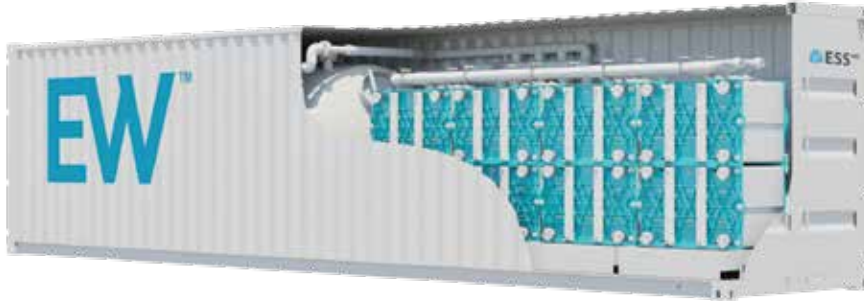


CLEANEST, LOWEST COST LONG-DURATION STORAGE WITH NO CAPACITY DEGRADATION



ENERGY STORAGE FOR CRITICAL PROJECTS

Utilizing earth-abundant iron, salt and water for its electrolyte, and simple materials for battery components, the Energy Warehouse™ (EW) from ESS Inc. is a safe (no hazardous materials) and sustainable (fully recyclable) iron flow battery storage solution that is ideally suited for:

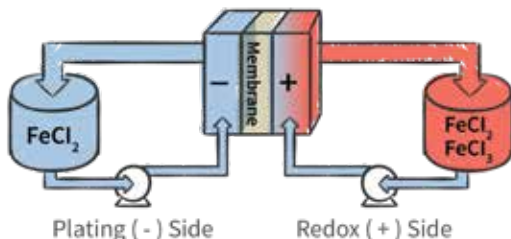
- Time-shifting renewable energy on a daily basis.
- Managing a facility's demand or TOU charges.
- Smoothing the intermittency of renewables on a constrained grid.
- Increasing resiliency and fuel efficiency for remote locations.

The EW has an energy storage capacity of 400 kWh, a 25-year design life, and can be configured with variable power to provide storage durations of 4 to 12 hours. These features make it ideal for traditional renewable energy and utility projects where long-life and unlimited cycling capability are desired. Concurrent with serving these applications, the EW's inherent quick-response power electronics can perform ancillary grid services such as voltage and frequency support on microgrids.

UNLIMITED CYCLING TECHNOLOGY

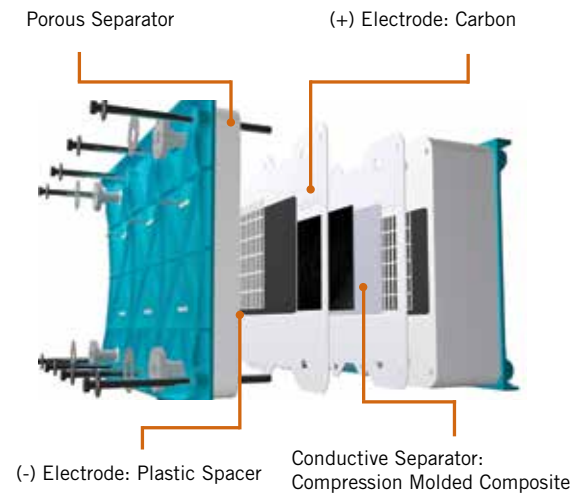
ESS Inc.'s iron redox (reduction-oxidation) flow battery technology is based on the simplicity of the electrochemical ferrous/iron plating reaction on the negative side and the ferrous/ferric redox reaction on the battery's positive side.

The firm's patented electrode design and control system allow the battery to operate at high efficiency over literally an unlimited number of deep charge and discharge cycles, with no degradation or capacity fade. Our products are designed for a 25-year operating life with minimal annual operations & maintenance (O&M) requirements.



With the same electrolyte running on both the negative and positive sides, there is no risk of cross contamination.

FLOW TECHNOLOGY: IDEAL FOR MULTIPLE USE CASES



Unlike typical batteries that are packaged as fixed cells or modules, a flow battery allows the power (the rate of electricity flow) to be decoupled from the capacity (the total amount of energy held). As a result, users have the flexibility to use the battery for a variety of use cases simultaneously on a project.

FEATURES AND BENEFITS

- Warranty backed by Munich Re
- Cost-effective, made of Earth's basic elements.
- Environmentally safe, non-toxic electrolyte;
 - no risk to environment or personnel.
- Non-flammable–non-explosive–no hazardous materials
- Long-duration storage (4–12 hours).
- Optional power configurations between 33 kW and 100 kW
- No cooling/air conditioning requirement.
- Long life, >20,000 cycles, low maintenance.
- Shipped in dry state and hydrate onsite –reducing shipping costs
- Fast and easy permitting –no hidden liabilities; no hazmat compliance plan requirement

400 kWh Energy Warehouse™ Iron Flow Battery

SPECIFICATIONS

Features

Configurable Range:	33 kW–100 kW (peak power)
Storage Duration:	4–12 hours
Usable Energy:	400 kWh
Roundtrip Efficiency:	75% (DC-DC)
Standard DC Voltage:	765-935 VDC, 500 V max to PE ref.
Optional AC Voltage:	400-480 VDC, 3-phase, 50/60 Hz
Response Time:	<1 sec.
Module Cycle Life:	>20,000 cycles
Controls:	On-board battery management system: Modbus interface (SunSpec protocol)
Communication Options:	24/7 remote monitoring (TCP/Ethernet interface)
Certification:	Inverter UL 1741 SA certified UL 9540, IP54, CE mark (EU version only)

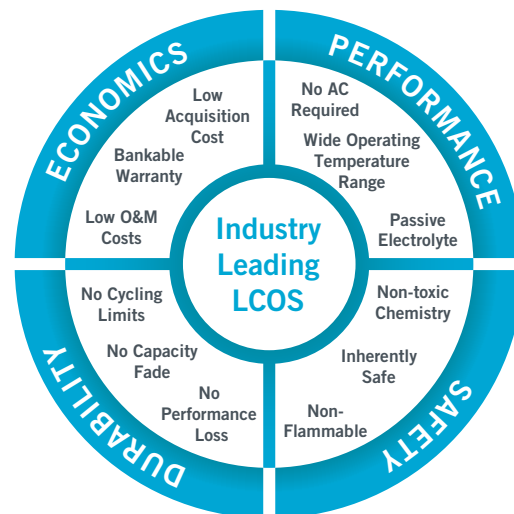
Mechanical

Footprint:	320 ft² or 29.7 m²; Seismic rated, Stackable
Dimensions:	12.2 m x 2.4 m x 2.9 m (40 ft x 8 ft x 9.5 ft)
Max Weight (Dry):	16,000 kg
Max Weight (Wet):	38,000 kg

Environmental

Battery:	Recyclable components
Electrolyte:	FeCl ₂ , KCl, H ₂ O; re-usable, recyclable
Ambient Temperature:	-5°C to +50°C
Warranty:	1 year comprehensive defect warranty 10 year warranty backstop underwritten by Munich Re

LOWEST LEVELIZED COST OF STORAGE



The EW is a flexible long-duration energy storage system that safely and effectively addresses the broadest range of energy and power applications at a lower Levelized Cost of Storage (LCOS) than other technologies on the market.

Warranty partner



ESS Inc. has partnered with Munich RE to launch industry-first insurance coverage of its flow batteries. The innovative policy means our long-duration storage solutions are now backed by a full 10-year performance guarantee, regardless of project size or location.



For more information, contact:



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EW_Datasheet_01_20_2020