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## Cheaper energy storage, greene future

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WHILE battery energy storage systems (Bess) have been a technological breakthrough for over 20 years as a means to support green energy efforts, they have always been too costly.

However, a recent fall in however, a recent fail in Bess prices is set to be a game changer. Prices are said to have fallen by about half, from US\$250 to US\$300 per kilo-watt-hour (kWh) in 2024 to US\$120 to US\$140 per kWh in January 2025.

watt-hour (KWh) in 2024 to US\$120 to US\$140 per kWh in January 2025. This price decline is driven by rising capacity, falling raw material prices and softer com-petition for battery cells due to a slowdown in the electric vehicle market. A large portion of Bess comes from China, a dominant player in the battery supply chain. Bess allows for the storage of renewable energy (RE) such as solar. Without it, energy can only be supplied to the grid when the sun is shining. With Bess in place, solar energy can be stored and released into the grid more consistently or during peak demand, thus maximising out-put revenues.

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demand, thus maximising out-put revenues. Bess has been increasingly featured in Malaysia's RE pro-grammes by the government. The most recent had the gov-ernment drawing up plans to invite tenders from the indus-try to provide Bess services in Peninsular Malaysia. Bess is also a key feature in the Self-Consumption (SelCo) programme, where a company generates its own RE for inter-nal use and does not feed any of it into the grid. SelCo projects must be licensed by the Energy Commission. Revised regula-tions on SelCo, which took effect on Jan 1, mandates that those in the programme must have Bess in place. The Corporate Renewable Energy Supply Scheme (Cress) programme, launched in September 2024, is another sig-nificant development. Industry players reckon that it is the Cress programme

it is the Cress programme where the fall in Bess prices will likely have the most posi-

where the fail in Bess prices will likely have the most posi-tive impact. This is because, for stan-dalone Bess tender, the lack of a clear framework such as a payment model makes it diffi-cult to ascertain the bankabili-y of the projects, says one expert. Tor SelCo, there are challenges. Apart from incurring addi-tional costs for Bess, installers at commercial facilities will now have to pay a monthly "standby charge" of RM14 per kilo-

Cheaper energy storage,

Prices of battery energy storage systems have fallen

Decline is driven by rising capacity, falling raw material costs and weaker competition

for battery cells

As Bess costs decrease, solar users will see improved returns

on their

investments

watt-peak of solar energy pro-duced. This comes as commercial owners can now generate 100% of their energy needs through their SelCo installation, as opposed to 85% previously. Meanwhile, Cress essentially allows RE producers to sell ener-gy directly to their clients and dis-tribute it through the grid. Under this mechanism, partici-pating power producers must pay a system access charge (SAC). Those generating electricity intermittently will be charged 45 sen per kWh, while the SAC will be lower at 25 sen per kWh for those with firm output backed by Bess. While the programme is revo-Bess

Bess. While the programme is revo-lutionary, the "tolling" charges (to cover grid maintenance and upgrades) have been deemed too high. The success of the Cress pro-gramme depends on the tariff that offlakers or clients of solar producers are willing to pay. Some analysts suggest that a reasonable tariff, without Bess, would need to be at least 60 sen per kWh - higher than Tenaga Nasional Bhd's (TNB) current tar-iffs of 45 sen to 50 sen per kWh for commercial and industrial customers. With Baes prices having fallen

customers. With Bess prices having fallen dramatically, Solarvest Holdings Bhd's co-founder and chief execu-

tive officer Davis Chong Chun shing says this will boost the viability of the Cress programme. "As battery energy storage becomes more affordable, it will provide better returns on invest-ter the state of the state of the star Biz 7. We expects Bess costs to follow a similar downward trend, driv-en by growing economic scale and efficiency, much like the decline in solar photovoltaic (PV) anel prices in the past. "The years ago, solar PV panels cost around US\$1 per kW. Today, two," he points out. Despite falling prices, the premains significant, making it more expensive than standalone solar projects, Chong adds. To accelerate growth, he monhasises the crucial need for government support in the form of incentives for local engi-need for government, construc-tion and commissioning players, swell as green technology inves-tors. He says Solarvest is actively

tors. He says Solarvest is actively exploring opportunities within Cress, both with and without the Bees component.

"However, we suggest that Cress with Bess integration pro-vides greater project control as we are able to optimise energy performance to optimise long performance to enhance longterm financial viability. "Nonetheless, factors such as project scale, energy demand and financing availability influ-ence the decision on whether to integrate Bess," Chong explains. Reports indicate that invest-ments for a 100MW/400MWh Bess project range between Bess project range between RM450mil and RM500mil. Likewise, Samaiden Group Bhd's group managing director Datuk Chow Pui Hee acknowl-edges that Cress has more feasi-

Datuk Chow Pui Hee acknowl-edges that Cress has more feasi-ble following the drop in battery storage prices. However, she points out that Bess prices may have reached near rock-bottom levels. "It may trend up if demand picks up. And there are other factors to take into account like SAC increasing, which may eat into returns if the offtakers' tar-iff is fixed for the long term," she adds. Last month, the government ments to the Cress framework to help spur its adoption. Moe of the improvements is opening up Cress to a wider pool of users. Additionally, the current SAC – 25 sen per kWh for firm energy output and 45 sen per kWh for on-firm energy output – will be maintained under the current 2025-2027 Regulatory Period (RP), effective from March 1, 2025. The charges will be reviewed

(RP), effective from March 1, 2025. The charges will be reviewed every RP, which entails a three-year cycle, with any revisions capped at a maximum of 15% per RP, providing cost predicta-bility for investors. Industry players indicate that project completion typically takes 18 to 24 months. Risks such as material costs and foreign currency fluctua-tions could arise, as tariffs signed with offlakers are in ringgit terms. Furthermore, it is believed that some players are offering aggressive tariffs to offlakers, which could set an inappropri-ate benchmark for green ener-gy, leading to unattractive returns. returns.

However, a potential increase in base tariff from the second half of 2025 could shift the dynamics in Cress favour, especially if the tariff revisions are focused on the commercial and industrial segments, which are the target markets. On Samaiden's interest in

Cress, Chow says the company will participate if it can secure a reasonable offtaker tariff that mitigates potential investr risk

Imagine's potential investment risks. Moving forward, she sees Bess, coupled with large-scale solar (LSS), becoming the com-mon trend for stabilising the grid, with LSS5 slated to come online by 2027. CGS International Research, in a recent report, estimates that at least 760MW worth of green electricity supply agree-ments have been signed under Cress since its launch four months ago. This represents about 3% of the current installed power generation

about 3% of the current installed power generation capacity in Peninsular Malaysia. Two notable agreements inked are TNB with Bridge Data Centre to supply 400MW to the latter's facility in Ulu Tiram, Johor, and UEM Lestra with ESR Group Ltd to provide power to the latter's planned 360MW data centre in Nusajaya, Johor.

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