Design and Fabrication of Ocean Water Pumping and Storage System

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Abstract Existence of fossil fuels in the near future is not promising because of their depletion at a faster rate and their limited availability. Further, owing to the growing concern for the environmental degradation has led to the world's interest in renewable energy resources. In such a scenario, wave power, which is a potential source of energy, can cater to the power needs of future generation and is clean. Our objective is to develop a model which can be used for efficient conversion of wave energy into electrical power. In the present study, the concept of buoyancy has been utilized to pump the ocean water and storing it at a higher elevation. From this elevation, the potential energy of water can be converted into kinetic energy for power generation. From the study undertaken, it is observed that the possibility of electricity generation by using this method and on conducting the experiment, it is observed that for a wave power of 150 W, only 10% of the wave power has been converted and stored in the form of potential energy of water and the remaining unutilized wave power shows that there still exists scope for research work for improving the efficiency of extraction.

Keywords Buoyancy · Efficiency · Potential energy · Wave energy

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L.-J. Yang et al. (eds.), *Proceedings of ICDMC 2019*,
Lecture Notes in Mechanical Engineering,
https://doi.org/10.1007/978-981-15-3631-1_22