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Efficiency comparison of wind turbines for wind energy station design

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The use of renewable power technology options, such as geothermal wind, wave and solar energy, seems to be one of the most effective and efficient ways in achieving the sustainable development target through provision of reaching affordable, reliable, secure and clean energy. Over the last decades wind power as an alternative energy source has developed at an effective rate in the world. Among wind turbine brands, determining the most effective wind turbine to help maximize system operation is a very significant issue. This article is constructed to select the most effective 2.5 MW wind turbine for developing a wind energy station design. Along with this aim, the best 2.5 MW wind turbine brands are determined first through literature review and interview with experts in the field. The properties of these brands determined are grouped based on four main criteria: economic, technical, customer satisfaction and environmental. By using AHP method, the selection of the most effective wind turbine brand is obtained.

Biography

Lutfu S Sua holds a PhD on Production and Operations Management from University of Mississippi. His research interests include mathematical modelling, renewable energy efficiency and system design.

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