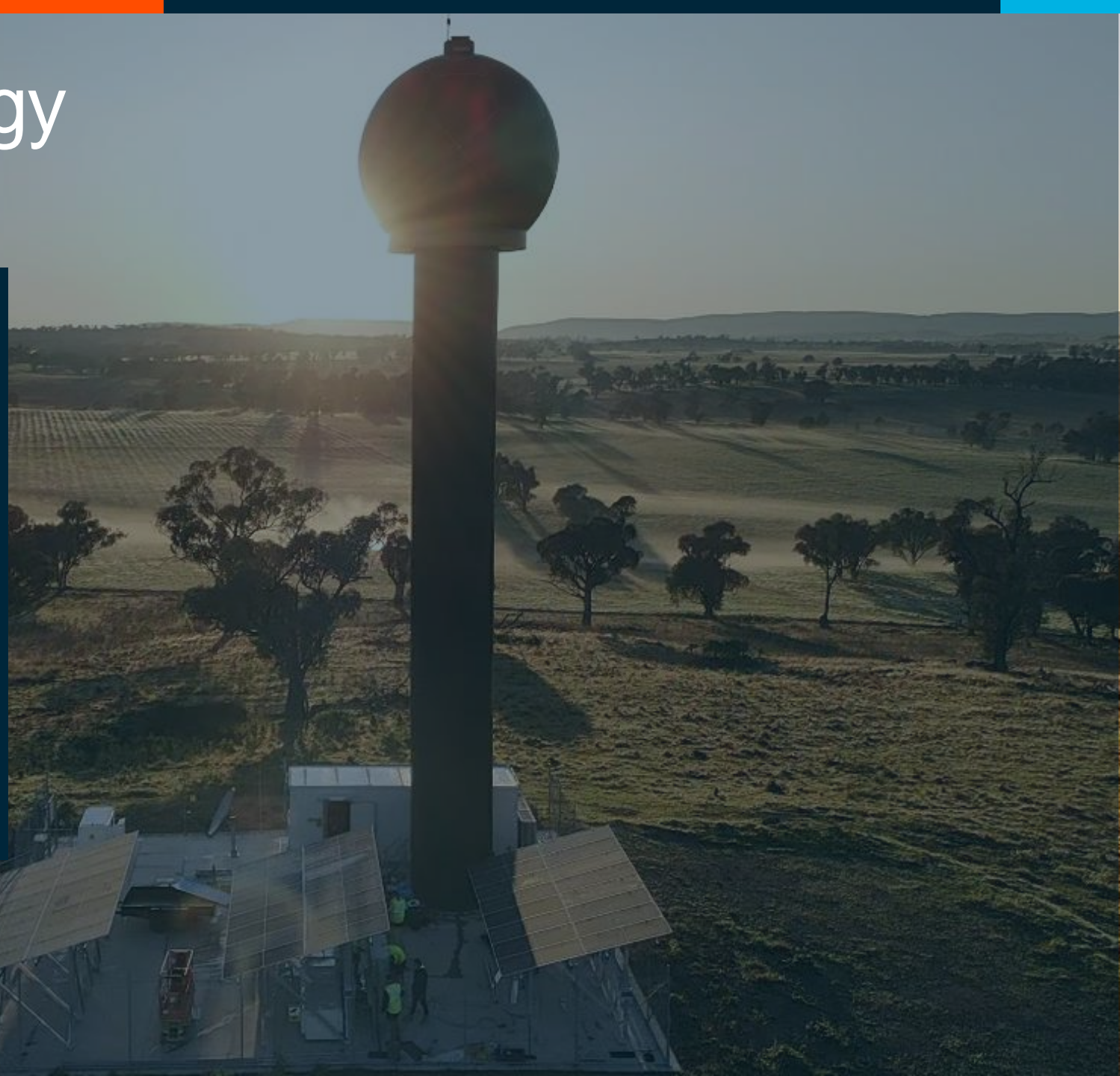
## Redflow supplied its third energy storage system to Knox City Council

- + 60 kWh energy storage system.
- + Third Redflow solution in 5 years.
- + The council is a national leader in delivering energy efficient buildings as part of its Climate Response Plan.

