



Long-Duration Energy Storage Systems for a Cleaner Future

May 2024



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ESS Technology is Commercially Available Today



Large and
fast-growing TAM



Simple, yet
revolutionary technology



Compelling
value proposition



Low risk
expansion plan



Considerable pipeline
of opportunities



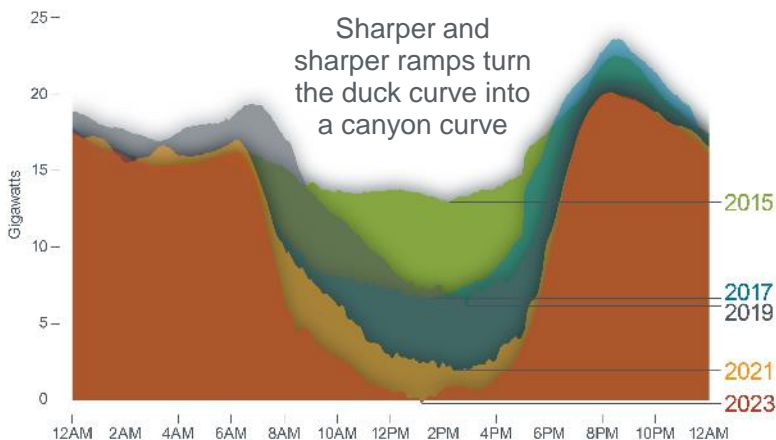


Resiliency
and reliability

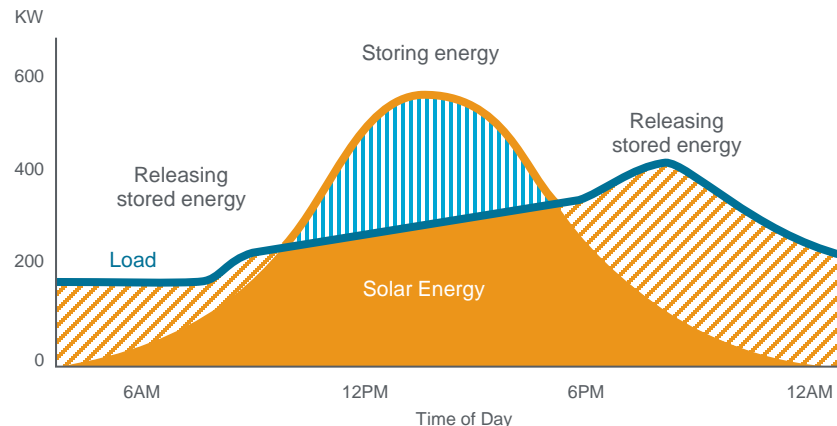
are harder
with
intermittent
resources.



