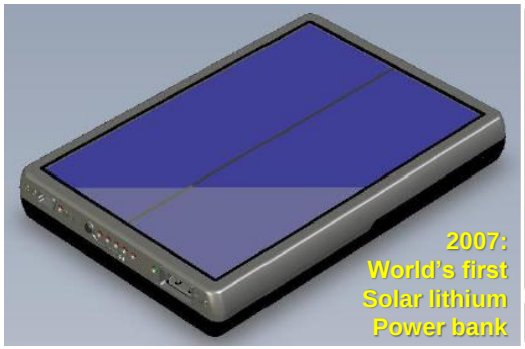
ENERGY STORAGE SYSTEMS LLC

DESIGNED, ENGINEERED
ASSEMBLED IN THE USA

MOAB
POWERLINK
POWERLITE

HUMBLE BEGINNINGS ... 1993

1996: World's first wearable consumer lithium-ion power bank



2007: World's first Solar lithium Power bank

DESIGN & ENGINEERING SHOWCASE HONORS
INNOVATIONS INTERNATIONAL CES
2007

International CES
40th Anniversary
1967-2007
PRODUCED BY CEA

Energy Storage Systems LLC™ [ESS], is a spinoff of a 25-year US technology pioneer, with roots in the research, development of lithium battery technologies, within the commercial, industrial, military and space arena.

A pioneer in the field of lithium battery and battery management systems [BMS], ESS developed a string of the world's first … the world's first BMS for Sony's 18650 lithium cells in 1993, followed by the world's first portable power bank in 1996, followed by the world's first solar-embedded power bank in 2007, and so on and on. The firm developed battery and charger modules for NASA, Soldier Power Systems for the Marines, power for drones of all types, as well as, for tactical and satellite radios like Inmarsat and Iridium, laptops and other portable devices for OEMs around the globe.

ESS has designed an extensive range of lithium battery solutions for our product lines; MOAB POWER and POWERLINK ENERGY. Ranging from small-scale, portable/fixed emergency and backup systems [5kWh], to medium-scale, fixed/transportable, to large-scale mWh grid and off-grid energy storage solutions. We create safe, affordable, modular, scalable, solar generated, lithium battery-based, grid-connect and off-grid solutions for primary and backup applications in the Caribbean, Latin America and around the globe.

We are currently working on development of our next generation LFP Blade and Sodium-ion batteries.

