Clean Energy Finance in ASEAN: Promising Potential or False Dawn?

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Much attention and commentary has been dedicated to the topic of renewable energy in Southeast Asia. A multitude of factors drive progress, encompassing government policy, financing sources and flows, funding mechanisms and instruments, regional cooperation, the balance of responsibility and partnership between the private and public sectors as well as the operating dynamics and features of the power and energy markets themselves.

Understanding the prospects for the energy sector is fundamentally important in determining the ability of a key region in our globalised economy to meet the challenges of a warming climate by significantly increasing investment in clean energy. Southeast Asia largely comprises 660 million people across the 10 members of the Association of Southeast Asian Nations (ASEAN), equivalent to almost 10% of the world's

population[1] and collectively the fifth-largest global economy.

A subject of this magnitude is made up of multiple strands of enquiry. But to ensure focus and direction, this paper seeks to track recent developments and consider the case for optimism about the potential for renewable infrastructure investment in ASEAN markets by asking: **Where are we today? Where do we go from here?** and **What might accelerate progress?**

Important context: Understanding the need

Economic growth and development across the 10 ASEAN nations has been rapid, with the region recording a gross domestic product of US$3 trillion in 2018.[2] Such growth presents energy challenges, including an outsized dependence on fossil fuels, with coal and natural gas supplying almost 75% of the region's electricity.[3]

Yet, despite progress, an estimated 45 million residents in the region[4] do not have access to electricity. In a region where the World Health Organisation (WHO) estimates an annual 2.4 million premature deaths from air pollution,[5] growing usage of fossil fuel-derived energy will further reduce air quality and exacerbate what is already a significant issue. Security of supply is another important consideration, given the region is on track to become a net importer of fossil fuels. According to the International Energy Agency (IEA), the region's overall dependence on oil imports is forecast to exceed 80% in 2040, up from 65% in 2019.[6]

At the same time, all 10 states in ASEAN have signed and ratified the Paris Agreement, and nine of them have submitted nationally determined contributions (NDC), which spell out each country's commitments and undertakings to combat climate change issues and reduce greenhouse gas emissions. (It was not possible to review Myanmar's NDC due to the ongoing political situation on the ground.) These NDCs are subject to scrutiny, with some commentators suggesting that they are not sufficiently ambitious and/or lack mechanisms to enforce action.

Against this backdrop, clean energy will be a critical factor shaping the region's development. Successfully realising its potential will have an enormous bearing on governments, policymakers, investors, businesses and communities at large across ASEAN for years to come.

Addressing a considerable shortfall

Energy demand in the region has grown by more than 80% between 2000 and 2019. Fossil fuel use doubled in the same period.[7] The most recent ASEAN Energy Outlook, produced by the ASEAN Centre for Energy in November 2020, projects that energy demand in the region could more than double between 2017 and 2040.[8]

ASEAN's current energy mix is comprised of 80% oil, coal and natural gas,[9] with renewable energy only accounting for around 15% of the region's energy supply.[10] Furthermore, demand for oil continues to grow and already exceeds the region's aggregate production capacity.

[1] https://iea.blob.core.windows.net/assets/47552310-d697-498c-b112-d987f36abf34/Southeast_Asia_Energy_Outlook_2019.pdf
[2] https://asean.org/book/asean-integration-report-2019/
[3] https://www.channelnewsasia.com/commentary/asean-clean-energy-indonesia-thailand-vietnam-solar-wind-coal-fossil-fuel-2176221
[4] https://aseanenergy.org/sustainable-energy-transitions-in-island-communities/
[5] https://www.channelnewsasia.com/asia/air-pollution-asia-research-data-economic-loss-premature-deaths-1339001
[6] https://www.reuters.com/article/us-singapore-energy-iea-idUSKBN1X9004
[7] https://www.iea.org/reports/southeast-asia-energy-outlook-2019
[8] https://aseanenergy.org/the-6th-asean-energy-outlook/
[9] https://www.mdpi.com/2071-1050/13/5/2819
[10] https://www.iea.org/reports/southeast-asia-energy-outlook-2019

The COVID-19 pandemic has also affected growth in investment in renewables, as governments in the region – as elsewhere around the world – have had to redirect funds to relief packages for their national populations. This leaves renewables with some way to go in order to catch up in terms of the region's energy mix, while having to make up for a shortfall in investments.

Some markets are investing more than others. A 2020 EY study of eight economies across Asia – Indonesia, Japan, Malaysia, the Philippines, South Korea, Taiwan, Thailand and Vietnam – found that there is a robust pipeline of more than 800 clean energy projects in those countries and territories.[11]

However, the International Renewable Energy Agency (IRENA), the intergovernmental organisation supporting countries in their transition to a sustainable energy future, suggests that ASEAN's proportion of renewable energy as part of total primary energy supply would only achieve 17% by 2025, six percentage points short of the region's aspirational target of securing 23% of its primary energy from modern, sustainable renewable sources by the same year.[12] Even if we account for the pipeline of more than 800 clean energy projects within this forecast by IRENA, the proportion of renewable energy as part of the overall energy mix globally and within ASEAN would still have much room for improvement.