Renewable Penetration Drives Energy Storage Needs



Overgeneration and curtailment result

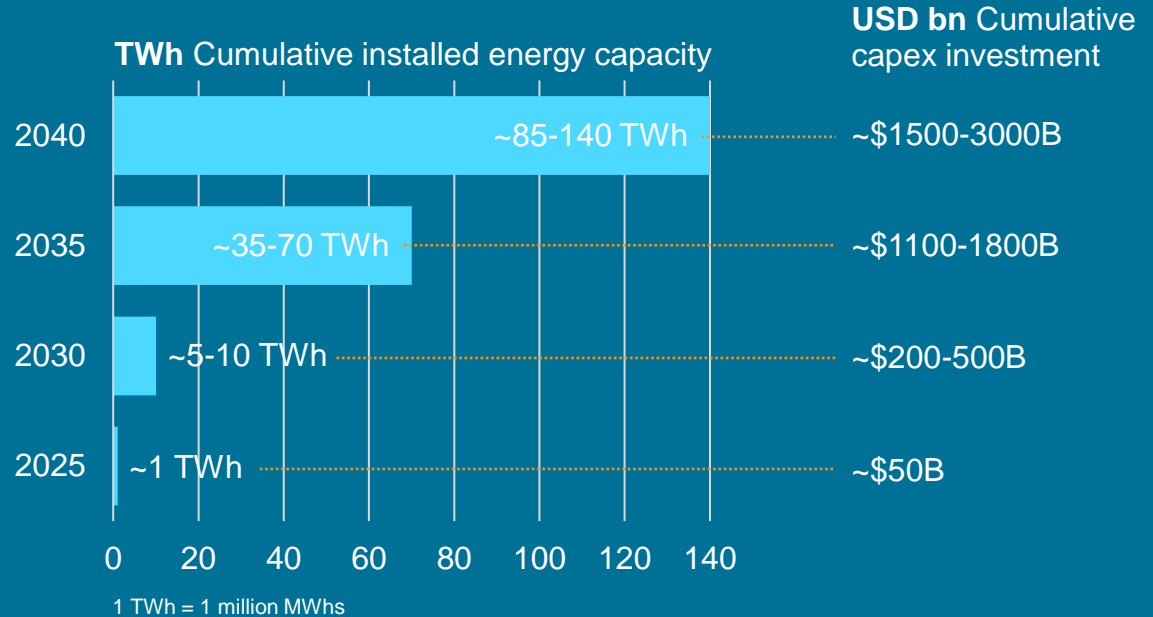


Energy shift to evenings using long-duration storage

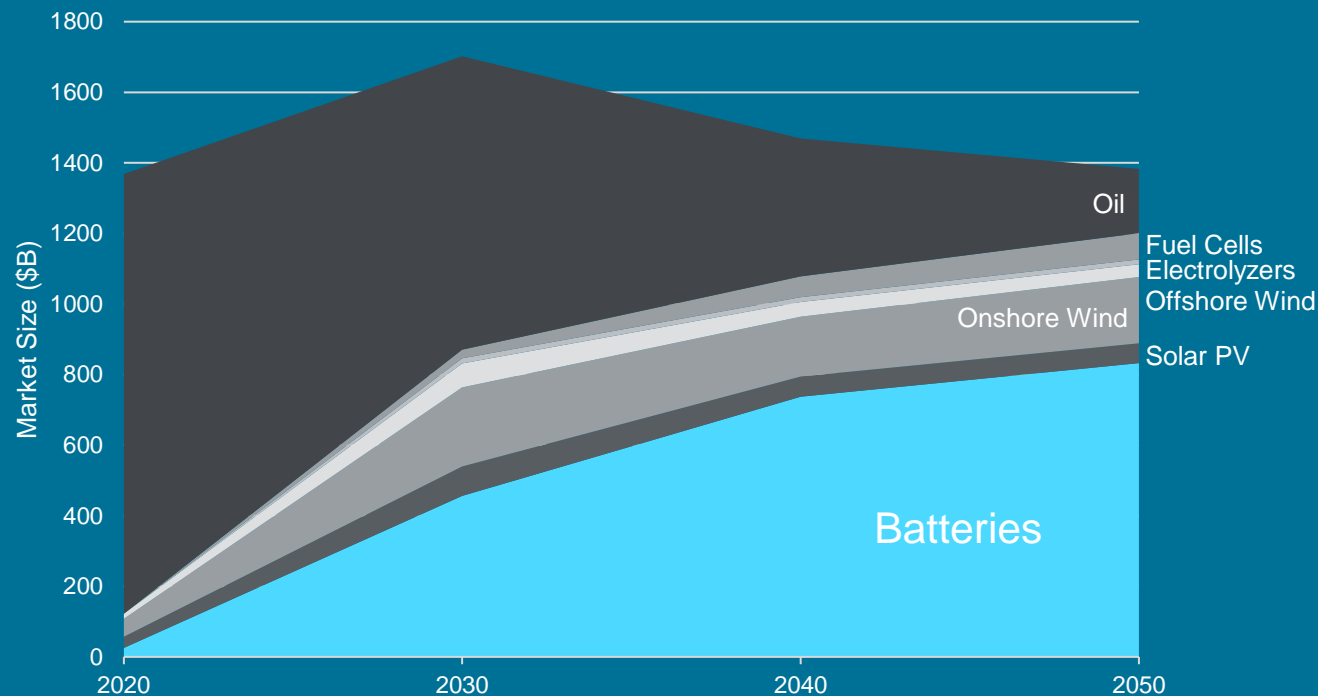
Lack of storage caused more than **2.6 TWh to be wasted in 2023** in California alone



