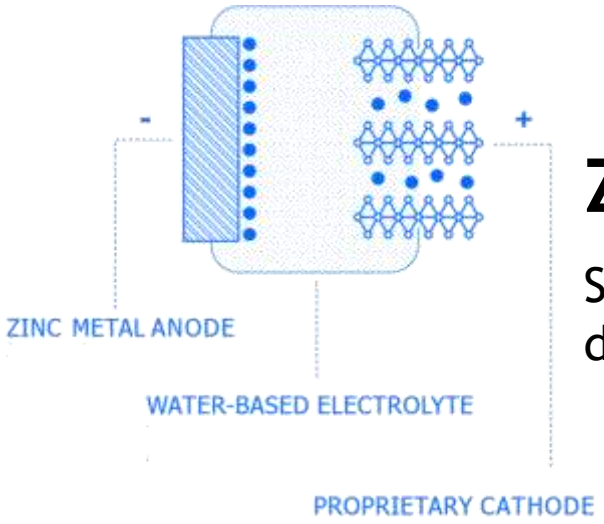
NAATBatt 2019 – Battery Innovation Summit

March 14, 2019 in Phoenix, AZ

THE ZINC-ION BATTERY



Zn intercalation chemistry

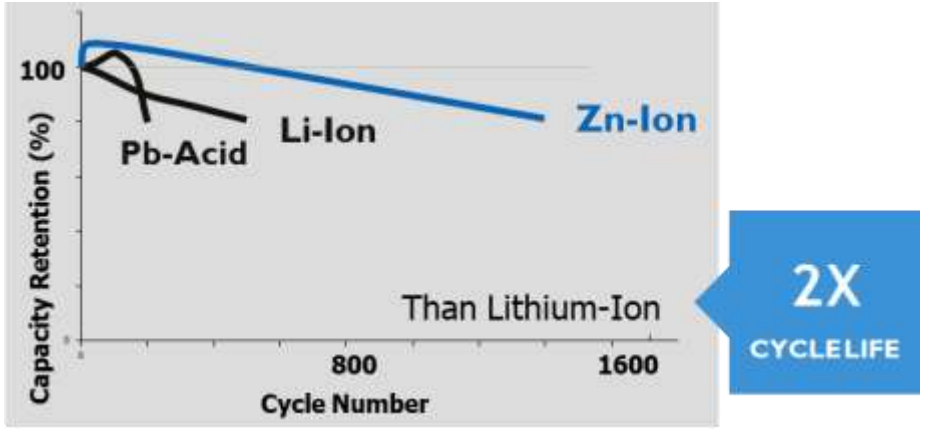
Similarly to Li-ion: Fast kinetics, high energy density, high round-trip efficiency

Intrinsically safe

Salient Energy's electrolyte is neither flammable, nor toxic

Long cycle life

Unlike other Zn-batteries: neutral pH, > 99.5 % CE



Battery	Lead Acid	Lithium Ion	Zn/OH⁻	Zinc Ion
Levelized cost				
Raw material abundancy				
Recyclability				
Hazards				
Service life				

Abundant, cheap raw materials

300 x annual production of Zn than Li:

Enough to produce 10^4 GWh of storage, affordable for utility-scale, world-wide deployment

WHAT SALIENT HAS TO OFFER

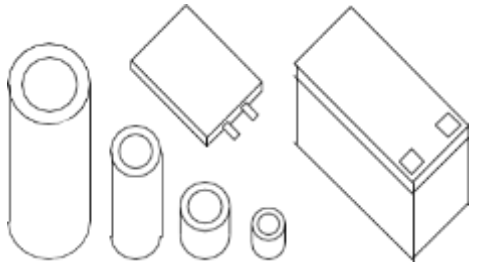
IP portfolio covering 4 key areas of innovation

