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Solar push gains momentum — but is the grid ready without storage?

The Malaysian Reserve, Malaysia

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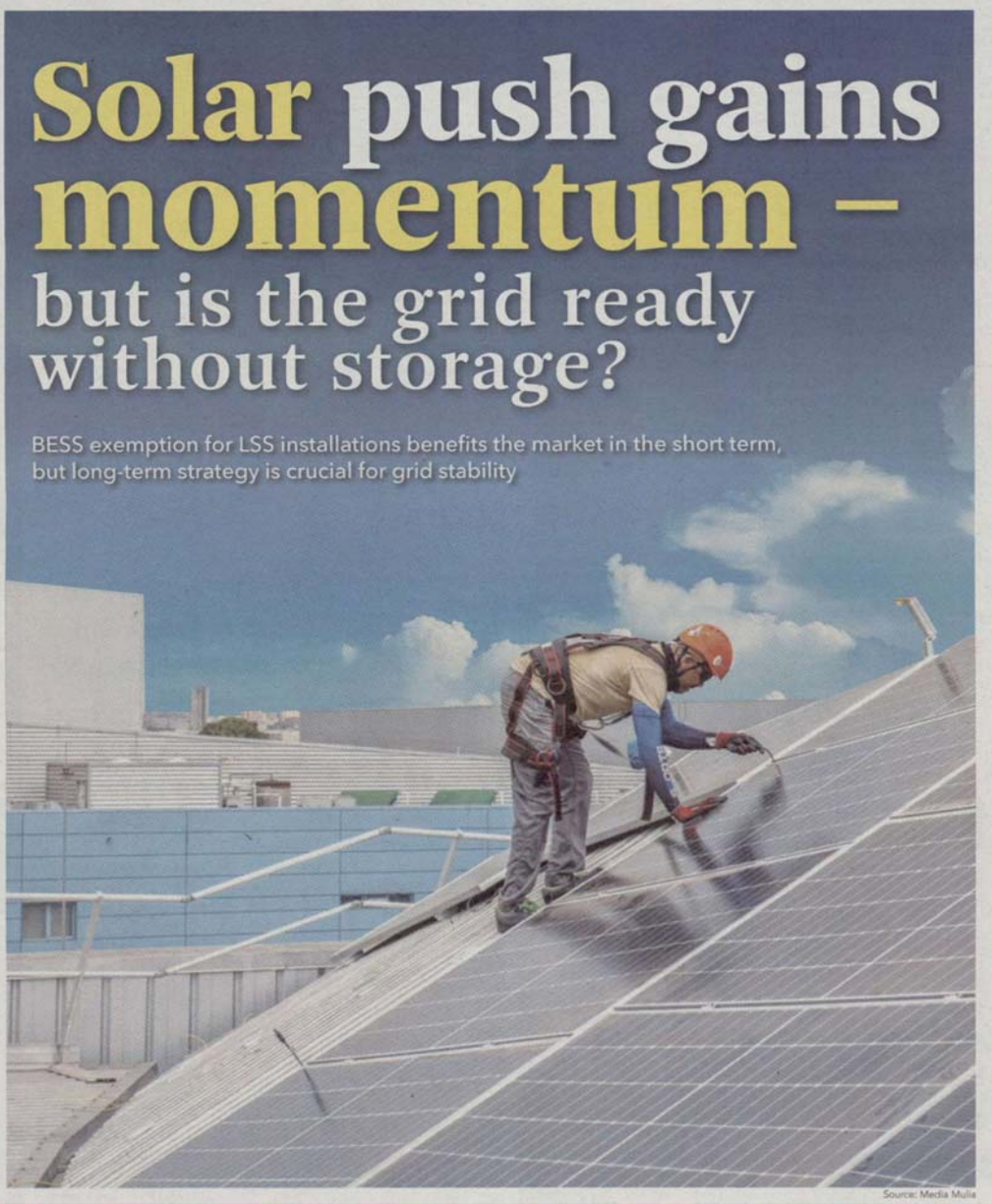
BESS exemption for LSS installations benefits the market in the short term, but long-term strategy is crucial for grid stability



Source: Media Mulia

by AZALEA AZUAR & SHAUQI WAHAB

MALAYSIA'S decision to temporarily exempt large-scale solar (LSS) installations from mandatory battery energy storage systems (BESS) is accelerating adoption, particularly in the commercial and industrial sectors.