To reach ASEAN's 2025 goal of 23% renewable energy in its total primary energy supply will require "targeted efforts to accelerate and scale up renewable energy development and exploiting the rapidly evolving market landscape." The Asian Development Bank (ADB) estimates that US$290 billion in investment is needed to reach regional renewable energy targets.[13]

While there are many different challenges that must be addressed – ranging from the land required to develop renewables infrastructure amidst the scarcity of land in Southeast Asia, to energy storage, transmission capacity and smart grid management – **this report focuses on the funding challenge.**

Overcoming funding challenges

IRENA has stated that "to reach the region's aspirational renewable energy target, annual investment would need to be significantly scaled up to an estimated US$27 billion." In context, around US$6 billion has been invested cumulatively by development banks in renewable energy between 2009 and 2016.[14]

Achieving this increase in investment is further complicated by the high levels of diversity across ASEAN. There is considerable variation in levels of maturity across markets in catalysing renewable energy opportunities, with markets such as Malaysia, the Philippines, Singapore and Thailand being more developed in their efforts to promote clean energy investment.

Other countries in the region have access to fewer financial instruments, face greater risks associated with such investments and have comparably fewer vehicles for accessing investment opportunities.

One of the most prominent barriers identified by ADB is related to limited private sector funding. Currently, it estimates 55% of clean energy projects still rely on the public sector to ensure bankability.[15]

[11] https://www.ey.com/en_sg/power-utilities/how-covid-19-drive-growth-in-renewable-energy
[12] https://www.irena.org/-/media/Files/IRENA/Agency/Publication/2016/IRENA_REmap_ASEAN_2016_report.pdf
[13] https://www.adb.org/sites/default/files/publication/706641/financing-clean-energy-developing-asia.pdf
[14] https://www.irena.org/-/media/Files/IRENA/Agency/Publication/2018/Jan/IRENA_Market_Southeast_Asia_2018.pdf
[15] https://www.adb.org/sites/default/files/publication/706641/financing-clean-energy-developing-asia.pdf

This is compounded by challenges, including a shortage of technical skills, limited knowledge of and trust in instruments such as renewable energy bonds and the high and variable capital costs associated with renewable energy in the region.

Addressing this funding gap will therefore require a considerable acceleration in financing, especially in the offshore wind space. With that in mind, we consider where this funding might come from and what it might take to realise it.

Three options for closing the clean energy funding gap

Diverse financing sources will be crucial to accelerate and scale up ASEAN's clean energy transition. This is particularly the case when severe disruption caused by the pandemic has created uncertainty in the valuation of many infrastructure assets, thus restricting some sources of finance. Three factors that will influence this financing are:

1. Availability of private capital

A survey by the law firm White & Case earlier last year indicated that fewer investors expect pension funds to be the main source of investment in infrastructure in Asia going forward (48% in March 2021 compared to 70% two years ago).[16]

Conversely, private equity (PE) funds are expected to be more active in the region, with many having kept their powder dry in 2020. To illustrate this, Asia-focused PE funds had raised US$80.5 billion as of June 2021, up 59% from the same period the year before. This is the highest level in two years and contributed to a record level of dry powder in the region at about US$384.9 billion.[17]

This dry powder and private capital can be leveraged and used in filling Asia's green infrastructure funding gap. Funds are already being mobilised, with data showing that there are currently eight Asia-focused infrastructure funds managed by firms with environmental, social and governance (ESG) policies, up from just five at the end of February 2020.

Additionally, 83% of global infrastructure fund managers polled toward the end of 2020 said they believe that the transition to a decarbonised energy generation system will be a key driver of opportunity over the next 10 years.[18]

Significant moves last year by global private equity firms and money managers suggest this trend is playing out:

- In January 2021, New York-based firm **KKR** closed its first fund focused on infrastructure investment across Asia Pacific. The KKR Asia Pacific Infrastructure Investors SCSp is a US$3.9 billion fund focused on infrastructure-related investments across Asia Pacific. This fund will invest in sectors such as waste, renewables, power and utilities, telecommunications and transport infrastructure.
- In November 2021, US investment giant **BlackRock** announced a US$673 million final fundraise for the Climate Finance Partnership (CFP), a flagship public-private finance vehicle focused on investing in climate infrastructure across emerging markets in order to help accelerate the global transition to a net zero economy. CFP will target investments in select non-OECD countries in Asia, Latin America and Africa. In BlackRock's view, these regions present significant investment

