# **Invinity Energy Systems**Corporate Presentation

April 9 | London



Climate change is driving an energy transition and a growing need for ESG investment.

### **Presentation Team**



**Larry Zulch** CEO

- Over 25 years as CEO of investorbacked technology businesses
- Focus on directing companies transitioning from development stage to commercialisation
- CEO of Dantz acquired by EMC (Dell EMC)
- CEO of Savvius acquired by LiveAction (Insight Venture Partners - \$23 billion PE)



Matt Harper CCO and Founder

- Avalon Battery founder
- Responsible for sales, business development, marketing, and field engagement
- 20 years in flow battery & fuel cell industry with strong technical and product background
- Senior positions at VRB Power Systems and Prudent Energy
- Masters from MIT



Neil O'Brien Chairman

- Experienced energy industry executive with experience in M&A, business development, and operations
- Chairman, Mercia Power (current position)
- Executive Chairman, redT Energy
- CEO, Alkane Energy
- NED, Egdon Resources
- B.A. from University of Oxford



### Complementary, Development Stage Companies



Founded: 2006 (AIM:RED)

Locations: UK (England, Scotland), South Africa

Employees: 51

FY 2018 + H1 2019 Revenue: £2.7 million (\$3.6m USD)

Flow Battery Storage Projects: 20 totaling 4.5 MWh



#### **Contributing:**

- Commercial expertise
- Business case analysis
- Key market presence (UK, Australia, Africa)

#### **Current challenges:**

- Product cost reductions
- Scaling business activities



Founded: **2013** 

Locations: North America (U.S., Canada)

Employees: 28

FY 2018 + H1 2019 Revenue: **\$2.6 million USD (£2.0 million)** 

Flow Battery Storage Projects: 21 totaling 4.8 MWh

#### **Contributing:**

- Core product module
- New executive leadership
- Key market presence (USA, Canada, Asia)

#### **Current challenges:**

- Developing commercial capabilities
- Scaling business activities



### Merger Strategic Rationale

The merger of redT and Avalon brings together the capabilities required to form a commercially successful flow battery company.

#### Leadership

- Growth business experience
- Energy domain knowledge

#### **Product**

- Proven, productionready module from Avalon
- Experience with large-scale deployments

#### Commercialisation

- Sophisticated project analytics capabilities
- Rigorous BD and sales process
- Sell products; not be a project developer

#### Scale

- Funding appropriate to the opportunity
- Broad geographic focus: North America, Europe/UK, and Asia

This is why we'll succeed.



### Invinity's Foundation: Avalon's Proven Battery Module

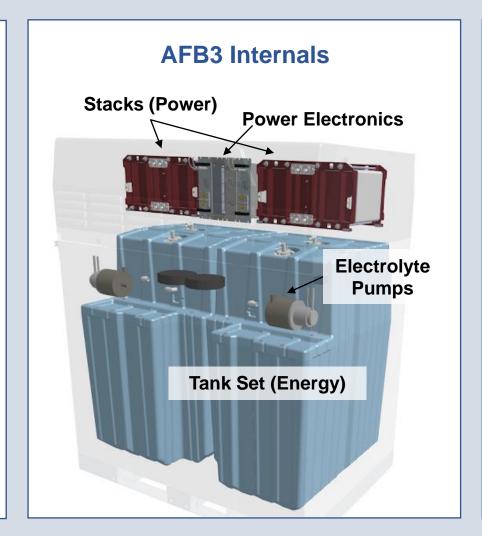


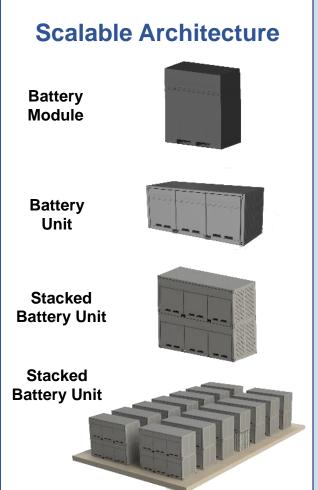
#### **Avalon AFB3**

40 kWh, 10 kW module Includes BMS, cooling, enclosure.

