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GOING GREEN

Better returns from solar investments expected

BY TAN ZHAI YUN

Solar energy investments will be more affordable for Malaysians following the changes to the Net Energy Metering (NEM) programme, which was announced by the Ministry of Energy, Science, Technology, Environment and Climate Change (MESTECC) in October.

From next month, residential consumers who generate solar energy for their own use under the NEM programme can sell their excess electricity to Tenaga Nasional Bhd (TNB) at the same rate that they buy from the utility. There will no longer be a difference between the selling and buying price of electricity.

This is an improvement to the NEM programme, whereby excess solar energy is sold to TNB at a displaced cost of 31 sen/kWh, compared with the domestic electricity tariffs charged by the utility, which can range from 21.8 sen/kWh (for the first 200kWh per month) to 57.1 sen/kWh (301kWh onwards), according to TNB.

The lower selling price was said to have contributed to the low take-up rate of the previous NEM programme. Under the old scheme, some 500MW of electricity could be sold to the utility from 2016 to 2020. Participants in Peninsular Malaysia could sell up to 90MW a year to the utility while those in Sabah could sell up to 10MW. The unused quota from each year can be carried forward to the following year.

According to data from the Sustainable Energy Development Authority Malaysia (SEDA), only 0.0274MW was taken up in 2016, but this grew to 4.9892MW in 2017 and 10.5096MW in 2018. The response in the domestic sector has been weaker than in the commercial and industrial sectors.

"A true net energy metering would be based on a 1:1 basis and this would give better returns to the owners of solar photovoltaic (PV) systems. Consumers should consider the new NEM programme as it has been improved from a net billing concept to a pure NEM scheme. This will help improve the return on investment for PV systems under the NEM and increase electricity savings per month," says SEDA acting CEO Dr Wei-nee Chen.

For the 2019/20 period, 48MW of the 50MW allocated was still available for the domestic sector as at October. The excess electricity will be sold for energy credits that can be used and stored for up to 24 months. The NEM programme is now only available in Peninsular Malaysia while the previously assigned quota for Sabah has been converted into a self-consumption scheme.

SHORTER PAYBACK PERIOD

Chen observes that the average household could install an 8kW solar panel system that costs RM36,000. Such a system could generate 800kWh of electricity a month while the returns depend on the household's electricity tariff band. "Taking a ballpark figure of 50 sen/kWh, [from January] the payback period for the system will be 7.5 years with no loans," she says.

The NEM makes sense for industrial factories with large rooftop space and commercial or domestic consumers with high electricity bills, she adds.

Alan Bong, business development manager of solar installation company Solarvest Energy Sdn Bhd, estimates that the payback period will be between 6.5 and 9 years. The cost of a full turnkey solar PV system, depending on the size, could range from RM5,000 to RM6,500 per kW.

The size of a PV system for a domestic consumer can range from 4kW to 12kW (single-phase power) or 72kW (three-phase power). The maximum cap is in line with the NEM guidelines issued by the Energy Commission. Based on Bong's estimates, a 4kW system could cost up to RM20,000 or more.

"With the 1:1 ratio for the export tariff, it makes more financial sense for domestic consumers to participate in the NEM scheme, particularly those who are paying more than RM330 a month in electricity bills," he says.

"For example, a household in the Klang Valley that spends about RM330 a month will see savings of up to 60%, which is about RM200 to RM250 a month with a 4kW system. A system of that size would require about 258 sq ft of roof space to fit the solar panels."

Ko Chuan Zhen, co-founder and executive director of solar installation com-

1-to-1 NEM (case for domestic consumer)



pany Plus Solar Systems Sdn Bhd, estimates a similar payback period of 8 to 10 years, considering the purchase of a 4kW to 12kW system, which is priced between RM24,000 and RM66,000.

According to an article in *Personal Wealth* on the previous iteration of the NEM in September last year, SEDA's then chief operating officer Akmal Rahimi Abu Samah estimated that the payback period would be about 10 years for a consumer who pays the highest tariff block and purchases a solar panel that costs RM6,000 to RM7,000 per kW. For context, a 12kW system is suitable for a bungalow, he said.

In his view, the previous NEM programme would make sense for those with electricity bills that exceed RM500 a

month because by generating electricity themselves, they can save money that they otherwise would have to pay TNB.

Ko believes that the cost of solar panels will continue to fall, although uncertainties in the market due to changes in China's policy for imported solar panels as well as the US-China trade war may influence prices. Regardless, the revised NEM programme is good for residential, commercial and industrial players.

"I think it is attractive for the commercial and industrial market, but it is also encouraging for the residential market. In the past, when they were not at home in the daytime and not using electricity, they were only able to sell that through the displaced cost per unit and not the [lower] tariff rate," he says.



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