

22 APR, 2023

## We're not moving fast enough towards

The Star, Malaysia



# *The sun is rising on* **renewable energy** *in Malaysia*

Pushing all together now for clean energy in Malaysia

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One of the country's oldest cities moves into a low carbon future

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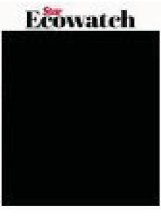
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On Earth Day today, we look into what's stopping Malaysia from moving away from climate-destroying fossil fuels and towards clean, renewable energy. 2-3

Photo: 123rf.com



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# We're not moving fast enough towards clean energy



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FROM Kulim in Kedah to Butterworth in Penang and across the South China Sea to Bintulu, Sarawak, factories in Malaysia are churning out solar panels by the millions.

Powered by investments from countries like China (Jinko Solar), Japan (Panasonic), South Korea (Hanwha Qcells), and the United States (First Solar, SunEdison and SunPower), thousands of workers at these factories are helping to make Malaysia the world's third largest manufacturer of solar panels.

The high output of these darkly-gleaming panels is coming at a time when the world is turning to renewable energy sources to mitigate the impact of climate change from rising carbon emissions.

Ironically, though, Malaysia's own transition to renewable energy has been slow.

According to the Energy Commission, in 2019, the electricity generation mix for Malaysia was mainly coal (42.8%) and gas (40.2%) while hydro power only made up 14.5%. More recent statistics from ourworldindata.org are a little more positive: they put Malaysia's renewables, such

as solar, hydro and biomass, at 19.31% of electricity production in 2021.

Last month, the International Renewable Energy Agency (Irena) warned in a report that Malaysia is falling behind other countries in the region on renewable energy (RE) production. Irena director-general Francesco La Camera said that Malaysia would now need to double its investment in the transition from fossil fuels to renewables to at least US\$375bil (RM1.7 trillion) if we hope to fulfil our international pledge of achieving net zero carbon emissions by 2050.

We are the third largest producer of solar panels on the planet, and we sit 3° above the equator so we have plentiful sunshine – why then aren't we leading the region in producing RE? Especially when solar power is one of the cheapest forms of RE? Or for that matter, why haven't more ordinary Malaysians embraced the sun to power their homes?

### Picking up the pace

During an interview with *The Star* in February, Natural Resources, Environment and Climate Change Minister Nik Nazmi

Nik Ahmad said that the ministry intends to speed up the country's transition to RE.

This is not an easy feat, considering that on top of our electricity mix being driven by fossil fuels, Malaysia is also an exporter of petroleum.

One strategy the ministry is exploring is lifting the ban on the export of RE, particularly to Singapore, as a way of scaling up and expanding capacity, the minister said. This idea has sparked rigorous debate among industry players who are not sure about its merits.

Malaysia has set a deadline to have RE at 31% of its power generation mix by 2025 and 40% by 2035. Large-scale solar schemes like those run by Tenaga Nasional Bhd (TNB) in Kuala Langat, Selangor, and Bukit Selambau, Kedah, can supply up to 30,000 homes with electricity; but experts argue that much of the targeted installed solar capacity of 4,706MW by 2025 will actually come from rooftop installations on residential units and commercial buildings.

Depending on roof size and type of house, the cost of installing solar panels can run from an average of RM45,000 for a terraced house to RM95,000 for a bungalow.

Malaysian Photovoltaic Industry Association president Davis Chong says the government has implemented policies to support the growth and adoption of solar energy locally: "It is economically compelling to transition from traditional brown energy as the price of solar panels continues to decrease and they become more efficient.

"This has driven innovation in technical enablers, such as energy storage systems and grid connectivity," he says.

Asked if the current price of solar panels is deterring their wider adoption among residential power consumers, Chong says that "while the cost is an important factor, other factors such as government policies, infrastructure, and awareness are crucial".

"With the ICPT increased, we see more clean energy adoption and, of course, more panel sales, too," he says, referring to the Imbalance Cost Pass-Through.

All medium- and high-voltage users and multinational corporations have to pay a 20 sen per kWh (kilowatt-hour) electricity tariff between Jan 1 and June 30 this year, which is an increase from the previous rate of 3.7 sen. The tariff was increased following the implementation of the ICPT, which is used to adjust tariffs based on changes in

## What is RENEWABLE ENERGY?

- > Renewable energy comes from sources that will not be used up in our lifetimes, such as sun and wind. These energy sources naturally renew or replenish themselves.
- > While most types of renewable energy are "carbon-free" in that they do not emit CO<sub>2</sub> or other greenhouse gases, some, such as biofuels, are not. Similarly, while nuclear energy is carbon-free, uranium is not renewable.



Source: MIT and National Geographic

### Types of Renewable Energy

#### SOLAR ENERGY



> Solar energy can be harnessed using special technology to capture the sun's rays. The two main types of equipment are photovoltaic cells – also called PV cells or solar cells – and mirrors that focus sunlight onto a specific spot to generate electricity.

> Although PV cells last for a long time – up to about 20 years – they can be expensive to install.

> Sunshine can also be hard to predict as it can be blocked by clouds or other adverse weather. The sun also does not shine at night and different parts of Earth receive different amounts of sunlight based on location, and the time of the year and day.

#### WIND ENERGY



> While humanity has been using windmills for thousands of years to grind grain or the power of sails to travel by boat, today's wind energy is mainly powered by giant wind turbines.

