

Being Green is a Breeze?

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Last week as part of our series on sustainable development in Thailand, we examined the advantages and disadvantages of utilizing wind power globally as a material proportion of a country's energy supply. This week we focus on the various Thai policies that govern wind power and at the projects that are being developed as a consequence.



The Department of Alternate Energy Development and Efficiency (“**DEDE**”), in 1975, began various studies to determine the potential for wind power generation in Thailand. The result of these studies led to the development of over 70 wind measurement stations, which are now scattered across the Kingdom. In 2010, data collected from these stations aided in the creation of a map of Thailand which demonstrated the wind power potential in each area of country during each month of the year. The map reveals that areas such as Nakornsritammarat, Songkla, Pattany, Petchburi and Doi Intanon are all areas with a high potential to develop wind power, with average wind speeds exceeding 12kts (22.2km/h) - as a Canadian with roots in the windswept prairies, it reminds me of the old joke about the day in Saskatchewan when the wind finally suddenly stopped blowing and all the cows and chickens fell down. Yet Thailand's overall average wind speed of 9.25 kts is relatively low. In 2012 Thailand generated only 111.73 MW.

So who is responsible for developing policies which aid in the development of wind power in Thailand? DEDE's Bureau of Alternate Energy Development is empowered by the Energy Development and Promotion Act to (i) establish regulations and standards on energy production, transformation, transmission, and consumption; and (ii) establish guidelines for procurement and alternative energy development; among other things. DEDE prepared the Cabinet approved Alternate Energy Development Plan 2012-2021 (“**AEDP**”), which aims to raise alternative energy usage to 25% of total energy consumption for the Kingdom by 2022, of which 1,200 MW is to be wind power. The AEDP promotes the construction of wind turbines for power generation, together with other power generation systems in remote communities and on islands that are not currently connected to the national power grid. The AEDP further extends this scope to include the construction of wind turbines for agricultural purposes, such as pumping water for household consumption.

In 2004, Thailand underwent an energy crisis. In the scramble that ensued, some of the wind turbines that were installed were unsuitable for weather conditions in Thailand. These imported turbines were built to cater to windier conditions such as those found in Denmark and Germany, and thus were so inefficient that at their

worst they were steel monuments that rotated only in storms. Yet subsequent technological developments have resulted in the creation of low speed, decentralized wind turbines which have a generating capacity of 10kw standing at a height of 18 meters. These turbines, it has been suggested, can be installed anywhere from homes to offices, though one wonders how practical that is in anything other than a rural environment.

In terms of industrial scale developments, Thailand recently developed the first and largest utility-scaled wind farm in Southeast Asia. Better known as the Huay Bong 1 and 2 Wind Farms, it is comprised of 90 wind turbines with a combined total generating capacity of 207MW. Located 150km north of Bangkok in the hillside area of the Korat Province, the project cost approximately \$220 million. Underpinning the project economics is the 25 year power purchase agreement (**PPA**) between the project company and EGAT under the Feed-In Tariff (**FIT**) scheme. The developers are looking to replicate their presumed success by erecting a further three 90mw wind farms in Korat by 2016.

A FIT scheme is a common feature of the renewable energy policies in many countries. The scheme typically offers a guaranteed purchase price for electricity generated from renewable energy sources, which price varies according to the type of renewable energy and the associated generation costs, and is payable for a long term. . Thailand's so called "Adder" program features FIT tariffs as the primary incentive for renewable energy generation. In effect, using current prices and technologies the aggregate per kWh price paid by EGAT under the FIT is higher than would be payable for a comparable amount of fossil fuel generated power, but the subsidiary is considered to be merited given the overall benefits of renewable energy.

Thus though wind power may never have the same prominence in Thailand's electricity supply portfolio as it does in Denmark, its use will increase as the technology improves and the per kWh hour generation price continues to decrease. Should Thailand wish to meet its goals under the AEDP it will have to learn from those countries where wind power generation has been implemented effectively, adapting their solutions to Thailand's climate and geography.

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