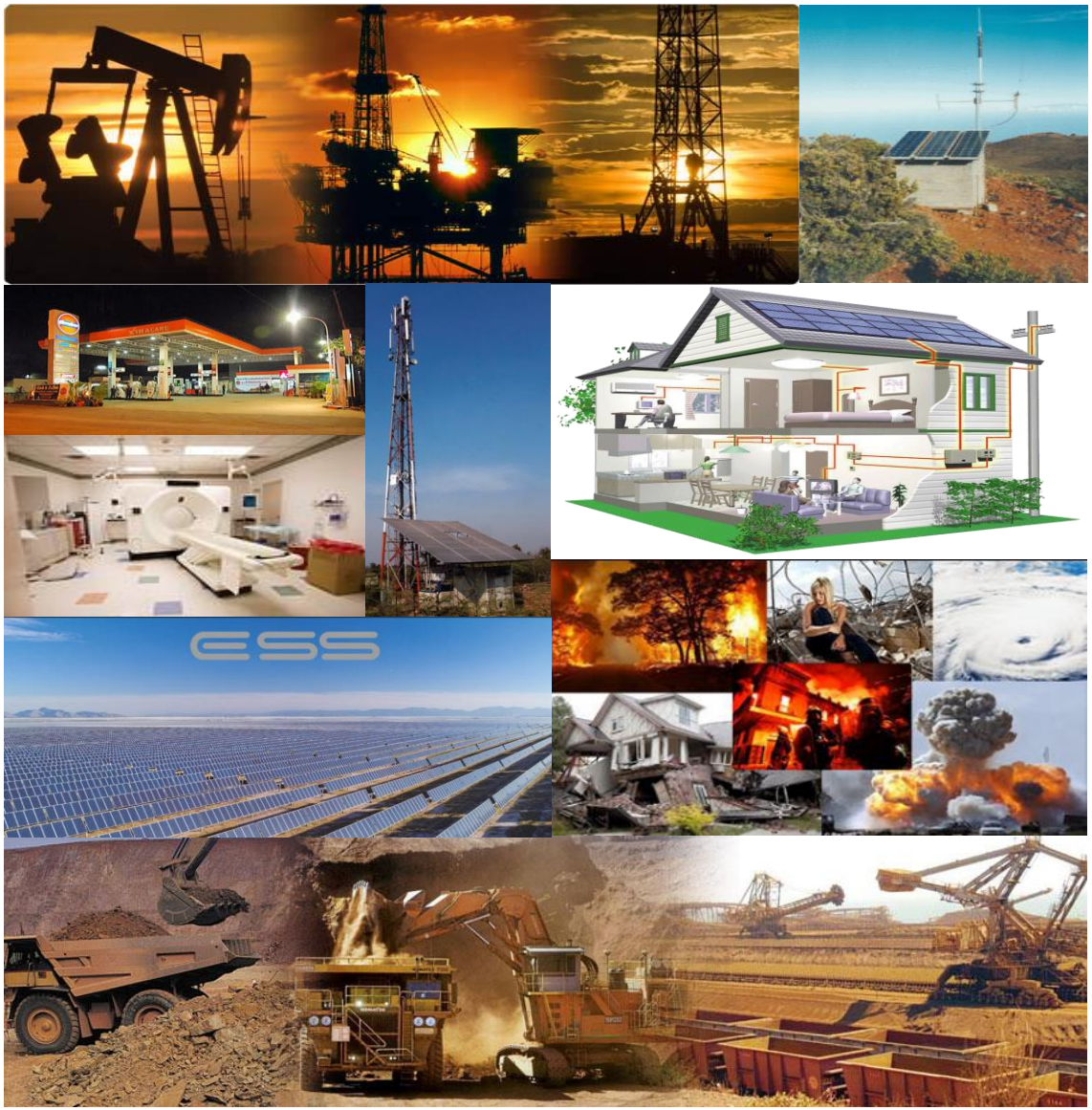
TIMELINE

- US Design/Build technology firm, with origin dating back to 1993
- Pioneering designers of Solar & Lithium Battery Products & Solutions
- Technical team with 150+ years of cumulative expertise in BMS, Batteries & Solar
- Launched world's first commercial "BMS" for Sony's 18650 cells - 1993
- Launched POWERLINK Rechargeable Zinc-Air Battery - 1996
- Launched POWERLINK 572, world's first Wearable Lithium Power Bank - 1997
- Launched POWERLINK Flash, world's first Mobile Solar, Lithium Power Bank - 2007
- Developed ZEVO - Light Commercial Electric Vehicle Concept - 2010
- Developed TouchLite - Mobile, Rechargeable LED Lighting Product Line - 2012
- Launched MOAB TABLET - Tablet-sized Mobile Power Product - 2014
- Launched MOAB 30/60/120 - Solar Home Systems - 2015/2016
- Launched MOAB 250/500 - Solar Power Systems - Q1 of 2017
- Launched MOAB 1.5/3.0 - Solar Power Systems - Q2 of 2018
- Launched MOAB 2.0/4.0 - Solar Power Systems - Q3 of 2018
- Launched MOAB Portable Power Systems [PPS] - Q1 of 2020
- Launched MOAB FR Series Batteries - Q2 of 2020
- Launched MOAB LFP Series Batteries - Q3 of 2020
- Launched POWERLITE Series Rack Batteries - Q4 of 2020
- Launched POWERLINK eGEN - Q1 of 2021
- Launched SOLARPORT - Q1 of 2021
- Launched POWERLINK eGEN POWERCOM - Q4 2021
- Launched POWERLINK All-in-One Residential System - Q4 2022
- Launched POWERLINK eGEN All-in-One Commercial System - Q4 2023
- Launched POWERLITE Series Energy Storage System - Q1 2024
- Scheduled Launch: MOAB High Energy Sodium-ion Batteries - Q4 2024

APPLICATIONS

RAPID DEPLOYABLE SOLAR POWER SOLUTIONS

. . . ANYTIME . . . ANYWHERE

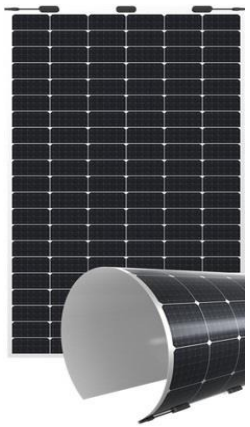


MODULAR ▪ SCALABLE ▪ MOBILE ▪ ECO FRIENDLY

NOISELESS ▪ ODORLESS ▪ FUEL-LESS ▪ RUGGED

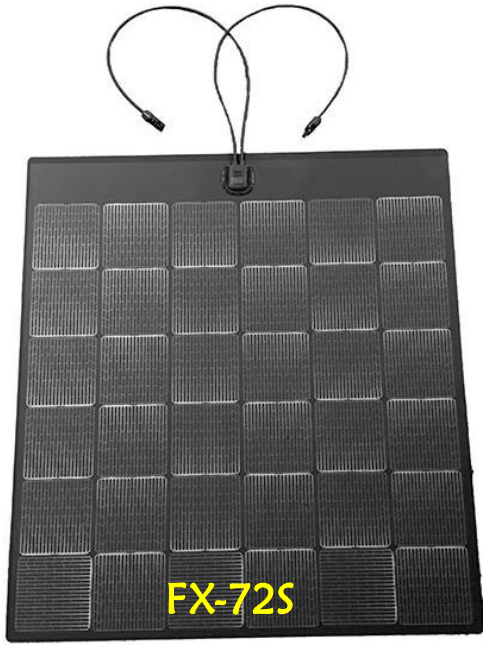
CURRENT SOLUTIONS

Qualifies for 30% Federal Solar Investment Tax Credit



ENERGY STORAGE SYSTEMS

360W FLEXIBLE SOLAR PANELS



- TPO, EPDM on Flat or Standing Seam Metal Roofs
- Frameless, lightweight “peel & stick” modules
- High energy, increased durability, and reliability
- Superior low-sun angle and low light performance
- Bypass diodes allow for max performance under shade
- Portable or Mounted on metal backer sheet

