

## Accelerating a carbon-free future

Investor Presentation – August 2022

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# **Redflow Catalysts**

The global energy storage market is accelerating and evolving beyond Lithium

We are a leader in medium duration energy storage solutions Redflow's platform allows for rapid scale up with low execution risk

## We have momentum with a strong outlook for growth

- US\$228bn market opportunity is significant, immediate, addressable, and growing rapidly<sup>1</sup>
- Lithium cannot fulfill the demand for stationary energy storage and is facing major structural challenges
- Accelerating requirements for technologies that are commercially proven and can rapidly scale

- + 250+ active deployments
- + Deployed at multi-MWh scale
- 17+ years of continuous product development; 12+ years of manufacturing and operational experience
- + Core levelized cost-of-storage advantages
- Technology protected by global IP portfolio and trade secrets

- New Gen3 product ready to scale significantly
- ISO9001 accredited manufacturing facility capable of scaling up 80 MWh p.a. in next 12 months<sup>2</sup>
- + Additional manufacturing options under development incl. contract manufacturing partnerships
- Core battery design and Bill of Materials allows for material and sustained cost down with scale

- We have delivered on our commitments and built a series of capabilities that provide the basis for accelerated growth
- Customer traction is strong with key reference projects now actively generating >1 GWh specific opportunities
- + Strong opportunities to grow volumes, market share, and revenue



# Energy storage market transformation

## **Growing global requirements**

+

- 2040 cumulative storage requirements
- 85 140 TWh<sup>1</sup>
- Longer Duration ESS (8+ hours)
  - 2030 battery requirements
  - 2.5 TWh<sup>2</sup> Battery ESS
- Record new US storage installations in calendar Q2 2022

**1.6** GW<sup>3</sup>

wolthe

electricity generated will need to be stored in Long **Duration Energy** Storage (LDES)<sup>1</sup> Est. US \$1.5 -\$3.0tn required investment<sup>1</sup> 176x present day installed battery capacity 245 GWh of batteries installed/year >50% installations + in California<sup>3</sup> Stimulated by an average 84% increase in

Est. 10% of all

wholesale energy prices across 10 major hubs in 12m to July 22<sup>4</sup> Market shifting to medium and longer duration energy storage solutions<sup>5</sup>



## Redflow's zinc-based chemistry insulated against key metals commodity costs<sup>6</sup>



Commodity Pricing Data Dec 2020 - June 2022<sup>6</sup>

1. Long Duration Energy Storage (LDES) Council in collaboration with McKinsey & Company, Net-Zero Power Report, November 2021. Forecast excludes nuclear, hydro and hydrogen. Estimated energy storage capacity to meet net zero energy targets by 2050. LDES report refers to all energy storage 8+ hours but notes LDES competitiveness at 6-8+ hours.

BloombergNEF, New Energy Outlook report, July 2021. Stationary energy storage capacity required to meet net zero energy targets by 2050

- 3. Lium LLC, Q2 Energy Storage Data Report, July 2022
- US Energy Information Administration, <u>Short-Term Energy Outlook</u>, July 2022
   Bodflow applying board on data from Long Duration Energy Storage Council & Making

Redflow analysis based on data from Long Duration Energy Storage Council & McKinsey & Company, Net-Zero Power Report, November 2021 & EIA, Battery Storage in US Report, Aug 2021 Redflow internal analysis based on commodity pricing data from tradingeconomics.com, (Lithium Carbonate, Cobalt, Zinc, Bromine) December 2020 - June 2022

7. Redflow internal analysis based on Li-on MN and LFP 4 hour battery using Bill of Material data from PNNL, 2020 Grid Energy Storage Technology Cost and Performance Assessment, Dec 2020

# Long-term lithium demand outstripping supply

## Lithium supply constraints expected to accelerate



Lithium Supply

Lithium Demand

Benchmark Mineral Intelligence, Lithium Market Balance Q4 2021, December 2021



**Battery metal** demand set to rise substantially by 2030: IEA

A top lithium expert agrees with Elon Musk that there's not enough of the crucial metal to meet booming demand

## THE WALL STREET JOURNAL.

#### COMMODITIES

Lithium Prices Soar, Turboeharged By Electric-Vehicle Demand and Scant Lithium prices are rising at their fastest pace in years, setting off a race to secure supplies and fue long term shortages at a what incredient in the rechargeable batteries that now en smartphone

By Amrith Northman December 13 202104 15 nm F

Appeared in the Dec 14, 2021, print edition as 'Lithium's Price Rise Blokes Bapply Concerns

