Environmental, Economics, Development Policy and Promotion of Opportunities Workshop, Copenhagen, Denmark (April 26-27, 2007)

White Paper : Delivering a Sustainable Energy Future for Ireland 2007 – 2020

Ocean Energy Perspective

Pat McCullen

ESB International

Co-ordinated Action on Ocean Energy (CA-OE) Sixth Framework Programme
Priority Area 6.1 – Sustainable Energy Systems
European Commission

Government Papers

2006: Green Paper

"Towards a Sustainable Energy Future for Ireland"

Target: 84MW Installed Ocean Energy Capacity by 2020

2007: White Paper

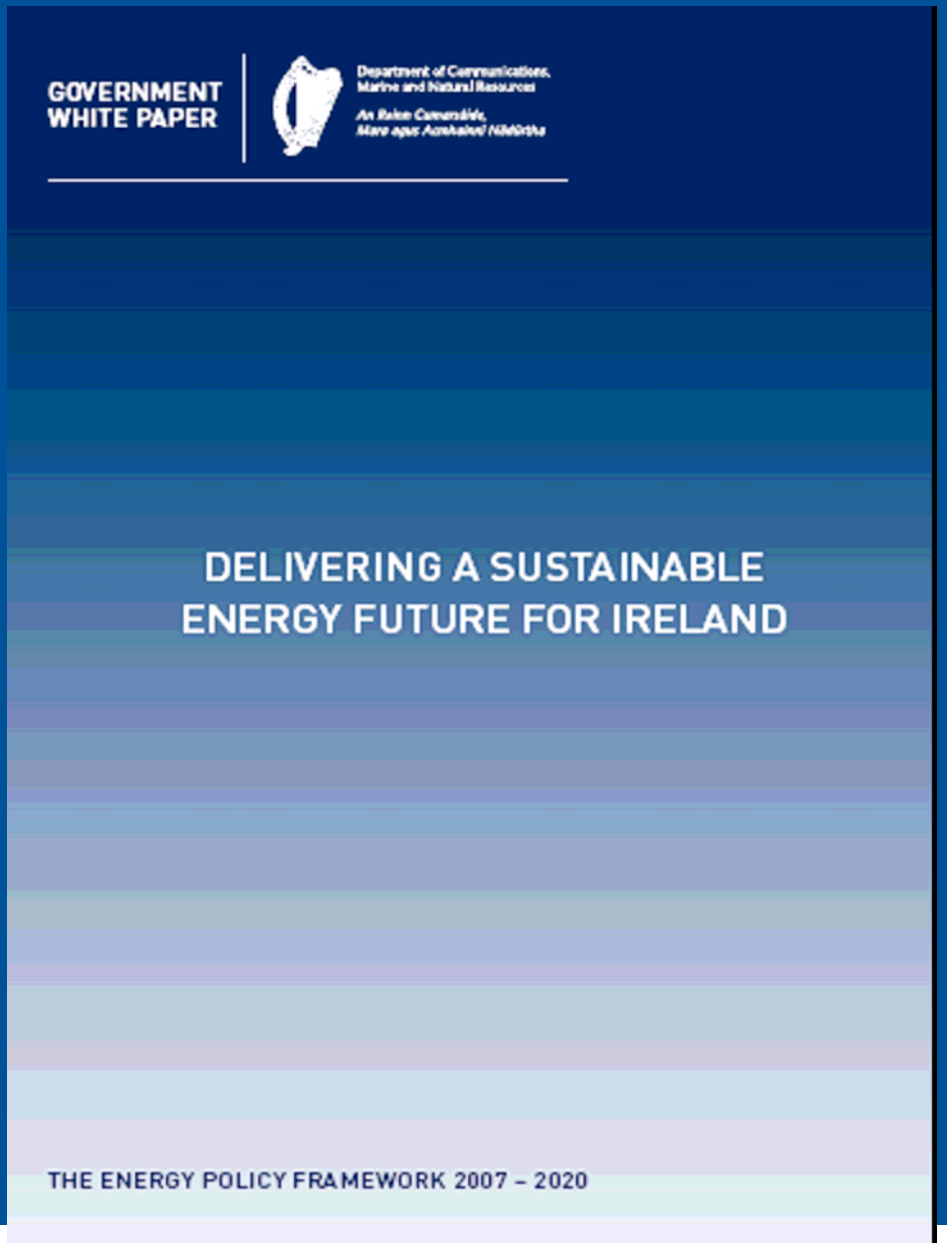
"Delivering a Sustainable Energy Future for Ireland"