# Bureau of Meteorology

## Successful installation of Redflow energy storage system at three regional radar sites.

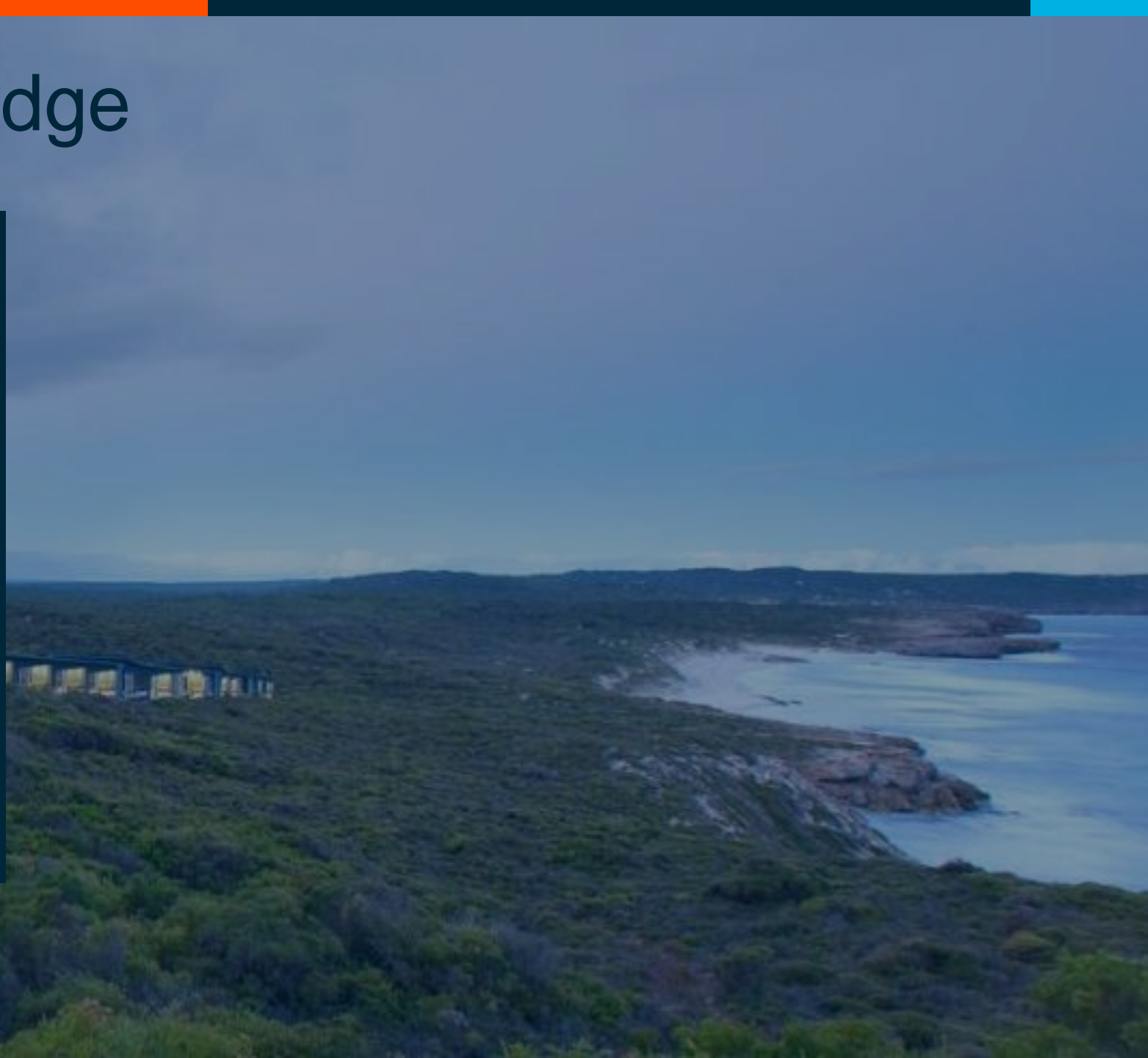
- + 260 kWh of energy storage.
- + Between 8 and 10 batteries were deployed to the three radar locations in Yeoval, Hillston and Brewarrina.
- + The batteries form part of the BoM's Renewable Hybrid Power Supply project incorporating hybrid solar, battery and diesel solution.



# Southern Ocean Lodge

**First delivery of batteries delivered to Southern Ocean Lodge for installation.**

- + 0.56 MWh energy storage deployment.
- + First large-scale commercial sale of ZBM3 batteries.
- + 56 ZBM3 flow batteries supplied as part of the reconstruction of the iconic Southern Ocean Lodge on Kangaroo Island, South Australia, as part of its new hybrid renewable energy system.