[16] https://www.whitecase.com/publications/insight/asia-pacific-infrastructure-2021/eye-future
[17] https://www.asianinvestor.net/article/apac-pe-investors-hit-deal-record-but-engage-in-less-esg-activism/473793
[18] https://www.preqin.com/insights/research/blogs/more-asian-infrastructure-funds-in-market-commit-to-esg

opportunities for global investors in climate infrastructure over the coming decades due to significant growth in electricity demand, increasing urbanisation and rapid economic development. Renewable energy in non-OECD markets is projected to make up 49% of global energy capacity by 2050, compared to 25% for the OECD renewables market.[19]

2. Partnerships

Given investment demand and tight competition for illiquid assets in Asia, tie-ups with experienced local specialists represent an attractive opportunity. Commentators have suggested that such approaches – which bring investors together with on-the-ground developers – could be a sign of things to come. This may provide an effective means to match funding to renewable infrastructure investment potential in ASEAN markets.

Partnerships such as Equis Development Pte Ltd announcing the close of an equity capital raise with OTPP and ADIA to the tune of US$1.25 billion[20] "are a case in point."[21] Equis is currently working on 40 projects and plans to commit at least US$2 billion to renewable energy and waste infrastructure assets across its target markets of Australia, Japan and South Korea over the next two years. Asia Head of OTPP Ben Chan acknowledged at the time that the deal "will help us build scale in Asia and grow our exposure to renewables." [22]

More recently, in September 2021, Temasek and HSBC announced a tie-up and the launch of a debt financing platform designed to scale up to US$1 billion of loans within five years to support sustainable infrastructure development. In light of the fact that many infrastructure projects in the region face varying degrees of barriers to bankability and of the role for private capital in bridging this gap, the two partners committed US$150 million to catalyse financing of marginally bankable sustainable infrastructure projects.

Based in Singapore, the platform aims to harness the market's financial expertise and connectivity to scale up the development of sustainable infrastructure across Southeast Asia. This is with a view to scaling up to US$1 billion of loans within five years to support commercial development of the region's sustainable infrastructure sector.[23]

3. Green Bonds

As ADB notes in its July 2021 report, while ASEAN employs a number of traditional financial and policy instruments to support clean energy financing and markets, it is yet to fully employ new and innovative schemes. For example, green bond markets in ASEAN are small and in their infancy – only 1% of total green bonds in the region have been issued for clean energy compared to the global share of 4%.[24]

Yet, at the same time, this speaks to the considerable growth potential that green bonds offer. Signs of progress and momentum are encouraging – although the scale of these sources of investment needs to grow exponentially.

A report by the Climate Bonds Initiative released last year noted that issuance of Green, Social and Sustainability (GSS) bonds in ASEAN reached a record high of US$12.1 billion in 2020, representing a 5.2% year-on-year increase.[25]

[19] BlackRock using data from Bloomberg NEF, New Energy Outlook 2020: Cumulative installed capacity. Data as of February 2021
[20] Full disclosure: Equis is a Teneo client
[21] https://www.infrastructureinvestor.com/equis-raises-1-25bn-equity-from-adia-and-ontario-teachers/
[22] https://www.asianinvestor.net/article/why-the-adia-otpp-tie-up-with-equis-is-a-no-brainer/464953
[23] https://www.temasek.com.sg/en/news-and-views/news-room/news/2021/HSBC-and-Temasek-Launch-Partnership-to-Catalyse-Sustainable-Infrastructure-Projects-in-Asia
[24] https://www.adb.org/sites/default/files/publication/706641/financing-clean-energy-developing-asia.pdf (pp 169)
[25] https://www.business.hsbc.co.th/en-gb/insights/sustainability/record-year-for-asean-green-social-sustainability-debt-issuance-report

While Singapore remained the market leader in GSS, Thailand and Indonesia also experienced significant growth.

In 2020, there was a consistent increase of both instrument size and number of issuers, with 40 green products issued, up from 32 in 2019.[25] The number of green bond and loan issuers increased to 30 (15 bonds, 15 loans) from 20 in 2019. Of the 30 green bond and loan issuers in 2020, 26 were debut issuers.[25]

To catalyse the growth of such instruments will require a concerted focus by governments in the region. As an example of the steps required, during the inaugural Singapore Sustainability Investing and Financing Conference held in September 2021, the Singapore government announced the establishment of the Green Bonds Programme Office. The office, which falls under the Ministry of Finance, is working with statutory boards to develop a framework for green bond programmes, while also engaging with industry and managing investor relations.[26] The news followed Singapore's National Environment Agency (NEA) raising US$1.23 billion via its inaugural green bond issuance to fund new and existing sustainable waste management projects.

