

Abstract

Human development which resulted in greater energy needs is also increasing. Sea wave energy is one of the alternative energy sources that are renewable and sustainable, no impact on environmental pollution. In this research, carried out the simulation of shallow water wave using shallow water equation for generating energy oscillating water column. The solution of the equation is approached using different methods to Lax-Friedrich scheme and will be compared with the analytic solution standing wave. Simulation is used to obtain the results of the energy in the form of electrical power generated by ocean wave. The results of the error of numerical validation i.e. 0.00327 and the results of the potential energy depend on the height of the surface waves, is the largest electric power 1574.46 Watts on the surface of the waves at the height of the average 0881 meters.

Keywords: shallow water equation, oscillating water column, energy, lax-friedrich, solusi analytic standing wave