

RedFlow Limited

Company Overview – March 2011



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RedFlow – Corporate Overview



- RedFlow Limited founded in 2005, based in Brisbane, Australia:
 - ✓ Listed on ASX in December 2010 (ASX: RFX)
 - ✓ Currently ~ 1,200 shareholders
- Core business activity is design and manufacture of electricity storage systems based on RedFlow zinc-bromine battery module (ZBM).
- Core customers are blue-chip electricity distribution utilities and renewable energy developers.
- Currently in midst of Phase Three expansion:
 - ✓ \$3 million capital investment;
 - ✓ Major upgrade of capability;
 - ✓ Order book at record levels;
 - ✓ Further expansion planned; and
 - ✓ Growing international interest.

Capital structure

Shares	68.6 M ordinary shares
Market capitalisation	~ \$82 M as at end March 2011

Shareholders and board

Major shareholders:	John Richard & Shelley Ann Serisier	14.1%
	Alexander Rudolf Winter	12.8%
	Christopher Hans Winter	12.8%
	Iain Charles Smith	4.7%
Directors	Peter Pursey – Chairman	
	Phil Hutchings – CEO	
	Anne-Marie Birkill	
	Chris Winter	

Share price since listing



Electricity storage – what is it?

US Market



“Over the next decade, challenges driven by electricity demand, renewables adoption, and infrastructure age will pave the way for a very significant market opportunity for energy storage within the U.S.

American regulators and leading utilities view energy storage as a critical component to creating a more modern, efficient, and sustainable electricity grid.”

Australian Market

MARCHMENT
HILL consulting

“With network battery trials underway, and technological and cost barriers falling, the demand for battery storage will increase exponentially.”

RedFlow's zinc-bromine battery module.....

1. The building block for RedFlow's products – our core technology
2. Ideally suited to meet the needs of our target markets:
 - ✓ 2 – 24 hour discharge & 3 – 8 hour recharge.
 - ✓ Designed for 100% depth of discharge
 - ✓ Safe and environmentally friendly product – no toxic heavy metals, recyclable, ambient operating temperature
 - ✓ Low weight, small footprint product
3. Weight of only 220 kg – high energy density.
4. Primarily built from plastic and other freely available, low-cost materials.
5. IP protected with patent applications & knowhow.
6. Designed to be modular – 5 kW, 10 kWh building blocks

Comparable electrical performance in daily cycling application

RedFlow ZBM

High quality industrial
lead acid batteries



Different market niches suit different technologies



1. No one battery type is universally superior across applications

2. Non battery space:

- Pumped hydro
 - Highly efficient, typically very large scale and capital cost
 - Only possible in right topography and climate, needs proximity to high voltage transmission lines
- Mechanical flywheel
 - Well suited to deliver bursts of power for short duration (UPS)

3. Rechargeable battery space:

- RedFlow ZBM**
 - **Designed for daily deep cycling (ideal “load shifter” for peak demand and solar supply)**
 - **Cost and performance are attractive for utility deployment – close to customers**
- Lead-acid
 - Used in cars for engine starting
 - Heavy and not cost-effective for energy storage, shortened life when used for heavy deep cycling
- Lithium-ion
 - Light weight and high power, suit lap top computers and for electric vehicles, high cost
 - Utility usage limited to frequency stabilisation requiring discharge times of seconds or minutes
- Vanadium
 - Large and quite heavy compared to RedFlow’s power storage systems
- Sodium sulphur
 - Commercially available in MW class only
 - Operate at high temperature (~300°C)

RedFlow products – two streams.....

RedFlow zinc-bromine battery module (ZBM)



5 kW in
220 kg
package

RedFlow's Production Capacity

Phase Two (current)	Up to 300 ZBMs/yr
Phase Three (from mid 2011)	1,500 to 6,000 ZBMs/yr
Phase Four (outsourced)	No limit to capacity

Energy Storage Systems – RedFlow designed & built

1 ZBM

2 ZBMs

Up to 48 ZBMs



System Integrators




Specialist manufacturers, who use the RedFlow ZBM as a building block for own design energy storage systems

- ✓ For solar and wind generation
- ✓ Remote or "Village Power"
- ✓ Telecommunications
- ✓ Other specialist applications

