Energy storage for grid stability singapore

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Exemplary stakeholder collaboration and advanced energy storage system to enable integration and optimization of distributed energy resources

Hitachi ABB Power Grids" e-meshTMPowerStoreTMbattery energy storage system (BESS) is a critical part of the VPP infrastructure, providing grid stability by balancing intermittent generation with smart and dynamic loads.

"Singapore operates one of the most reliable electricity networks in the world," said Nirupa Chander, Country Managing Director of Hitachi ABB Power Grids in Singapore. "This project is a good example of how multiple stakeholders i.e. the government (EMA), academia (NTU), industry (Sembcorp) and technology providers like us collaborate to deliver innovative solutions and accelerate the energy transition for a greener future," she added.

"Selecting the right technology partner is crucial for the project"s success and we are pleased to work with Hitachi ABB Power Grids, a recognised leader in power technologies," said Mr Matthew Friedman, Sembcorp"s Chief Digital Officer. "This marks a key milestone in the VPP project, as energy storage is critical to the efficient integration of green energy into Singapore"s power grid," he added.

"To meet the carbon emission standards of the future, Singapore will have to tap on all renewable energy sources, relying on artificial intelligence and smart solutions to better coordinate and manage all its energy sources efficiently," said NTU"s Senior Vice President (Research) Professor Lam Khin Yong. "The Virtual Power Plant (VPP) is a key project that will allow efficient modelling and innovative features of these emerging technologies to be validated," he added.

The VPP will enable electricity produced from Distributed Energy Resources (DERs), like solar and other green sources, to be integrated intelligently, simulating a utility scale power system. Using real-time information, the VPP will optimise the power output of these resources located across the island. Energy fluctuations resulting from solar intermittency will be balanced automatically via the VPP.

This project builds on Hitachi ABB Power Grids" global Grid Edge Solutions footprint of more than 500 megawatts (MW) and 200 references. The business" technology has enabled customers to create economic, social and environmental value by unlocking new revenue streams, maximizing renewable integration, and lowering carbon emissions.

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Singapore"s government and Energy Market Authority (EMA) have announced power sector and grid enhancements, including a possible expansion of Southeast Asia"s biggest battery storage plant.

In a speech at the Singapore International Energy Week trade event on Monday (21 October), Gan Kim Yong, the city-state"s deputy prime minister and minister for trade and industry, affirmed a commitment to peaking Singapore"s emissions by 2030 and achieving carbon neutrality by 2050.

"This will not be easy, given our limited land surface for solar deployment and the lack of wind or hydro-electric power," the minister said.

The proposed solutions include enabling more energy imports from abroad, and relying on a broad range of technologies within Singapore"s borders, as well as upgrading the grid and speeding up connection times for new energy projects.

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