

Altern's Sand Battery Enters Japan: Decarbonizing Industrial Heat and Supplying Clean Heat for Greenhouse Farming

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Supported by the Ibaraki Prefecture Startup Visa Program and Leave a Nest, the new entity will serve as Altern's regional hub for product localization, R&D, and pilot-scale manufacturing. The initiative is being developed in collaboration with Kikuchi Seiki Co., Ltd., and Yamazaki Industry Co., Ltd., with additional coordination from JETRO and Tsukuba City.



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"Japan represents a key step in Altern's journey to build a global network of clean heat solutions," said Hai Ho, Co-Founder & CEO of Altern. "Through our partnerships in Ibaraki – one of Japan's most innovation-driven and agriculture-focused regions – we're creating a pathway to decarbonize industries that have long depended on fossil fuels. Our goal is simple: make clean heat accessible, reliable, and affordable for every factory."

Powering Japan's Industrial Heat Transition

Altern's patented **Sand Battery** stores renewable electricity as high-temperature heat (up to 600°C) using abundant, recyclable sand as the storage medium. The system enables factories to transition from fossil fuels to renewable heat without compromising performance or safety. Unlike lithium-ion batteries, Altern's system is **non-toxic, fireproof, and made from locally sourced materials**, ensuring both environmental and economic sustainability.

In Japan, Altern will focus on delivering solutions for agriculture, such as low-carbon heat for greenhouses and food drying, as well as light manufacturing, including textile and material drying processes.

The company is also developing **Altern E**, a next-generation sand-based electricity storage system for **data centers and critical infrastructure**, designed to replace lithium batteries while ensuring safe, stable and clean backup power.

Two Product Lines for the Japanese Market

Altern Japan will introduce two key product systems:

- **Altern Hybrid** – a modular thermal battery that combines electric and biomass heating for continuous renewable heat supply in rural agro-processing. The system enables farmers to convert organic waste into energy, reducing both costs and emissions.
- **Altern Mini** – a compact thermal battery designed for small-scale facilities, research institutes, and demonstration projects. The system is being developed in partnership with **Yamazaki Industry Co., Ltd.**, under technical coordination from **Kikuchi Seiki Co., Ltd.**

Altern will publicly debut **Altern Mini** at **Tokyo ENEX 2026**, one of Japan's leading energy exhibitions, featuring live demonstrations for both Japanese and international audiences.

Building Japan's Clean Heat Manufacturing Ecosystem

Altern's Japan operations bring together a network of engineering and manufacturing partners – including **Kikuchi Seiki** for coordination and precision engineering, and **Yamazaki Industry** for prototype fabrication. This collaboration aims to accelerate product certification, reduce manufacturing costs through localization, and align Altern's Sand Battery systems with Japanese industrial standards.

"We're deeply grateful for the trust and collaboration from Japan's manufacturing ecosystem," Hai added. "Working with Kikuchi, Yamazaki, and our partners in Tsukuba allows us to merge deep-tech innovation with Japan's world-class engineering excellence."

Investor and Ecosystem Support

Altern's expansion into Japan is supported by leading ecosystem partners and investors, including **ADB Ventures**, **UntroD Capital**, **JETRO**, **JICA**, **Leave a Nest**, **P4G**, and **NTT East**.

"We strongly believe in the power of technology transfer, and Altern's expansion into Japan demonstrates how Asian innovation can transcend borders to help decarbonize hard-to-abate sectors. Altern's expansion into Japan marks an important milestone, and we're proud to support their growth," said Pang Sittakaradej of ADB Ventures.

"Japan is a critical market for scaling clean energy technologies," said Daiki Kumamoto, Director at UntroD Capital Asia.

"Altern's sand battery directly addresses one of the toughest challenges in industrial and agricultural decarbonization – reliable, high-temperature heat. We are proud to back their next phase of global growth."

Recognized as **Deep Tech Venture of the Year 2025**, Altern continues to lead Asia's transition toward sustainable industrial energy through scalable, sand-based heat and power storage solutions.