

DESIGN OF HORIZONTAL POWER WIND POWER PLANT PROTOTYPE

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Abstract

To generate student motivation and interest in the teaching and learning process and to increase student understanding, it is necessary to use experimental learning media and methods, this is expected to generate motivation so that an effective learning process is achieved. Making teaching media in the form of prototypes really helps improve students' understanding of the material being taught. This design includes the design of a horizontal shaft hydropower prototype, the purpose of the design is to obtain electrical power based on wind speed and determine the efficiency produced by wind turbines. The results of this test are that the wind speed and the shape of the blade affect the energy produced by the windmill, the greater the wind speed given the greater the resulting voltage, as well as the greater the power produced. From the Dutch type of blade type, the lowest power produced is 0.464 watts with a wind speed of 4.7 m / s and the highest power is 1,406 watts with a wind speed of 6.9 m / s for the efficiency value of the Dutch-type blades is 85,76%. And the lowest power type of propeller blade produced is 1,932 watts with a wind speed of 4.7 m / s and the highest power is 3075 watts with a wind speed of 6.9 m / s for the efficiency value of the propeller type blades is 96,67%. So the power and the greater efficiency value produced by the type of propeller type blade with a low speed can produce more power and produce a high efficiency compared to the Dutch type of blade type.

'Keywords: Horizontal shaft wind power plant prototype , Wind velocity.