#### **D**UTILITY DIVE

DOE makes \$3.1B available for battery manufacturing incentives

## 'Insane' lithium price bump threatens EV fix for climate change

**Rio Tinto's lithium** setback in Serbia inflames supply squeeze

batteries for electric cars has risen six-

QUARTZ

Lithium mine investments aren't keeping up with the EV supply chain

## CNBC

EV battery costs could spike 22% by 2026 as raw material shortages drag on

## THE AUSTRALIAN<sup>\*</sup>

**Stockhead: Lithium price** rise 'insane' says Tesla cofounder Elon Musk

# Market is increasingly looking beyond lithium

Global dynamics are moving the industry towards Redflow core strengths and commercial readiness









Market urgency placing premium on commercially proven and rapidly scalable solutions

Structural and energy security challenges accelerating focus on lithium alternatives Lithium fire incidents and safety issues plus whole of life cycle considerations Industry actively looking to next era of medium to longer term energy storage solutions



## Flow batteries increasingly referenced as a critical technology

Redflow is strategically positioned in the high-growth medium duration market segment



## Positioned at the centre of the new US – Australian Clean Energy Partnership



With today's partnership, our two countries will work together to unlock critical advances in long-duration storage, grid integration, clean hydrogen, direct air capture, and critical minerals and materials – providing an essential opportunity to export the innovations that will accelerate the global clean energy transition.

US Secretary of Energy Jennifer Granholm, July 2022<sup>1</sup>



Flow batteries keep the energy flowin' more reliably ...that's why they're good for grid storage and that's why we're investing \$\$ in them! Cleaner, more efficient energy for all...

Jennifer M. Granholm Secretary of Energy<sup>2</sup>



Australia's Federal Minister for Climate Change and Energy, Chris Bowen, with US Secretary of Energy at Sydney Energy Forum, July 2022, Jennifer Granholm image: US Embassy Australia/Twitter
 US Department of Energy, DOE Announces \$24.5 Million for Manufacturing Innovation to Build a Clean, Resilient Electric Grid, 17th March 2021 and US Secretary of Energy Twitter Feed, announcing initiative, 17 March 2021

# Competitive advantages versus non-lithium peers

Redflow is a leader in lithium alternative stationary energy storage solutions









Highest energy density across all commercial flow battery chemistries

 Zinc-Bromine is up to 3x higher energy and power density than Iron-Flow, Vanadium and other Zinc-based chemistries<sup>1</sup>

## Active operational experience

 More than 250 active deployments and over 10 million cumulative hours of field operational since 2018<sup>2</sup>

## Flexibility and agility in deployment and performance

 Modular approach and hibernation mode maximises design capacity flexibility and aligns energy delivery to need

## Low raw materials cost profile

- Zinc is the world's 4th most abundant metal – cost and availability advantages
- Zinc-Bromide cited as one of the lowest estimated cost of raw materials across different battery chemistries on a \$/kWh basis<sup>3</sup>



Redflow internal analysis based on core chemistry characteristics and publicly available company information

2. Redflow internal operational data as of 30th July 2022

See Rocky Mountain Institute, Breakthrough Batteries, 2019, Exhibit 20. Important Note – the information in the report is indicative of the estimated relative chemical cost of storage for zinc bromide chemistries. It is not a statement of Redflow's chemical cost of storage, which may differ from their information

# Industry leadership developed over many years

## 2005

Initial prototyping



### Redflow formed Gen1 developed

2008



2014

Gen2.5 launched

## 2018

Redflow Thailand Established



## 2021

Energy Pod launch for larger systems



## 2022

2 MWh system Launch in US





Gen3 launch

2022

(July)



Gen2 battery 1<sup>st</sup> large scale system

2010



Launch Battery Management System

2017

Gen3 First customer trial

2020



Hibernation Mode Launched

2021



US team established **2022** 

Broad suite of patents and trade secrets developed over 17 years

Over 2 GWh of energy delivered through Redflow systems

10 million hours of field operations since 2018



# Consistently delivering on commitments

Redflow has delivered on the plan communicated 12 months ago

| <ul> <li>Launch Gen3 battery and Energy<br/>Pod for large scaled deployments</li> </ul> | <ul> <li>Energy Pods launched January 2022</li> <li>Gen3 launched July 2022</li> </ul>   |
|---|--|
| <ul> <li>Expand Sales Activity</li> </ul>   | <ul> <li>Redflow USA established in California</li> <li>New EPC relationships broadening sales opportunities incl. new markets</li> <li>Extended warranty and reinsurance terms in negotiation</li> </ul>      |
| + Accelerate US Presence  | <ul> <li>✓ EPC Master Service Agreements in final negotiation</li> <li>✓ Independent UL certification in progress</li> <li>✓ Sol-Ark and CET-Power inverter partnerships announced</li> </ul>                  |
| <ul> <li>Accelerate Manufacturing<br/>Capacity</li> </ul>                               | <ul> <li>Key capital equipment received in July 2022 for additional capacity</li> <li>New Thailand manufacturing GM on board</li> <li>Redflow Thailand ready to scale to 80MWh p.a with ~\$6m capex</li> </ul> |
| <ul> <li>Extend Technology<br/>Leadership</li> </ul>                                    | <ul> <li>Low Fire risk (UL9540A tested) independently validated</li> <li>Ongoing work on localisation and supplier strategy</li> <li>Alternative separator validated and in production</li> </ul>              |