\$3 Trillion Investment



Batteries are a BIG Part of the Solution



Li-ion Presents Roadblocks to Energy Transition

Short-term
energy capacity

Critical
mineral mining

Expensive
long-term

Energy
security

THE WALL STREET JOURNAL.
Rising Battery Prices Add Uncertainty to Electric-Vehicle Costs
Demand for lithium outstrips supply, ending yearlong price declines

Bloomberg
California's Largest Battery Storage Shut Down by Smoke, Again

- Vistra closes 100-megawatt facility after system malfunction
- Incident comes less than six months after previous shutdown

silive.com
As 2 lithium-ion battery site fires smolder in Warwick, more questions raised over Staten Island facilities



Global Collaboration to Advance Iron Flow Battery Market Adoption

Honeywell

Go-To-Market

Honeywell to integrate ESS technology into global go-to-market offering

\$300M targeted purchases in first phase of agreement

Global reach to Honeywell's customers

Intellectual Property

ESS license to Honeywell's flow battery intellectual property

Joint Innovation

Companies invest in joint development for continual technology advancement, cost reduction and packaging of IFB systems

“The demand for long-duration energy storage represents a compelling market opportunity within the energy transition and the combination of Honeywell and ESS technology can accelerate decarbonization for the commercial, industrial and utility sectors.”

Bryan Glover
Chief Growth Officer
Honeywell Performance Materials
and Technology (PMT) group



Representative ESS Deployments

Distributed Generation



Airside Operations



Utility-Scale DER



Green Baseload Energy



Utility-Scale DER



Commercial Traction: Large, Signed Supply Agreements



Customer	Background	Deal Details	Status
Sacramento Municipal Utility District	<p>Large, CA-based utility serving 1.5 million electricity customers</p> <p>Aggressive decarbonization targets</p>	<p>Shipped first phase</p> <p>Developing LDES Center of Excellence</p> <p>Enabling 2030 Zero Carbon Plan – 2GWh of storage by 2028</p>	<p>Phase 1 commissioning completed</p> <p>Units cycling at customer site</p>
Energy Storage International – Asia Pacific	<p>ESI is our distribution and manufacturing partner in AU/NZ/Oceania</p>	<p>Expected to deliver 1GWh of iron flow batteries over the next 7 years</p>	<p>Initial delivery complete</p> <p>Recently announced contract with Energy Queensland</p>
LEAG	<p>Currently operating large-scale lignite mining and coal-fired generation</p> <p>Implementing a vision to transform the coal-dependent region into Germany's green powerhouse</p>	<p>50MW / 500MWh iron flow battery system</p> <p>Expected to provide standardized building block for LEAG's planned 2-3GWh of LDES</p>	<p>Completed initial engineering contract</p> <p>Moving to detailed engineering phase</p> <p>Target COD 2026</p>



Commercial Traction: Deals with Large Upside



Customer

Background and Deal Details

Broader Opportunity

Turlock

Pairing storage with solar that will cover CA aqueducts, providing multiple benefits

Demonstration of new solar storage for grid firming and evening arbitrage

20-50MW by 2030

Excess solar to capitalize in ISO for peak shifting

Part of Project Nexus designed to prove use case of storing excess solar over state and utility aqueducts

Schiphol

Large European airport; leading the way to decarbonize ground operations as part of the TULIPS consortium

Targeting emission-free and zero-waste at the EU's 300+ airports by 2030 and climate-neutral aviation by 2050

