

# THE MANCHESTER BOBBER

## LEAD ORGANISATION

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## PARTNERS

Mowlem plc  
Royal Haskoning

## COST AND DURATION

The Carbon Trust contribution towards this project is £52,125. The project started in June 2005 and is due for completion in March 2006.

## PROJECT REFERENCE NUMBER

2004-10-1867



Making business sense  
of climate change

## OBJECTIVES

The general objective of this project is to provide improved assessments of the costs of electrical power generation from offshore waves using the Manchester Bobber.

## SUMMARY

The basic concept behind the device is to harness wave energy using a floating mass that rises and falls under the action of waves. This causes a pulley and its shaft to oscillate, which in turn drives an electrical generator.

A previous grant from the Carbon Trust enabled the concept to be demonstrated, and a method of computer simulation to be developed and verified. Analytical and computational work was validated by tests on a laboratory model which was, of necessity, small (about 1:100 scale and 1 millionth the power of a commercial system) and used regular waves.

This project will focus on the design and construction of a prototype, which is about 1:10 scale and 1 thousandth the power of its commercial equivalent.

The system will be tested in an outdoor flume that will not only produce simple waves but also realistic complex and random wave conditions. This will:

- Provide improved empirical values for the coefficients needed to account for some hydrodynamic aspects which cannot be scaled reliably.
- Enable adjustments and improvements to be made to the computer model.
- Provide publicity for the project, which will be used in attempts to secure funding for the next stages of development.



The Manchester Bobber during outdoor flume tests

The improved computer model will be used to design a system of commercial size. This will enable specifications and costs for components to be determined.

Royal Haskoning and Mowlem have agreed to assist in the design of offshore structures (i.e. platform and generating equipment) by providing conceptual designs for floating and sea-bed mounted platforms, and estimates of the costs to establish a preferred arrangement. The partners will work in concert: Royal Haskoning carrying out the design and Mowlem plc providing cost estimates.

The University of Manchester Intellectual Property Limited (UMIP) has advised the project team on the intellectual property position and secured relevant IP protection (mainly in the form of patents and trademarks) on their behalf.