# 2 MWh California deployment driving new business

- Successful deployment led Anaergia to sign LOI for new 5.8MWh project, now progressing through site development<sup>1</sup>
- Showcase California project significantly raised Redflow's visibility in the US energy market and provided proof point for North American execution capability
- Site frequently visited by prospective customers, EPCs, and project developers
- Demonstrated ability to deploy at MWh scale validates Redflow's ability to deploy at scale, leading to ~40-fold growth in global opportunity pipeline over the past 12 months
- Successfully met California Energy Commission goals for project (which was recently allocated an additional US \$140m funding for LDES technologies<sup>2</sup>) – potential to access additional funding opportunities

ust-happened





 See Redflow ASX Announcement: Collaboration on potential new Anaergia 5.5 - 6 MWh battery project, 16th March 2022
 https://www.nrdc.org/experts/merrian-borgeson/cas-energy-trailer-bill-what-

### Redflow 2 MWh official launch, Jan 2022

L to R: Yaniv Scherson, COO Anaergia; Tim Harris, CEO Redflow; Jane Duke, Australia's Department of Foreign Affairs and Trade; Mike Gravely, California Energy Commission

# Sales pipeline presented in May 2022\*

## Selected highlights

Anaergia Phase 2

6MWh / Target 2023 Deployment

Repeat customer. LOI with Anaergia signed (March '22) – RFX preferred technology. EPC down-selected; Redflow named as preferred battery provider.

## Arizona Corporate Campus

4MWh / Target 2023 Deployment

Solar + storage project for corporate campus. EPC appointed. Redflow under evaluation for storage solution.

## Fortune 500 US Financial

500MWh+/2022-26 Deployment

RFX named as preferred storage technology in RFI (July '21) for bank branches. Additional Operations Centres now in scope. Engagement ongoing.

## **US Government**

500kWh / Target 2023 Deployment

Working with engineering services company on California-based project at US government facility which requested flow batteries for backup power application.

## **Global Mining Company**

100MWh+ / Target 2023 pilot

Large global mining and renewable companies. Engagement since late 2021. Targeting initial pilot projects.

## **AU Government**

180kWh / Target 2022 Deployment

Equip remote sites with battery resilience. First phase at 3 sites totaling 180 kWh.

## **California IPP**

600MWh / Target 2026 Deployment

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

## **South Asian Conglomerate**

30MWh / Target 2023 Phase 1

Significant flow battery program. Initial phase providing model for full scale deployment with GWh potential.

## Luxury Ecolodge

560kWh / Target 2022 Deployment

Shortlisted for project at one of Australia's most acclaimed and eco-friendly lodges. Currently tendering for solar and storage.

\* 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.



Australia Rest of World

# Key opportunities have materially progressed

Sales conversations disclosed in May 2022 update have built momentum

Selected Highlights\*

| <b>Anaergia Phase 2</b><br>6MWh / Target 2023 Deployment  | <ul> <li>Anaergia formally selected project developer. Walk through sites with<br/>Anaergia, RFX and developer in June 2022 to finalise design</li> <li>Engineering work commenced in anticipation of filing the required grid<br/>connection application and environmental permit applications</li> </ul>                |
|---|---|
| Fortune 500 US Financial<br>500MWh+ / 2022-26 Deployment  | <ul> <li>+ Progress on Phase One branch sites in California – incl. site visits</li> <li>+ MSA with EPCs to support broader roll out in final negotiations</li> <li>+ Operations Centre project business case finalised. Proceeding through internal approval process</li> </ul>  |
| Announced<br>Southern Ocean Lodge<br>Iconic Australian Luxury Ecolodge<br>560kWh / Target 2022 Deployment     | <ul> <li>One of Australia's leading eco-lodges with world leading sustainability credentials</li> <li>Purchase orders received July 2022 – 560kWh Gen3's – off grid solution</li> <li>Batteries to be delivered to site for Dec 2022 deployment</li> </ul>  |
| Announced<br>Bureau of Meteorology<br>Australian Federal Government Agency<br>180kWh / Target 2022 Deployment | <ul> <li>Redflow specified in system design. PO received – 180kWh</li> <li>Target deployment late 2022 for three reference sites in NSW</li> <li>Project will improve the reliability of power at these critical infrastructure facilities while simultaneously reducing net emissions and ongoing power costs</li> </ul> |
| redflow United States   | Australia * 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.   |

