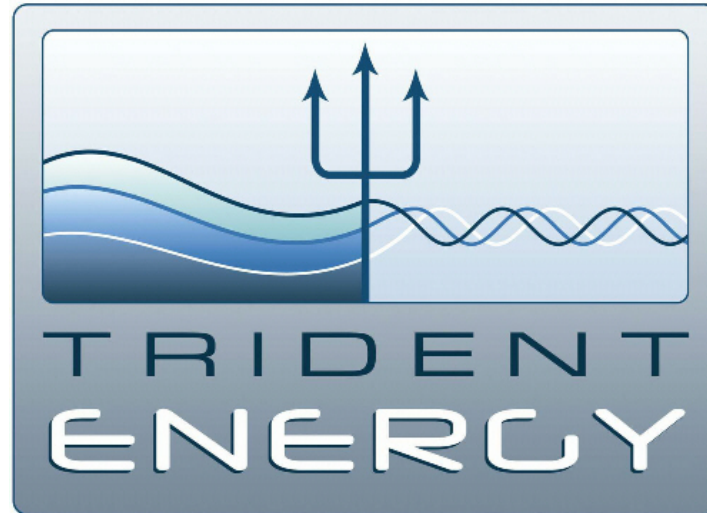


CLEANPOWER

19 June 2009



Wave Energy

The Route to Commercial Generation

Andrew Hine, Finance Director

Wave Energy – Generation Potential

- 3% of the UK electricity supply by 2020

The Carbon Trust, January 2006

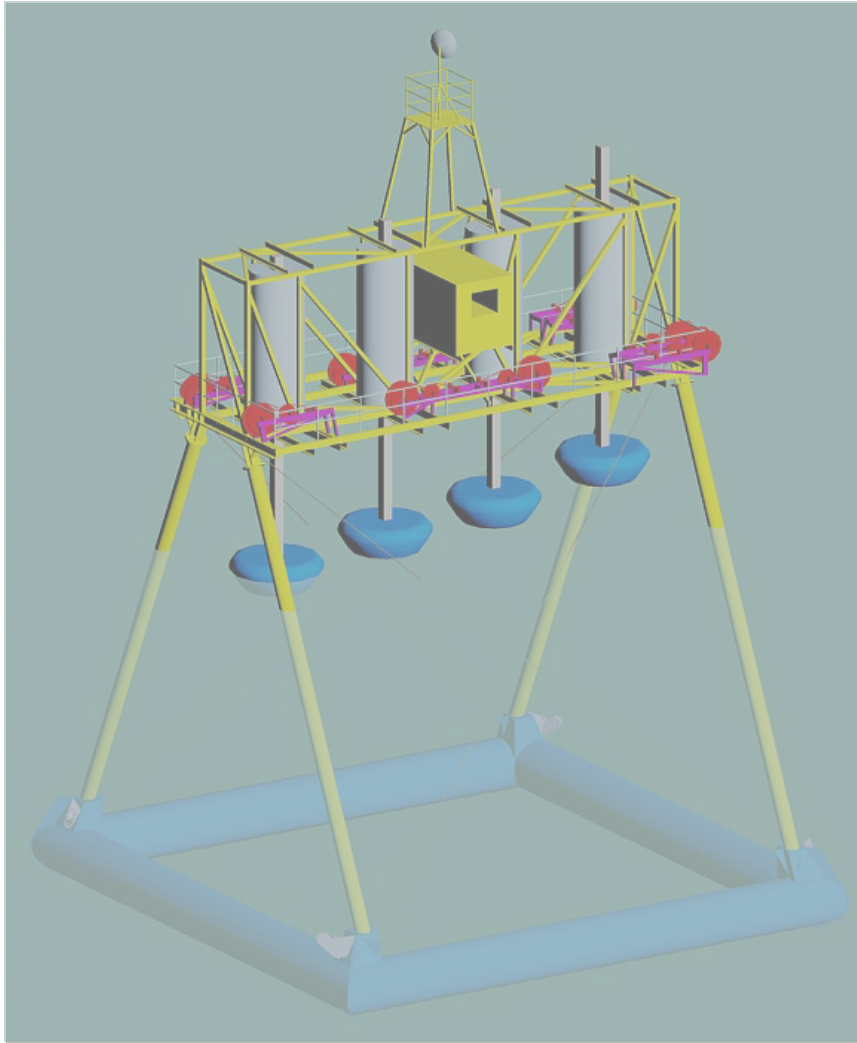
- Equivalent to £2bn in annual electricity sales
- *“The world’s potentially exploitable wave power resource is roughly the same magnitude as present world electricity consumption, i.e. around 1000 gigawatt (GW).”*

Professor Dennis Mollison, Herriott-Watt University, 1985

Wave Energy - Market Status

- Results to date have been very poor!
- Technology needs to prove commercial viability to attract industry and Government support:
 - Efficient & reliable energy conversion
 - Low CAPEX
 - Predictable OPEX
 - This will enable operators to model cost per kWh
- Its now ALL about data!

Our System – 6 Components



- 1) Tubular linear generators
(proprietary technology)
- 2) Power conditioning
- 3) Rig
- 4) Floats
- 5) Mooring system
- 6) Grid connection
(not for demo system)

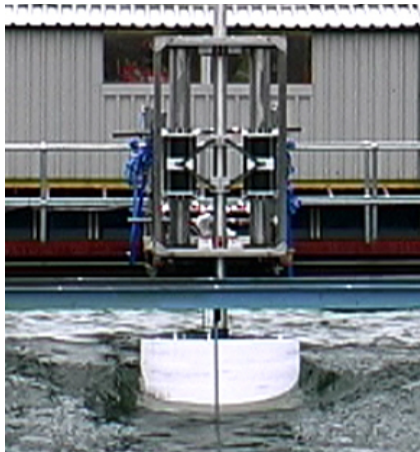
3 to 6 - standard / proven
engineering techniques

Our Approach

- R&D - focused on maximising power generation
 - Conversion efficiency & low maintenance overhead
- A simple design concept
 - Our system has only one moving part
- Modular - component architecture
 - 6 key components
 - Technology operational on the dockside in Lowestoft
- Strategic objectives
 - Deploy demo rig during the summer 09
 - Validate energy conversion chain in off-shore situation
 - Results available during Q4 09
 - Determine partnership framework for commercial roll-out

The R&D Phase

NaREC1 - 2005



**Initial focus -
energy conversion
& generator
performance**

NaREC2 - 2006



**Optimisation &
operation in
extreme wave
conditions**

NaREC3 - 2007



**Testing multiple
floats & impact
of buoyant rig
design**

Moving Offshore 2009



- Manufactured 8 full scale tubular linear generators
- Worked with Cambridge University on power conditioning
- Worked with MLM (structural engineers) to design rig
- Designed a novel float shape that improves generation
- Worked with marine architects on mooring system

The Route to Commercial Generation

- Deliver performance data from sea trial
- Use behavioural data to model a larger rig
 - More floats and more generators!
- Establish consortium based market entry
 - Partnering philosophy – route to technology roll-out
 - Licensing model - core technology and IP
 - Operation and maintenance services

From Demo Platform to Multiple Device Array

Demo Platform

April 2009



Artists impressions of wave farm



Thank You

For further information please contact:

Andrew.Hine@tridentenergy.co.uk