Consumers Energy

Microgrid powering the White Pigeon Gas Compression Facility

Potential for 7MW of IFB deployments across all seven gas compression plants

Burbank Water & Power

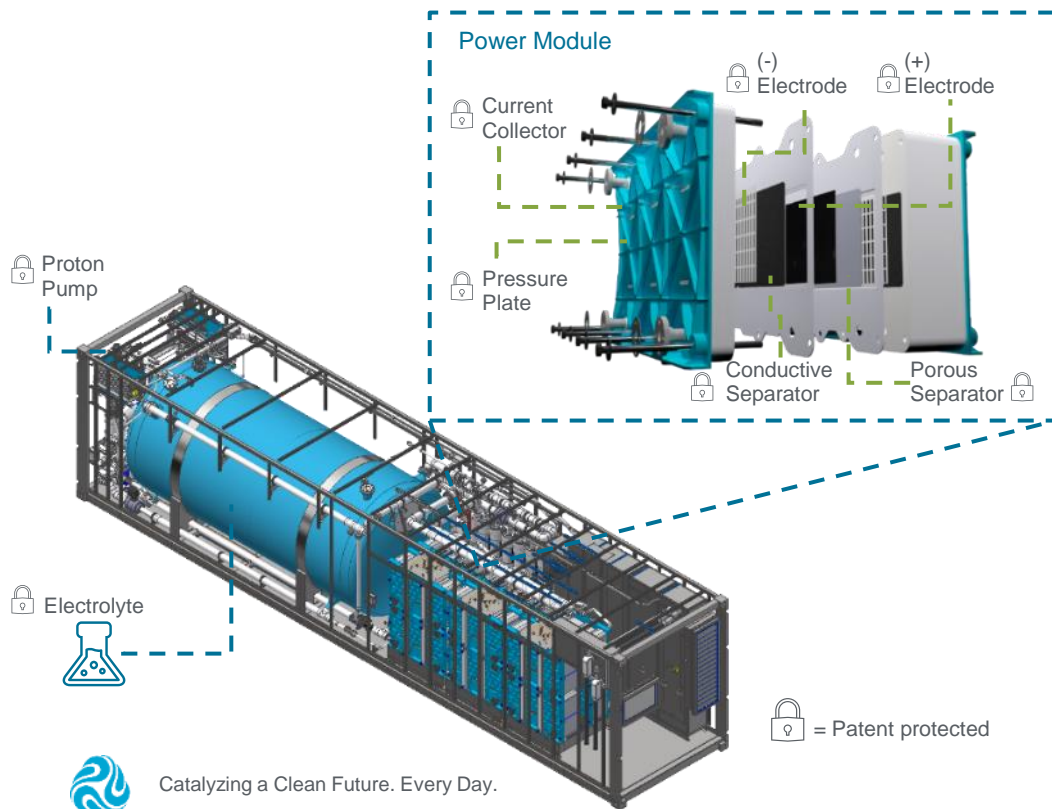
Renewable energy integration

Potential for 5MW by 2028 as part of decarbonization efforts

Model for public power market



Differentiated Iron Flow Design and IP Protected



ESS IP portfolio

- 250+ patents granted and in pipeline pending applications
- Undisclosed number of trade secrets and identified patents
- World-leading iron flow expertise and roadmap to additional breakthroughs and advantages
- ~44% employees have an engineering background

Scalable by simply adding more electrolyte

- Same system + more electrolyte = longer duration



Energy Warehouse™ Overview

First commercial deployment in 2015

Fully integrated containerized design

EW-500 shipping in 2024

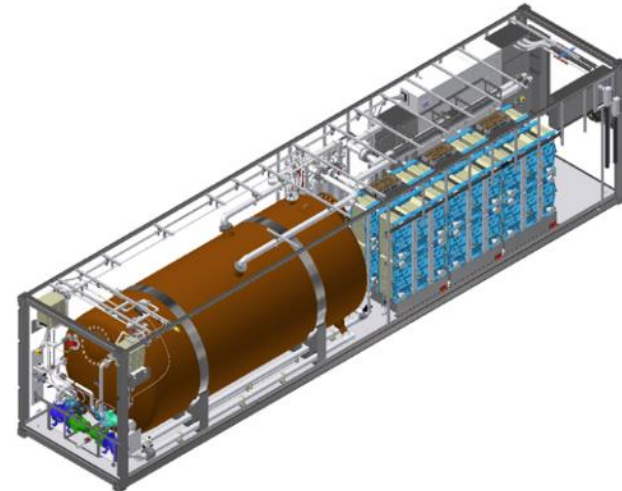
Fast and easy to deploy and commission

Specifications

Rated Discharge Power	75 kW at POC
Rated Charge Power	90 kW at POC
Rated Capacity	420 kWh
Discharge Capacity	Up to 500 kWh
Ambient Temperature	-15°C to +50°C (5°F to 122°F) Operating Range
Expected Life	25-year design life with no degradation
Warranty	1-year comprehensive defect warranty Extended warranty available
Certifications	Conforms to UL 1973, UL 9540, UL9540A, NFPA 855



Catalyzing a Clean Future. Every Day.