International
expansion
strategy

Electricity storage – demand is growing



Demand for Storage Driven By:	Additional Factors	RedFlow Strategy
<p>1. Our electricity consumption is more and more 'peaky' – higher use in a few short evening hours</p>	<ul style="list-style-type: none"> ✓ That is partly why your electricity bill has gone up.... \$5.7 billion of capital investment required by Queensland distribution utilities alone in next five years ✓ Correctly used, electricity storage can be more cost effective to meet evening peaks 	 <p>RedFlow's R520 units, with two ZBM modules, are already at work in rural networks in Queensland.</p> <p>20 kWh storage capacity.</p>
<p>2. Electricity storage makes renewable generation much more usable</p> <ul style="list-style-type: none"> ○ Solar and wind generation are clean, but intermittent ○ Storage makes renewable generation much more valuable ○ With storage, solar and wind can supply reliable power 	<ul style="list-style-type: none"> ✓ The cost of solar panels has fallen dramatically and continues to fall ✓ Solar generation uptake is growing significantly worldwide ✓ Nuclear power has now been discredited 	 <p>Large scale solar PV systems require megawatt scale energy storage.</p> <p>RedFlow is prototyping its M-class product which comprises up to 48 ZBMs.</p>
<p>3. The 'Smart Grid' is coming....</p> <ul style="list-style-type: none"> ○ A comprehensive modernisation of aging electricity distribution networks 	<ul style="list-style-type: none"> ✓ 'Smart Grid' and storage work together. ✓ Enables further cost savings for utilities – and cheaper power for retail customers 	<p>Sixty R510 units under manufacture for Ausgrid.</p> <ul style="list-style-type: none"> ▪ Ausgrid is Australia's largest electricity distributor (Sydney); ▪ RedFlow's largest order to date; ▪ Part of Australia's first commercial Smart Grid; and ▪ Delivery June to September 2011.
<p>4. The cost of diesel is rising dramatically</p>	<ul style="list-style-type: none"> ✓ For off-grid sites like rural cellphone base stations and remote area power, solar PV combined with storage can significantly cut diesel usage. 	 <p>RedFlow is experienced in providing hybrid solar PV power stations with ZBM batteries for storage and diesel generation back-up.</p>

Application Example One

Supply peak evening loads in a rural setting



- Ergon Energy was RedFlow's foundation customer for its ZBM batteries.
- There are thirty RedFlow units deployed in rural Queensland.
- These supply power back into the network at peak evening times and are recharged in the early hours of the morning.
- This can be a cost-effective solution for distribution utilities who otherwise would have to upgrade many kilometres of poles, wires and transformers.



Application Example Two

Clean electricity – Solar PV with ZBM storage - and diesel back-up

- Early in 2011, RedFlow supplied ten stand-alone solar PV generation systems with ZBMs, in Daylesford and Euroa, Victoria.
- These units maximise the use of clean electricity generated during daytime sunlight hours, with storage using RedFlow's ZBMs.
- The units are configured with diesel back-up for cloudy days and are designed to minimise diesel use.



Application Example Three

Cost-effective alternative to high maintenance lines

- Powerco, the second largest distribution utility in New Zealand, uses RedFlow designed units to replace power lines in selected locations.
- Again, these units are designed to maximise solar PV generation and minimise diesel use.
- Powerco has established a subsidiary company named BasePower to distribute RedFlow products to other customers in New Zealand.



Application Example Four

Smart Grid roll-out – first in Australia



- RedFlow announced today its largest order ever:
 - ✓ Sixty R510 units for delivery to Ausgrid, Australia's largest electricity distribution utility.
 - ✓ The units will be part of Australia's first Smart Grid.
 - ✓ Delivery June to September with all installations complete before November.
 - ✓ Novel compact design for under eaves installation.
- RedFlow's entry into the global Smart Grid sector.



Another target market.....

Off-grid telecommunication sites

- ✓ Telco market – mobile phone towers (non-grid connected)
- ✓ Power supply packages for mobile phone towers (small diesel genset, plus batteries, +- solar PV).
 - Required battery size matches RedFlow ZBM.
 - Alternative lead-acid battery solution is expensive, short-life and heavy
- ✓ Large global roll-out programs with market estimates:
 - 75,000 new off-grid telco sites each year in developing countries.
 - Over 500,000 off-grid sites in total by 2012 globally.

RedFlow developing two routes to market:

- a) At OEM level – through a proposed Value Added Reseller agreement with Jabil Circuit, Inc.
- b) At installer level – direct sales with experienced sales team



RedFlow – world leading & here in Australia



1. Energy storage is a new and exciting growth industry in the rapidly modernising electricity industry.
2. RedFlow has world leading and proprietary battery technology.
3. Strong engineering team, and ongoing investment to maintain product leadership.
4. Currently generating sales and growing the forward order book with major Australian and international customers.
5. Our international partners recognise that RedFlow is a world leader.
6. Structured plan for growth in revenue and profitability.



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