Target: 500MW Installed Ocean Energy Capacity by 2020

An Increase of 416MW for Ocean Energy (Excluding offshore wind)

Irish Government Energy White Paper

Launched March 2007



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White Paper Focus upon actions that will:

- Ensure security of energy supply
- Promote sustainability of energy supply and use
- Enhance competitiveness of energy supply
- Provide an integrated approach to delivery

Actions to Ensure Security of Energy Supply

Strategic Goals are:

- Ensuring that electricity supply consistently meets demand
- Ensuring the physical security and reliability of gas supplies to Ireland
- Enhancing the diversity of fuels used for power generation
- Delivering electricity and gas to homes and businesses over efficient, reliable and secure networks
- Creating a stable attractive environment for hydrocarbon exploration and production
- Being prepared for energy supply disruptions

Sustainability of Energy Supply and Use

Strategic Goals are:

- Addressing climate change by reducing energy related greenhouse gas emissions
- Accelerating the growth of renewable energy sources
- Promoting the sustainable use of energy in transport
- Delivering an integrated approach to the sustainable development and use of bioenergy resources
- Maximising Energy Efficiency and energy savings across the economy
- Accelerating Energy Research Development and Innovation Programmes in support of sustainable energy goals

Enhance the Competitiveness of Energy Supply

Strategic Goals

- Delivering competition and customer choice in the energy market
- Delivering the All-Island Energy Market framework
- Ensuring that the regulatory framework meets the evolving energy policy challenges
- Ensuring a sustainable future for semi-state energy enterprises
- Ensuring affordable energy for everyone
- Creating jobs, growth and innovation in the energy sector

Integrated Approach to Delivery of Policy

Strategic Goals are:

- Strengthening our national capabilities in the energy policy field
- Ensuring a “whole of Government” approach to energy policy
- Reaching out to stakeholders in implementing our strategic goals for energy
- Ensuring accountability and transparency through regular progress reporting and review