Energy Center Overview

Front-of-the-meter solution

Modular design for utility-scale applications

Currently in production, scaling in H2 2024

Specifications

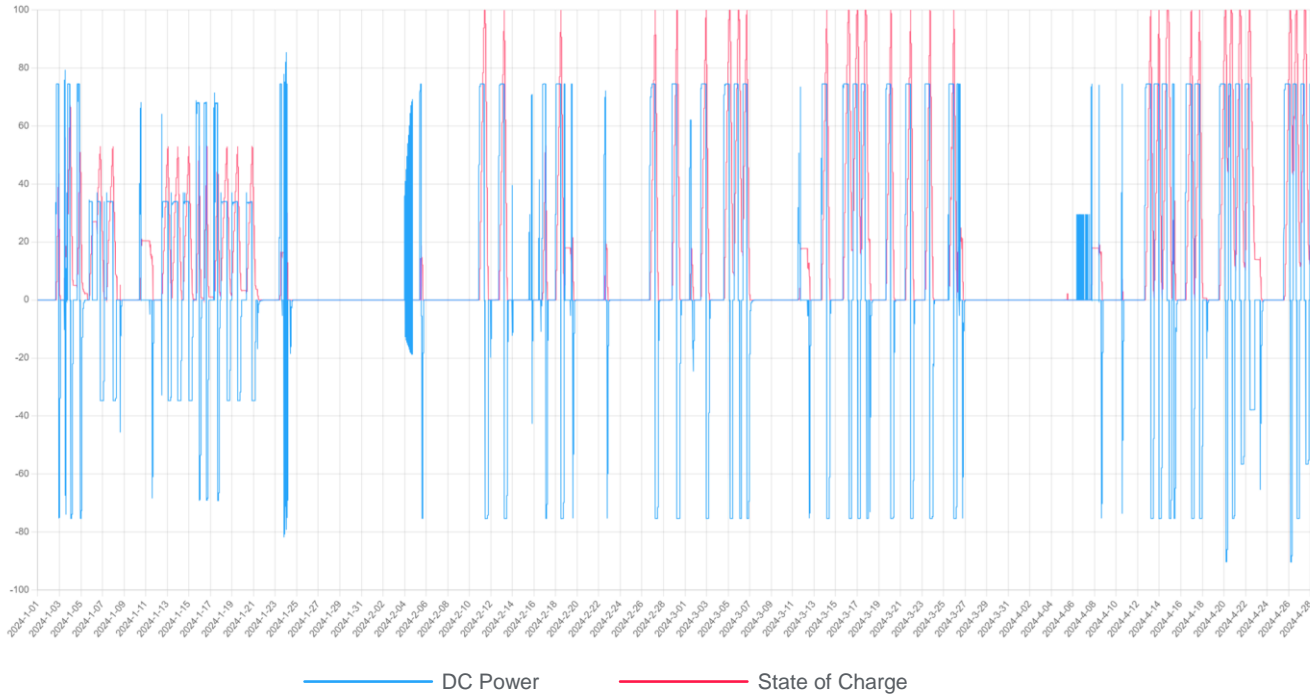
Configurable Range	Customizable up to GW scale
Rated Capacity	145 kW DC / 1.16 MWh DC
Ambient Temperature	-15°C to +50°C (5°F to 122°F) Operating Range
Expected Life	25-year design life
Secondary Containment	Integrated into tank container to volume of largest tank
Warranty	1-year comprehensive defect warranty Extended warranty available
Certifications	Conforms to UL 1973, UL 9540*, UL9540A*

