Wave and Tidal Technologies: illustrating the UK's approach to supporting emerging energy technologies

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Why?

The 2003 Energy White Paper set out 4 goals for UK energy policy:

- to put ourselves on the path to cut the UK's carbon dioxide emissions by 60% by 2050, with real progress by 2020
- to maintain the reliability of energy supplies
- to promote competitive markets in the UK and beyond, helping to raise the rate of sustainable economic growth and to improve our productivity; and
- to ensure that every home is adequately and affordably heated

Delivering on our goals

- Need a shift towards no or low carbon energy sources and generation technologies
- Already have target for renewables to supply 10% of UK electricity by 2010 with aspirations to double renewable share of electricity to 20% by 2020
- If we are to achieve 60% reduction in carbon emissions by 2050 likely to need renewables contributing at least 30%

The Innovation Opportunity

To Business:

- It is estimated that global on-shore wind, offshore-wind, PV and wave & tidal markets could together be worth more than £150bn by 2050.

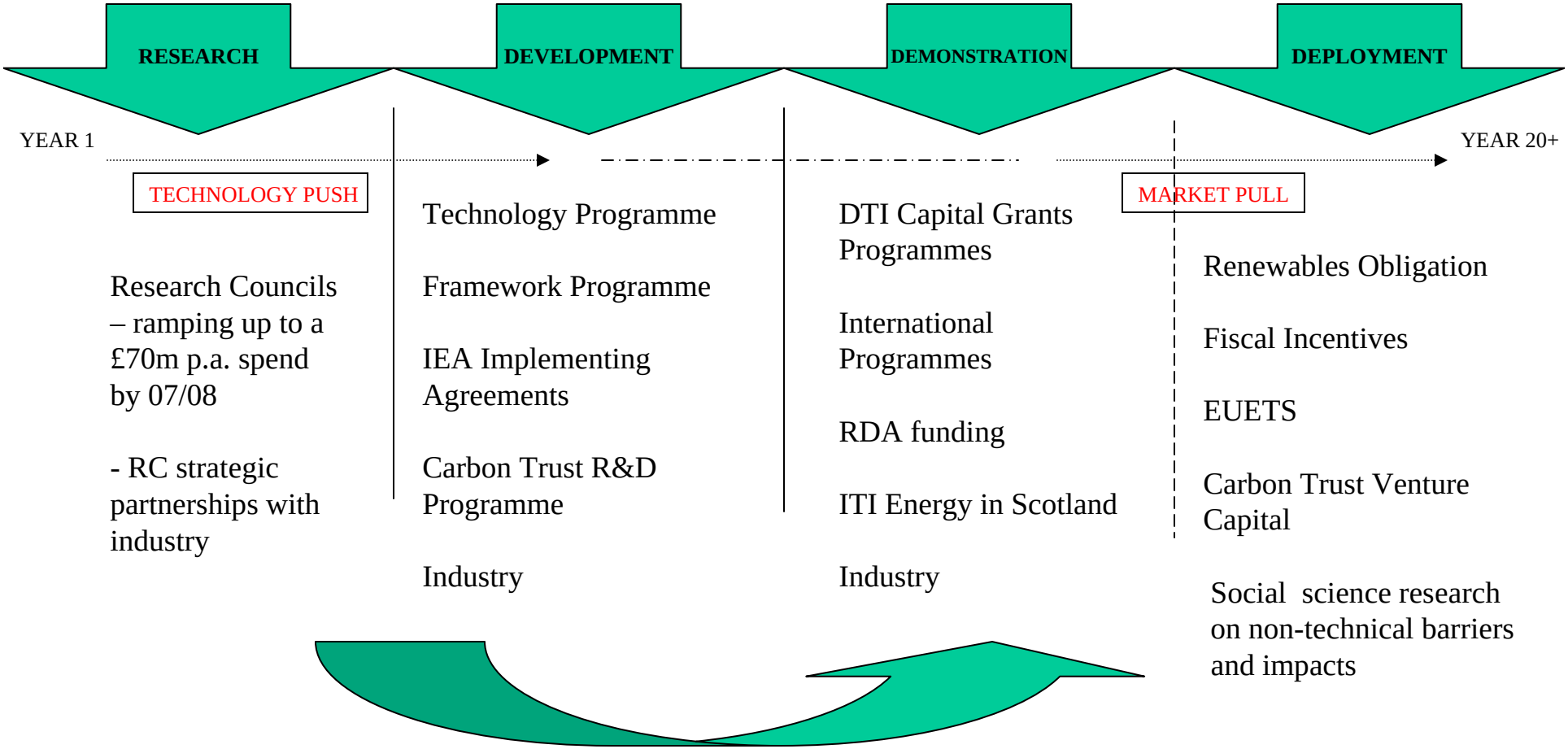
To Government:

- Our economic modelling has illustrated the critical importance of innovation in delivering the 60% carbon reduction goal at reasonable cost.
- Compared to a "business as usual" model run, the costs were estimated to be 2-3 times higher where innovation failed to reduce the expected costs of new low carbon technologies further below their expected levels in 2010.

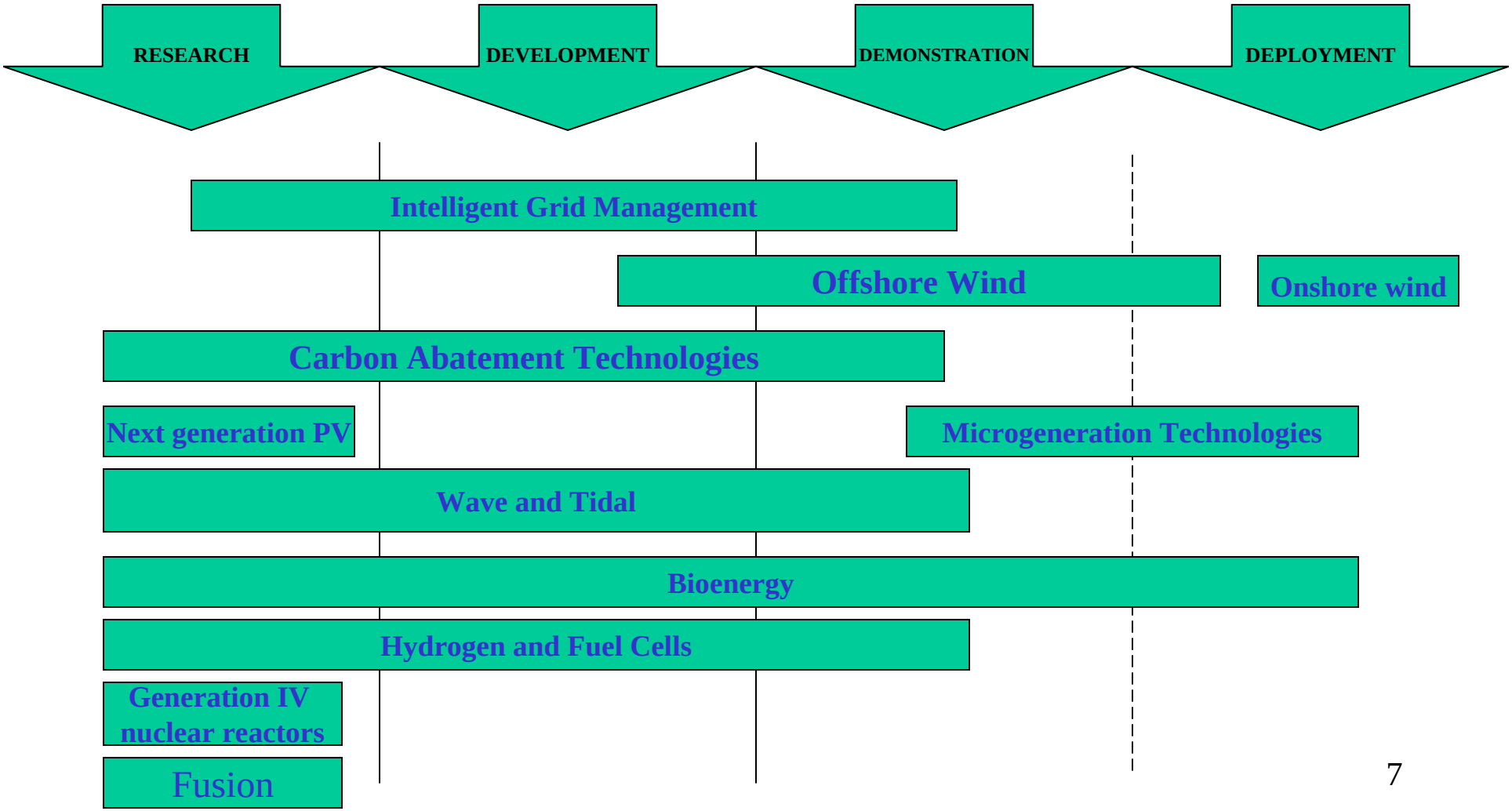
Policy Drivers

- **10 Year Science and Innovation Framework**
  - Promoting collaboration
  - Greater pull through of innovative technologies
  - A stronger role in large-scale technical research projects being undertaken by the EU and other international collaborations

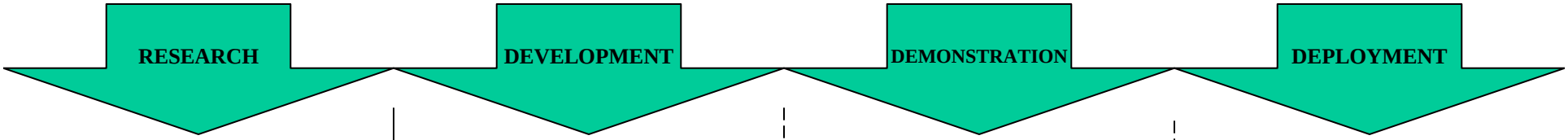
Our approach: energy technologies are supported across the innovation spectrum.



The portfolio of technologies and their current state of development:



Translates into a coherent package of support for any one technology: eg. wave and tidal, an entirely new technology where the UK is in a strong position ...



RESEARCH

EPSRC Supergen Marine Consortium

IEA Marine Implementing Agreement

DEVELOPMENT

Technology Programme support

Carbon Trust Marine Energy Challenge – aimed at refining early stage prototypes

Infrastructure: EMEC

DEMONSTRATION

