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BY TAN ZHAI YUN

In the last two weeks of 2024, the solar industry in Malaysia was taken aback by changes to the self-consumption (SelCo) programme for solar power, announced by the Energy Commission Malaysia (ST) and Ministry of Energy Transition and Water Transformation.

The first announcement made on Dec 24 was well-received, as the 85% demand capacity cap for non-domestic users under SelCo was removed. The programme has now been expanded to include ground-mounted solar and floating solar installations above water.

SelCo users generate solar power for their own use and do not export excess energy back to the grid. Prior to this, users were only allowed to install solar power systems on rooftops up to 85% of their electricity demand. Now, they can generate more solar power for their own use.

But when details of the new guidelines for SelCo were published on Jan 1 this year, the industry was less enthused. The new guidelines require SelCo systems for non-domestic users above 72kWp (kilowatt peak) to include battery energy storage systems (BESS), and users have to pay a monthly standby charge of RM14/KWp.

This adds considerable cost to SelCo solar systems, which is used by many commercial and industrial electricity consumers to reduce emissions. The net energy metering (NEM) programme, which allows excess renewable energy (RE) to be sold back to the grid, is only for systems below 1MW. Therefore, many large energy users — such as the manufacturing industry, malls and data centres — would opt for SelCo.

"SelCo is very common, for instance, for a company that is running 24/7, like a supermarket. The supermarket only opens from 10am to 10pm, but the freezers run at night. They would prefer to do SelCo, because NEM has a quota," says Nirinder Johl, founder and CEO of AsiaCarbonXChange, a consultancy involved in renewable energy (RE) certificates, and former managing director of TNBX Sdn Bhd, a subsidiary of TNB.

"Subang Parade mall, for instance, has a roof that can fit a 3MW solar power system but its maximum demand is 2MW. So, the 85% SelCo limit means it can only put a 1.5MW system. Under the new rules, they can put a 3MW system, but now they (the regulators) say they (users) have to pay a standby charge for the system. They are being ridiculous."

Industry players argue that these additional costs will drive consumers away from using solar power systems, and run counter to the country's goal to increase RE penetration.

"You impact not just companies but also government hospitals and big universities. In the past, it was already difficult to do it in these places because their buildings are spread out, unlike at a factory. When you add this cost, the case to do it in these places becomes very small ... because of the size of their consumption, they will go beyond 1MW systems," says Skip Ng, commercial director of AmSolar Sdn Bhd, a solar engineering, procurement, construction and commissioning company.

According to his calculations, the BESS requirement will add 50% to 65% to the base cost of a solar power system, and the standby charges will reduce the financial output of a 1kWp system by around 26% per month (based on a tariff of 52 sen per kWh).

DISAGREEMENT OVER STANDBY CHARGE

The industry players are questioning why solar SelCo users must pay a standby charge when they are already paying for electricity from the grid based on the maximum demand charges, which is when electricity is consumed from the grid during peak hours in the day.

A standby charge is imposed on consumers who generate their own electricity — such as factories that have cogeneration (cogen) plants to supply heat and electricity — but require backup energy from the electricity grid.

When factories shut down their cogen plants for maintenance, they will rely on electricity from the grid, and that's when the standby charges kick in, as the utility has to maintain the infrastructure and be prepared for a surge in demand.

Compared with fossil fuel-powered cogen plants, solar power systems only generate electricity around 3½ hours on average a day. Hence, the consumer still pays for electricity from the grid for the rest of the day.

Adding a standby-charge — at the same rate as that of cogen plants — on top of that does not make sense, say industry players.

"Solar can only generate [energy] for 3½ hours, whereas cogen is 24/7, but you're asking us to pay the same [standby charge] as cogen plants, which is not fair to the industry. Cogen requires additional standby power when they shut down for maintenance, whereas for solar, the [cost] is already captured under the



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maximum demand [charges]," says Michael Leong, managing director of Tera Va Sdn Bhd, which specialises in solar energy engineering contracts and is owned by Boilermech Holdings Bhd.

Cogen plants produce two different forms of energy and must achieve an efficiency rate of over 70%. Solar power generators do not fall into this category, adds AsiaCarbonXChange's Nirinder, as they only produce one type of energy and do not meet the efficiency threshold.

Additionally, if the consumer installs a BESS, as required under the new guidelines, SelCo users will rely less on backup energy from the grid. This would circum-

vent the problem of overloading the grid, and thus negates the need for such a high standby charge.

"Having the standby charge is like a double charge. If [they say] you don't have BESS, hence you need to pay the standby charges, that's fair because you rely on the grid. BESS comes with grid-forming capability, which means under the condition that TNB shuts down, these plants can provide power supply from the battery. That means we're not depending on the grid anymore. Since that is so, why do we need to pay the standby charge?" asks Leong.

According to his calculations, the new requirements will make solar SelCo more expensive than a cogen plant, if the cost of procuring fuels for the cogen plant is not considered.

Leong says while standby charges are necessary as the utility has to maintain the grid infrastructure, they must be fair if introduced. For instance, the standby charges should not be based on kWp but rather kWac (kilowatt



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alternating current), he adds.

kWp measures the total capacity of the solar panel, while kWac is the total amount of solar power generated, which will be lower than the total capacity because of external conditions, such as rainy and cloudy weather.

"A 1,000kWp solar power system at its maximum generates probably around 780kWac only, and it's not all the time. It starts from as little as 7kWp and goes up, then it comes down in the afternoon. That's why when you charge based on kWp, it is already outright unfair," says Leong.

ADDING THE COST OF BATTERIES

The new SelCo guideline requires a 1-to-1 sizing of BESS for every kWp of solar panel installed. There are many BESS providers in Malaysia, but installing BESS with solar power systems is not that common yet. Currently, the estimate for the cost of a BESS is around RM900 to RM1,127 per kWp.

Ng questions the rationale for the 1-to-1 requirement, and is concerned that the increased cost will turn customers away.

Chong says the cost of BESS presents a substantial financial barrier for most users.

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However, Leong believes that the requirement for BESS may be more acceptable to industry players due to its usefulness.

Leong gives the example of the installation of a 2.5MWp (megawatt peak) system, where the cost increased from RM5 million to RM7 million when BESS was added.

"The client was saying that adding the battery is good. But they are saying that the standby charges are not reasonable. When they invested in the factory here, they already invested billions. They are doing their part because they want to achieve their ESG goals, but indirectly, they are helping [the government] achieve the [70% RE installation target by 2050]," says Leong.

As at press time, the ST had not responded to questions from ESG.



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