# Redflow signs first Australian large-scale 0.56 MWh deployment of Gen3 batteries – 27<sup>th</sup> July



- First large-scale commercial sale of Gen3 batteries
- 56 Gen3 zinc bromine flow batteries ("ZBMs") to the reconstruction of the iconic Southern Ocean Lodge on Kangaroo Island, South Australia, as part of its new hybrid renewable energy system
- Batteries expected to be delivered before the end of the year



# Clear pathway to scale-up

Capable of rapid scale-up with low execution risk to meet future customer demand



- + Wholly owned manufacturing facility in Thailand, est. since 2018
- + ISO 9001 accredited facility, led by new GM implementing lean manufacturing systems
- + Gen3 enabling ~50% reduction in part count and ~40% reduction in production time



 Capacity increase to 30 MWh p.a. requires minimal capex. Ramp up will be determined by customer demand

- Scale up existing Thailand facility to fulfil sales pipeline conversion
- Additional ~\$6m capex required
- Achieved through automation, multi-shifts, added productivity/redundancy capability
- Scale up trajectory will be determined by customer demand

- Scale-up blueprint with est. 12m lead time from design to commissioning for any new facilities
- Multiple options for scale up incl. facility duplication, US localisation, contract manufacturing and joint venture/licensing
- Scale up timing and optimal model will be determined by significant sales commitments and demand profile

# Strong momentum towards growth

Next 12 months is focused on delivering sales and economies of scale



Convert & execute on key pipeline opportunities



Scale Thailand and plan for next phase of manufacturing



-

Drive core system performance and economics



# A platform for a high growth market

### **Deployment Leadership**

 Supporting deployments for over a decade with 250+ active deployments provides depth and breadth of operational experience

### **Commercially Mature**

 Gen3 product built on operational experience of Gen2.5 model, providing major shift in cost competitiveness and scale up

## **Modular Scalable Solutions**

 Ability to tailor deployments across grid, industrial and commercial scale projects

## **Intellectual Property Moat**

+ Software, battery IP patents and O&M service established for sustainable advantage

## **Logistics and Quality Control**

+ Owned manufacturing facility and established supply-chain give control of logistics and quality



### **Fundamental Cost Advantages**

 Raw material cost advantages at scale delivers a cost advantage over Li-Ion batteries and other energy storage solutions

## **High Quality, Qualified Pipeline**

Multiple MWh-scale customers in a growing GWh sized pipeline across key target markets

## **Competitively Positioned**

Product maturity, price point, unique features and operational experience deliver strong market positioning vs Li-Ion and non-Li-Ion solutions

## **Margin and Profit Expansion Potential**

 Existing battery, manufacturing and deployment capability supports potential for high growth, cost-down and margin expansion

### **Rapid Product Iteration**

+ Form factor allows accelerated product improvements and rapid testing





### GENERAL

There are a number of factors, both specific to the Company and of a general nature, which may affect the future operating and financial performance of the Company, its products, the industry in which it operates and the outcome of an investment in the Company. There can be no guarantee that the Company will achieve its stated objectives or that forward-looking statements will be realised.

This section describes certain, but not all, risks associated with an investment in the Company. Each of the risks set out below could, if it eventuates, have a materially adverse impact on the Company's operating performance, financial performance, financial position, liquidity, and the value of its Shares.

### SPECIFIC RISK FACTORS

In addition to the general risks set out above, the Directors believe that there are a number of specific factors that should be considered. Each of these factors could have a materially adverse impact on the Company, its expansion plans, operating and product strategies and its financial performance and position. These include:

### Sales and Revenue Risk

The Company currently operates on a negative cash operating basis in that its operating expenses exceed its revenue. The Company's revenue depends on the extent and timing of future product sales. There is a risk that sales may take longer than expected to materialise or not be realised at all. For example, there are no guarantees that battery trials, system demonstrations or initial deployments will be successful or, even if successful, will convert into firm orders on a timely basis.

### **Manufacturing Cost Reductions**

The Company's business prospects are dependent on its ability to ramp up manufacturing capability and reduce the production costs of its batteries. The Company manufactures its current Gen3 battery from its facilities in Thailand and believes that manufacturing cost reductions are achievable via key engineering projects, supplier cost reductions and manufacturing, plus productivity and process improvements. There is no guarantee however that cost reductions will be successfully implemented or will be achieved. If the Company is unable to reduce its cost of production sufficiently, the Company may not achieve profitability.

### **Financial risk**

Any dispute, or breakdown in the relationship, between the Company and New Technology Capital Group, LLC (Investor), could adversely impact the business if the Company's financial position deteriorates, or the Company is otherwise in breach of the Share Placement Agreement terms, and the Investor is unwilling to grant waivers potentially resulting in defaults under the Share Placement Agreement. If a breach of the Share Placement Agreement occurs, the Investor may seek to exercise its rights under the Share Placement Agreement, including requiring immediate payment, which may lead to default and have a material adverse effect on the financial performance and position of the Company.