> The blades of the turbines are turned by the wind, which then propel a generator inside the tower, creating electricity. While it can be very efficient, it is not a steady source. Speed changes constantly, depending on the time of day, weather and geographic location.

#### GEOTHERMAL ENERGY



> Heat from the centre of Earth is the source of this energy, which warms underground water and melts rocks into lava. One way of harnessing geothermal energy is with underground steam, which naturally rises to the surface and can be piped straight to a power plant.

> Geothermal energy is only available in certain parts of the world. Another disadvantage is that in areas of the world where there is only dry heat underground, large quantities of freshwater are used to make the steam.

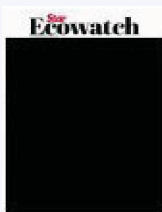
#### BIOMASS ENERGY



> Biomass energy includes biofuels such as ethanol and biodiesel, wood and wood waste, as well as biogas from landfills and municipal solid waste. Like solar power, biomass is a flexible energy source and able to fuel vehicles, heat buildings and produce electricity.

> However, there is criticism that biomass such as ethanol produced from corn and soy compete with the food market, and take away agricultural land and lead to deforestation. It is not carbon-free.

THE COMPANION



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fuel and other costs incurred by TNB; the tariff is revised every six months by the Energy Commission.

Like Chong, The Energy Institute managing director for Asia-Pacific Peter Godfrey does not feel that the pricing of solar panels is the issue. He explains that for members of the public and local companies to take a greater interest in RE, it will require greater use of "carrots, sticks, and hugs".

Carrots, he explains, are incentives in the form of direct or indirect subsidies and tax breaks, and sticks are about ensuring that those who do not move forward feel increasingly under threat from their lack of activity.

"Hugs are the opposite of sticks, [such as] ensuring that examples of good practice within the RE development space are appropriately and publicly rewarded," he says.

### 'Carrots, sticks, and hugs'

Encouraged by Prime Minister Datuk Seri Anwar Ibrahim's announcement of RM2bil in funding for sustainable technology start-ups and to help small and medium-sized enterprises implement low-carbon practices – as well as the higher electricity bills from that spike in tariffs – many local firms are turning to solar power as one way of offsetting costs.

Also helpful are the tax breaks to encourage RE and green technology, and offers of low-interest bank loans to businesses interested in installing solar energy.

As a result, local solar panel installation companies have reported a tripling of enquiries from businesses between January and February this year.

But is this enough to achieve acceleration in the transition to RE?

For that to happen, Godfrey says, there must be a commercial environment that attracts investment in scaled development of RE within the country.

"The country has struggled to attract appropriate investment into the sector given the poor economic fundamentals for investments in such projects," he says.

Godfrey says, by definition, scaled renewable energy projects must be viewed as infrastructure projects that will yield relatively low but predictable returns on capital.

"This requires policies to be put in place that underpin such investment, as well as regulatory frameworks that encourage the growth of local economic activity stemming from such investment.

"It also requires an approach that drives stable and predictable policy development and, even more importantly, a recognition that moves towards RE and other energy transition priorities, such as decarbonisation, circular economy, more efficient use of energy, and other resources as well as environmental issues such as biodiversity," he says.

Many governments – not just Malaysia's – do not appropriately take these issues into account, says Godfrey.

"In most cases, issues related to RE and

the like rest with the energy and environmental ministries, and are not taken seriously enough by the economic and finance ministries that ultimately drive overall infrastructure investment," he says.

### All charged up

This seemed to be the point that the Natural Resources, Environment and Climate Change Ministry was driving at when Economy Minister Rafizi Ramli was invited to the Energy Transition Townhall it organised on March 7.

While industry players and experts are still torn over the possibility of selling RE to Singapore – the availability of RE is now an important factor with foreign investors – the government appears to be banking on this as one way of accelerating Malaysia's RE transition.

While fielding a question during the townhall, Rafizi warned that should Malaysia choose not to sell to Singapore, other countries, like Indonesia, would snap up the opportunity.

The biggest task the current administration has is how to expedite the RE transition, he said.

"Because with this, we can hopefully negotiate and attract the green funds and technology," he said.

He added that countries in the region are already looking into grid interconnectivity for the sale of RE, which Singapore desperately needs for its industries.

Many Malaysians, Rafizi said, take the view that selling RE to Singapore would only make the island republic a more attractive destination for foreign direct investments.

"That's not necessarily true. Because we have a lot more on top of RE that Singapore cannot offer.

"We have land, a bigger market, other resources, and most importantly, we can plan," he said.

Malaysia, he adds, has to make sure that the RE transition is both financially viable and sustainable.

"But if other countries are charging ahead and this is found to be financially viable and sustainable, we cannot take the position that it is not. We have to crack our heads and find ways to make it so," says Rafizi.

Godfrey says he is encouraged by the fact that the issue of Malaysia's RE transition is being recognised at the highest levels of the government, and that efforts are now being made to establish the appropriate mechanisms.

"Malaysia has the potential to become a key regional player within the energy transition space, given a willingness to redesign its economy in a way that takes full advantage from such development.

"To do this, it requires a fundamental move away from an economy that has been largely driven by the hydrocarbons industry over the past century.

"This is not an easy thing to do but I am convinced that Malaysia has the potential to do so."



A solar power system at Bukit Dumbar, Penang. In 2021, it generated electricity bill savings averaging RM22,811 a month. – PBA Green Technology