

Power in Southeast Asia: Cubs on a Growth Spurt

With bright economic growth prospects, the region is redefining its power sector

Southeast Asia, with an increasingly affluent population of 600 million, must kick investment in the power sector into the next gear to meet expected demand for electricity. According to a study from Accenture, the region's economy is projected to grow by \$735 billion by 2020. Over this period, ASEAN's most dominant economies, Indonesia, Malaysia, Thailand, and the Philippines, collectively referred to as tiger cubs, will need to boost their generation capacity and improve their connectivity in order to facilitate this economic growth.

Adrian Koh, assurance partner at Ernst & Young, comments that despite barriers to entry, those familiar with the region are making commitments: "Southeast Asia has provided a slight sparkle to the gloomy global economic weather of recent years. Because of this, there are people extremely willing to invest in the region. There is enough liquidity, especially from the Chinese and Japanese, who have been here long enough to understand it well... Governments as well as gen-cos are looking at cost transformation because people are unhappy about rising prices. It does not help that tariffs and the cost base are not transparent in this part of the world. There exist real regulatory risks for potential investors – the model works for now, but will it be changed?"

Recent events suggest the model is changing, albeit slowly. Changes in regulatory structures often take decades to fully im-

plement. For example, Singapore, the most liberalized market in the region, is still defining the future of its retail market a decade after legislation deregulated the power sector. The Philippines is currently in the messy process of liberalizing its power market; it has shed state-owned gen-cos and is introducing full retail contestability.

Thailand, Malaysia, and Indonesia, continue to exert a great amount of state control over their power sectors, as all of them seek to diversify their generation mix and quickly add needed generation capacity. In Malaysia, state-owned Petronas supplies gas to a number of private power generators at a subsidized rate. Following incumbent Prime Minister Najib Razak's victory in May 2013's elections, cutting back on fuel subsidies is reportedly high up on the fiscal-reform minded prime minister's agenda. In Thailand, EGAT, the Electricity Authority of Thailand, accounts for approximately half of Thailand's generation, with IPPs playing an increasingly prominent role, especially as the country looks to diversify its generation mix beyond gas. In Indonesia state-owned PLN, Perusahaan Listrik Negara, controls 90% of generation capacity in the country. The government is grappling with how to generate and deliver electricity to an increasingly affluent archipelago of 243 million people spread across 922 inhabited islands. Presently, Indonesia's electrification stands at approximately 70%, one of the lowest in the region.



Solar Power Plant Lopburi, Thailand - 1.5MW.
Courtesy of Yingli Solar

Evolving Strategies to Fuel Growth

As investors look towards Southeast Asia because of its immense growth potential, the question beckons, will investment come quickly enough to meet needs and what will it look like in three markets that are largely subsidized and dominated by state-owned gen-cos? According to a study from the Boston Consulting Group (BCG), ASEAN's power sector will need around \$500 billion of investment as regional demand increases from 656 TWh in 2010 to 2,414 TWh by 2030. "It [investment] is unlikely to come fast enough; the sheer size of investment required means IPPs will have a larger role as state-owned utilities do not have the all the resources," comments Klaus Langner, partner and managing director at BCG's Singapore office.

In previous decades, Thailand, Indonesia and Malaysia, were able to rely on ample gas export revenues to help offset subsidies for their domestic markets. However, as domestic demand increases and their own gas reserves decline, these countries are faced

with the decision of either continuing fossil fuel subsidization, at great cost to the government, or phasing out subsidies, to the chagrin of the average consumer. As governments ponder this conundrum, Malaysia and Indonesia have both faced widespread backlashes when cutting back fuel subsidies were discussed earlier this year and generators are turning increasingly towards coal to diversify away from gas and keep costs under control. According to an analysis by BCG, by 2030 50% of Southeast Asia's power generation will come from coal, compared to 30% in 2010.

According to Dr. Bart Lucarelli of Roleva Energy, Thailand needs to turn towards cheaper and more accessible coal in order to make up for the increasing limitations of gas resources: "[Thailand] is now in the unenviable position of relying on natural gas-fired, com-



Dr. Sanjay C. Kuttan, regional manager SEA / managing director, DNV Kema Clean Technology Centre

combined cycle gas turbine (CCGT) plants, to provide 70% of its electricity needs at a time when gas reserves in the Gulf of Thailand are rapidly depleting and Myanmar is starting to focus on using its energy resources domestically."

