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FROM THE EDITOR...

Energy has been an integral part of the modern society. With the decline of conventional energy sources, each country is forced to search for new sources of energy. With global efforts to combat climate change, such as the Paris Agreement, renewable energy is seeing a boom in growth, with wind energy leading the way. From 2000 to 2015, cumulative wind capacity around the world increased from 17,000 megawatts to more than 430,000 megawatts.

The ancient Sri Lankans used the monsoon winds to power furnaces as early as 300 BC, making Sri Lanka one of the first countries in the world to use wind power. With the invention of the electric generator in the 1830s, engineers started attempting to harness wind energy to produce electricity. Modern wind power is considered to have been first developed in Denmark, where horizontal-axis wind turbines were built in 1891 and a 22.8-metre wind turbine began operation in 1897.

An all island Wind Energy Resource Atlas of Sri Lanka, developed by National Renewable Energy Laboratory (NREL) of USA in 2003, indicates nearly 5,000 km^2 of windy areas with good-to-excellent wind resource potential in Sri Lanka. About 4,100 km^2 of the total windy area is on land and about 700 km^2 is in lagoons. The windy land accounts about 6% of the total land area (65,600 km^2) of Sri Lanka. Using a conservative assumption of 5 MW per km^2, this windy land could support almost 20,000 MW of potential installed capacity. If the windy lagoons are included, the total theoretical wind potential increases to approximately 24,000 MW.

The first commercial grid-connected wind farm is the 3 MW Hambantota Wind Farm, northwest of Hambantota in 1998. Recently, Ceylon Electricity Board (CEB) awarded the EPC contract to Vestas Asia Pacific AS, a world-renowned Danish wind turbine manufacturer, to build the 1st large scale wind farm in Sri Lanka, in the southern coast of Mannar island. Project comprises 30 numbers of state-of-the-art wind turbines, each rated to 3.45 MW and total installed capacity of this wind farm is 103.5 MW. This is a culmination of a long-term effort by CEB to develop wind power in a large-scale manner exploiting the major monsoonal wind pattern in Sri Lanka. In this project, CEB intends to harness power from wind in a large scale manner, on the same lines as it did with the hydropower potential in the last century.

Once commissioned, Mannar wind farm could supply more than 380 million units of clean electricity to the national grid annually. Electricity from this project can be generated less than 5.0 US Cents/kWhr. One of the key benefits of this project is its ability to displace large amount of fossil fuel based electricity generation and thereby avoiding emissions amounting to 285,000 metric-tonnes of CO_2 to the environment, annually. As such, sustainability of energy sector is to be further strengthened.

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