

Eos Energy Storage

Long-duration energy storage and its applicability to developing countries

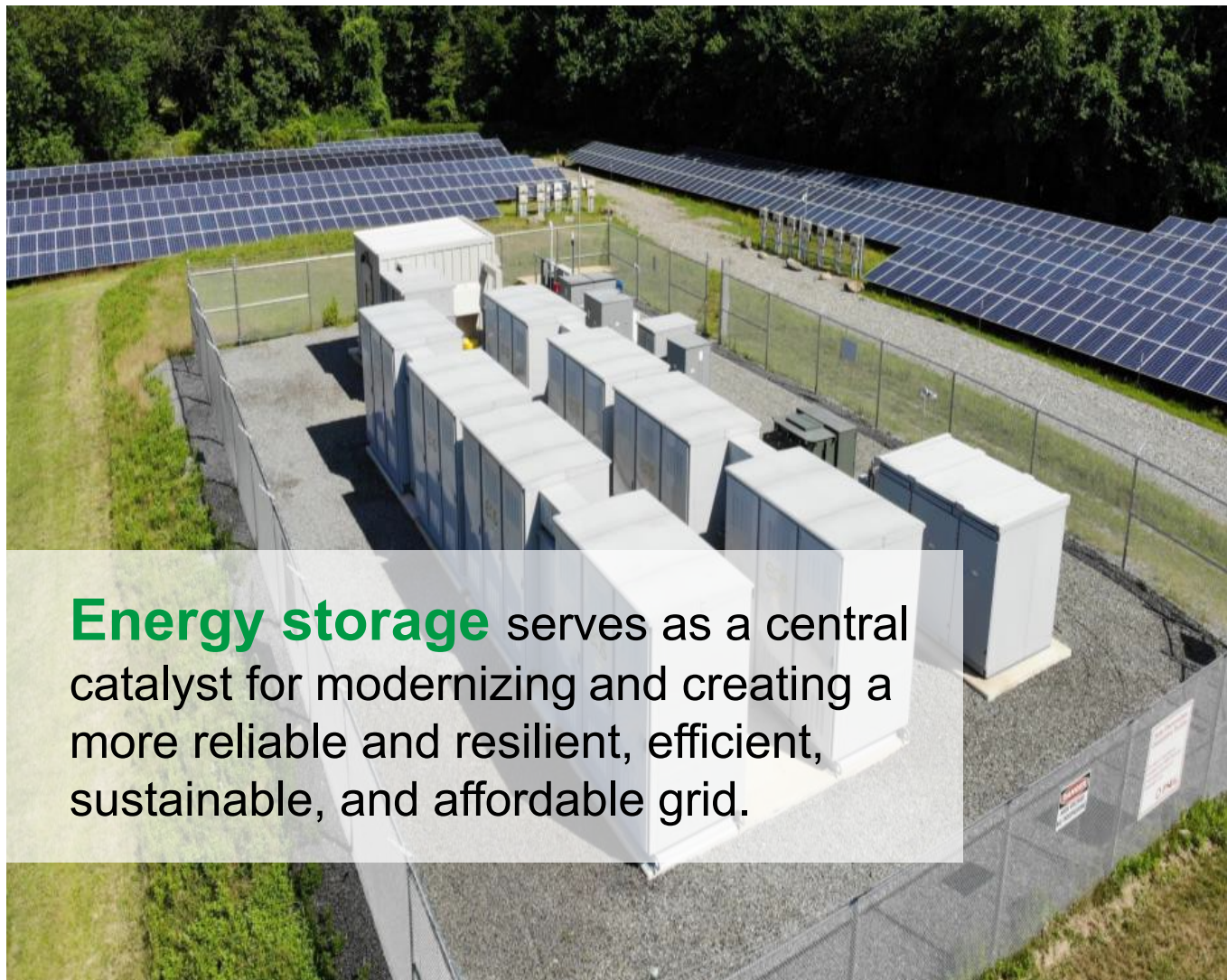
November 2020

Balki Iyer – Chief Commercial Officer

Eos. Positively ingenious.



Eos Energy Storage System



Energy storage serves as a central catalyst for modernizing and creating a more reliable and resilient, efficient, sustainable, and affordable grid.

Eos. Positively ingenious.