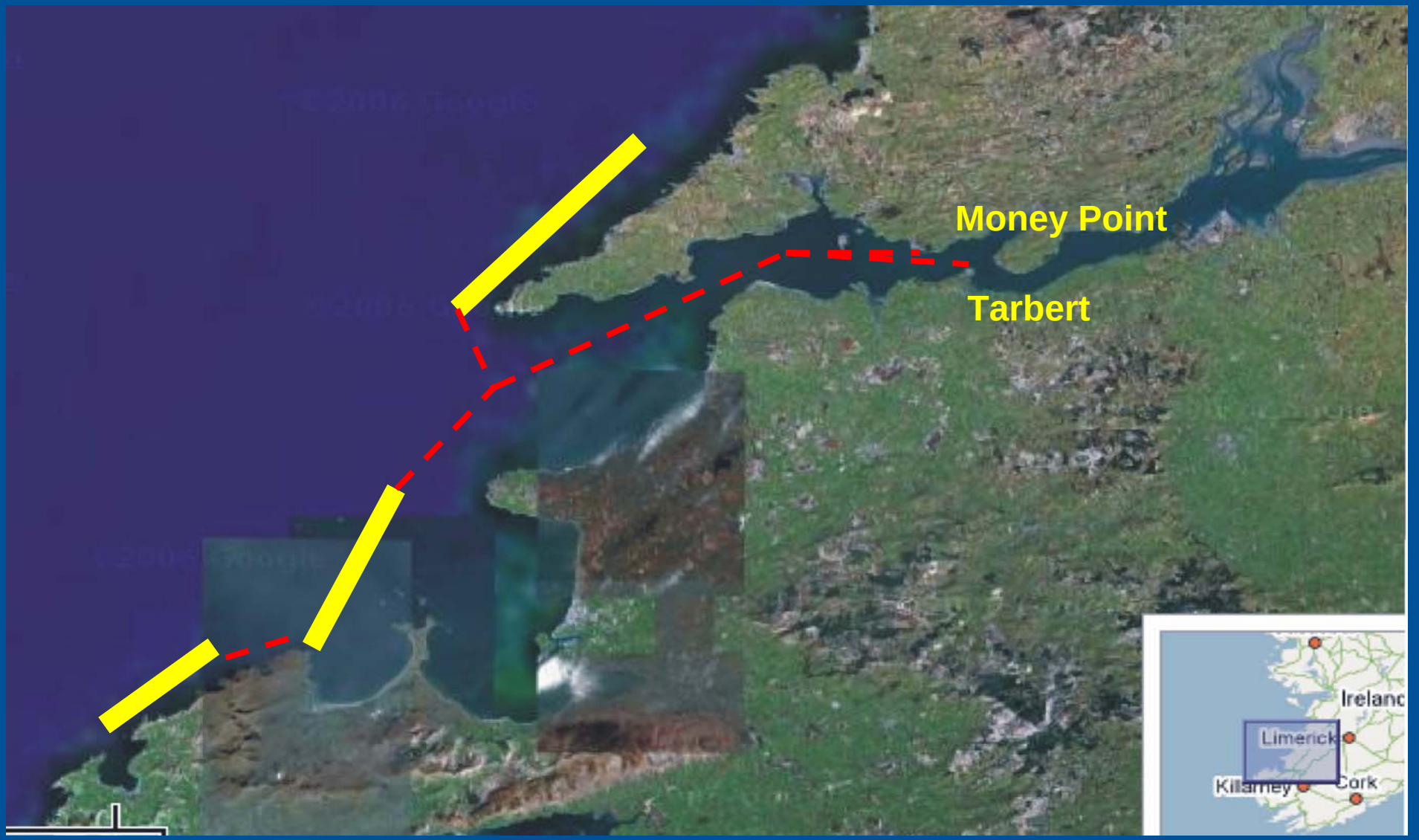
Issues Arising

- Strong dependence on increasing number of players and competition to keep energy prices under control
- Commitment to streamlining traditional Departmental and inter agency roles using Ministerial Task Force oversight where necessary
- Recognition of need for fully evidence based approach to policy making drawing on multi-discipline expertise and analysis
- 33% of electricity consumption from renewables by 2020 (15% by 2010)
- Limits projected for particular fossil fuels in electricity generation

Issues Arising (contd.)

- Best wave resource occurs on coast of Republic while best tidal resource occurs on Coast of Northern Ireland.
- Network currently incapable of accepting 500MW of ocean Energy Capacity anywhere near Atlantic Coast where prime energy availability occurs
- Position being addressed in All Island Grid Study
- Grid developments will have to be treated as “critical infrastructure” to avoid non delivery or delays arising from a local authority based planning process
- No breakdown between wave and tidal capacity suggested in White Paper
- No specially enhanced Input Tariff announced for ocean energy (yet)