# 1H FY23 Financials



TIEC Kalyakool Farm,  
Muckenburra, WA

# Profit & Loss

- + H1 FY23 reflection of focus on C+I deals and building a solid sale pipeline on the back for the success of the Anaergia project. H1 FY22 revenue includes the initial recognition of the Anaergia project \$500k.
- + H1 FY23 other income is the uplift on the R&D rebate for FY22 and the accrual for H1FY23.
- + Raw materials and consumables used increased to \$2.5m due an increased under recovery of Thailand cost during the final factory transition to ZBM3 production.
- + Other Expenses reflect investment in key capabilities. Includes increase in payroll costs, business development and travel expenses, both of which were significantly curtailed in the prior year due to COVID.
- + Order backlog of 127 batteries at 31 December 2022.

A\$'000	H1 FY23	H1 FY22
<b>Revenue</b>	<b>645.6</b>	<b>1,174.2</b>
Other Income	2,350.7	1,360.8
<b>Expenses</b>		
Raw Materials and Consumables Used	(2,555.2)	(2,226.7)
Other Expenses	(6,653.7)	(5,498.9)
<b>Profit/ (Loss) before Income Tax</b>	<b>(6,212.6)</b>	<b>(5,190.5)</b>
Income Tax Expense	(12.1)	(3.1)
<b>Profit/ (Loss) after Income Tax</b>	<b>(6,224.7)</b>	<b>(5,193.6)</b>
Other Comprehensive Income	88.2	(1.9)
<b>Total Comprehensive Loss</b>	<b>(6,136.5)</b>	<b>(5,195.6)</b>

*Sum of individual items may not equal total due to rounding effects*

# Balance Sheet

## Strong net cash position of \$11.4m

### Current assets

- + Trade and other receivables up 61% due to the receivable for the R&D FY22 tax rebate, receipt is anticipated in March.

### Non-current assets

- + Increase in PP&E reflects planned investments in manufacturing capabilities ahead of production ramp up.

### Current liabilities

- + Trade and other payables are down with the completion of the equity issue obligation under the share placement agreement with NTCG from August 2021.

A\$'000	31 Dec 22	30 June 22
Cash and cash equivalents	11,426.9	9,049.8
Trade and other receivables	3,819.2	1,485.7
Inventories	3,494.1	3,624.7
Other current assets	813.4	1,057.6
<b>Total current assets</b>	<b>19,553.7</b>	<b>15,217.8</b>
Property plant and equipment	1,579.6	994.4
Intangible assets	506.8	477.8
Right of use assets	325.6	408.8
<b>Total non-current assets</b>	<b>2,412.1</b>	<b>1,881.0</b>
<b>Total assets</b>	<b>21,965.8</b>	<b>17,098.8</b>
Trade and other payables	1,734.1	4,118.4
Other current liabilities	1,319.0	1,123.3
Provisions	1,963.8	1,710.3
<b>Total current liabilities</b>	<b>5,017.9</b>	<b>6,951.9</b>
<b>Total non-current liabilities</b>	<b>341.4</b>	<b>366.7</b>
<b>Total liabilities</b>	<b>5,359.3</b>	<b>7,318.7</b>
<b>NET ASSETS</b>	<b>16,606.4</b>	<b>9,780.1</b>

Sum of individual items may not equal total due to rounding effects



# Cash Flow

- + The prior corresponding period included the initial deposit funds for the Anaergia project, H1 FY23 includes some deposits from customers for smaller sales.
- + Payments to suppliers and employees up 19% to \$8.0m, due to Redflow investment in establishing a business development (Sales) team in USA and further strengthening of Engineering and R&D personnel to support manufacturing ramp up.
- + \$300k for PPE and \$99k for Patents for ongoing investment in property plant and equipment for planned increased manufacturing capabilities and protection of Redflow's IP.
- + Capital raising activities:
  - \$10.6m raised from successful August Placement and Share Purchase Plan.

A\$'000	H1 FY23	H1 FY22
<b>Cashflows from operating activities</b>		
Receipts from customers	779.6	1,574.7
Payments to suppliers and employees	(8,081.0)	(6,783.2)
Grants R&D tax incentive received	36.6	-
Other	37.5	(8.1)
<b>Net cash (outflows) from operating activities</b>	<b>(7,227.4)</b>	<b>(5,216.6)</b>
<b>Cashflows from investing activities</b>		
Payment for property plant and equipment	(300.6)	(526.1)
Payments for intangible assets	(99.6)	(27.8)
Proceeds from sales of PP&E	9.2	-
<b>Net cash (outflows) from investing activities</b>	<b>(391.0)</b>	<b>(533.9)</b>
<b>Cashflows from financing activities</b>		
Proceeds from capital raising activities	10,621.6	10,859.8
Transaction costs related to equity issues	(540.3)	(357.8)
Principal elements of lease payments	(84.0)	(89.3)
<b>Net cash (outflows) from financing activities</b>	<b>9,997.3</b>	<b>10,412.7</b>
<b>Net increase/(decrease) in cash and cash equivalents</b>	<b>2,279.0</b>	<b>4,642.2</b>