However, experts warn that while this flexibility benefits the market in the short term, a long-term strategy is crucial to safeguard grid stability.

In March, the government revised the Solar for Self-consumption (SelCo) programme to include a waiver for installing energy storage systems until Dec 31 this year, exemption of standby charges from solar installations below one megawatt peak (MWp) while those above 1MWp incur a RM12 per kilowatt peak (kWp) charge.

These revisions aim to make it easier and more flexible for the public to use solar energy, thereby driving Malaysia towards its clean energy goals.

Universiti Teknologi Malaysia (UTM) power engineering expert Dr Jasrul Jamian of said for now, the BESS exemption has no impact on Malaysia's energy stability as solar energy still only accounts for about 12% to 15% of the country's total energy usage. But he warned that if left unchecked, it could become dangerous in the future.

"Malaysia's solar share remains below the global threshold — typically around 20% to 25% — at whieh many countries begin enforcing storage to protect the grid. Learning from these examples, Malaysia has introduced BESS planning earlier than required, so it does not disrupt network stability," he told *The Malaysian Reserve (TMR)*.

Under the new time-of-use (TOU) electricity tariff, rolled out this month, peak hours are limited to 2pm-10pm on weekdays, while off-peak rates apply to the rest of the time — including weekends.

Jasrul said solar energy generated in the morning can now be stored in the battery and discharged during the peak period for greater savings.

Meanwhile, higher education institutions have been permanently exempted from the BESS requirement under the revised SelCo guidelines.

Institutions like Universiti Tun Hussein Onn Malaysia, Universiti Kebangsaan Malaysia, Universiti Putra Malaysia, Universiti Sains Malaysia and Universiti Pendidikan Sultan Idris have already started issuing tenders and investing in solar systems as part of their sustainability agendas.

Still, Jasrul cautioned that a

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structured transition will be essential once the BESS exemption period ends. Without clear planning, Malaysia's target of 58% renewable energy (RE) by 2050 — mostly from solar — could put pressure on the national grid.

Managing Energy Demand

The Malaysian Photovoltaic and Sustainable Energy Industry Association (MPSEA) believed that the TOU tariff means that storage will play a more important role in managing energy demand.

The association defines the current process as load shifting.

"At the moment, our national grid is very robust especially at the distribution level and therefore, the waiver of energy storage for the time being will not negatively impact the grid stability.

"However, as the integration of RE in the energy mix increases, energy storage would be necessary to support grid stability in the future," it told *TMR*.

To prepare for higher RE use, the Malaysia Battery Energy Storage System (MyBeST) and Community Energy Storage System (CESS) pilot projects were recently launched, while a new rule requiring energy storage to be paired with SelCo systems has been delayed until next year.

"We foresee that some regions will be facing higher penetration of solar development, thus the implementation of the energy storage scheme will assist to store the energy and distribute evenly based on the demand of the region.

"This will balance the grid transmission loading to allow more solar energy to be developed in the region," MPSEA said.

