



Wave Dragon

Project Acronym : Wave Dragon MW

Project Title : Development and validation of technical and economic feasibility of a multi MW Wave Dragon offshore wave energy converter

Coordinator : WAVE DRAGON APS (Denmark)

Website : www.wavedragon.net

ABSTRACT

The Wave Dragon is a slack-moored wave energy converter of the overtopping type. It is by far the most powerful wave energy converter and at the same time one of the most energy efficient and economic devices under development today. Since March 2003 a 20kW scale 1:4.5 prototype of a 7MW Wave Dragon has been tested as the world's first floating grid connected wave energy converter.

The project will develop the Wave Dragon technology further from the tested all steel-built 20kW prototype to a full size composite built 7MW unit and by testing validate the technical and economic feasibility.

The RTD-part of the project will :

- Develop Wave Dragon's energy absorbing structure, the low head turbine power take-off system and the control systems. An additional reservoir placed above the existing reservoir level will also be developed. The result of these changes to the overall design will be a significant increase in power production and a reduction in O&M cost. The development of the 7MW unit will be based on the knowledge base established through the tests with the 20kW prototype and the design process will comprise several innovative elements utilizing the O&M experience from the 20kW prototype tests.
- Develop cost effective construction methods and establish the optimal combination of in situ cast concrete, post-stressed reinforcement and pre-stressed concrete elements
- Develop new supplementary environmental friendly water hydraulic power take-off systems
- Demonstrate reliable and cost effective installation procedures and O&M schemes
- Establish the necessary basis for design codes and recommendations for floating multi MW wave energy converters.

The test program will demonstrate the availability, power production predictability, power production capability and medium to long term electricity generation costs at 0.052EUR/kWh in a wave climate of 24kW/m, which could be found relatively close to the cost at the major part of the Atlantic coast.

PARTNERS

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