*Sum of individual items may not equal total due to rounding effects*

# Looking ahead



RBSS Power Cube,  
Nangeenan, Western Australia

# Growth underpinned by attractive fundamentals



## Industry leader with proven technology

Established market leadership in medium duration storage for renewable energy solutions.

Unique value proposition reflects market requirements

Validated safety and sustainability advantages over Lithium.

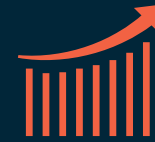


## Large market opportunities with embedded growth

Australia market accelerating recognition of the need for long duration storage.

US energy storage market to grow at 16% CAGR through 2025 to \$10.5bn annually<sup>1</sup>.

Additional growth opportunities in Europe and other markets.



## Sales momentum to drive strong revenue growth and shareholder value

Rapidly ramping up deployments, driving scale, revenue and profitability with high quality pipeline.

2 MWh project in California validates technology and provides 'live' reference for customers.



## Ready to scale to meet opportunities

Manufacturing and deployment established, with capital-efficient scale-up plans to meet increasing customer orders.

Resilient supply chain with capability to scale and less risk of disruption than lithium.

<sup>1</sup> Wood Mackenzie, U.S. Energy Storage Monitor, Q4 2021

# Key priorities for 2H FY23

Focus on converting key deals into customer contracts to drive revenue growth

## Target markets accelerating and increased focus on Redflow value proposition

- + Multi GWh addressable market rapidly maturing alongside shift of focus on longer duration systems.
- + Government measures in US and Australia aligned to growth strategy and core capabilities.
- + Core value proposition in demand from market participants.
- + Proven operational experience highly valued by end customers, EPCs and project investors.

## We have invested intelligently over the last 12 months to position ourselves for the opportunity

- + Proven operational performance at multi-MWh size and over 3 GWh of energy delivered.
- + Continued to invest selectively in key capabilities for scale.
- + \$100m+ qualified opportunities in pipeline developed with a number of key multi-MWh deals in advanced stages.
- + A product and factory that underpins pipeline and immediate scale up needs.

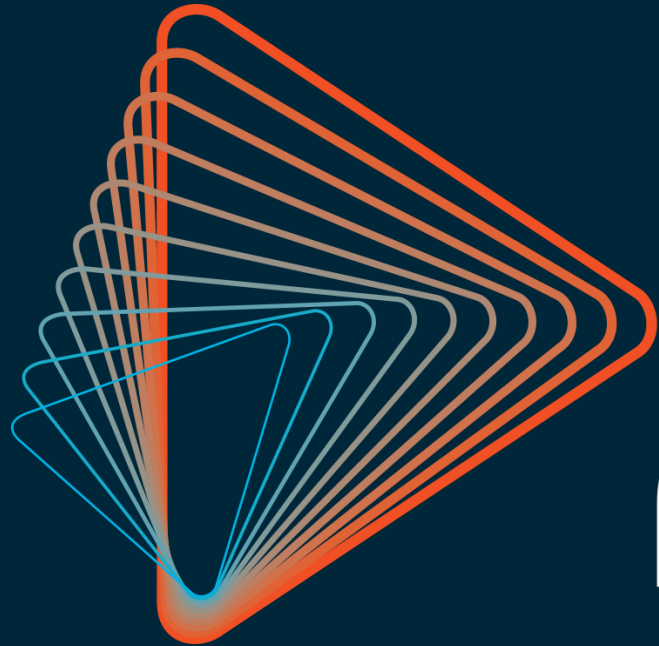
## Priorities are on deal conversion, scale up, commercial returns and execution

- + Convert key deals at advanced engagement in pipeline.
- + Advance other key scale opportunities in the pipeline.
- + Solidify EPC relationships to ensure low risk execution.
- + Scale up Thailand facility to reflect delivery commitments.
- + Develop scale up model beyond Thailand and US localisation plan.
- + Selectively invest for growth.

# Questions



60kWh deployment for Pines Farm  
as part of NSW DPI Project



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