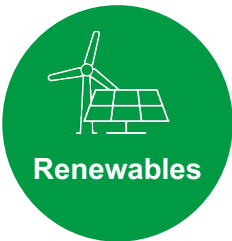











Eos is powering the clean energy renaissance with a positively ingenious energy storage solution

- Global energy storage market estimated to grow 20% CAGR over 20 years
- Eos technology is optimized for the 4+ hour storage market
- Zinc electrolyte-based chemistry; No rare earth minerals required
- Fully recyclable, non-flammable, and non-toxic
- Made in the USA



Energy Market Shifting to Long Duration

Storage solution optimized for the critical 4+ hour global storage market; ideal for renewable plus storage and grid congestion applications

Market Segments	Application	Value Proposition	Market Size	Pipeline Clients
 <p>Renewables</p>	<ul style="list-style-type: none"> Co-location of battery storage with renewable generation assets 	<ul style="list-style-type: none"> Shift renewable power to when the grid needs it most Avoid curtailment and enable higher utilization of clean power assets 	<ul style="list-style-type: none"> 34,159 MWh CAGR +35% vs. 2020 	 
 <p>Utility</p>	<ul style="list-style-type: none"> T&D deferral and Grid Resilience Shaving peak loads and replace aging peaker generation assets 	<ul style="list-style-type: none"> Ability to defer/mitigate infrastructure upgrade costs and minimize outages Provides easy to deploy generation capacity to load centers where it is needed most Store inexpensive electricity for use during peak hours 	<ul style="list-style-type: none"> 28,787 MWh CAGR +33% vs. 2020 	    <p>Carson Cogeneration Company, LP</p>
 <p>Commercial & Industrial</p>	<ul style="list-style-type: none"> Behind-the-meter energy management solutions at large commercial or industrial sites Microgrid resiliency and peak shifting 	<ul style="list-style-type: none"> Shift peak demand needs to reduce electricity costs Microgrid resiliency/backup power Security 	<ul style="list-style-type: none"> 15,405 MWh CAGR +31% vs. 2020 	  

Eos technology enables its customers to advance their own sustainability, resiliency and low-carbon goals

Eos. Positively ingenious.



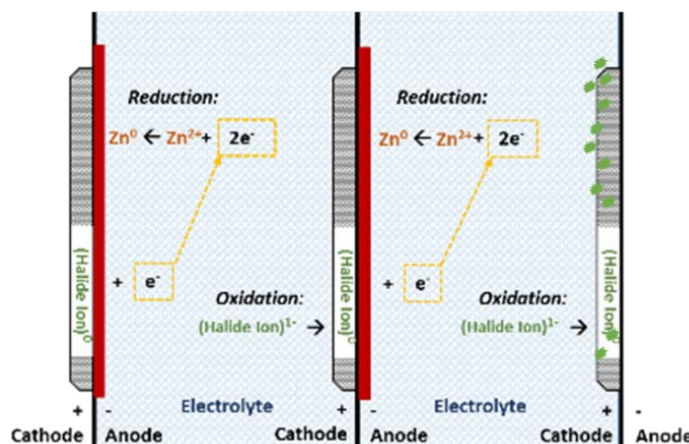
Eos Chemistry Overview

- ✓ Reversible zinc plating and halide redox with large aqueous electrolyte pool in a sealed bipolar battery
- ✓ Zn and Zn^{2+} accumulate at the anode Ti current collector
- ✓ Ha and Ha^- accumulate at the cathode current collector

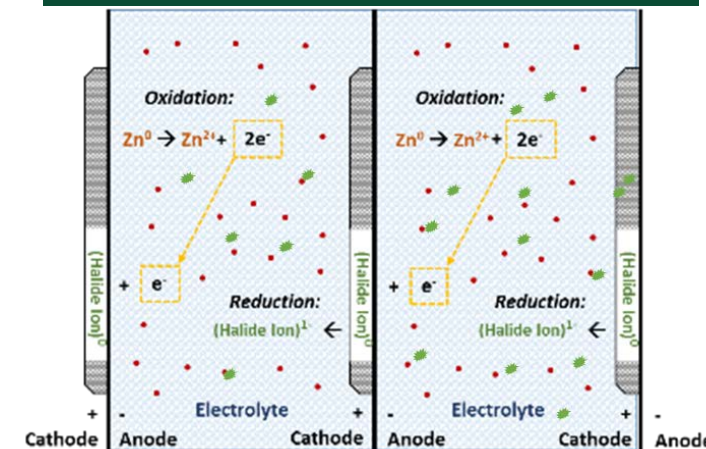
Chemical Inspiration: Zinc Plating Baths



Top of Charge





























End of Discharge and Rest



To specifically design and build a battery for the utility; combining known chemistries and striving to simplify design, manufacturing, and system requirements

Global Deployments with Industry Leaders

Announced Projects			
Project	Status	Use Case	Location
Gen2.0	 Operating	Multi	
	Large Global IPP Complete	Solar Shifting	
	 Operating	FR & Microgrid	
	 Operating	Solar Shifting	
	  Operating	Microgrid	
	  Operating	BTM	
	  Commissioning	BTM	
	  Complete	CAISO Market-Arb	
	  Manufacturing	CAISO Market-Arb	
	 Manufacturing	BTM	
Gen2.3	 Manufacturing	Microgrid	

Eos. Positively ingenious.