*pending



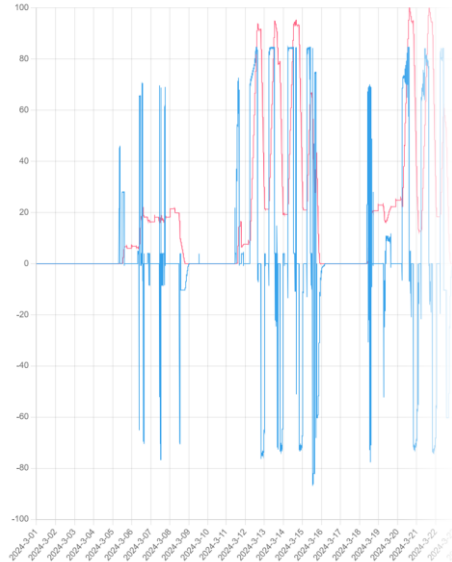
Cycling Data from Internal ESS Testing

Year-to-date cycle testing of a durability unit

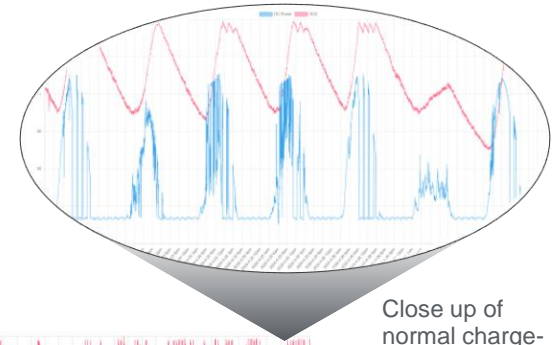
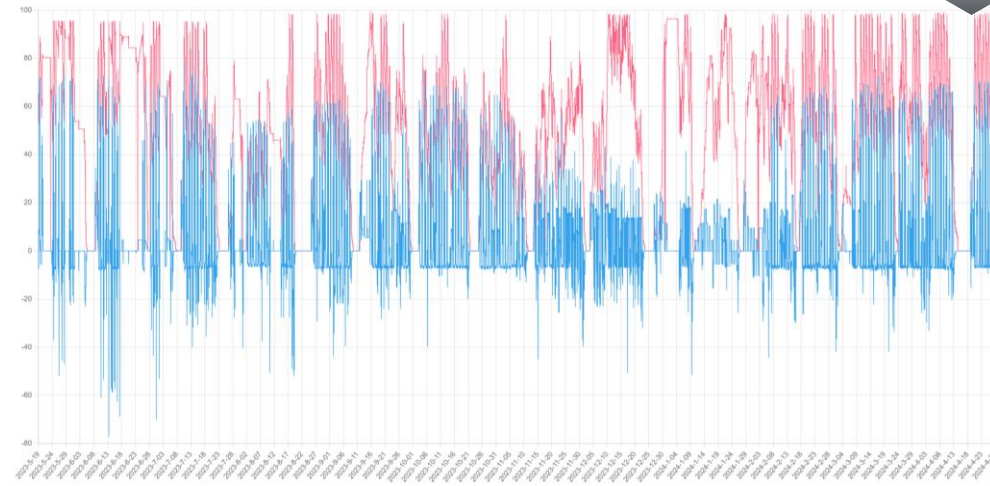