80% Lighter than Glass Systems

50x More Durable Vs. Bus Bar Technology

20% More Energy in Real World Conditions

2.5x Power Density Vs. Thin Film Technology

TECHNOLOGY

Industry leading power output | Built to meet or exceed standard equivalent to UL 1703, IEC 61215 & IEC 61730 | Enhanced performance under all light conditions | Designed and engineered in USA | Outstanding aesthetics | Redundancy by design | Robust module integrity and performance under extreme conditions | Military grade design, materials, & approvals.

FEATURES

Optimize for maximum performance in scattered light & extreme weather conditions | Light-weight and rugged | Higher energy production throughout module lifetime |

ALL-IN-ONE PORTABLE POWER SYSTEM

- 5kWh Lithium Battery
- 3.5kW Bi-directional Inverter
- 800W Solar Charge Controller

- Residential
- Apartment
- Condominium
- Commercial
- Office/Shop
- Contractors
- Recreational/Camping

- Fans & Lights
- Portable Electronics
- Garage Door Openers
- Refrigerators & Freezers
- TV, Stereo & Small Appliances
- Pumps, Alarms & Sensors
- Point-of-Sale Systems
- PC & Internet Modems

POWERLITE PPS 5.1

POWERLITE

SPS 5 RM

SCALABLE POWER SYSTEM

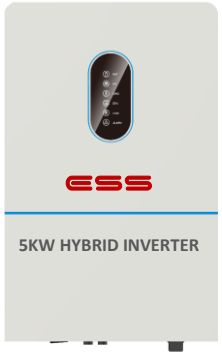
- 5.12KWH CATL LFP BATTERY
- SCALABLE TO 164KWH
- CLEAN
- CONSISTENT
- RELIABLE
- RESLIENT
- REDUNDANT
- SAFE POWER
- 30-YEAR LIFE

POWERLITE

SPS 5 - 5

SCALABLE POWER SYSTEM

- 5~8KW HYBRID INVERTER (CHG / DISCHG)
- 7.5KW~15KW PV INPUT (MAX)
- 210A CHARGE / DISCHARGE (MAX)
- 98% ROUND TRIP EFFICIENCY
- HIGH MPPT CURRENT
- ADVANCED PARALLEL FUNCTION
- AC, DC, SURGE, AFCI & RSD PROTECTION
- REMOTE MONITORING (OTA UPDATES)
- INDOOR / OUTDOOR (IP65)



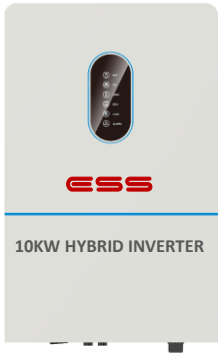
- 5.12KWH LFP BATTERY
- CATL LFP CELLS (30-YEAR LIFE)
- EASY INSTALLATION
- PLUG-N-PLAY OPERATION
- UP TO 32 UNITS IN PARALLEL
- BUILT-IN HEATER FOR LOW TEMP
  - CHARGE: -5°C ~ 55°C
  - DISCHARGE: -15°C ~ 55°C
- CLEAN, CONSISTENT & SAFE POWER
- RELIABLE, RESILIENT & REDUNDANT
- REMOTE MONITORING (OTA UPDATES)
- FLOOR / WALL MOUNTABLE (IP65)

POWERLITE

SPS 10 - 10

SCALABLE POWER SYSTEM

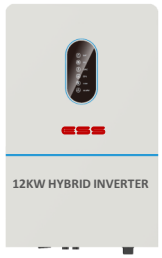
- 10~12KW HYBRID INVERTER (CHG / DISCHG)
- 15KW PV INPUT (MAX)
- 210A CHARGE / DISCHARGE (MAX)
- 98% ROUND TRIP EFFICIENCY
- HIGH MPPT CURRENT
- ADVANCED PARALLEL FUNCTION
- AC, DC, SURGE, AFCI & RSD PROTECTION
- REMOTE MONITORING (OTA UPDATES)
- INDOOR / OUTDOOR (IP65)



- 10.25KWH LFP BATTERY
- CATL LFP CELLS (30-YEAR LIFE)
- EASY INSTALLATION
- PLUG-N-PLAY OPERATION
- UP TO 16 UNITS IN PARALLEL
- BUILT-IN HEATER FOR LOW TEMP
  - CHARGE: -5°C ~ 55°C
  - DISCHARGE: -15°C ~ 55°C
- CLEAN, CONSISTENT & SAFE POWER
- RELIABLE, RESILIENT & REDUNDANT
- REMOTE MONITORING (OTA UPDATES)
- FLOOR / WALL MOUNTABLE (IP65)

