

Energy storage policy singapore

I am an associate in our Corporate and Commercial group in Singapore. I work with a broad range of local and international clients advising on corporate transactions, with a particular focus on mergers and acquisitions and general corporate advisory work.

Singapore has one of the most reliable electricity grids in the world. However, as Singapore looks to renewable energy and power imports to transition to a low-carbon energy system, and moves towards the electrification of its transport system, it is increasingly vital to ensure that its grid infrastructure remains stable and resilient. The Singapore government has implemented a good number of initiatives to ensure the resilience of the energy grid, including the use of energy storage systems (“ESS”).

The Electricity Act 2001 regulates the licensing requirements and market participation and settlement for ESS. The ESS acts as a generator and depending on its name-plate capacity, it may be required to be licensed as a wholesaler or a generator. An electrical installation licence will also be required for all non-domestic electrical installation with approved load exceeding 45kVA.

In its policy paper, EMA helpfully considered the potential role of ESS in the Singapore power system. ESS can be used to (i) integrate higher levels of solar PV and manage variable output as solar adoption increases; (ii) shift peak load and arbitrage electricity prices; (iii) provide ancillary services to the market for frequency regulation and backup reserves; (iv) serve as an alternative to enable deferment of traditional grid investments to meet periodic peaks in demand, thus driving efficient grid investments; and (v) provide voltage regulation services.

It may be that regulations will be put up in due course, for ESS to fulfil their designated role/s in the Singapore power system. This would likely deal with metering and billing arrangements, compensation structures or mechanisms, and controls to safeguard consumers’ interest.

- Pilot to include installation of additional chillers to support future expansion of the Marina Bay district cooling network, bringing more efficient and sustainable cooling to more buildings

Singapore, 29 August 2022 – The Energy Market Authority (EMA) and SP Group (SP) will pilot an ice thermal Energy Storage System (ESS) at the George Street Substation. This will be the first time that EMA and SP are installing an ice thermal storage facility located on its own, outside a district cooling plant. Such ice thermal storage facilities are traditionally located within a district cooling plant.

2. The pilot will optimise space usage within the substation and be completed in the third quarter of 2026 as part of the substation’s renewal works. This ESS will add up to 1,500 Refrigeration ton-hour (RTH) of ice thermal energy to the Marina Bay district cooling network operated by SP. This will enable the curtailment

of up to 2 megawatts (MW) of electrical load – the equivalent of 170 4-room HDB flats for a day. This will also contribute towards EMA’s target to deploy at least 200 MW of ESS beyond 2025.

3. ESS can help to address the issue of supply intermittency, as renewable energy such as solar power fluctuates due to weather conditions. The stored thermal energy can also be discharged to power the district cooling plant and shave peak load demand. This will help to balance the electricity load, thereby reducing intermittency and enabling the grid to be more resilient.

4. On this pilot’s importance, Mr Ngiam Shih Chun, Chief Executive of EMA, said, “Energy storage systems (ESS) help to address solar intermittency and can enhance the resilience of our power grid. EMA is pleased to partner SP Group on a thermal ESS at the George Street power substation. If successful, more thermal ESS can be installed islandwide, which will support Singapore’s target of having at least 200 MW of ESS beyond 2025.”

5. As part of the pilot, SP will install 3,000 refrigeration tons (RT) of chiller capacity at the substation to support the future expansion of the Marina Bay district cooling network, bringing the total installed capacity of the network to 73,000 RT. This will allow SP to provide sustainable cooling to more buildings in the Marina Bay vicinity and surrounding areas such as Boat Quay.

7. The thermal ESS will also enhance SP’s participation in demand response, mitigating high prices during times of tight electricity supply. SP’s district cooling operations at Marina Bay are currently a key demand response provider in Singapore, with five thermal storage tanks contributing up to 11 MW of electricity load curtailment capacity. With the additional thermal energy storage from the George Street Substation, SP can increase its electricity load curtailment capacity for demand response during peak periods which will result in overall system savings.

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Web: <https://sumthingtasty.co.za/contact-us/>

Email: energystorage2000@gmail.com

WhatsApp: 8613816583346