Building block for projects from 250 kWh to 12 MWh

- 3<sup>rd</sup> generation, self-contained vanadium flow battery
- Shipped fully functional from factory
- One of the largest fleets of essentially identical flow batteries (over 160 deployed to date across 3 generations)
- Will be the "building block" for future projects







### **Avalon's Experience**



VRB Power delivers 2 MWh flow battery to Pacificorp, Utah, USA



VRB Power deploys flow battery fleet to Kenyan telecoms

2009

2008

2007



Prudent delivers 3.6 MWh flow battery at Oxnard, USA

2012



First AFB2 delivered Pomona, USA



First AFB1 delivered Fremont, USA

2014



MWh China

2020



2018

Matt Harper joins **VRB** Power

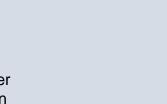
2006

2005

VRB Power acquires Regenesys technology from RWE



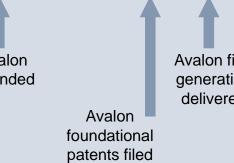
2010



2011



2013



2015



2017

2016

Avalon third generation delivered

2019



### Case Study – Energy Superhub Oxford

#### redT's project expertise combined with Avalon's product expertise is already being demonstrated











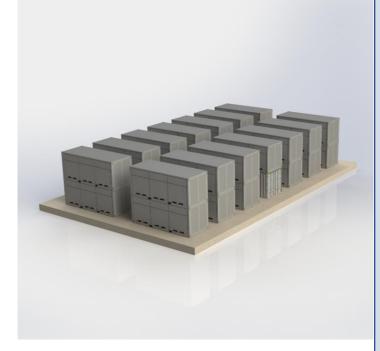


#### **Energy Superhub Oxford is a grid-connected project**

- High-profile £41 million reference site
- Showcasing EV charging, energy storage, low carbon heating
- Developed by Pivot Power (subsidiary of EDF Renewables)
- Programme to develop 45 similar sites across the UK to support EV integration and balancing of renewables onto the National Grid

### Invinity Will Provide UK's largest flow battery

- 2MW / 5MWh flow battery system
- Flow batteries chosen due to their ability to cycle heavily without significant degradation
- redT team won contract, order to be fulfilled with 162 Avalon battery modules

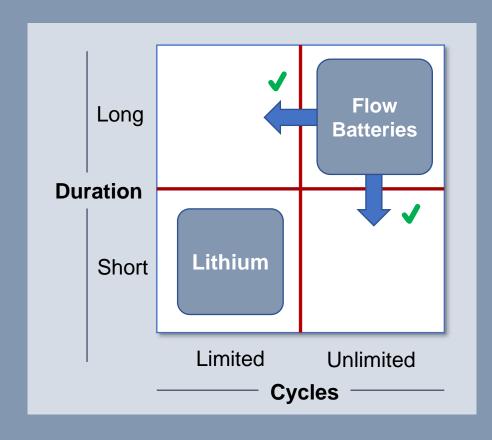


Flow battery array consisting of 162 modules.



### **Vanadium Flow Battery Market**

Flow batteries support long duration, unlimited cycle applications better than lithium.