POWERLITE

SMART ENERGY HUB



- 20.5/41/62KWH ALL-IN-ONE ENERGY HUB
- 10/12/15KW (120/240/208V) HYBRID INVERTER
- 15KW PV INPUT VIA 3 MPPT (MAX)
- 2/4 x 10.25KWH CATL LFP BATTERIES
- SUPPORTS AC COUPLED PV INPUT
- INTEGRATED AFCI & RAPID SHUTDOWN
- STANDBY GENSET CONNECTION
- SEAMLESS BACKUP TRANSITION (<10ms)
- ANTI-ISLANDING PROTECTION
- INTEGRATED LOAD MANAGEMENT
- LUMIN SMART PANEL
- PRIORITIZE LOADS IN A GRID OUTAGE
- UP TO 12 CONTROL CIRCUITS
- ROLLING FLOOR OR /WALL MOUNT CABINET
- SMART APP
- 10-YEAR WARRANTY

ALL-IN-ONE BESS HUB

125KW/344~368KWH

Liquid-cooled ESS module based on 280A/300Ah prismatic LFP cells with very high cyclic life.

Specially optimised for use in stationary battery storage systems with the highest demands on safety, reliability and performance. Suitable for industrial, utility, and grid.

- Product certifications:
  IEC 62619 (cell level), UL 1973, UL 9540A, UN 38.3
- Company certifications:
  ISO 9001, ISO 14001, ISO 45001
- Environmental Compliance:
  ROHS, REACH

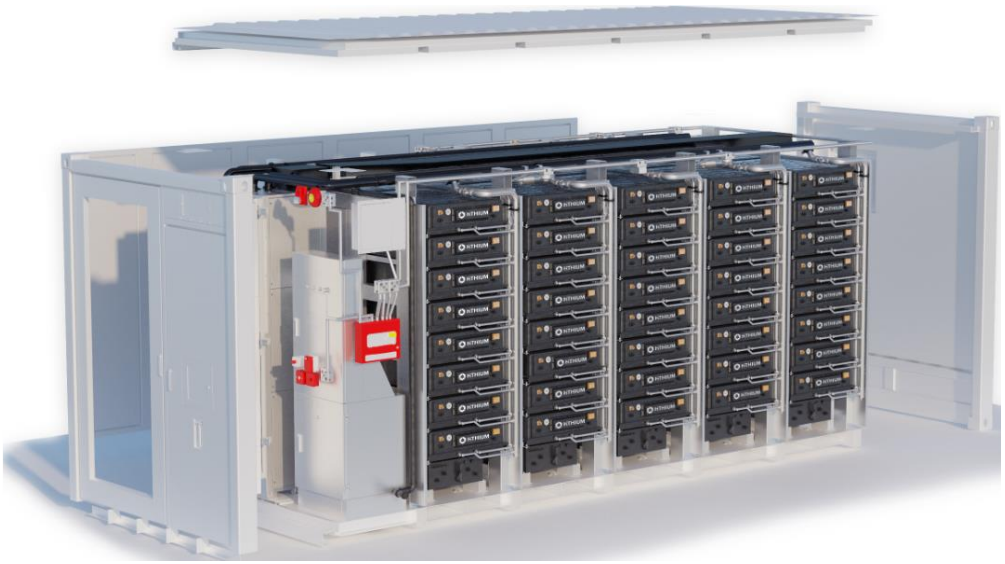
High safety

- Based on ESS 280 Ah prismatic LFP cells
- Active Lithium-Ion Technology with Sustained Release
- High Thermal stability
- Ultra-wide operating temperature range

Low LCOS (Levelised Cost of Storage)

- Very long cycle life thanks to advanced material and process technologies
- Excellent thermal management improves energy throughput by creating an optimal operating temperature

ESS 5 MWh Container: Liquid-cooled Battery Storage System



Liquid-cooled battery storage system based on ESS 314Ah prismatic LFP Cells with the highest cycle life

Improved safety characteristics and specially optimised for the highest demands on safety, reliability and performance. Suitable for industrial, utility, and grid serving applications.

- Product certifications:
  IEC 62619, IEC 62477, IEC 63056, IEC 61000,
  UL 1973, UL 9540A, NFPA 855, UN 38.3
- Company certifications:
  ISO 9001, ISO 14001, ISO 45001
- Environmental Compliance: ROHS, REACH