Cycling Data from Units in the Field

Early Testing Cycling



Almost one year of continuous operation – performing to specification














Close up of normal charge-discharge cycles

— DC Power
— SOC

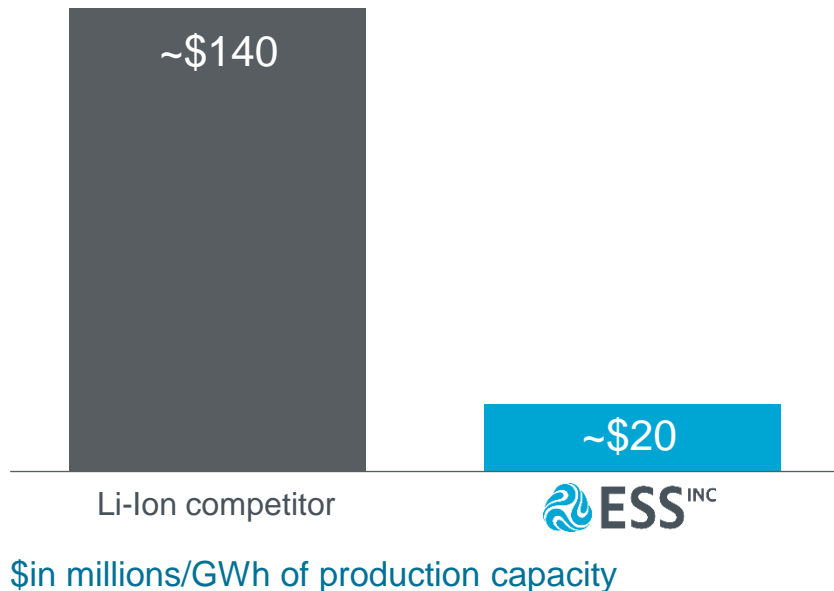


ESS Benefits

What Customers Demand		How ESS Transforms the Grid
 <p>Longer duration</p>	<ul style="list-style-type: none"> • Up to 12 hours • No capacity fade • No power fade 	 <ul style="list-style-type: none"> • Can replace coal and gas with solar and wind • Designed for utility-scale applications
 <p>Low cost</p>	<ul style="list-style-type: none"> • Lower LCOS than other technologies • No augmentation required 	 <ul style="list-style-type: none"> • The first truly low-cost flow battery • In commercial production today
 <p>Power on demand</p>	<ul style="list-style-type: none"> • 25-year lifetime with no daily cycling limit • No degradation • Flexibility allows multiple revenue streams 	 <ul style="list-style-type: none"> • Improved grid resiliency and flexibility • Enables multiple use cases
 <p>Safety, reliability, and bankability</p>	<ul style="list-style-type: none"> • Conforms to UL 1973, UL 9540*, UL9540A, NFPA 855 (Energy Warehouse) • Wide operating temperature range 	 <ul style="list-style-type: none"> • Can deploy in a wide range of geographies • No HVAC needed – cuts CAPEX and OPEX
 <p>Sustainability</p>	<ul style="list-style-type: none"> • Safe and sustainable • Easily sourced materials; recyclable components • “Plug and play” with 25-year design life 	 <ul style="list-style-type: none"> • Environmentally sustainable • Accelerates clean energy transition

85%+ Less Capital Required – Ready to Scale Globally

Simple, low-cost production in the USA



VS



Our 2024 Operational Focus

01

Scaling manufacturing capacity, including automation and injection molding processes



02

Improving supply chain quality and outsourcing non-core components



03

Optimizing product designs through simplification of electrical and plumbing installations

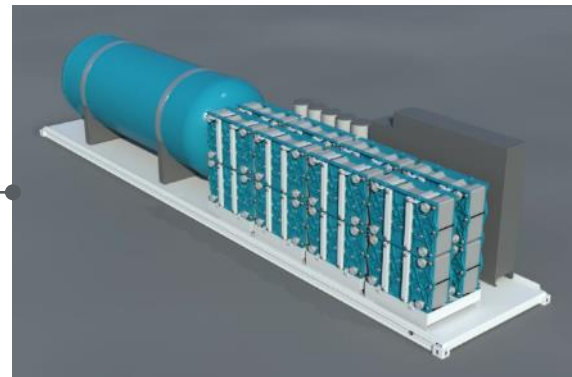


04

Reducing time to commission solutions at client sites



Four Major Technologies of the EW



**Battery Modules
(Stacks)**
Intellectual property that
differentiates ESS
Generates the electricity
More complex build processes

Proton Pumps
Intellectual property that
differentiates ESS
Keeps the iron flow battery
electrically balanced
Moderate build complexity

Electrolyte
High-grade iron,
salt, and water
Mixture simple
to combine

Balance of System (BoS)
Necessary componentry to make the
other three work together
Low build complexity, many parts –
like a giant washing machine
Great benefits in streamlining assembly

Orchestrating these four technologies into a single system



2023 Improvements

Build & Commission

60% ↓

Brought down costs to build an EW by almost 60% in 2023

45% ↓

Lowered labor hours for balance of system by 46%

73% ↓

Lowered the cycle time to build an EW by 73%

25% ↑

Improved electrolyte increasing energy density by 25%

50% ↓

Time to commission an EW at a customer site cut in half

Intellectual Property

78 ↑

Filed 78 new patents

31 ↑

31 new patents granted for a total of more than 85 patents granted

Financial

50% ↓

Cut Q4 EBITDA loss cut in half year over year

\$108M ↑

\$108M in cash and short-term investments on balance sheet



Q1 2024 Results

Revenue

\$2.7 million

Non-GAAP Operating Expenses

\$9 million

Adjusted EBITDA

Loss of \$15.4 million, a decrease of more than 28% year over year

Cash and short-term investments

\$89.6 million





Thank You