Case Study 2: Large Global IPP

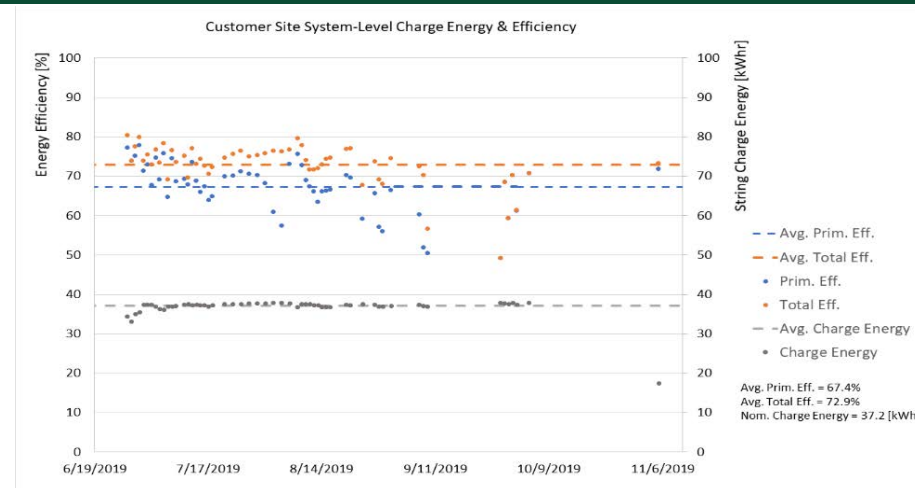
Project Overview/System Specification

Description	<ul style="list-style-type: none"> One Aurora 2.0 Energy Stack supporting DC-coupled solar shifting at an existing 3MW solar plant
Location	<ul style="list-style-type: none"> Kurnool, India
Size	<ul style="list-style-type: none"> 1 Energy Stack, 6 Strings, 72 batteries
Operation Date	<ul style="list-style-type: none"> March 2019 120 cycles performed, 9MWh delivered, 1,000+ hours of operation

Project Highlights

Metric	Max	Min	Average
Primary Power	29.93 kW	21.95 kW	27.91 kW
Primary Discharge Duration	4.24 hr	2.32 hr	2.75 hr
Secondary Power	14.39 kW	4.2 kW	7.88 kW
Secondary Discharge Duration	12.74 hr	1.12 hr	3.98 hr
Temperature	53.5 °C	33.8 °C	44.43 °C
RTE	75.66%	69.20%	72.82%

Energy and Efficiency During Operational Cycles



Lessons Learned / Product Improvements

Lesson Learned	Subsequent Product Improvement
Overseas Deployment	<ul style="list-style-type: none"> Developed operational capabilities to deploy and support product overseas Executed “Make in India” strategy implementing onsite battery filling and integration
High Temperature Performance	<ul style="list-style-type: none"> Demonstrated that batteries are safe and resilient even when reaching temperatures as high as 70 °C Removed outer shells and upgraded ventilation to provide additional cooling Routinely operating at ambient temperatures as high as 45 °C

Leveraging Scalable, Smart, Safe Technology for a Best-in-Class Commercial Battery Solution

Eos Value Proposition



Simple

- Five core commodities in a simple configuration
 - Zinc
 - Bromine
 - Titanium
 - Graphite Felt
 - Plastic



Scalable

- 7-Easy steps of manufacturing
- 12 months or less set up time
- Readily available commodities used in other industries
- No supply chain constraints



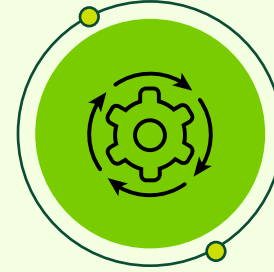
Smart

- Modular product configuration
- Easily integrated DC system
- Fully integrated battery management software stack



Safe

- No risk of fire or thermal runaway
- Wide operating range from -20°-45° C without HVAC



Sustainable

- Fully recyclable
- No rare earths or conflict materials
- Batteries can be refurbished, repackaged and resold



Commercial

- Asset sale
- AC or DC integration
- Financing / leasing
- Extended warranty
- After-market support
- Easy to maintain

Our technology is a next generation storage solution helping to advance a low carbon, more resilient and sustainable energy future.