£50m DTI Marine Deployment Fund – aimed at demonstrating whether the leading devices have the potential to reduce their £/MW to RO compatible levels

DTI funded environmental impact assessment work

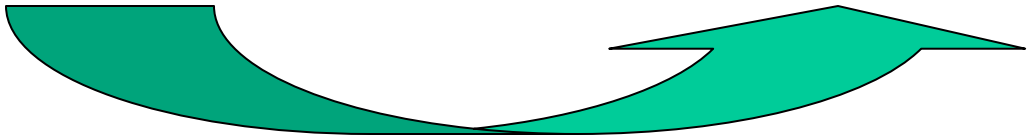
DEPLOYMENT

Potential beneficiary of the Renewables Obligation

Carbon Trust Venture Capital Fund

Work on offshore licensing regime

Work required to chart the wave and tidal resource in the UK in more detail



Further R&D will be required to tackle issues that arise in demonstration phase

Challenges for wave and tidal

- The real challenge for ocean energy technologies is to demonstrate that they can produce energy reliably and economically

- Government is helping meet that challenge by creating a framework of support

Technology Push

- The Research Council Marine Supergen programme
- The Marine Energy Challenge
- Collaborative R&D through the Government's Technology Programme

Bridging the valley of death: the marine deployment fund

- A £50m grant programme to support accelerated pre-commercial trials of wave and tidal technologies to see if a cost effective solution can be developed (Renewables Innovation Review)
- a mixture of grants and revenue support (an additional payment of £100 MWh)
- Plus infrastructure support and environment analysis