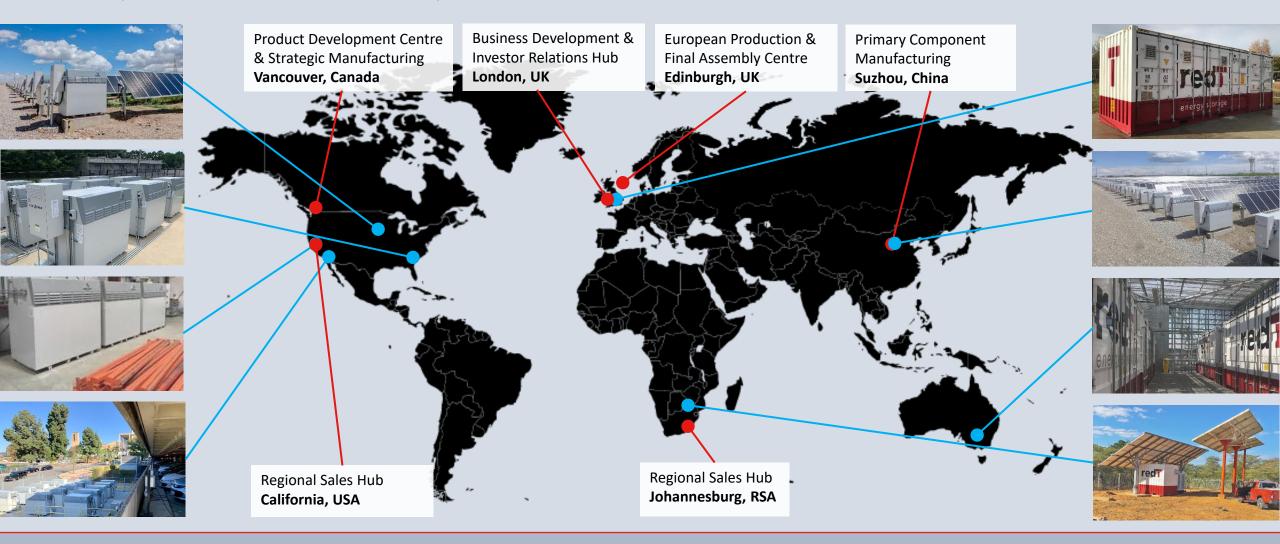


Key flow battery applications							
Application	Duration	Cycle Count	Driving Opportunity				
C&I solar + storage	Medium	High (daily+)	Low-cost dispatchable solar				
Grid Services Providers ("GSP")	Medium	High (daily+)	Renewable balancing				
Electric car charging	Medium	High (3-4x daily)	Manage demand spikes				
Communications infrastructure	Long	Low (without solar) High (with solar)	Need for resilience				
Microgrid	Long	High	Diesel substitute				
Grid capacity management	Medium	High (daily)	Grid infrastructure limitations				



### **Addressing a Global Market**

Invinity will possess the necessary scale and scope to service the needs of our customers





### **Operational Capabilities**



Avalon has established operational capabilities that will be the foundation of Invinity's projected growth.



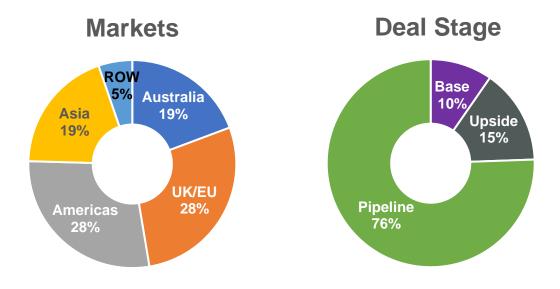
### **Invinity's Management Experience**

Larry Zulch	Matt Harper	Fraser Welham	Andy Klassen	Jean-Louis Cols	Brian Adams	Neil Lang
Chief Executive Officer (ED)	Chief Commercial Officer (ED)	Chief Financial Officer (ED)	Chief Technology Officer	VP Solutions Engineering	VP Product Development	Chief Operating Officer
AVALON	AVALON	redi	AVALON	redi	AVALON	NALON
sav <b>v</b> ius.	Prudent Energy  VRB™ Systems	Green Investment Group	Prudent Energy  VRB™ Systems	<b>Logan</b> Energy	Prudent Energy  VRB™ Systems	Corvus 😑 Energy
Photometics	VRB Power Systems	elementpower	VRB Power Systems	Intelligent Energy	VRB Power Systems	DAY4
PLC Diagnostics	GENERAL HYDROGEN CORPORATION	Shanks Making more from waste	BALLARD° PUTTING FUEL CELLS TO WORK	NP	ELECTRONICS LTD.	CELESTIAL
EMC. where information lives				microelectronics	Westport	
dantz				TEXAS INSTRUMENTS		Unilever



### **Invinity Opportunity Pipeline**

Stage	Base	Upside Pipelir		Total
Modules	394	603	3,083	4,080
Capacity	13.8MWh	24MWh	123MWh	161MWh



#### **Sales Strategy**

- Short term: C&I (commercial & industrial) and GSP (grid services providers) in UK, U.S. & Australia.
- Mid term: Utility segment in core markets,
   C&I and GSP in Asia, Europe & Africa
- Utilise channel partners (EPC, Developer, PV installer) to feed pipeline
- Strategic sales to generate follow-on volume potential (e.g. Utilities, Water, Industrial, Agricultural, Telecoms)
- Maximise value of key reference sites through effective PR and marketing



#### **Summary – Building the World's Leading Flow Battery Company**

#### Regional Targets

- UK & EU, Western US, Australia
- Secondary markets: Africa, Asia

#### Commercial Focus

- BtM C&I solar and storage (Current)
- Grid service providers (Current)
- Utility-scale / Network storage projects (Medium-term)



#### Corporate Priorities

- Complete integration of merged companies
- Evaluate combined sales pipeline including resources necessary
- Focus on delivering ESO
- Develop COVID-19 contingency plans



## **Questions & Answers**

