

# A preliminary evaluation of the performance parameters of point absorbers for the extraction of wave energy

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**ABSTRACT:** This present paper preliminarily assesses the performance parameters of point absorber wave energy converter with selected bottom shapes in specific geographic locations and considering viscous effects. Three geometries of cylindrical, conical and hemispherical base are modelled as axi-symmetric bodies having common displacement and stiffness power take-off set to zero. In regular shallow water waves, each model is compared themselves at different ratios and angles as the case may be. The three bodies are scaled to the prototype size and under conditions of regular deep water waves, the hydrodynamic and energy performance parameters are compared and optimized. For an irregular waves marine environment, four geographic zones are chosen to evaluate the performance of the three WECs. For this purpose, the following metrics are calculated: mean annual power flux, mean annual energy production and the mean annual capture width, considering the scenarios: (i) variable power take-off damping (ii) optimal power take-off damping.