High safety

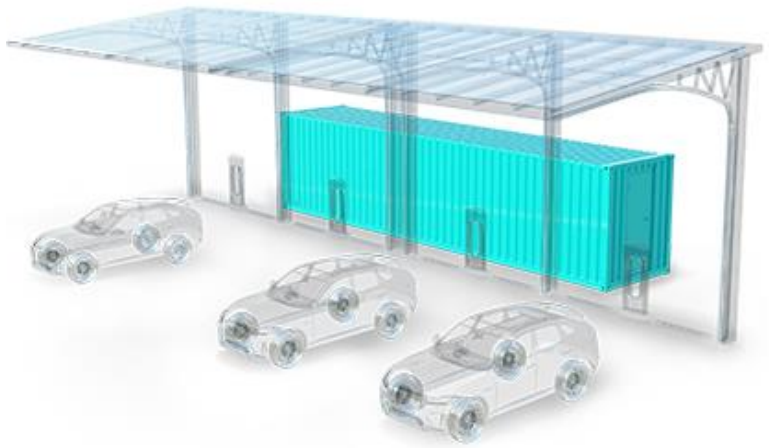
- High thermal stability thanks to liquid cooling
- Multi-stage, active fire protection system
- Use of highly safe prismatic LFP cells
- Ultra-wide operating temperature range

Low LCOS (Levelised Cost of Storage)

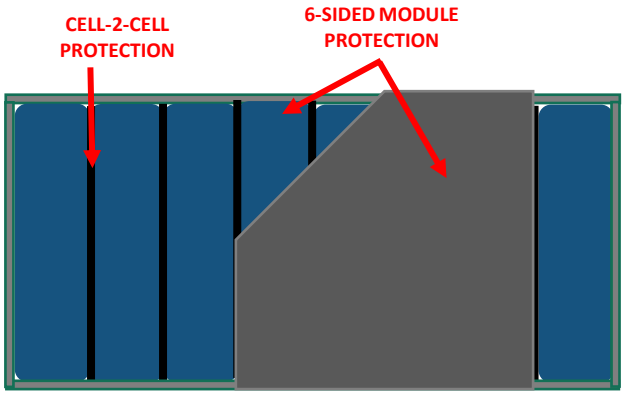
- Excellent thermal management with improved energy throughput
- High energy density
- Highly integrated system including thermal management, fire protection system, BMS.

