

Vanadium redox flow batteries

UBS Energy Transition Call – 21 May 2020



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

Presenters



Larry Zulch
Chief Executive Officer

- Over 25 years as CEO of investor-backed 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
Chief Commercial Officer

- 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



Invinity Energy Systems

Leading global manufacturer of Vanadium Flow Batteries (VFB) for businesses, industry, utilities and electricity networks.

Invinity's VFB:

- Commercially proven
- Cost competitive
- Safe & non-flammable
- Fully recyclable
- Extremely durable

Our VFBs make renewable energy reliable, delivering low-cost, low-carbon power on demand.

- >10MWh installed worldwide
- Europe, Asia, North America, Australia and Africa

AIM-listed (AIM:IES), unique opportunity to invest in a London-listed, pure-play flow battery company

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

Invinity's Foundation: Proven battery module



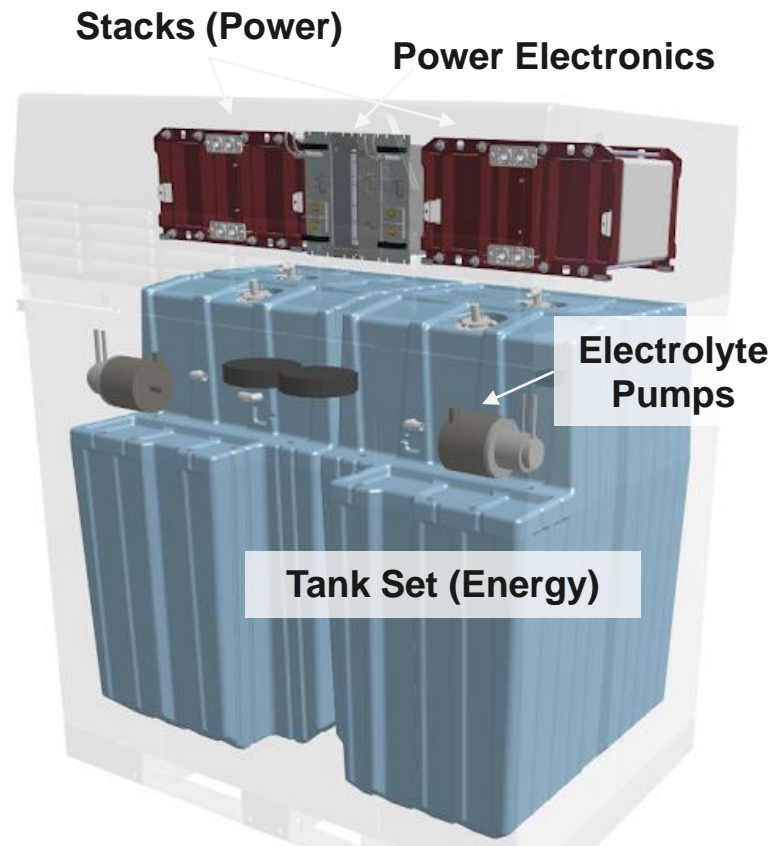
Invinity VS3

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

Building block for projects
from 250 kWh to 12 MWh

- 3rd 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)
- The “building block” for future projects

