

MEDIA RELEASE

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EMA Awards \$7.8 million To Better Harness Energy Storage Systems

The Energy Market Authority (EMA) has awarded grants totalling \$7.8 million to two companies to explore solutions that could enhance the cost-effectiveness and optimise the space required for energy storage systems (ESS). ESS play an important role in supporting the adoption of more solar energy as it mitigates the intermittency of renewable energy sources by storing and discharging energy when required. ESS can also play a role to mitigate power supply disruptions.

2 The two research and development projects were selected based on their potential to be scaled up, as well as their potential advantages in Singapore's context. The projects are:

- Posh Electric's trial on the use of sodium-ion batteries (SIBs) in ESS. As sodium is more naturally abundant than lithium, SIBs could potentially be a cheaper alternative to conventional lithium-ion batteries (LIBs) in the future. (Please refer to the Annex for more information)
- VFlowTech's study on the potential for locating ESS underground. Locating ESS underground will minimise the land required, but will also require a better understanding of its safety parameters, including fire safety. This study will also test the use of a lithium-ion/vanadium-flow hybrid battery system. (Please refer to the Annex for more information)

3 Mr Puah Kok Keong, Chief Executive, EMA said: "As Singapore expands solar deployment, energy storage systems will become more important to enhance grid resilience and ensure power system stability. I welcome the development of energy storage systems that are safe, cost-effective and space-efficient."

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About the Energy Market Authority

The Energy Market Authority (EMA) is a statutory board under the Singapore Ministry of Trade and Industry. Through our work, we seek to build a clean energy future that is resilient, sustainable, and competitive. We aim to ensure a reliable and secure energy supply, promote effective competition in the energy market and develop a dynamic energy sector in Singapore. Visit www.ema.gov.sg for more information.

Annex

Posh Electric

1 Posh Electric aims to test a 1 megawatt hour (MWh) SIB ESS to manage solar intermittency. The SIB ESS could also enable the shifting of electricity demand by storing electricity during off-peak periods, and releasing it during times of peak demand.

2 As SIBs have not been deployed in Singapore, the trial will evaluate the performance of the batteries in the local climate. Posh Electric will also develop an SIB ESS that will be equipped with a liquid cooling thermal management system and certified with internationally recognised standards. The trial will collect fire safety data on SIB ESS.

VFlowTech

3 VFlowTech's project will be carried out in two phases. The first phase involves a feasibility study, including looking into fire safety measures for underground ESS. The second phase would involve the development of underground infrastructure and ESS after obtaining regulatory approvals.

4 The project will also test the use of a hybrid battery system, a 1 MW/1MWh LIB and 0.3 MW/1.5 MWh vanadium flow battery (VFB) storage system.

5 LIBs and VFBs have their respective strengths. LIBs have high energy density, while VFBs are suitable for long duration storage and have a reduced fire risk. A hybrid system offers the potential for an integrated solution, using LIBs for quick-response ancillary services and VFBs for extended backup storage.