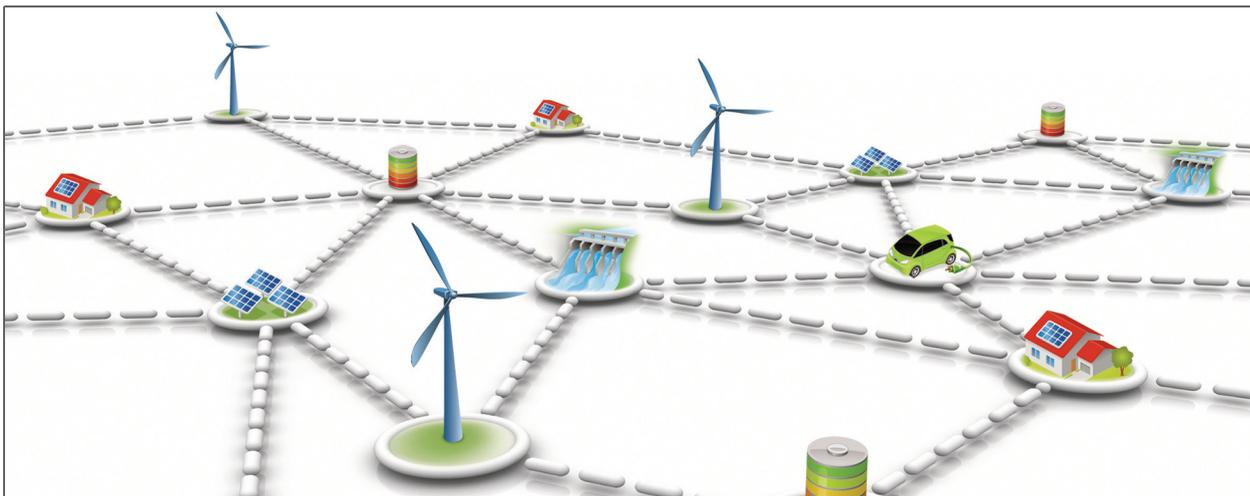
The Philippines has been ahead of the curve in offloading state-owned generation and introducing regulatory reforms to the industry. With recent strong GDP growth figures at hand, President Benigno Aquino, has the opportunity to leverage this into attracting needed infrastructure investment. Gavin Barfield, director of energy consulting at Pöyry, sees policies that need to be improved upon in the often bureaucratically inefficient Philippines: "To promote further investment the Philippines should focus on lowering the barriers for creating new generation such as access the long-term Power Purchase Agreements (PPAs) with creditworthy off-takers

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and the approvals needed for new build. The newly introduced Retail Competition Open Access will have clear benefits for consumers but may make it even more difficult for generators to secure PPAs with retailers as their volume is more variable and they are likely to contract for less, relying on the spot market for the difference.”

Renewables: Developing a Nascent Market

Given the often opaque and slowly evolving regulatory frameworks in place, it is unsurprising that ASEAN countries lag behind in implementing renewable energy. Recently, governments have set lofty targets in the four tiger cub countries, with feed in tariffs introduced in Malaysia, Philippines, and Thailand, while Singapore endeavors to build an image as a renewable energy innovation and manufacturing hub. Despite these efforts, only Thailand, at 30th position, registers on Ernst and Young's Renewable Energy Country Attractiveness Index, which quarterly ranks the top 40 renewable energy investment environments. “Every country is almost at the same state of not being totally on board with their commitment to cleaner energy, i.e., they want to pursue these opportunities but are faced with structural issues e.g., weak policies, archaic electricity market structure, subsidized electricity prices, poor grid reliability, lack of grid connection codes, etc,” observes Dr. Sanjay C. Kuttan, regional manager SEA / managing director, DNV Kema Clean Technology Centre.