VS3 Internals

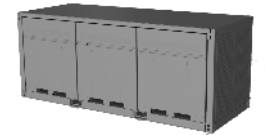


Scalable Architecture

Battery
Module



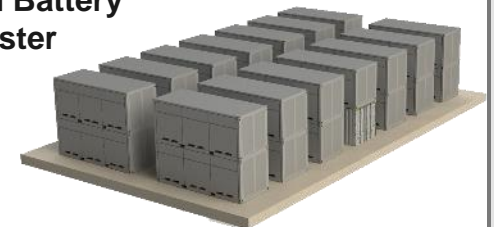
Battery
Unit



Stacked
Battery Unit

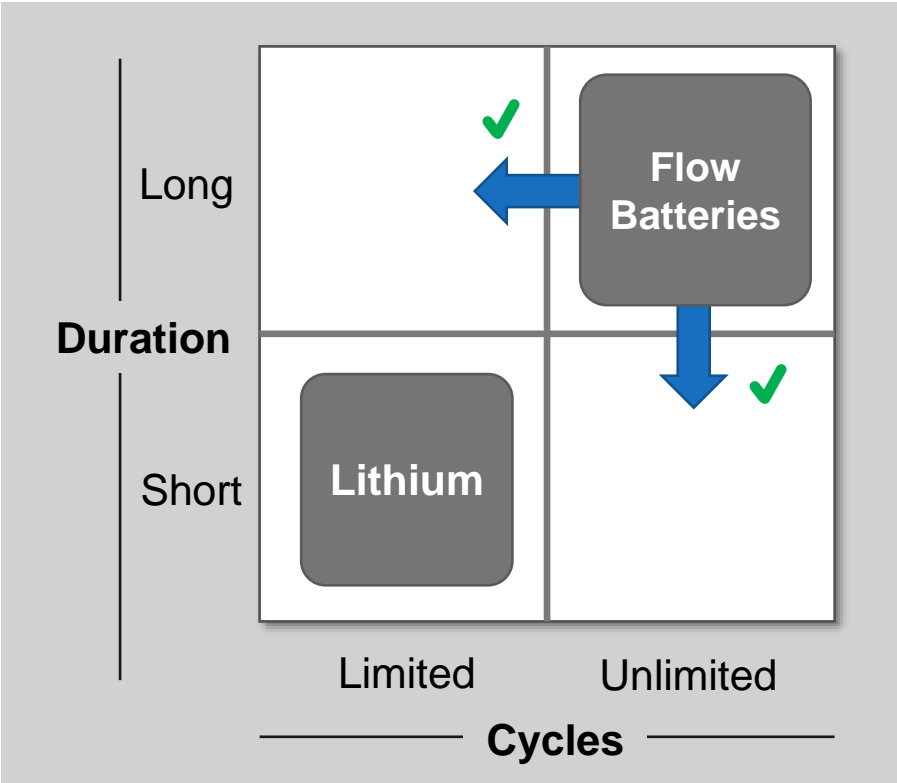


Stacked Battery
Cluster



The flow battery market opportunity

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

Bloomberg New Energy Finance: “Energy Storage is a \$620 Billion Investment Opportunity to 2040”



Case Study: Energy Superhub Oxford

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

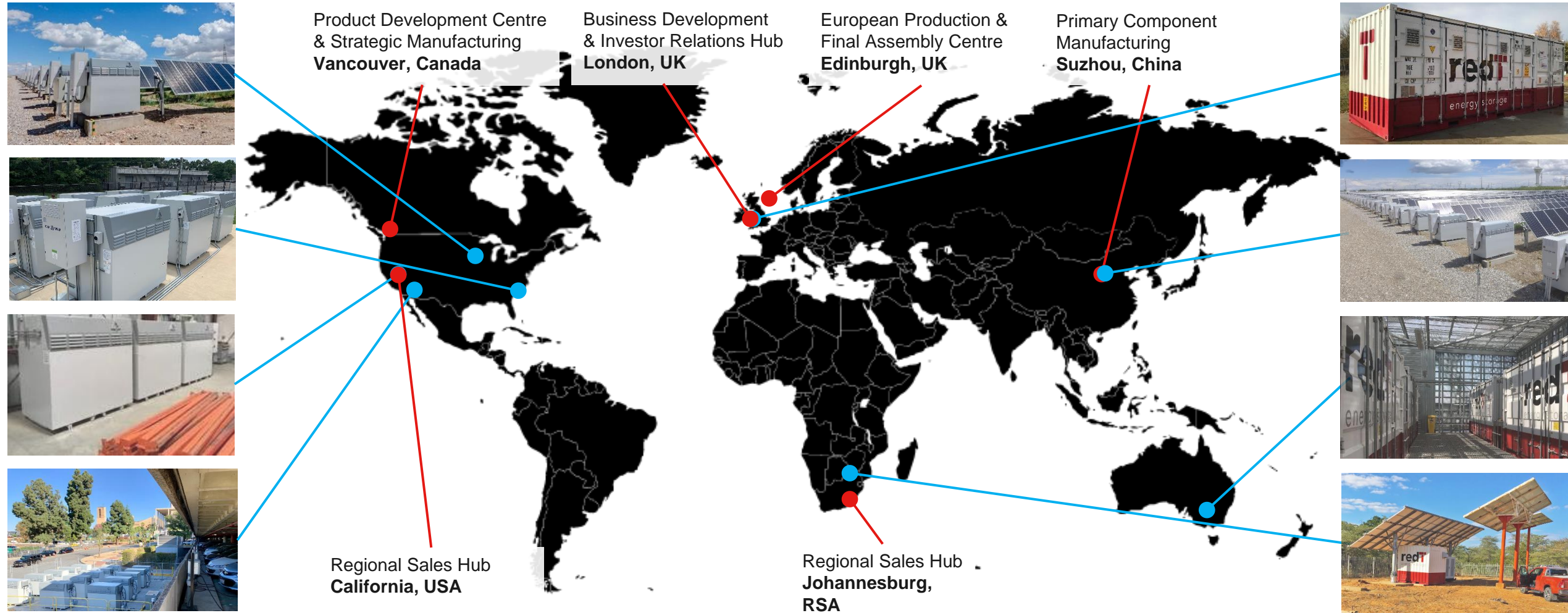
Invinity Will Provide UK's largest flow battery

- 2MW / 5MWh flow battery system
- Flow batteries chosen due to their ability to cycle heavily without significant degradation
- Order to be fulfilled with 162 Invinity VS3 modules

Consortium Partners:



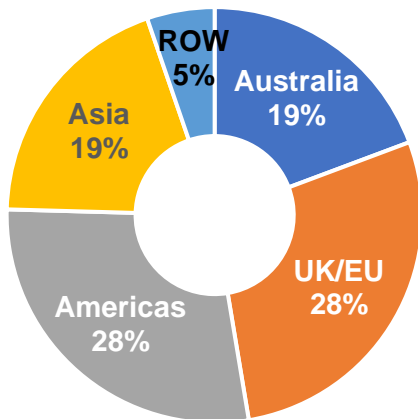
Addressing a global market



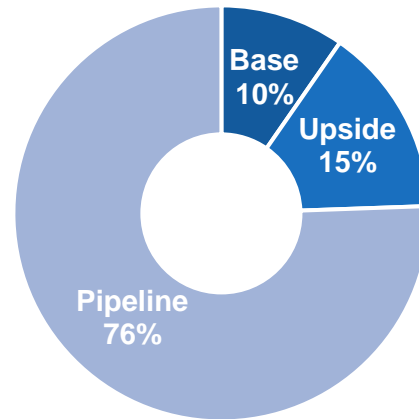
Invinity Opportunity Pipeline

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

Markets



Deal Stage



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

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