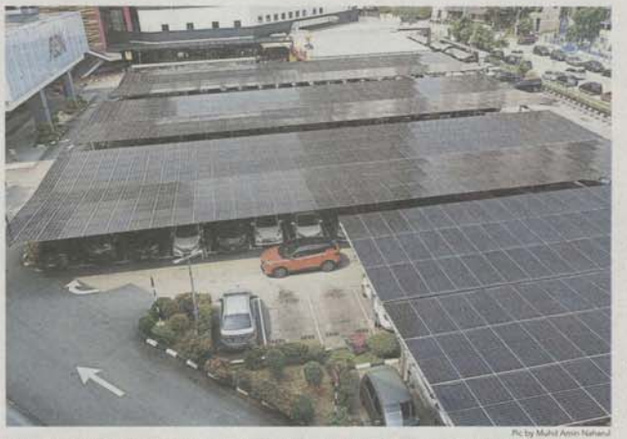
Incentives for BESS Needed

Tera VA Sdn Bhd business development manager Leong Jit Ping described the new tariff on TOU pricing as a well-structured reform and a "bold move".

As the use of BESS will become more important in the future, Leong hoped the government will introduce incentives to encourage investments.

This includes personal income tax relief for individuals investing in BESS; allowing stored energy to be sold at higher rates during peak demand periods; eligibility for the Green Investment Tax Allowance (GITA) for BESS even if the investor has previously received GITA for other green projects; and exemption from standby charges for those who install BESS.

Leong noted a rise in enquiries, particularly for systems below 1,000kWp. He shared that his clients who were already interested in installing solar systems are now more eager to proceed, as the company can also modify their system size to take advantage of the exemptions.



Pic by Muhd Amin Nahand

SelCo only allows solar PV systems to be installed on rooftops, with 85% capacity limit of a building's maximum electricity demand

Pic courtesy of Jasrul Jamian

Jasrul cautions that a structured transition will be essential once the BESS exemption period ends

Pic courtesy of Samaiden

BESS helps normalise solar intermittency and allows consistent supply even after sunset, says Chow

"The client always depends on how much benefit they can gain from installing solar. If an additional battery is suddenly required, it will increase the investment cost.

"For instance, if the solar system allows you to save about RM10,000, I've calculated that around 24% of that saving would need to be paid back to Tenaga Nasional Bhd (TNB). So, the return on investment (ROI) will be longer, and that will definitely affect the client's decision," he told *TMR*.

However, he believed that imposing both standby charges and mandatory battery requirements simultaneously would seriously hurt the industry. Therefore, he hoped that the government would give the market options.

"For example, if you invest in a battery, you should be exempted from paying the standby charge — or vice versa. Alternatively, they should reduce the standby charge to a more acceptable range. If you ask me, I would suggest around RM3 to RM5 per kilowatt alternating current (AC)," he added.

Source: Sustainable Energy Infrastructure Pty Ltd

BESS exemption has no impact on energy stability as solar still only accounts for about 12% to 15% of Malaysia's total energy usage

Solar Demand Yet to Surge

ERS Energy Sdn Bhd Asia Pacific (APAC) business development head Justin Low said the BESS exemption is a welcomed and strategic move, particularly for commercial and industrial (C&I) players, as it lowers capital costs and simplifies system design.

While concerns about potential strain on the grid have been raised in some quarters, Low believed that Malaysia's power infrastructure remains robust and capable of absorbing more solar penetration — at least for now.

"We don't foresee any immediate impact on grid stability. TNB operates one of the most robust and advanced grids in the region, and all solar photovoltaic (PV) connections are subject to a power system study prior to approval, so grid stability is already addressed through existing processes," he said.

However, Low cautioned that the exemption is only temporary, and any reintroduction of the BESS requirement — especially without corresponding cost reductions or policy clarity — could create a bottleneck for future solar investments.

"If BESS becomes mandatory again after 2025 and prices for storage systems remain high, without new allocations or clarity on the Net Energy Metering (NEM) framework, rooftop solar adoption is likely to slow significantly," he added.

Despite the policy shifts, Low believed that market response has been cautious.

ERS Energy has not seen a significant uptick in enquiries or demand since the BESS waiver and adjustments to standby charges were announced.

Instead, many businesses are still analysing the regulatory changes before making firm investment decisions.

