ENERGY STORAGE SOLUTIONS

iBEM25 – MARCH 27 2025

Homerun

HOMERUN

A Vertically Integrated Energy Solutions Company

Operating in Brazil / Europe / Canada / USA

BRIAN LEENERS – FOUNDER & CEO

Materials and Technology

Technology Development since 1997

Energy Materials since 1998

IOT & AI Solutions since 2007

Homerun in the Brazil Energy Transition since 2023

HOMERUN ENERGY STORAGE SOLUTIONS

ENERGY SOLUTIONS:

European leader in the marketing, distribution and sales of solar, battery and EV Charger solutions into the commercial and industrial segments (B2B).

AI ENERGY MANAGEMENT:

Commercializing Artificial Intelligence (AI) Energy Management and Control System Solutions (hardware and software) for energy capture, energy storage and efficient energy use.

THERMAL ENERGY STORAGE:

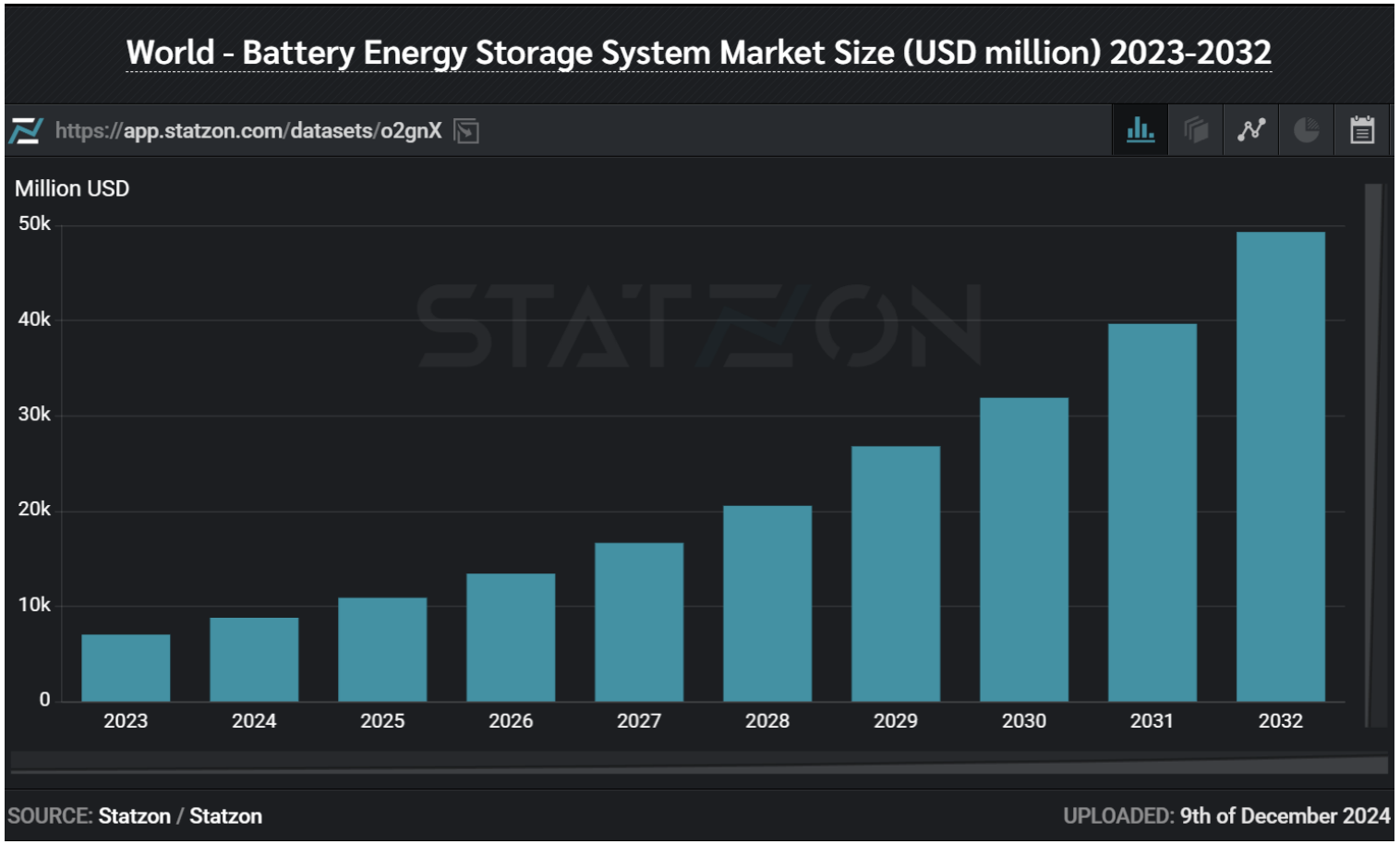
Partnering with U.S. Dept. of Energy/NREL on the development of the Enduring long-duration energy storage system utilizing the Company's high-purity silica sand for industrial heat and electricity arbitrage and complementary silica purification.

