Investigation on Savonius turbine technology as harvesting instrument of non-fossil energy: Technical development and potential implementation

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Abstract	Environmental risk due to excessive residual emission is rising. Greenhouse effect, ice melting in the Arctic, reduction of air quality are several concerns which need immediate development and change. Energy harvesting equipment is one of the key solutions. Environment potential, e.g. water resource can be collaborated with mechanical equipment to harvest clean energy. Savonius turbine has been proposed and studied for this purpose and can be placed on several energy resources, i.e. water and wind. Still, real-world implementation of this technology is lacking, especially in tropical archipelago countries which have abundant water resources. In this work, assessment of Savonius turbine technology as instrument to harvest clean energy is conducted. A series of development on the turbine performance and technical modification is considered as reference to implement the technology in water and open air environments. It is noted that rotor design, operation depth and nozzle attachment are several key influencing factors. (C) 2020 The Authors. Published by Elsevier Ltd on behalf of The Chinese Society of Theoretical and Applied Mechanics.
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