Southeast Asia has many natural advantages to developing renewables. Thailand, Cambodia, and Laos all enjoy significant hydro potential, while Indonesia has approximately 40% of the world's geothermal reserves. Furthermore, solar radiation in the region is often very favorable. Despite natural advantages, the regulatory frameworks renewables compete under in Southeast Asia create a very controlled environment that, in actuality, breeds uncertainty as incentives for renewables must be calculated in tandem with electricity subsidies already in place in eight of the ten ASEAN countries. “Although markets that rely on government incentives create positive growth, they can also lead to market distortions. Taking the case of solar, the setting of appropriate subsidy levels in a timely manner is very difficult to manage

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due to changing system prices, which are then followed by subsidy cuts. This situation can result in subsidies that are either too high or too low which then influences decision-making on the investor's side. As such, the investors' decision criteria for system selection will tend to favor satisfying short-term objectives and sometimes jeopardizes overall long-term goals," comments Alexander Lenz, president of Conergy Asia and Middle East.

Industry experts agree that in many cases, renewable projects have been too small to have a significant impact and to be considered attractive investments by the finance sector. "Financing will remain an issue as most local financial institutions are unwilling to provide financing for the projects. In cases where financing is provided, the costs of borrowings are high as these financial institutions impose high interests to compensate for the risks they foresee in an unfamiliar industry," says Angie Koh, business development director of Yingli Solar.

There are some positive signs for solar, particularly in Thailand, as falling global PV prices leave the solar industry optimistic that grid parity is achievable in transparent markets. However, the opaque structures currently in place, despite some incentives, are making grid parity more difficult to realize. "Electricity subsidies prevent consumers from wanting to invest in solar systems; once governments remove them, people will come to see solar as a cheaper alternative," says Koh.



Alexander Lenz, president of Conergy Asia and Middle East

Despite the challenges, new projects are coming into the region. Yingli Solar, the world's largest PV manufacturer, has recently won a contract to supply 10.27MW of panels to Amcorp Power of Malaysia, which will be the largest solar plant in the country upon completion. Thailand is certainly the hottest area of activity, as its Small Producer Program (SPP) has created an environment where coexistence with conventional generation is possible and the government has raised its target to have 3 GW of solar capacity installed by 2021. In July, Canadian Solar announced it will supply 91 MW to seven projects for Soleq Solar in Thailand, while Conergy has secured 80 MW of orders in Thailand.

Regional Collaboration and Integration

The ten member states of ASEAN are increasingly exploring and implementing programs toward regional integration. One such program is the creation of an ASEAN grid, which was outlined in a 2007 memorandum of understanding. However, there are physical and political issues that must be overcome before such a grid becomes a reality. Some see physically connecting the Philippines and Indonesia to a broader grid as prohibitively expensive, especially considering these countries run on separate grids around population centers, and infeasible. On top of these physical challenges, expected capacity shortages will disincentivize the creation of such a grid according to Klaus Langnard of BCG: "All these countries [in ASEAN] with the exception of Singapore, are capacity short. An international grid is useful when one country has excess capacity that another country needs, but that is not the case in Southeast Asia. The Indochina grid, however, exists because there is a rationale behind it: Laos and Cambodia supply hydropower to Thailand. This grid could expand to Vietnam, but I do not see countries like Indonesia and the Philippines connecting with the mainland anytime soon."

Despite slow progress, Bambang Hermawanto, chairman of the ASEAN Power Grid Consultative Committee, sees encouraging signs that a grid will be pieced together: "Currently, there are 16 projects in place that make up pieces of what will eventually become an ASEAN grid. The first phase of the grid is based on bilateral agreements. There are no institutions in the region that could control the grid, so the success of the common grid depends on bilateral agreements between neighboring countries. We have a long way to go, but these agreements will make up the core of the ASEAN grid."

The ASEAN grid is reflective of many of the trends surrounding Southeast Asia's power industry. The borders of Southeast Asia's jigsaw puzzle, the structure that will make up the cornerstone of the industry, is, in many cases, still being defined, at a time when a stronger framework would yield a clearer picture of the industry's future. Despite this challenge, investment in the region remains bullish because of the incredible economic transformation the region is undergoing. Policymakers and decision makers need to catch up or risk hindering the full potential of this transformation.



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