

## Spain flow battery technology

The project will be commissioned by the government energy research institute, CIUDEN, as part of a programme funded by the Ministry for Ecological Transition and Demographic Challenge of Spain.

The programme aims to deploy a long-duration energy storage (LDES) solution that could provide maximum power for eight hours, and H2 won its bid in collaboration with local Spanish firms.

H2 will supply the entire battery system using its latest modular flow battery, EnerFLOW 640. It claimed the VFB has the smallest footprint ever achieved with a VFB, thanks to its high-performance stacks, unique three-block design and HyperBOOST technology.

H2's project in Spain is scheduled to be completed in 16 months, with installation targeted for the second half of 2025, the company said. It will use the project as a launchpad to expand in the European LDES market.

The company operates a manufacturing facility with an annual production capacity of 330MWh in Gyeryong-si, South Korea, and closed an US\$18 million Series B financing round last year.

Dr. Shin Han, founder and CEO of H2, commented: "Moreover, H2 is planning to build a second VFB factory in South Korea soon to secure gigawatt-hour scale production. Therefore, you can expect to see many more global activities and projects utilising H2's top-notch flow batteries."

The technology is often acronymised as VRFBs, for vanadium redox flow battery, and both VFBs and VRFBs been covered extensively here. The technology is one of the most commercially mature LDES ones around but faces challenges in competing with lithium-ion and other solutions on cost.

NYSE-listed iron flow battery specialist ESS is expanding into Europe to meet demand for long-duration energy storage. It has already bagged its first order in Spain, with local manufacturing in the cards.

US-based ESS is expanding its operations into Europe to meet "strong demand" in the region for long-duration energy storage solutions. The business is scheduled to officially begin European deployment of its batteries, which provide four to 12 hours of storage, in the second half of this year.

The company currently offers two products: the single shipping container Energy Warehouse and a string of warehouse units in an Energy Center. Its Energy Warehouse for C&I customers is a behind-the-meter unit with 400 kWh to 600 kWh of storage capacity. That makes the power rating configurable from 50 kW to 90 kW. The round-trip efficiency is 70% to 75%, DC-DC. Each battery weighs 16,000 kg dry, and as much as 38,000 kg after it's filled with the electrolyte. Its 3 MW Energy Center for utility-scale applications packs 6

MW/74 MWh per acre footprint.

The company's market expansion in Europe includes the appointment of Alan Greenshields as director of Europe. He told pv magazine the company still hasn't decided where to set up its European headquarters, but manufacturing locally is part of its strategy.

European insurance policies, however, are already in place. ESS systems are supplied with a 10-year warranty through Munich Re for its flow battery technology and electrolyte management system, supporting system performance guarantees regardless of project size or location. The ESS battery systems have a prescribed design life of 25 years, but their individual components, including battery modules, electrolyte, and plumbing, may well last for decades longer with proper maintenance.

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Web: <https://www.hollanddutchhtours.nl/contact-us/>

Email: [energystorage2000@gmail.com](mailto:energystorage2000@gmail.com)

WhatsApp: 8613816583346