ADVANCED BATTERY MATERIALS:

Pioneering zero-waste thermoelectric purification and advanced materials processing technologies with University of California – Davis, USA.

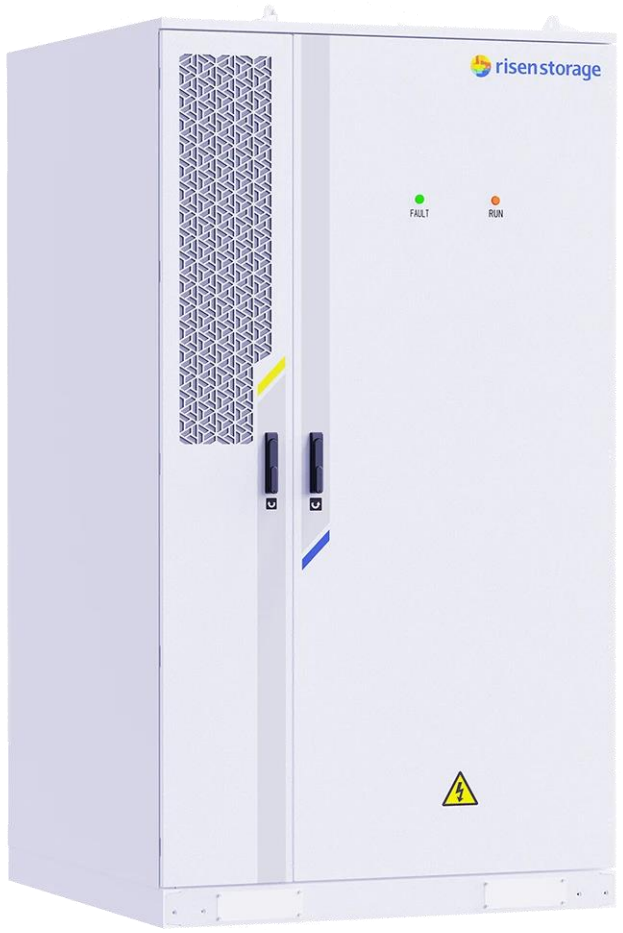
HOMERUN *ENERGY SOLUTIONS*:
ENERGY STORAGE MARKET

GLOBAL ENERGY STORAGE MARKET



HOMERUN *ENERGY SOLUTIONS*:
BATTERY & ENERGY STORAGE

SeisSolar FOTOVOLTAICA



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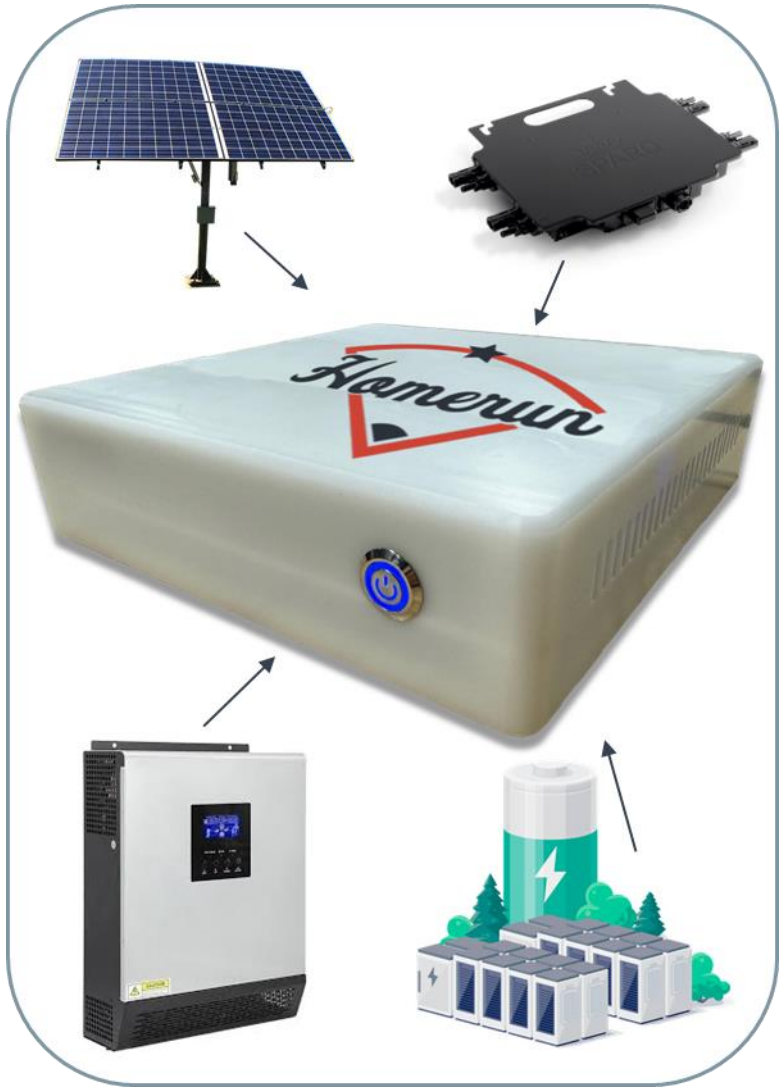
HOMERUN *ENERGY SOLUTIONS*: AI ENERGY MANAGEMENT