### **Funding Risk**

There is no guarantee that the monies raised under the announced capital raising will be adequate or sufficient to meet the ongoing funding requirements of the Company under its current business plan or to achieve a breakeven point.

If the Company requires access to further funding at any stage in the future, there can be no assurance that additional funds will be available either at all or on terms and conditions which are commercially acceptable to the Company. If the Company is unable to obtain such additional capital, it may be required to reduce the scope of its anticipated activities, which could adversely affect its business, financial condition and operating results.

### **Commercialisation Risk**

If the Company's battery technology is not adopted by its customers, or if its battery technology does not meet industry requirements for power and energy storage capacity in an efficient and safe design, the Company's battery will not gain market acceptance.

Many other factors outside of the Company's control may also affect the demand for its battery and the viability of adoption of advanced battery applications, including:

- i. performance and reliability of battery power products compared to conventional and other non-battery energy sources and products;
- ii. success of alternative battery chemistries; and
- . cost-effectiveness of the Company's products compared to products powered by conventional energy sources and alternative battery chemistries.



#### **Product and Performance Risk**

The Company's products are complex and now includes a battery which is capable of being deployed for various applications (including telecommunications, residential, small-scale and large-scale commercial use and application by utilities), a battery management system and a physical enclosure for its residential and commercial storage system. The Company launched its Gen3 battery in July 2022.

There is an inherent risk that the products and enhancements (including the Gen3 product) will contain defects or otherwise do not perform as expected (for example in terms of battery life and reliability). The Company undertakes product testing under laboratory and simulated field conditions, which aims to identify such problems before their release for field trials or use. Even after pre-release testing, there remains the risk of manufacturing or design defects, errors or performance problems that may only emerge over time and use in the field under operating conditions.

The Company provides a product warranty which is subject to a range of technical and operating conditions. However, the Company has not tested its battery over its operating life either in the field or in simulated conditions. If the Company's products fail to perform as expected or if production of the Company's products is subject to delays (including delays in the rollout of the Gen3 product), the Company could lose existing and future business and its ability to develop, market and sell its battery and energy storage systems could be harmed.

Product defects or non-performance may also give rise to claims against the Company, diminish the brand or divert resources from other purposes, all of which could have a materially adverse impact on the Company financially and reputationally.

The Company's products will frequently be deployed in remote locations where reliability is important, and any defects or non-performance problems could result in expensive and time-consuming design modifications or warranty charges, delays in the introduction of new products or enhancements (including the new Gen3 product), significant increases in service and maintenance costs, exposure to liability for damages, damaged customer relationships and harm to the Company's reputation, any of which may adversely affect its business and the Company's operating results.

The Company is dependent on the supply of raw materials for a number of different parts and components. While the Company follows a quality control process there are possible situations

where the quality of raw materials supplied will adversely affect the performance of the product.

#### Technology Obsolesence Risk

Rapid and ongoing changes in technology and product standards could quickly render the Company's products less competitive, or even obsolete if it fails to continue to improve the performance of its battery, its chemistry and battery management systems.

The Company continues to research, develop and manufacture zinc bromine flow batteries. The market for advanced rechargeable batteries is at a relatively early stage of development, and the extent to which the Company's zinc bromine batteries will be able to meet its customers' requirements and achieve significant market acceptance is uncertain.

One or more new, higher energy rechargeable battery technologies could be introduced which could be directly competitive with, or superior to, the Company's technology. Competing technologies that outperform the Company's battery could be developed and successfully introduced, and as a result, there is a risk that the Company's products may not be able to compete effectively in its target markets.

#### Reliance on system integrators as strategic partners

The Company relies on key system integrators as strategic partners providing channels to market. A key part of its business plan is predicated on a steady expansion of the customer bases through development of its strategic system integrator relationships.

There may be a materially adverse effect on the Company if one or more of these strategic system integrator relationships is lost and not replaced or if a dispute arises between the Company and a systems integrator. There are also risks associated with being one step removed from the ultimate customer and end user.

The Company's system integrators may operate in multiple jurisdictions which are subject to differing regulatory requirements. There is a risk that these regulatory frameworks may expose the Company to obligations, claims and additional compliance costs in relation to its products, including storage, handling and disposal of chemicals.



#### Manufacturing risk - general

There are risks which are inherent in manufacturing operations including machinery breakdowns, damage from flood and fire, below standard workmanship or materials, employee issues (including accidents), workplace health and safety and so on. Any adverse impact on production could have a materially adverse impact on the Company's ability to meet customer needs and the risk of customer claims and the Company's ability to achieve its expansion plans or its financial performance.

### Manufacturing capacity risk

As the Company will build its manufacturing capability based on its projection of future supply agreements, its business revenue and profits will depend upon its ability to enter into and complete these agreements, achieving competitive manufacturing yields and drive volume sales consistent with its demand expectations.

