

Abstract

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Wells Turbine for Wave Energy Conversion for Malaysian Ocean

Malaysia is surrounded by ocean, therefore Malaysia is a perfect candidate for harvesting ocean energy as electrical generator to distribute to main grid. Malaysian electrical generation still greatly influences by non-renewable energy and the electrical cost increase as the natural resource depleting. The only solution for this problem is to use renewable energy, due to geometric of Malaysian land surround by ocean ocean energy is a best renewable energy apart of hydro plant electrical generation in Malaysia. One method of converting this energy is to use Oscillating Water Column using wells turbine as converter from pneumatic energy to mechanical energy thus convert by generator to electrical energy. However, Wave characteristic of Malaysian ocean make conversion of wave energy really difficult. Some parameter that affect the performance of wells turbine need to be change, so the new geometry turbine can function effectively in Malaysian ocean despite the poor ocean characteristics such as low wave high and low frequency. According to Malaysian wave data, the average wave height is from 0.5m to 1.5m with average wave frequency of 0.1 to 0.3Hz and wave period 3.34s to 10s.