Eirgrid Transmission System



Wave Power Station

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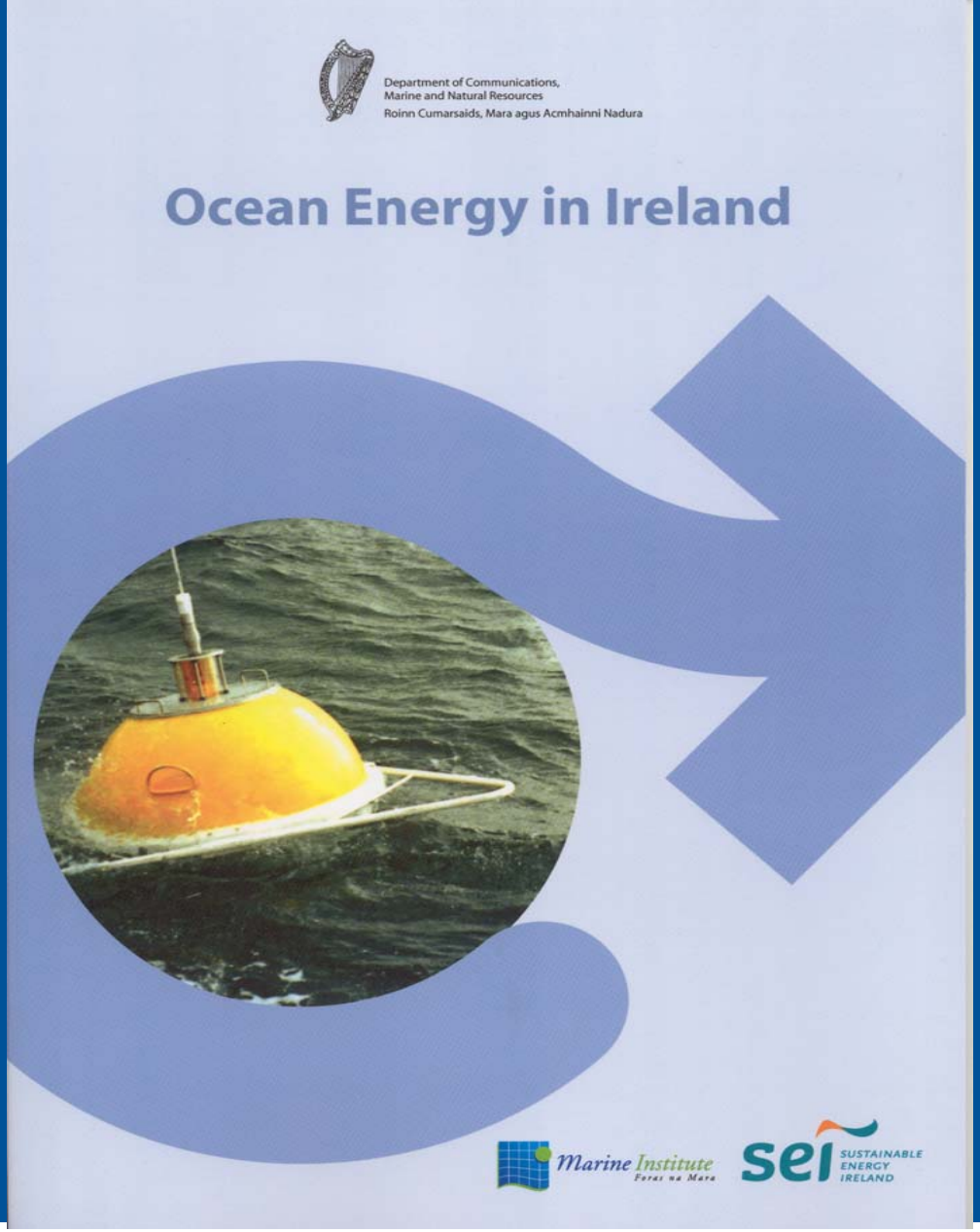
Ocean Energy Development Strategy

Launched April 2006



Ocean Energy Strategy

- 4 Phase Programme
- Phase 1 (2007) – Development = 4.9mEuro
- Phase 2 (2008-2010) – Demonstration Single Device = 10.5mEuro
- Phase 3 (2011-2015) – Demonstration Array = 11.15mEuro
- Phase 4 – Deployment
- Total Price of R,D&D = 26.6mEuro

Ongoing Developments (2007)

- Ireland seeks to become a world leader in research, development and deployment of Ocean Energy Technologies via National Ocean Energy Strategy and within IEA Ocean Energy Systems Implementation Agreement and EU PF7
- Establishment of single All Island (Republic and Northern Ireland) electricity market scheduled for 2007
- Completion of All Island Grid Study (to 2020) by late 2007
- Preparation of Grid Development Strategy 2008-25 by end 2007
- Selection of Network connection point for full scale ocean energy prototypes (wave) during 2007
- Installation of Marine Current Turbine Pilot Plant in Northern Ireland (2007)
- Ongoing testing of (1 : 4) scale model converters at Galway Bay Site (without network connection)
- Comprehensive Energy Research Strategy 2008-13 to be published 2007 within an all island context
- Strengthening of focussed university based research capacity

OE Buoy single unit

Testing in Galway Bay at quarter scale – March 2007

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Conclusion

- Ocean Energy now recognised as a potentially credible player in Irish market
- The aspirations for ocean energy are challenging within the timeframe to 2020
- A concerted effort will be required by all involved if the objectives are to be met
- The real tests will come in the rates at which
  1) The electrical networks can be improved to facilitate ocean energy input
  2) Ocean energy technology can evolve to provide energy at prices that are competitive with other renewable resources
  3) Planning, permitting and other administrative procedures can be streamlined in practise so that only issues that are realistically relevant to ocean energy development are brought into consideration in decision making.