

BUDGETING FOR WAVE ENERGY: HOW MUCH CAN I SPEND?

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Wave energy is still at pre-commercial stage however interesting developments have happened within the last few years. Despite these development competition from other novel sources of energy such as floating wind and tidal energy put pressure in wave energy to achieve significant cost reductions. This presentation treats Levelized Cost of Energy (LCoE) Assessment from a reversed point of view, given an LCoE target then calculate reversely CAPEX, OPEX and Annual Energy production. The aim of this work is to approach design of wave energy converters from a different point of view by having clear targets in terms of expenditure and power production from lower TRLs. This work specifically answers the following questions: how much can I spend in my wave energy converter if I want to have a commercial product? What is the required capacity factor for my device if I want to achieve a commercial product. A stakeholder engagement process has also been undertaken in this project where several developers were able to input pre-commercial and commercial targets. Black & Veatch have been subcontracted by the National Renewable Energy Laboratory (NREL) under the U.S. Department of Energy funded project Structured Innovation/Wave-SPARC which is jointly performed by NREL and Sandia National Laboratories (SNL) to perform this work. This work drives the mission of NREL to support the development of low cost renewable energy forms in ocean wave energy and will deliver crucial techno-economic threshold requirements for the development of WECS.

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