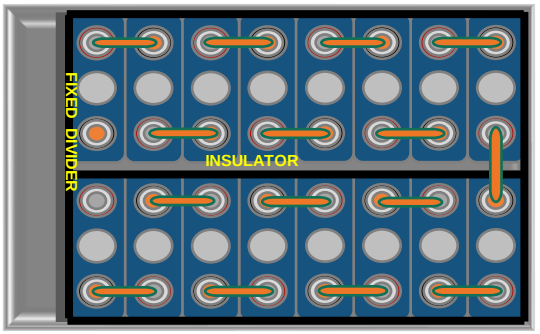
SOLARPORT

TIER-2 & TIER-3 EV CHARGING – GRID CONNECT OR OFF-GRID

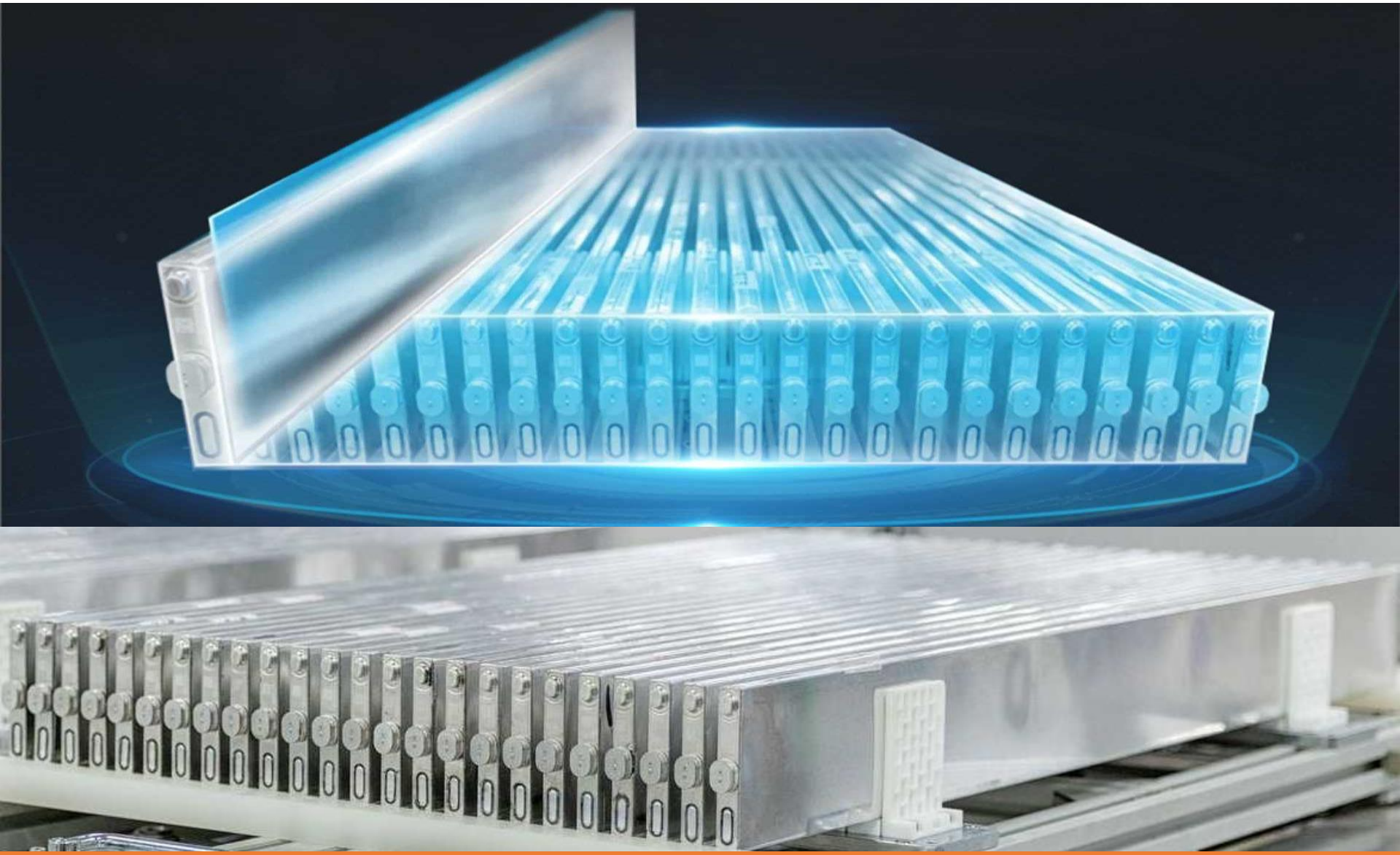


48V ~ 15KWH ~ FIRE-RESISTANT/RETARDENT LFP BATTERY

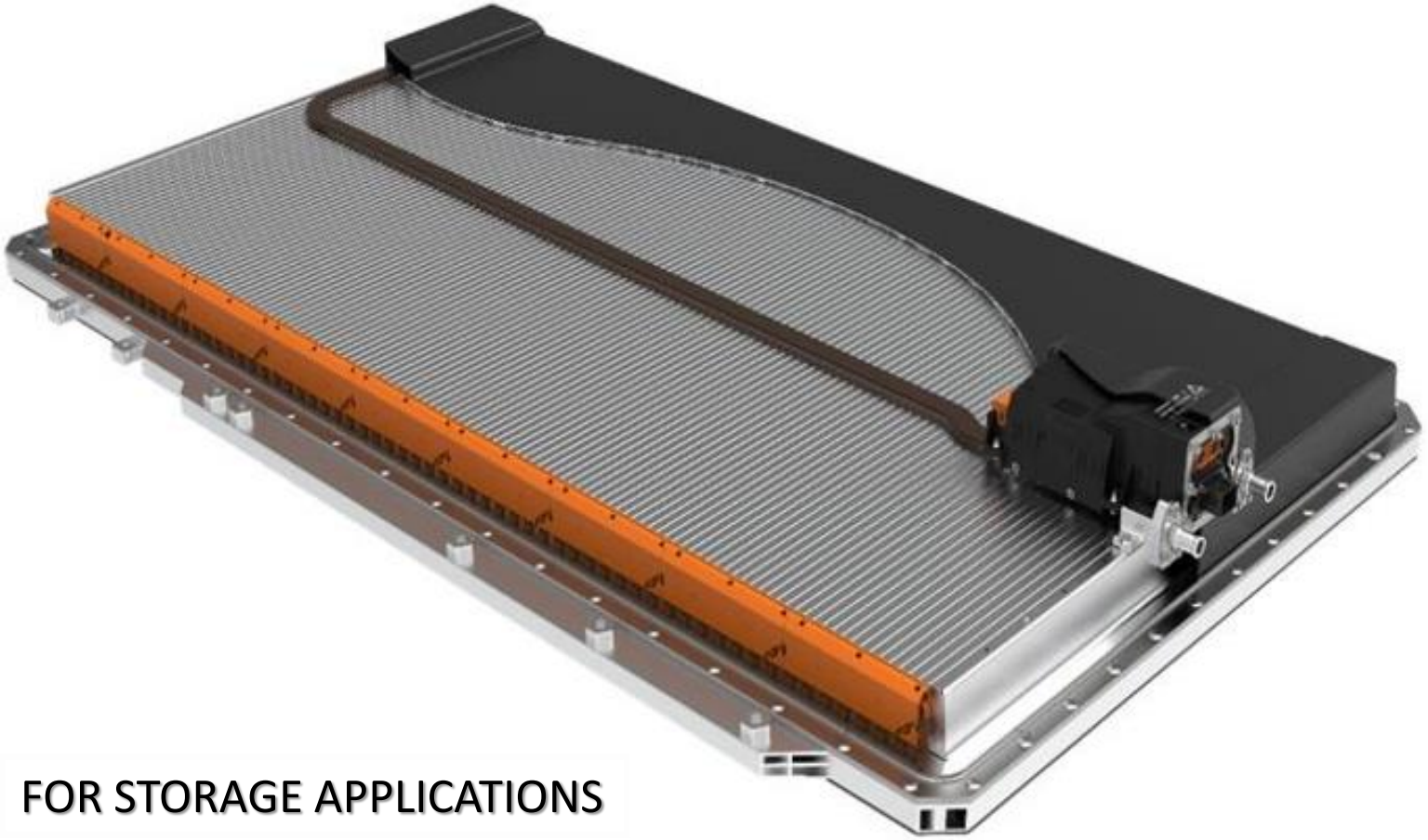




3.2V ~ 145AH LFP BLADE BATTERY CELLS

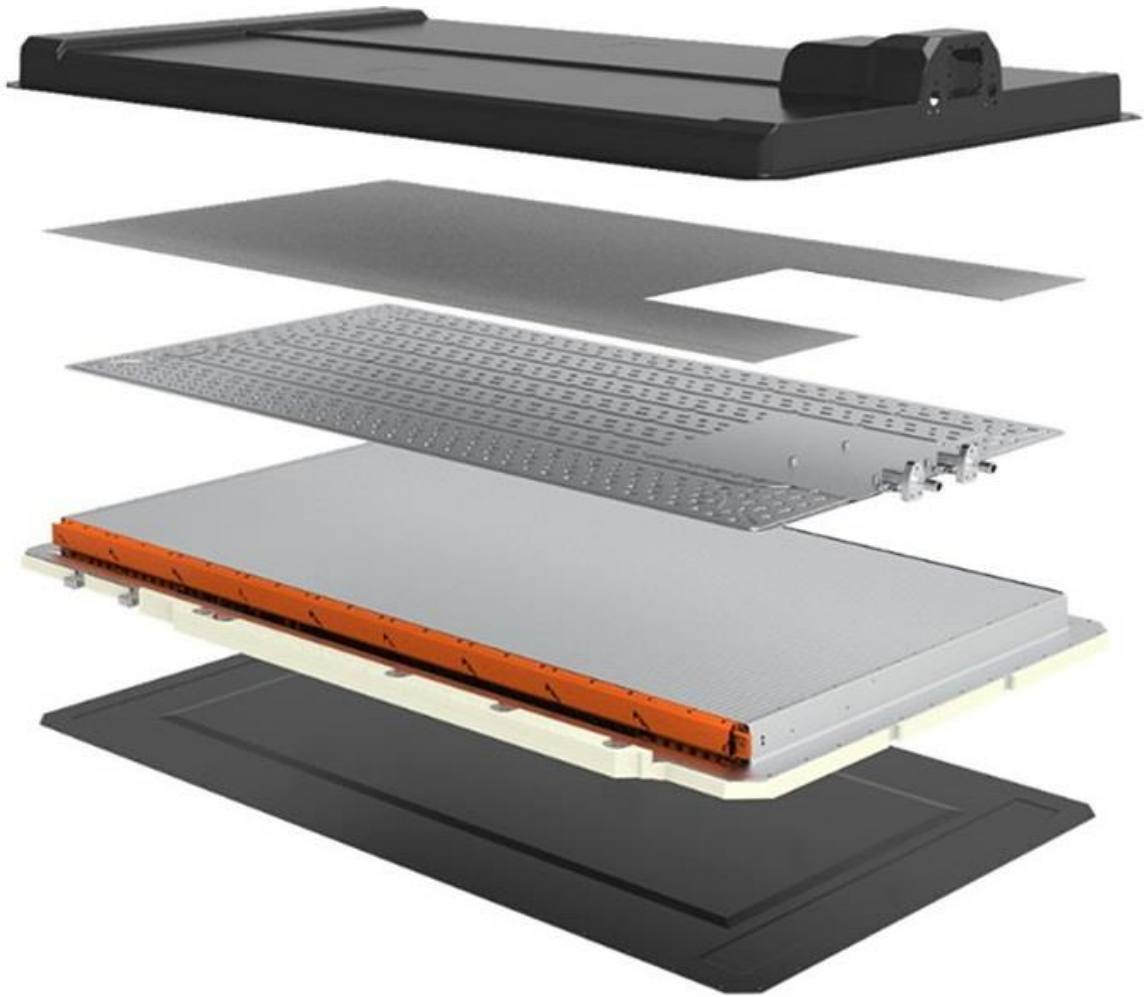


48V ~ 7.7KWH LFP BLADE BATTERY PACK

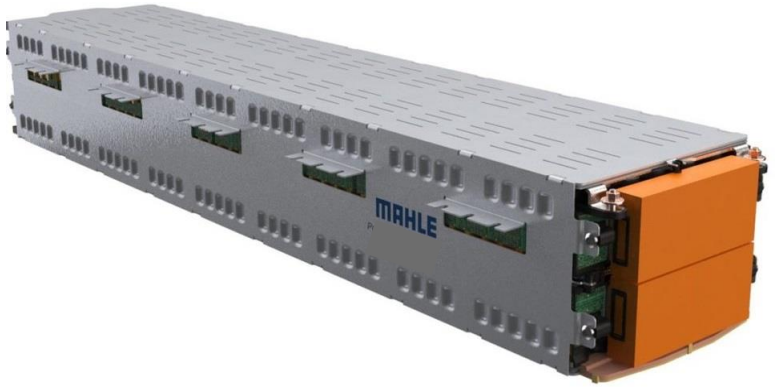


FOR STORAGE APPLICATIONS

LFP BLADE CELL-TO-PACK TECHNOLOGY



HIGH ENERGY SODIUM-ION BATTERY

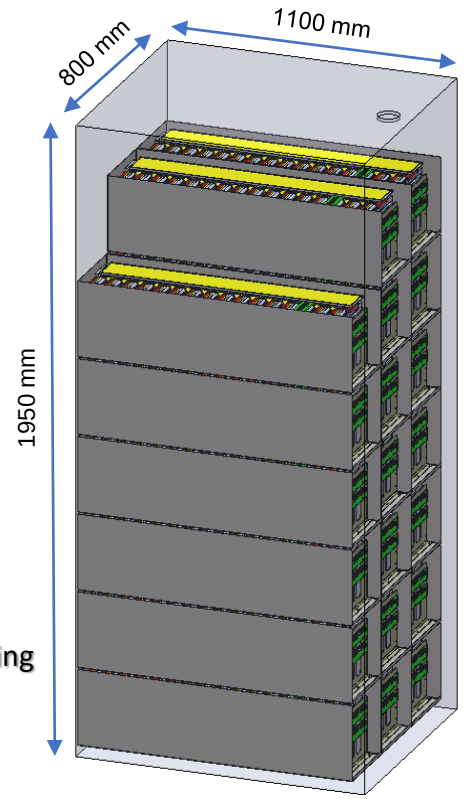


Safe
No Fire Hazard

<u>No fire</u> or explosion after puncture, pressure, heat or faults
Can be shipped installed in a battery cabinet
Can be shipped by ground or *air* <u>*fully charged*</u>
Na-Ion does not depend on questionable supply chains
No impact from geopolitical events
Na-PB can source from multiple supply chains if ever needed
No constrained resources to jeopardize our manufacturing

Safe for Air Transport

HIGH POWER SODIUM-ION BATTERY



- Pack
  - 48V, 25kW, 2 Minutes
  - Voltage rating swing: 58V to 32V
