A STUDY ON THE EFFECT OF DISTANCES AND CONFIGURATION OF OSCILLATING PARTS IN VORTEX-ASSOCIATED POWER PLANT

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ABSTRACT

So far the scientists have tried to reduce VIV causing vibration on structure. Beside bad effects, VIV can be used to generate electricity by converting kinetic energy from vibration of struktur. Vortex energy power generation was a new concept in scope of renewable energy. This final project focus on multi oscillating parts on vortex energy power generation.Variation of gap between oscillating parts will show the differents of amplitude that can be produce. This configuration to compare side by side with triangle.Variation value of G/D ranging from 2 to 5 with velocity of flow 0.5; 0.75 and 1 m/s. Using CFD software and continued with manual calculation using structure dynamic equation, we get value of amplitude in oscillating parts. From this research, can be seen the value of G/D is proportional to amplitude that prodeced. The Greater value of G/D, the amplitude that produced also greater. While the value of frequency is constan to variation of G/D. Test hipotesis for mean and population showed that configuration of side by side and triangle have same performance.

Keywords: *Cross-flow, Vortex Induced Vibration, side by side configuration, triangle configuration, cylinder.*