In order to fulfil the anticipated product delivery requirements of its potential customers, the Company will invest in capital expenditures in advance of actual customer orders, based on estimates of future demand. If market demand for the Company's products does not increase as quickly as it has anticipated and align with the Company's manufacturing capacity, or if the Company fails to enter into and complete projected development and supply agreements, the Company may be unable to offset these costs and to achieve economies of scale, which could materially affect its business and operating results.

Alternatively, if the Company experiences sales in excess of its estimates, it may be unable to support higher production volumes, which could harm customer relationships and overall reputation. The Company's ability to meet such excess customer demand could also depend on its ability to raise additional capital and effectively scale its manufacturing operations.

If the Company is unable to achieve and maintain satisfactory production yields and quality, its relationships with certain customers and overall reputation may be harmed, and its sales could decrease.

### Manufacturing production and outsourcing risk

The manufacturing and assembly of safe, long lasting batteries is a highly complex process that requires extreme precision and quality control throughout a number of production stages.

Improving manufacturing processes will be an ongoing requirement both to reduce cost and improve battery performance and reliability by minimising manufacturing errors.

The Company has adopted a combination of outsourced and insourced component manufacturing of its battery parts to achieve the benefits of scalability, quality control, and cost efficiencies and to reduce its overall manufacturing risks (including the risk of damage to finished products when they are delivered from the factory to the customer).

The outsourced component of the Company's manufacturing strategy has associated risks. It means the Company is unable to directly control delivery schedules, quality assurance, manufacturing yields and production costs.

Any defects in battery packaging, impurities in the electrolyte or electrode materials used, contamination of the manufacturing environment, incorrect welding, excess moisture, equipment failure or other difficulties in the manufacturing process (including as a result of COVID-19) could cause batteries to be rejected or to fail in the field, thereby reducing yields and affecting the Company's ability to meet customer expectations.

Problems in the Company's manufacturing and assembly processes could limit its ability to produce sufficient batteries to meet the demands of potential customers.

### Thailand manufacturing personnel

The Company's manufacturing facility depends on the recruitment and retention of skilled employees to produce quality batteries and meet customer demand. If the Company receives commercial scale orders, it will need to re-engage a number of personnel. There can be no assurance that the Company will be successful in attracting and retaining the skilled personnel necessary to meet any future demand for product. The inability to attract and retain qualified personnel could have a materially adverse impact on the Company.



### **Regulatory and compliance risk**

The Company uses hazardous substances including zinc bromine, zinc chloride and hydrochloric acid in the manufacture of its batteries. Various regulatory requirements apply to the storage, handling and disposal of such chemicals. The Company must also comply with prescribed product standards in the various jurisdictions in which it operates, that are relevant to the manufacture, installation and operation of its battery. This includes UL certification in the United States, which is considered to be essential for large scale deployments and battery programs.

There is a risk that the Company will be unable to comply with the regulatory requirements imposed on its batteries or that the cost of compliance will exceed expectations and have an adverse impact on the financial position of the Company. This may prevent the Company from accessing markets in certain jurisdictions.

### **Sovereign Risk**

The Company's manufacturing operations in Thailand and a number of overseas battery deployment projects (including in South Africa) are subject to the risks associated in operating in foreign emerging countries. These risks may include economic, social or political instability or change, hyperinflation, or changes of law affecting foreign ownership, government participation, taxation, working conditions, rates of exchange, exchange control, export duties, capital controls, repatriation of income or return of capital, environmental protection, labour relations and government regulations that require the employment of local staff or contractors or require other benefits to be provided to local residents. No assurances can be given that the co-operation of such authorities, if sought by the Company, will be obtained, and if obtained, maintained.

It cannot be ruled out that the government of Thailand (or any other foreign jurisdiction in which the Company operates) may adopt substantially different laws, policies or conditions relating to foreign investment and taxation. The Company may also be hindered or prevented from enforcing its rights with respect to a governmental instrumentality because of the doctrine of sovereign immunity. Any future materially adverse changes in government policies or legislation in Thailand (or any other foreign jurisdiction in which the Company operates) in relation to foreign investment and ownership may affect the viability and profitability of the Company.

### Supply risk

The Company's manufacturing operations depend on obtaining raw materials, parts and components, manufacturing equipment and other supplies, including services from reliable suppliers (including transport services) in adequate quality and quantity, in a timely manner. It may be difficult for the Company to substitute one supplier for another, increase the number of suppliers or change one component for another in a timely manner or at all due to the interruption of supply or increased industry demand (including as a result of COVID-19). This may adversely affect the Company's operations.

The prices of raw materials, parts and components and manufacturing equipment may increase due to changes in supply and demand and global or other macroeconmic events such as the Ukraine Conflict and supply chain constraints. In addition, currency fluctuations and the weakening of the Australian dollar against foreign currencies may adversely affect the Company's purchasing power for raw materials, parts and components and manufacturing equipment from foreign suppliers.

