

ABSTRACT

This research will be designed to simulate the voltage output of an electric generator based on vertical ocean wave motion using a generator engine against the measured parameters and analyze the resulting signal conditioning. The first step carried out was to characterize the sea wave form from its vertical plane which was carried out at Pangandaran Beach, West Java, Indonesia with the coordinates of $7^{\circ} 42,047'S$ $108^{\circ} 39,511'E$, a sample of 30 seconds was taken for further continuous character. Then the mechanical energy that occurs is channeled using an arm that is resistant to seawater corrosion leading to a gear that is attached to the rotor of the generator. At the generator the energy is converted into electrical energy. In this study, a simulation was designed to compare the two ways of getting alternative energy based on the energy produced by sea waves. Where is the simulation of a sea wave power plant using the Gearbox and Pneumatic methods. It aims to get the most effective value in getting the power generated by the two methods. From the simulation research conducted, it was found that the power value by the Gearbox method was 18,712,141Watt and had an efficiency value of 97.538%. While the power value obtained from the pneumatic method is 8413.796Watt and has an efficiency value of 43.86%.

Keywords: generator, ocean waves, mechanical energy, electrical energy, and ocean wave power plants.