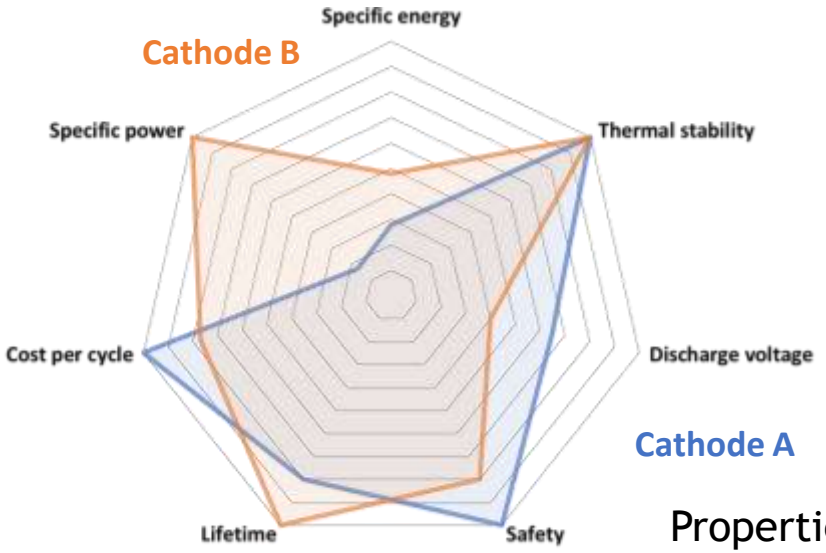
Aqueous Zn batteries are inherently safer and cheaper than Li-ion. Our patents address extending the cycle-life and manufacturability of the Zn-ion battery:

- ✓ Electrolyte systems
- ✓ Zinc electrode design
- ✓ Zn-intercalation materials
- ✓ Cell design and manufacturing processes

Compatible and versatile

Designed for compatibility with standard lithium-ion manufacturing for rapid and inexpensive scale-up by experienced manufacturers





Properties of Different Cathodes

Reversible, dendrite-free zinc electrode

Advanced electrode architecture and electrolyte systems resulting in > 99.5% CE and > 1,500 cycles.

Tunable for the needs of stationary storage

COST – BENEFIT ANALYSIS

Potential cost benefit vs Li-ion

Improvement on energy density will drive cost down similarly to Li-ion

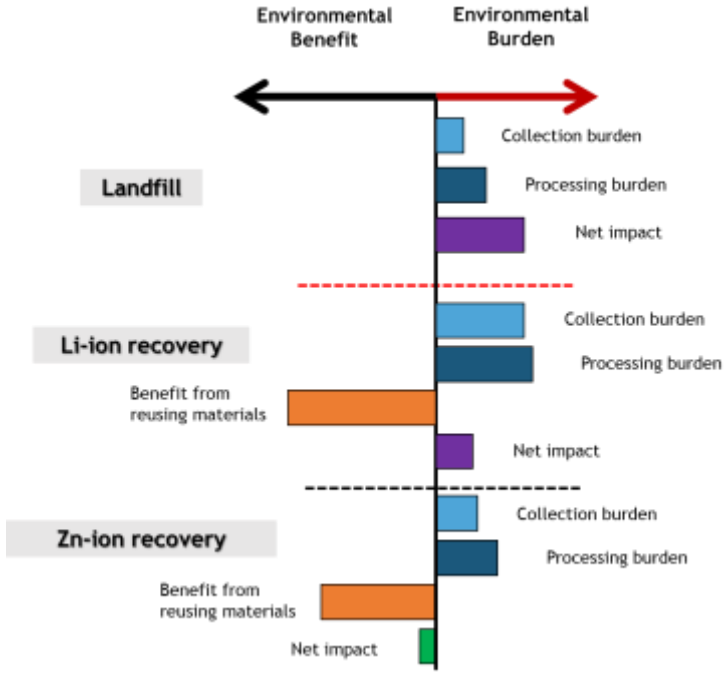
*Estimates 2020	Li-ion*	Zn-ion*
Materials cost	110	86
Cell production cost	50	40
Balance of system cost	20	12
Disposal/Recycling	20	7
Total system ($/kWh)	200	145

Supply chain

Abundant raw material supply to meet global demand

Life Cycle Analysis, Safety and Sustainability

Fireproof Zn-ion can be scaled up to minimize environmental impacts without jeopardizing safety.



