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## **ASEAN's Renewable Energy: Go for Country Advantage**

*By Gilang Kembara and Emiranzala Kisyanto*

### **SYNOPSIS**

*The use of fossil fuels continues to dominate ASEAN's energy landscape. As fossil fuel production is strongly correlated with the acceleration of global climate change, what alternative renewables can ASEAN states prioritise to meet its 2025 climate targets?*

### **COMMENTARY**

ASEAN'S PRIMARY source of energy largely comes from fossil fuels such as coal, oil, and natural gas, which member states including Indonesia and the Philippines rely on for domestic use as well as substantial trading opportunities. Despite having abundant renewable potential, ASEAN's primary energy was still largely dominated by fossil fuel production and consumption. ASEAN's dependency on fossil fuels has led the region to risk long-term environmental damage as well as international reputation.

However, ASEAN has gradually shifted towards renewables to reduce the region's annual carbon dioxide (CO<sub>2</sub>) emissions by 2025 per the targets set by the 2015 Paris Agreement. The ASEAN Centre for Energy (ACE) plans to facilitate economic growth and regional integration by engaging in multilateral collaboration and ensure energy strategies and policies coincide with the region's economic and environmental initiatives. ACE has prioritized promoting "clean" fossil fuels, heat and power technologies, and efficient energy conservation despite ASEAN's lacklustre track record of committing to its many energy-related ambitions.

### **Transition to Renewable Energy**

ASEAN began to pivot towards renewable energy as early as 2005 when it realised that the over consumption of fossil fuels is linked to increased CO<sub>2</sub> emissions. The

region began to see a gradual rise in energy demand, as much as 50%, as the population of each member state began to rise.

At the 2015 Paris Agreement, ASEAN agreed to depend on renewables by making it 23% of the region's primary energy by 2025 in hopes of having a more sustainable future. Total electricity generation in ASEAN has been shown to increase from 21% to 32% though coal production doubled as well in 2017.

Mainland ASEAN member states utilise different renewables than those of maritime states due to logistical and geographic reasons. Hydropower energy account for 18% of ASEAN's total installed electric generation capacity, while solar power is associated with states that have sizable land mass and access to solar radiation.

The potential of solar energy leaves many ASEAN member states to invest in solar technologies due to its stable output of electricity. Geothermal power is regarded as an important asset to ASEAN's energy security because it is estimated to grow by 200% of ASEAN's primary energy.

Analysts predict that by 2025, renewable power technologies will fall within the cost range of conventional generation for geothermal energy to have a low levelised cost of energy (LCOE) and minimal deployment in regions where they are available. Alternatively, wind power produces less energy with a smaller consumption rate within ASEAN.

Presently, ASEAN states have low to medium levels of deployment of wind technologies, despite having a large potential for wind power development in the region. Analysts estimate that wind power production will grow exponentially if ASEAN commits to a sustainable energy roadmap.

### **Go for Country Advantage**

Considering these developments, it is recommended that member states focus on one type of renewable that suits their circumstances best. In *Singapore*, the country depends on renewables such as solar energy because 86% of the country's primary energy comes from imported oil in 2019. Singapore's geographic circumstance led it to develop solar-powered farms along its coastlines in order to reach their renewable targets.

On the other hand, *Malaysia* should prioritise hydropower as its primary source of renewable energy given that it comprises 63% of its renewable supply. As Malaysia's sustainable roadmap plans to increase renewable shares by 2025, Malaysia can decarbonise its electricity sector by focusing on this sector. Given the country's geographic location it makes sense that it takes advantage of the abundant rainfall that fuels hydropower energy.

Given its location in the volcanic Ring of Fire, the *Philippines* produces a large amount of geothermal energy that makes up 56% of the nation's total supply, which also constitutes 44% of the country's largest share of renewable energy in its sustainable roadmap.

*Vietnam* should rely on wind power for having an estimated 27,750 MW of total wind power, which can ensure its national energy security goals. The country is regarded as an important exporter of energy with net exports growing at 9% annually and its investments in wind technologies allows Vietnam to achieve its climate targets as outlined in the Paris Agreement.

On the other hand, *Thailand* should shift its focus towards hydropower, despite being heavily reliant on biomass with 95% of its total renewable investments within the biofuels sector.

Thailand should focus on hydropower in the long term because the country has the largest share of non-hydroelectric generation capacity in ASEAN, with plans to establish a new Power Development Plan (PDP) to increase its renewable energy quota to 18% by 2037.

### **Cut the Fossil Fuel and Biomass Dependency**

As ASEAN progresses towards meeting its obligations under the 2015 Paris Agreement by prioritising renewables as the central focus of the region's primary energy mix, it is essential that ASEAN begin to gradually dissociate itself from fossil fuel and biomass dependency.

Many ASEAN states still suffer from under-developed infrastructure and barriers to implementing renewable technologies due to geological and logistical problems, hence their reluctance to fully transition to renewable options. They should, therefore, be given enough time, investment and commitment to develop their respective renewable energy sector.

In addition to the examples of Singapore, Malaysia, the Philippines, Thailand and Vietnam, *Indonesia* can also play its part. Its commitment to achieving a net-zero emission by 2060 has seen the country develop renewable energy such as the Bayu Wind Farm in South Sulawesi.

There has also been a further expansion of the country's vast geothermal energy potential by both state-owned enterprises and the private sector, and rightly so as the country is located in the volcanic fault line known as the Ring of Fire.

Going forward, if each ASEAN state can consider focusing on one or two of their most viable renewables to achieve long-term reduction in carbon emission, the region's future, riding on the back of renewable energy, will become more sustainable.

In a significant development underscoring this potential for intra-ASEAN cooperation in renewable energy, reports on 23 June 2022 say that Singapore has started importing renewable hydropower from Laos through Thailand and Malaysia in an agreement known as the Laos-Thailand-Malaysia-Singapore Power Integration Project.

This four-country cross-border collaboration tapping into Laos' hydropower proves how one country's advantage in renewable energy can bring benefit to many in the region.

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