

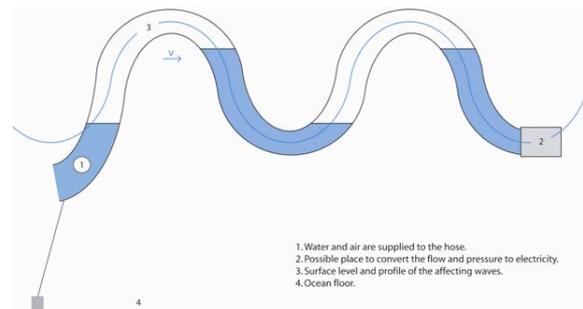


MSc Thesis: CFD Simulation of the Vigor Wave Energy Converter

The Vigor Wave Energy Converter (www.wavevigor.com) is a new principle to harvest ocean wave energy by using a flexible hose, seawater and air to absorb the wave energy. The principle creates a flow and a pressure difference which can be converted to electricity by a turbine and generator or be transported to a reservoir. The main advantages of Vigor are simplicity, cost efficiency and the ability to work in all types of wave climate. Vigor therefore has the potential to stand as a common energy provider in a future sustainable society.

Assignment

The student/s is to perform simulations of the flow inside the hose by means of the CFD software OpenFoam. The simulations will be rather complex including two phase flow and moving meshes. After the model is validated the influence of friction and wave parameters is to be examined.



Expected results

The thesis is to provide the answer to the following two questions:

- what is the optimal dimension of the hose for different sea states?
- how is the interface between the fluids behaving? Do we experience breaking or not?

Accomplishment

The thesis can be performed individually or by two students. Examination is handled by Shipping and Marine Technology, SMT, at Chalmers. The student/s will have a supervisor by SMT and Vigor Wave. To qualify, you should have knowledge about fluid mechanics and prior experience with CFD is advantageous. Final report shall be in English.

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