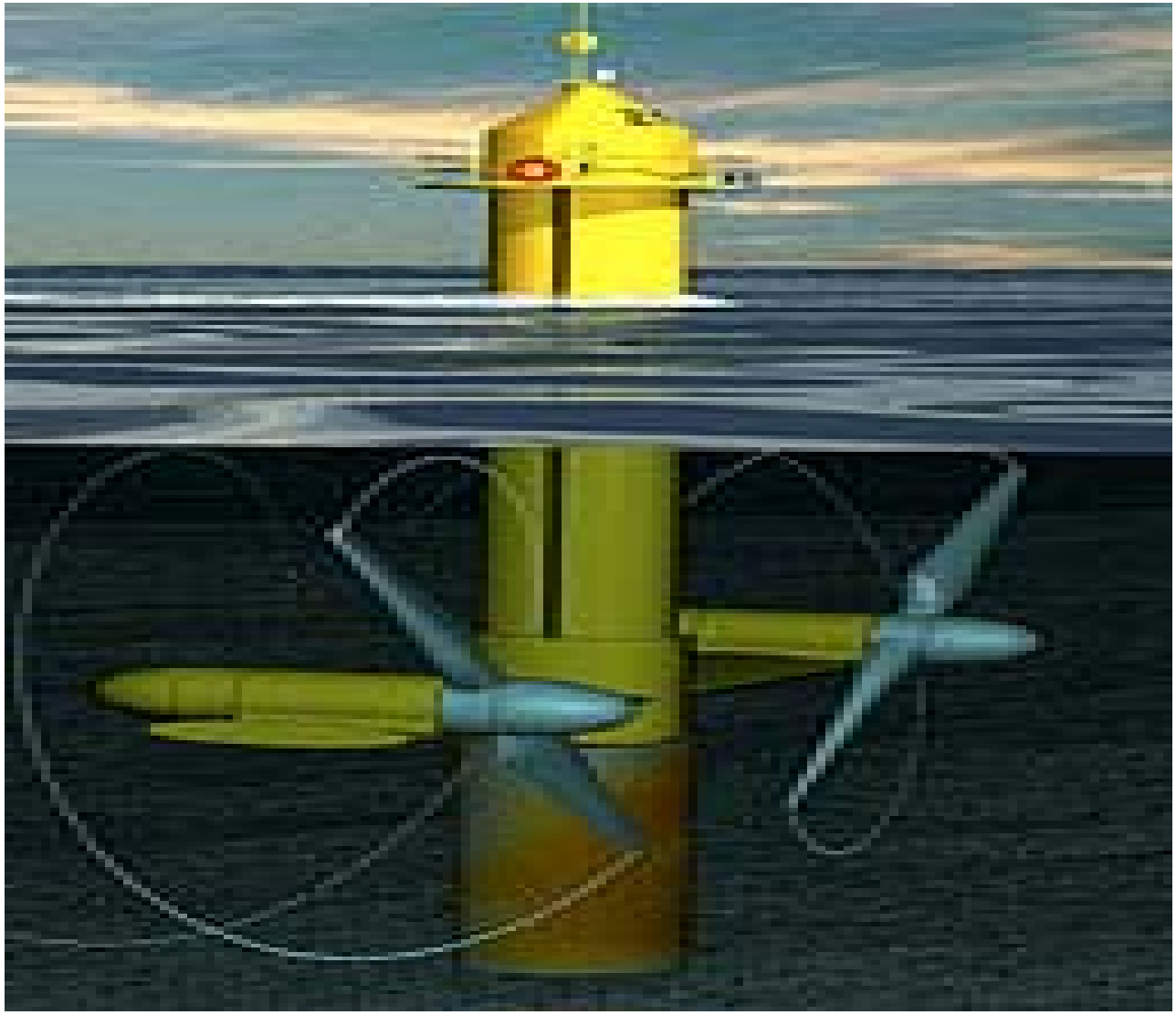
Market Pull – the Renewables Obligation

- Market intervention: the Government's main mechanism for supporting renewable energy is the Renewables Obligation (RO), which was introduced on 1 April 2002.
- Under the Obligation electricity supply companies are required to source a percentage of their electricity sales from eligible sources which rises over time.
- Long term signals: the Government will maintain the level of support provided by the Obligation until 2027
- Large scale commitment: obligation £1b per year in 2010