  - Max Current rating: 760A
  - Size: 37”L x 9”H x 9.5”W
  - Weight approx.: 150 lbs.
- Cabinet
  - 10 Packs in Series → 250kW → A String
  - 2 Strings in Parallel → 500kW
- Hardware
  - Balance Unit → For Cell balancing, Communicating with other Packs
  - Protection Unit → Has Protection Board and Protection elements
  - Interface Unit → To interface with outside world + communicate with String
- Communication
  - Communicate with outside world using MODBUS Ethernet 100 MBS
  - Internal Communication: CAN Bus 2.0B 1 MBS

THE COMPANY WE KEEP ...

ACS Defense, Inc.– Pacific Disaster Center	(USA)	Lockheed Martin	(USA)
Agilent	(USA)	Mitsubishi Electronics America	(USA)
American Mobile Satellite Corp. (Motient)	(USA)	Motorola - Secure Communications	(USA)
American Power Conversion (APC)	(USA)	Merlin Solar	(USA)
Aptos Solar	(USA)	NEC America, Inc.	(USA)
Astra Energy	(USA)	NERA ASA	(Norway)
BAE	(USA)	Nokia, Inc.	(USA)
Booz-Allen & Hamilton	(USA)	Orbcomm Global, L.P.	(USA)
Capstone Construction	(Bahamas)	Reliance Telecom	(India)