These recent developments in Singapore's green bond market are a clear indication of the country's desire to become a world leader in the green finance space. Singapore could act as a model for other regional countries to follow or – as the city state has done in various spheres including air transportation, sea freight and medical tourism – it could act as a hub, in this case, through which other markets can raise green financing.

Other capacity gaps to fill

There are other funding options that merit attention. ADB suggests that several financial institutions across the region do not fully understand the green investment market and credit risk, especially for clean energy. As a result, domestic commercial banks have not been investing in renewable energy technologies beyond solar and wind.

However, this may be changing. DBS, for example, has completed 29 renewable projects across Asia amounting to around US$2.63 billion since 2018. The bank already has a strong footprint in solar and wind and was the sole financier of the Tengeh Reservoir project, Singapore's largest floating solar farm. This built on its financial advisory roles in Taiwan's largest floating solar project and also Taiwan's largest ground-mounted solar project.

The bank sees big opportunities in hydro and wind energy in Vietnam. It secured four new advisory mandates across solar, wind and geothermal assets in Indonesia, Taiwan and Vietnam in 2020.[27] The bank continues to ramp up support for the renewables sector in general, supported by the increase of its exposure to renewable energy projects to US$3.07 billion in 2020 versus US$2.08 billion in 2019.[28] DBS has also announced it will stop financing clients that derive more than half of their revenue from thermal coal from January 2026 onwards, unless the funds are for their non-thermal or renewable energy activities.[29]

[26] https://www.mof.gov.sg/news-publications/speeches/speech-by-mr-lawrence-wong-minister-for-finance-at-the-temasek-s-singapore-sustainable-investing-financing-conference-2021-on-30-september-2021

[27] https://www.dbs.com.sg/corporate/research-and-insights/business-insights/the-future-of-asia-energy-sustainability

[28] https://www.dbs.com/newsroom/DBS_Bank_commits_to_zero_thermal_coal_exposure_by_2039

[29] https://www.argusmedia.com/en/news/2206527-singapore-bank-dbs-to-end-coal-financing-by-2039

Varied window for action depending on local challenges

Southeast Asia faces growing urgency to tackle the threat of climate change while also addressing a range of energy needs. Primary among these, energy demand is set to grow considerably due to economic progress in the region.

At the same time, governments face a difficult balancing act between domestic economic considerations – which include increasing demand for energy – and the urgent need to contribute towards international goals to reduce global warming. As noted, many of the countries highlighted in this report have published specific environmental commitments for the coming decade and beyond.

Clean energy is a vital piece of this puzzle, and there is a huge opportunity to scale up investment in this area. That said, successfully delivering green energy projects in the region is not assured without meaningfully understanding the unique challenges in each market, and capitalising on where these challenges exist based on an alignment of projects and funding with a country's policies and priorities.

There is reason to feel optimistic for the clean energy industry's prospects in the ASEAN region, but the window for action varies in different countries, and the understanding and recognition of local conditions is key.

Key considerations for corporates looking to secure financing and investments and to tap into the growth potential of the Southeast Asia renewables sector

Corporates such as power supply companies, special-purpose entities, banks, private equity and private capital providers and wealth and asset managers should ask themselves the questions outlined in the table below when sourcing and making investments in renewables.

FOCUS AREA	QUESTIONS FOR CORPORATES TO CONSIDER
Risk Analysis	
Evaluating the policy and regulatory landscape	• How embedded are processes for reviewing plans and investments against relevant regulatory requirements? • How consistently are these plans reviewed and maintained? • How broad and deep is the business's understanding of policy, risks and key decision-makers / influencers that may affect the host government's treatment of the investment?
Risk advisory	• What is the host country or territory's capacity to assess the planned investment and maintain a predictable regulatory regime? • What interests exist in the country or territory that could affect the government's policy and regulatory decisions, both at the point of investment and over a longer time horizon? • How effectively does the business track industry specific challenges? Is it applying best practices from other markets / entities?
Scenario planning	• How developed and extensive are the business's scenario plans that model the potential impacts of investments / developments in selected countries or territories?
External Positioning	
Investor narrative	• How well does the investor narrative align with the business' own and the host country or territory's local and global needs?
Investor communications	• How well prepared / resourced is the business to steer interactions with investors / stakeholders to build understanding and support for investments (planned and existing)?
Reputation management	• How developed and extensive are the business's scenario plans that model the potential impacts of investments / developments in selected countries or territories? • How developed is thinking around the long-term reputational impact of investments? (Both positively but also in terms of risks.) • Has the business assessed the risks and long-term reputational impacts of investments and associated activity? • How well has the business defined communication / representation of its investment plans to key audiences (both external and internal)?
Analytics & Reporting	
Reporting / benchmarking	• How advanced are the business's policies and practices around managing and reporting metrics? • Are execution and key performance indicator (KPI) frameworks fully established (allowing teams to monitor capabilities and progress)?

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