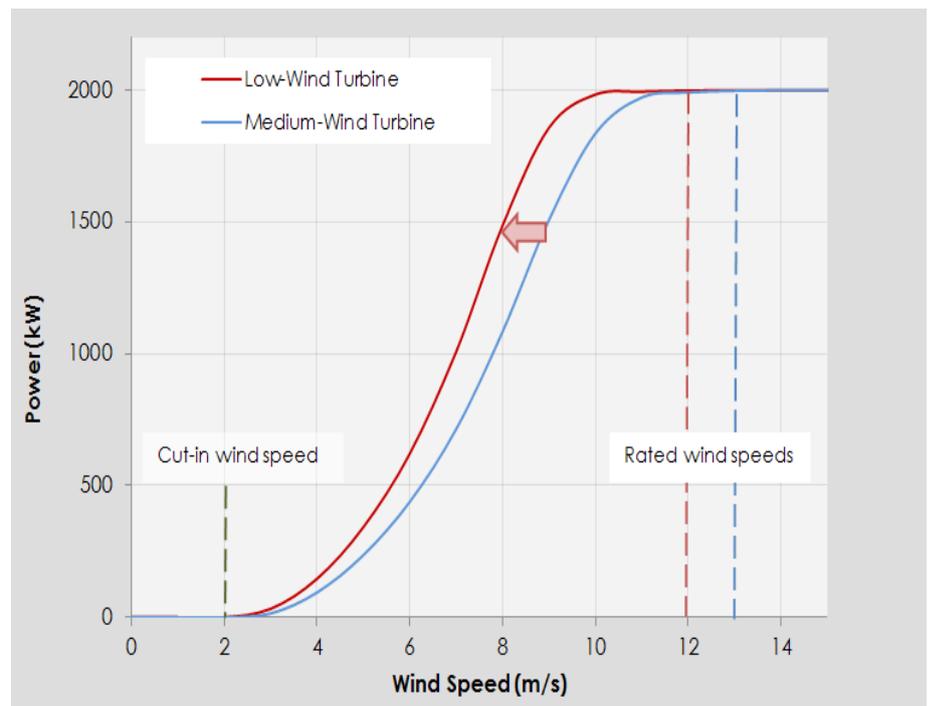


# There is too little wind in Southeast Asia

**The tropical beaches in Indonesia-Philippines Archipelagos or the paddy fields in Indo-China would hardly evoke any images of flagged trees. Rather, strong winds are much more associated with European North Sea coasts or the Mongolian temperate grasslands, where numerous wind farms have already been placed to harness the plentiful resources.**



Nevertheless, the current installed capacity of almost 2 GW of wind farms in South East Asia clearly shows there is sufficient wind resource for large-scale wind power development in this tropical all-year-round region. Many factors give rise to this modest yet growing capacity. Granted, favorable policies are (partly) behind it when Thailand – despite having one of the lower wind resources – has emerged as the leader of the pack. But the main game-changer is really technology advancement: in particular, the advent in 2010 of wind turbines designed for low wind conditions, enabling a once “not windy enough” site to operate economically. Pioneered by the likes of the early models such as General Electric GE-1.6-100, Nordex N117/2.4 and Gamesa (now Siemens-Gamesa) G114-2MW, this new technology class opened up a new market segment in Europe, when high wind speed sites were getting less available, and eventually found its way to Southeast Asia.

Confusing the discussion about availability of “sufficiently windy” sites is a misconception: that Class I (High wind speeds) sites are

necessarily more productive than Class III (Low wind speeds) sites. Somewhat counterintuitively, this is not always the case. Class I sites have a limiting factor in that Class I turbines cannot have too large rotors because the large rotors cannot handle long-term or one-off extreme-weather situations. In contrast, at relatively benign Class III wind sites, low-speed wind turbines can have larger rotor areas to capture larger wind areas. In technical terms, this would be reducing the rotor specific power to produce more power at lower wind speeds (shifting the power curve to the left).

Another technology development that is enabling the economic development of the sometimes lower wind speeds in Southeast Asia is taller turbine towers. The increasing cost effectiveness in tower technology and new hybrid type tower technology is allowing these turbines to reach newer heights and access the higher wind speeds at more viable cost gains. Indeed, most recent wind projects in Thailand are among the tallest in the world.



In short, although Southeast Asia region might not have as many low-hanging fruits in the form of windy sites as in other world regions, thanks to technology developments – and some perhaps counterintuitive truths about what are “ideal” wind speeds for wind turbines – the high-hanging fruits can be reached for large scale wind development, both today and continuing into the future.