A Concern for Grid Stability

Ember Energy Asia energy analyst Shabrina Nadhila echoed that SelCo's battery waiver until the year-end would boost its participation, especially among the commercial and industrial players.

BESS is expensive, so forcing it without a clear tariff structure or targeted incentives would discourage potential investors. However, she is concerned about grid stability.

"Rapid solar uptake, without parallel investment in grid upgrades or storage, can strain the power system. Storage will be critical in the long run to manage variability and support a smooth energy transition," she told *TMR*.

Shabrina Nadhila quoted from DNV GL Singapore Pte Ltd's "Final Report for Peninsular Malaysia System" in 2018 that Peninsular Malaysia can handle up to around 30% solar penetration before flexibility measures like batteries become essential. Therefore, reaching that level would need proactive planning.

She also advised that the government needs to take advantage of the current waiver period to introduce supportive policies and financial incentives which include import subsidies for BESS and reliable revenue options.

These incentives would ensure the batteries are prepared for a smooth energy transition as solar adoption in the country continues to grow.

Shabrina Nadhila is also optimistic that waiving BESS requirements can improve the economics of solar adoption under the SelCo programme.

"It is reasonable to expect that this move will accelerate interest and investment, particularly among businesses aiming to cut energy costs and decarbonise operations.

"If complemented by clear policy direction and supportive incentives, this exemption could be a key catalyst for unlocking Malaysia's solar power potential," she added.

Meanwhile, Shabrina Nadhila also shared that SelCo has a strong potential to accelerate infrastructure in rural areas, as it is suitable for areas with limited or unreliable grid access.

This is because it allows consumers to produce and use electricity on-site, without having to export the power back to the grid.

"This model can support energy access and resilience in underserved communities, reducing dependence on costly diesel generators or grid extension.

"Over time, it could also encourage local infrastructure development, such as rural microgrids and community-based energy solutions, while supporting broader goals of equitable energy transition," she added.

The SelCo programme was first introduced in 2017 to allow users to generate electricity from their own solar PV systems and reduce their electricity bills.

This permits the consumption of all electricity in its solar system, but at the same time, it prohibits excess energy from entering the utility network.

It also only allowed solar PV systems to be installed on rooftops, with an 85% capacity limit of a building's maximum electricity demand.

However, on Dec 24 last year, the Energy Transition and Water Transformation Ministry (Petra) and the EC expanded the SelCo programme to include solar installations for agriculture as well as land and water projects effective Jan 1, 2025.

These changes would assist companies and industries in meeting their environmental, social and governance (ESG) targets while supporting Malaysia's goal of reaching 70% RE by 2050.

Grid Integration Still Faces Hurdles

Samaiden Group Bhd group MD Datuk Ir Chow Pui Hee said while electrification in Peninsular Malaysia's rural areas, including Orang Asli communities, has improved significantly, the real challenge remains in East Malaysia, where infrastructure gaps still exist.

She viewed technical interconnection between Sarawak and the peninsula as feasible, but requires costly subsea cables and a strong business case, particularly to export green energy from Sarawak's hydropower surplus to high-demand areas like Peninsular Malaysia or even Singapore.

"But who is willing to bear the cost? And is there sufficient demand to justify it? It's more of a commercial and policy challenge than a technical one," she said.

Chow said the efforts to enhance localised RE generation through the SelCo programme are a step in the right direction — particularly with the introduction of BESS to stabilise the grid and maximise solar benefits.

Hence, she said solar plus batteries are a must to meet Malaysia's Sustainable Development Goals (SDG) goals and make solar energy more reliable. Without storage, Malaysia will be in risk of wasting excess generation during the day and straining the grid in the evening.

"BESS helps normalise solar intermittency and allows consistent supply even after sunset," she added.

While Samaiden supports policies promoting decentralised clean energy, she stressed that a coordinated, long-term strategy between federal agencies, utilities and private sector players is crucial to unlock full national grid integration, including cross-regional connections.