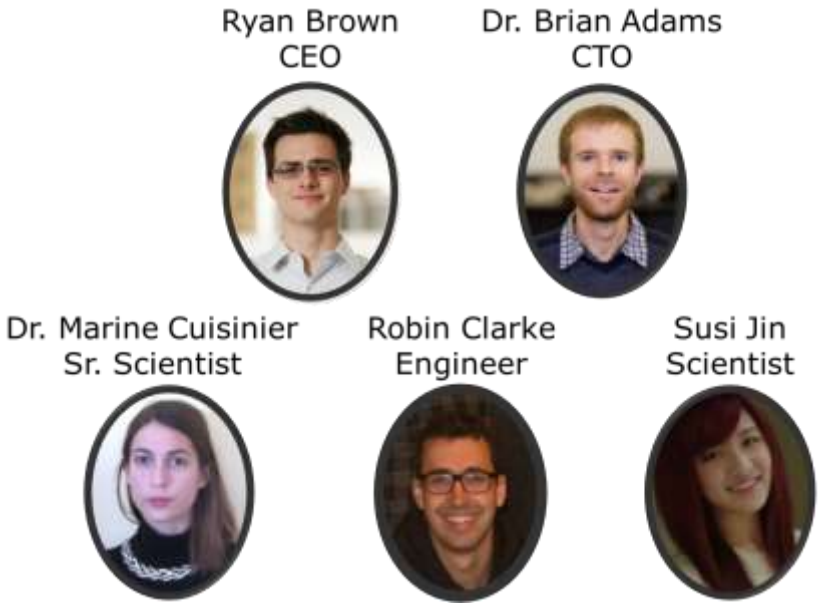
Zn-ion may be recycled with primary alkaline cells, minimizing transport and processing environmental impact.

SALIENT ENERGY'S GOALS AND VALUES

Bringing the Zn-ion technology to market

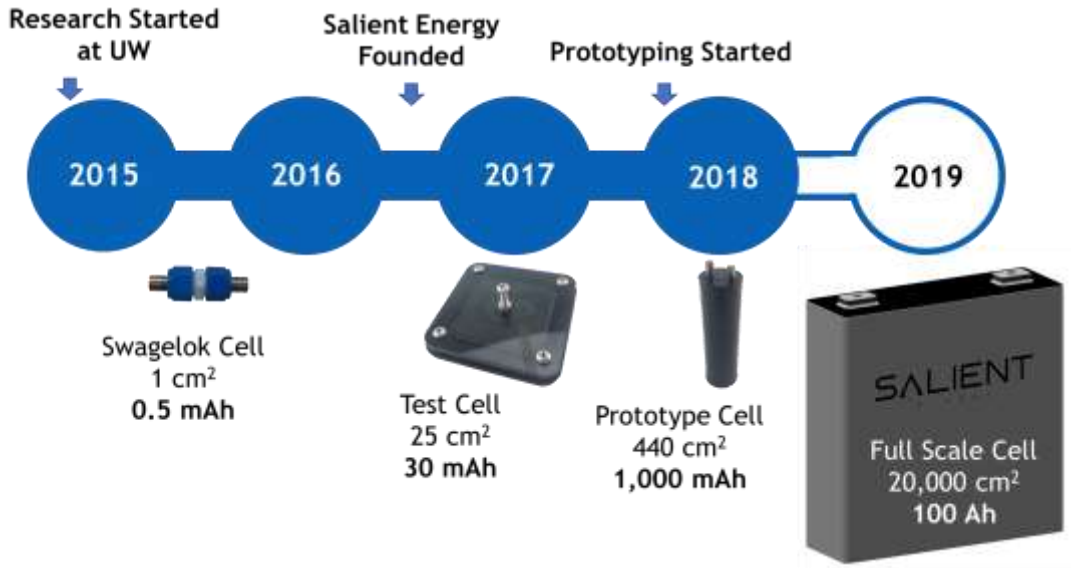
Our team is passionate about green tech and dedicated to rapid product development, quickly iterating over materials and cell design.

Currently setting up pilot production for Zn electrode.



Scaling up prototypes for demonstration projects

Proof of demand established
μ-grid and PV+Storage system (10 kWh)



Looking for partners to achieve these goals

Validation of processes, cell manufacturing partnership

SALIENT ENERGY

Thank you

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