AI ENERGY MANAGEMENT

INVERTERS

- Manage and monitor many types of inverters that connect over a wide variety of wired / wireless connections.
- Solar micro-inverters allow for monitoring and control of solar generation.
- Power inverters for transforming DC energy in batteries to AC for grid connections.

BATTERY MANAGEMENT SYSTEM

- Can be used as a standalone battery management system or connect to and manage external battery management systems.
- Control charge cycles / timings.
- Manage power source (i.e. solar vs grid)
- Control energy utilization through producer / consumer channels.

PREDICTIVE POWER MANAGEMENT

- Integrate with Virtual Power Plants to buy and sell power through virtual marketplaces.
- Through monitoring energy usage, current weather conditions, and weather forecasting, the AI Energy Hub can find patterns of usage and determine the appropriate time to store extra energy or sell power to the grid to achieve the most equitable outcome.
- Manage and monitor battery installations to find capacity changes or issues before they become problematic.

HOMERUN *ENERGY SOLUTIONS*: THERMAL ENERGY STORAGE (WITH NREL)

NREL
NATIONAL RENEWABLE ENERGY LABORATORY

ENDURING ENERGY STORAGE SYSTEM

KEY POINTS:

- Partnered with the US Department of Energy's National Renewable Energy Lab (NREL) for development.
- Development of thermal purification of Homerun silica sand within the Enduring Energy Storage System.
- Ready for commercialization through pilot installation.

COMPLETED:

- Developed data from testing for initial Thermal/Acid process flow to purify Homerun's silica.

IN PROCESS:

- Develop energy storage configuration based on a site and material processing methods.
- Develop plant configuration with component size and layout that considers material handling and generate a process flow diagram.

Thermal Energy Storage (TES)

Electric in—Heat/Electric out, silica sand as the storage media

Modular drop-in TES design for industry decarbonization

Integrate with cheap renewable power to replace fossil fuels in supplying heat and power at a fraction of the cost of chemical batteries.

Safe, reliable, efficient, low cost, and small footprint over other TES technologies.

Scalable for broad applications from onsite MWh storage to utility GWh long duration storage without geologic/geographical limits.

HOMERUN *ENERGY SOLUTIONS*:
ADVANCED BATTERY MATERIALS WITH UC-DAVIS

ADVANCED BATTERY MATERIALS

BREAK-THROUGH PROCESS #1

- UC Davis successfully purified RAW silica sand from Homerun's Santa Maria Eterna deposit to +99.99% Si02 using a Femtosecond laser with no chemical reagents.
- UC Davis is ***NOW DEVELOPING*** a unitized block commercial plant design for scaling production of commercial advanced materials.
- Commercial outcomes will target zero-waste zero-emissions.

TARGETED MATERIAL DEVELOPMENT:

- Silica to Silicon & Silicon Carbide: Thermoelectric processing to ultra-high purity silica, silicon and silicon carbide.
- Silicon & Graphite: Carbide-based refractories and oxycarbide glasses, creating combined material solutions utilizing high-purity silica and graphite.

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