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Identification of potential locations of vertical axis highway wind turbine in north Luzon expressway in 2018**Mark Ian G. Luis**

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Through time, energy scarcity, distribution, and accessibility has been a problem of every nation, and the search for a source of sustainable renewable energy has been pursued by researchers all over the world. Wind is an abundant yet untapped source of energy that when properly harnessed, can contribute electricity along the highways, or nearby areas. The potential locations of installation of Vertical Axis Highway Wind Turbine in NLEX were determined. Such turbines are capable of harnessing energy from wind in all directions, suitable for energy gathering in a highway. It was identified that the turbines are to be installed in the median of the northbound and southbound lanes of the North Luzon Expressway. Based on 2018 data of NLEX, there were found 74 initial potential locations along the 83 km stretch of NLEX. Based on wind power potential calculated from the air density derived from temperature data, wind speed derived from the vehicle count in NLEX, and swept area of the blades based on the prototype turbine- the energy that would have been produced by the turbines were estimated. Based on certain criteria including the proximity of these turbines to lamp posts or toll exits which it must power, a number of these turbines were excluded as potential locations. The final potential locations of the turbines were identified to be installed in 68 locations. Theoretically, from the final potential locations of vertical axis highway wind turbines in NLEX based on 2018 data, a total energy of 27 417.7 kW could be produced by the 68 turbines, amounting to Php 4 087 075. Solely looking at these numbers, the amount of energy that the turbines would have produced does not justify the cost. However, this must not stop, but rather encourage experts in looking for other ways of effectively harnessing such abundant resource, for a sustainable alternative energy source.