Carnegie Mellon University - Robotics	(USA)	Sharp Electronics Corporation	(USA)
Citizen America Corporation	(USA)	Sony Europe	(Germany)
Compaq Computer Corporation / HP	(USA)	Stratos Mobile	(Canada)
Computer Science Corporation (CSC)	(USA)	SuKam	(India)
Comsat Mobile Communications / LMCO	(USA)	Thales Communications	(USA)
Ericsson / Globalstar	(UK)	Thrane & Thrane A/S	(Denmark)
Emerson	(India)	Toshiba America	(USA)
Exponent	(USA)	Summit Development	(Bahamas)
France Telecom (Inmarsat)	(France)	UPS – Logistics	(USA)
General Dynamics – C4 Systems	(USA)	UK MoD – BOWMAN	(UK)
GE Power	(USA)	US DoD – ARL/SOCOM	(USA)
Globalstar LP	(USA)	US DoD – ARDEC	(USA)
GTE Federal / Dyncorp / CSC	(USA)	US DoD – CECOM	(USA)
Harris Corporation	(USA)	US DoD – DISA	(USA)
Inmarsat LLC	(UK)	US DoD – FRA	(USA)
Intel	(USA)	US DoD – NATICK	(USA)
Iridium Satellite LLC	(USA)	US DoD – NAVAIR	(USA)
ITT – A/CD	(USA)	US DoD – NAVSEA/NSWC	(USA)
Kymeta Corp	(USA)	US DoD - USMC/MCWL	(USA)
Kyocera Corporation	(USA)	Wyle Labs / NASA	(USA)

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