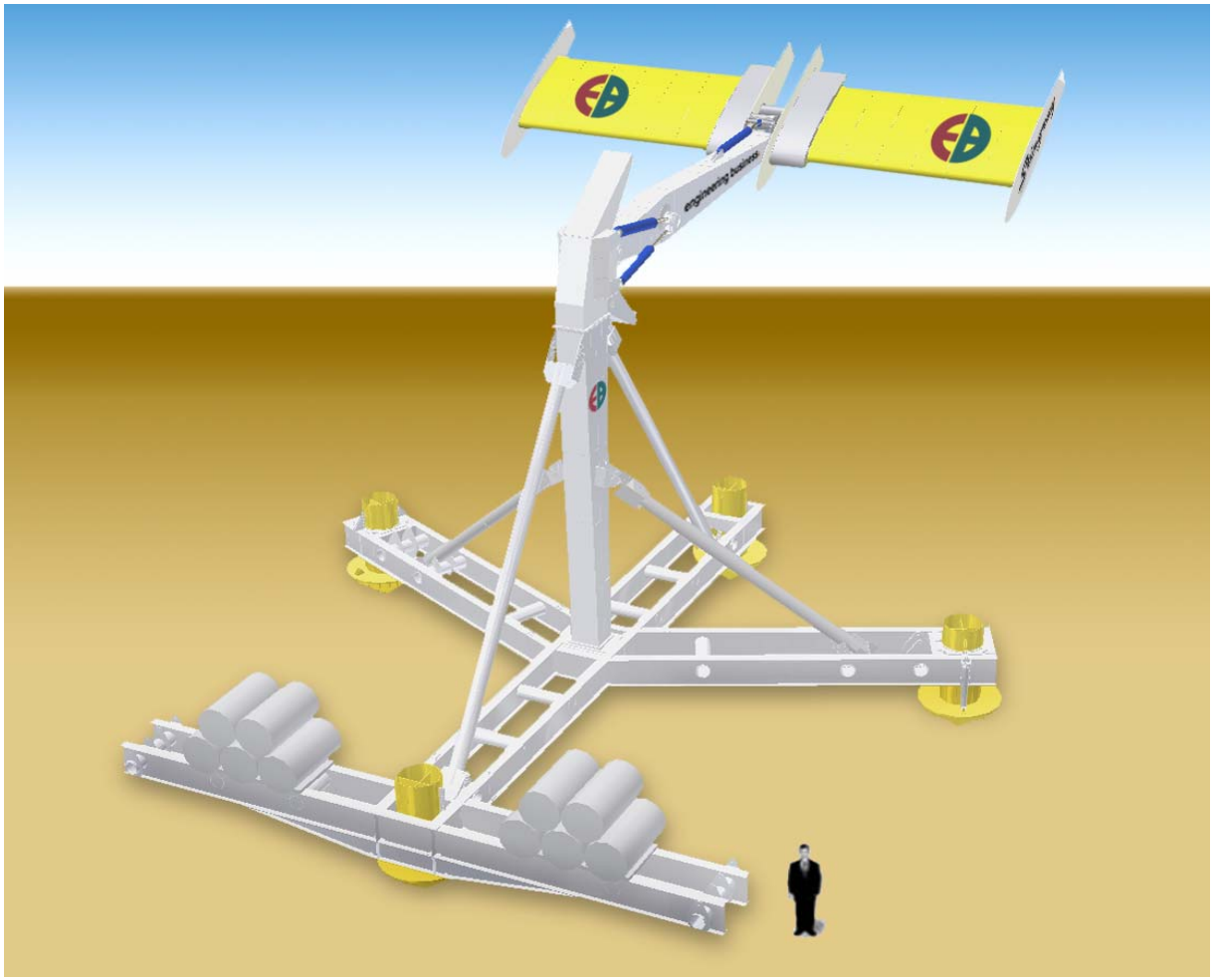
PELAMIS


OCEAN POWER DELIVERY LTD
www.oceanpd.com
Offshore Wave Energy

The Seaflow Project



The Stingray Project



No time to waste

Global warming is too serious for the world any longer to ignore its danger or split into opposing factions on it.

And for how much longer can countries like ours allow the security of our energy supply be dependent on some of the most unstable parts of the world?

For both reasons the G8 Agreement must be made to work so we develop together the technology that allows prosperous nations to adapt and emerging ones to grow sustainably; and that means an assessment of all options, including civil nuclear power.

Tony Blair: 27th Sept 2005, Labour Party Conference