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Scientists figure out how to harvest energy from a light breeze

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Researchers from Nanyang Technological University developed an inexpensive device that can harvest energy from a light breeze (Getty Images/ iStock)

Scientists have invented a low-cost device capable of harvesting energy from just a light breeze.

A team from Nanyang Technological University (NTU) in Singapore were able to generate electricity from winds with a velocity as low as 2 metres per second. Conventional wind turbines currently need wind speeds of at least 3.5m/s to generate power.

The wind harvester device has the potential to replace batteries in a variety of applications, according to the researchers.

“Our invention has been shown to effectively harness this sustainable source of energy to charge batteries and light LEDs, demonstrating its potential as an energy generator to power the next generation of electronics, which are smaller in size and require less power,” said Professor Yang Yaowen, a structural engineer from NTU’s School of Civil and Environmental Engineering, who led the project.

“The device we developed also serves as a potential alternative to smaller lithium-ion batteries, as our wind harvester is self-sufficient and would only require occasional maintenance, and does not use heavy metals."

One use case proposed by the scientist involves fitting them to the sides of buildings in urban environments, such as Singaporean suburbs, where average wind speeds are less than 2.5 m/s.

This would allow buildings to generate electricity from solar panels on their sides facing the Sun, and from wind harvesters on the sides facing away from the Sun.

The NTU team are currently working towards improving the efficiency and energy storage functions of the device, with the intention of commercialising the technology.

A study detailing the invention, titled ‘A cantilever-type vibro-impact triboelectric energy harvester for wind energy harvesting’, was published in the scientific journal *Mechanical Systems and Signal Processing*.