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Greening with solar PV

Stories by MENG YEW CHOONG

DR Tan Loke Mun's aim for his new home in Petaling Jaya, Selangor, was simple: to achieve a Platinum rating, which is the highest accolade given under Malaysia's new Green Building Index (GBI).

"I am a strong believer in, and promoter of, green buildings and sustainable living, and wanted to try out solar photovoltaic (PV) as a renewable energy resource," said the director of ArchiCentre Sdn Bhd who is also the immediate ex-president of the Malaysian Institute of Architects (PAM).

Most homes here require about 3 to 4kWp (kilowatt peak), but as Tan was gunning for the GBI Platinum rating, he had to ensure that his house produced more electricity than it used. "And so I went for a PV system that is rated at 5kWp, which I succeeded in bidding for during the last call for submissions under the Malaysian Building Integrated Photovoltaic (MBIPV)," said Tan, who also chairs the PAM Sustainability Committee, and is one of the few key persons driving the industry towards greater sustainability, especially through the GBI accreditation panel.

Tan also went one step further by going for an integrated system, in which PV modules replace the metal roof sheets, rather than sit on top of the roofing sheets. His house eventually clinched the GBI Platinum rating (www.greenbuildingindex.org), which is the highest award for residential properties here.

The PV system cost him about RM100,000, part of which was subsidised under the MBPIV project. Bragging rights aside, the monetary incentives under the feed-in tariff (FiT) mechanism is expected to draw more homes to consider putting up solar PV, especially the possibility of earning up to RM700 through a 4kWp PV array on the roof.

"Yes, I do care about the payback period. FiT makes it a bit more economically sensible, and it is great for solar PV owners. However, it is still a form of subsidy-driven incentive, and time will tell whether such technology can be viable without such incentives."

However, Tan cautions those intending to purchase such systems to choose a competent contractor as the business of installing solar PV modules is a new one here. Incompetent contractors can lead to liabilities to the home owner as the solar modules might be blown off by strong winds, or may cause leaks to the existing roofing.

Those in the know said that it is important to secure a workmanship warranty that offers to repair, replace or refund the purchase in case of defects, with warranty periods ranging from one to as long as 10 years, depending on the manufacturer. PV modules are designed to last for two to three decades, and are typically warranted for at least 20 years on the power output factor. There should also be a workmanship warranty that offers to repair, replace or refund the purchase in case of defects, with the period ranging from one to 10 years, depending on the manufacturer.

Not all buildings are suitable for solar PV, as the technology is intolerant of shading (even partially) from trees or other buildings. A good summary of the requirements and considerations can be found at www.bca.gov.sg/publications/others/handbook_for_solar_pv_systems.pdf

Tan, however, is not finding any advantage in being a first-mover in this case. “I have had a terrible experience with the PV installation on my roof. The roof leaked during installation due to the workers not covering the roof properly during construction and my plaster ceiling was ruined. The latest incident was when four PV panels were lifted off the roof during a storm, causing a leak and ruining my plaster ceiling for the second time.

“I also have a lot of concern about the durability of such technologies. From what I have experienced, the assemblies and system may not last long enough to bring any real returns. If that is the case, then it’s just a fad – an expensive one, at that,” said Tan, who is nonetheless sticking on with his journey of learning, and will share his experience with others over time.

To prevent others from sharing his fate, Tan is currently advocating more regulations and enforcement by qualified professionals to ensure that any PV and other green technologies are designed and constructed in a safe manner.

“There is a general lack of regulations in this critical area. It would be sad for the green movement if the same scenario as what happened in Australia with the government’s incentive scheme for roof insulation ended up with an overnight mushrooming of unqualified green roof contractors, resulting in some deaths through electrocution and other damage,” he added.