If the Company is unable to secure key supply inputs in a timely and economically acceptable manner, it could have a materially adverse effect on its ability to meet customer demand and sell batteries profitably.

#### Warranty risk, product liability and extended life cycle testing risk

There is an inherent risk of defective workmanship or materials in the manufacture of the Company's products and for exposure to product liability for damages suffered by third parties attributable to the use of the product.

Defective products may have a materially adverse impact on the Company's reputation, its ability to achieve sales and commercialise its products and on its financial performance due to warranty obligations. It may also give rise to product liability claims. The Company will mitigate this risk via the usual contractual provisions which exclude liability for consequential loss and so on, but it is not possible to protect the Company against reputational loss.

The Company provides a product warranty which is subject to a range of technical and operating conditions. The battery has not however been tested over its full operating life either in the field or in simulated conditions.



### Contract delivery and performance risk

The Company is expected to enter into contracts with partners and end customers which impose various contractual obligations on the Company. This may include, but not be limited to, delivery schedules, price, commissioning and integration, and performance parameters. If it does not meet those obligations, the Company may be exposed to claims for damages for breach of contract or other remedial action and incur remedial costs.

### Intellectual property and patent risk

The ability of the Company to maintain protection of its proprietary intellectual property and operate without infringing the proprietary intellectual property rights of third parties is an integral part of the Company's business.

To protect its proprietary intellectual property, the Company has patents through its wholly owned subsidiary, Redflow R&D Pty Ltd. In addition, the Company has patent applications are at various stages of the examination process in various jurisdictions. There is a risk that some or all of the patent applications will not be accepted, either in Australia or overseas and that other persons may be able to commercially exploit the proprietary intellectual property.

The granting of protection such as a registered patent does not guarantee that the rights of third parties are not infringed or that competitors will not develop technology to avoid the patent. Patents are territorial in nature and patents must be obtained in each and every country where protection is desired. There can be no assurance that any patents which the Company may own or control will afford the Company significant protection of its technology or its products have commercial application.

Competition in obtaining and sustaining protection of intellectual property and the complex nature of intellectual property can lead to disputes. The Company has, and may in the future, enter into commercial agreements under which intellectual property relevant to the Company and its ZBM2s, and which is created by the counterparty or jointly created by the Company and the counterparty, will not be owned exclusively by the Company. In these circumstances the Company will seek to negotiate an appropriate licence to use any such intellectual property.

There is a risk that such newly created intellectual property not exclusively owned by the Company, will be material to the Company and there is no guarantee that the Company will be able to enter into appropriate agreements to use it either at all or on commercially acceptable

terms and conditions, or on a timely basis. The inability to secure rights to use such intellectual property could have a material impact on the Company's ability to sell or otherwise commercialise its products, and its financial performance.

### Reverse engineering risk and trade secret risk

There is a risk of the Company's products and battery management system being reverse engineered or copied. Redflow relies on trade secrets to protect its proprietary technologies, especially where it does not believe patent protection is appropriate or obtainable. However, trade secrets are difficult to protect. The Company relies in part on confidentiality agreements with its employees, contractors, consultants, outside scientific collaborators and other advisors to protect its trade secrets and other proprietary information.

These agreements may not effectively prevent disclosure of confidential information and may not provide an adequate remedy in the event of unauthorised disclosure of confidential information. Costly and time-consuming litigation could be necessary to enforce and determine the scope of the proprietary rights, and failure to obtain or maintain trade secret protection could adversely affect the Company's competitive business position.

### Information technology

The Company relies heavily on its computer hardware, software and information technology systems. Should these not be adequately maintained, secured or updated or the Company's disaster recovery processes not be adequate, system failures may negatively impact on its performance.

### Dividends

There is no guarantee as to future earnings of the Company or that the Company will be profitable at any time in the future, and there is no guarantee that the Company will be in a financial position to pay dividends at any time in the future.



#### **Personnel risk**

Redflow may not be able to successfully recruit and retain skilled employees, particularly scientific, technical and management professionals.

The Company believes that its future success will depend in large part on its ability to attract and retain highly skilled technical, managerial and marketing personnel who are familiar with its key customers and are experienced in the battery industry. Industry demand for employees with experience in battery chemistry and battery manufacturing processes exceeds the number of personnel available, and the competition for attracting and retaining these employees is intense. This competition will intensify if the advanced battery market continues to grow, possibly requiring increases in compensation for current employees over time.

The Company cannot be certain that it will be successful in attracting and retaining the skilled personnel necessary to operate its business effectively in the future. Due to the highly technical nature of its battery, the loss of any significant number of the Company's existing engineering and project management personnel could have a materially adverse effect on its business and operating results.

The Company relies heavily on its senior executives and engineering team. There can be no assurance that the Company will be able to retain its key personnel or recruit suitable technical staff as replacements. The loss of key personnel could have a materially adverse impact on the Company.

### **Exchange rates**

The Company is potentially exposed to movements in exchange rates. The Company's financial statements are expressed and maintained in Australian dollars. However, a portion of the Company's income and costs are earned in foreign currencies and this proportion may increase materially. Exchange rate movements affecting these currencies (including as a result of the circumstances surrounding COVID-19) may impact the profit and loss account or assets and liabilities of the Company (to the extent the foreign exchange rate risk is not hedged or not appropriately hedged) and the general competitiveness of the Company's products in the market.

### **GENERAL RISK FACTORS**

### Share market

The Company's shares may trade on the ASX at higher or lower prices than the price at which shares are issued. Investors who decide to sell newly acquired shares after the capital raising may not receive the amount of their original investment. The price at which newly acquired shares trade on the ASX may be affected by the financial performance of the Company and by external factors over which the Directors and the Company have no control.

These factors include movements on international share and commodity markets, local interest rates and exchange rates, domestic and international economic conditions, government taxation, market supply and demand and other legal, regulatory or policy changes.

### Dependence on general economic conditions

The operating and financial performance of the Company is influenced by a variety of general economic and business conditions, including levels of consumer spending, inflation, interest rates and exchange rates, access to debt and capital markets, government fiscal, monetary and regulatory policies.

A prolonged deterioration in general economic conditions (whether or not due to COVID-19), including an increase in interest rates or a decrease in consumer and business demand, could be expected to have a materially adverse impact on the Company's business or financial condition Changes to laws and regulations or accounting standards which apply to the Company from time to time could adversely impact the Company's earnings and financial performance

There are also other changes in the domestic and global macroeconomic environment associated with the events relating to COVID-19 that are beyond the control of the Company and may be exacerbated in an economic recession or downturn. These include but are not limited to (i) changes in inflation, interest rates and foreign currency exchange rates; (ii) changes in employment levels and labour costs; (iii) changes in aggregate investment and economic output; and (iv) other changes in economic condition which may affect the revenue or costs of the Company.



### **Ukraine conflict**

The current evolving war between Ukraine and Russia (**Ukraine Conflict**) is impacting global economic markets. The nature and extent of the effect of the Ukraine Conflict on the performance of the Company remains unknown. The Company's Share price may be adversely affected in the short to medium term by the economic uncertainty caused by the Ukraine Conflict.

The Company's directors are continuing to closely monitor the potential secondary and tertiary macroeconomic impacts of the Ukraine Conflict, including the changes in pricing of commodity and energy markets and the potential of cyber activity impacting governmental or industry measures taken in response to the Ukraine Conflict (such as restrictions on travel).

The Ukraine Conflict may have secondary effects on global supply-chain and freight movements which would impact the supply of raw materials and delivery of finished goods.

### Impact of COVID-19

The ongoing COVID-19 pandemic has had a significant impact on the global and Australian economy and the ability of businesses, individuals and governments to operate. Emergency powers and restrictions have been enacted on an international, Federal and State level in Australia which, amongst other things, has restricted travel and the ability of individuals to leave Australia and travel to places of work.

The Company's Thailand based manufacturing facility has already experienced a material adverse impact due to COVID-19. There has also been a historical material adverse impact on the Company's sales opportunities and its ability to progress various customer engagements.. Ongoing international and domestic travel restrictions affecting key markets such as the United States and South Africa and broader global uncertainty around a recovery of business activity has led to delays in progressing key sales opportunities and orders that were expected.

Given the high degree of uncertainty surrounding the extent and duration of COVID-19, it is not currently possible to assess the full impact of COVID-19 on the Company's business.

However, a number of aspects of the Company's business may be directly or indirectly affected by government, regulatory or health authority actions, work stoppages, lockdowns, quarantines and travel restrictions associated with COVID-19, including disruption to the Company's supply chain and workforce (particularly in Thailand), the availability of products and logistics (including shipping of materials and finished goods) and government imposed shut downs of manufacturing



There is a risk that if the duration of events surrounding COVID-19 are prolonged, the Company may need to take additional measures in order to respond appropriately (eg restructuring to reduce further costs from its business and raising additional funding).

### Tax risk

Any change to the company income tax rate in jurisdictions in which the Company operates will impact on shareholder returns, as will any change to the income tax rates applying to individuals or trusts. Any change to the tax arrangements between Australia and other jurisdictions could have an adverse impact on future earnings and the level of dividend franking.

#### Legislative and regulatory changes

Legislative or regulatory changes in jurisdictions in which the Company operates, including property or environmental regulations or regulatory changes in relation to products sold by the Company, could have an adverse impact on the Company.





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