Marine Energy in Australia and New Zealand

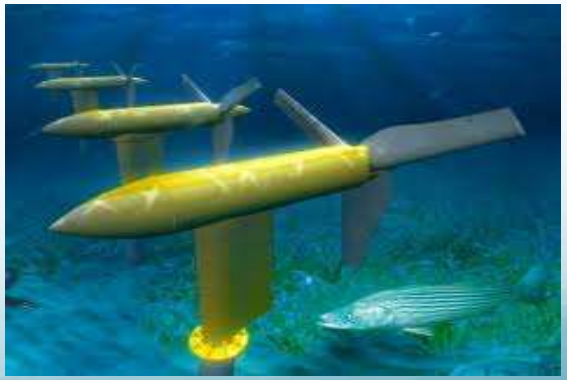
Regulatory Barriers and Policy Measures

Glen Wright
All-Energy Australia
Melbourne 2011

Marine Energy in Australia

- ~15 companies in Australia
- ~10 marine energy plants in various stages of development: a further 9 at the proposal stage
- Most are small pilot projects

Clean Energy Council, Marine Energy Sector report (2010).



*“The future success of ocean power in Australia is **dependent upon government policies to support the development and deployment** of these emerging technologies.*

*The sector requires **a comprehensive policy framework** for emerging technologies to take them from research to full scale demonstration.”*

Clean Energy Council

Barriers to Development

- Technical
- Financing
- **Regulatory and policy barriers**
- Bottom line is cost

- Cost of producing a marine energy system is very high, though cost will fall as technologies mature – need a helping hand!
- Capital cost ($/kW) of wave and ocean current generation is currently $7000 and $5200 respectively: $1498 for coal (without CCS)[1]

1 CSIRO, 'Projections of the future costs of electricity generation technologies: An application of CSIRO's Global and Local Learning Model' (2011) 64-68.

Regulatory Regime

- **No specific legal regime/measures** for marine energy projects in Australia
- Victoria has been considering policy for some time (note recent change of government)
- Existing federal laws applicable to renewable energy projects generally, e.g.:
  - Environmental Protection and Biodiversity Conservation Act 2009
  - Renewable Energy Target legislation
  - National Electricity Market

- Federal legislation:
  - Australian Maritime Safety Authority Act 1990
  - Coastal Waters Acts 1980 (delineating state/federal)
  - Sea Installations Act 1987 (permitting for installations)
  - Historic Shipwrecks Act 1976 (nearly 8,000 shipwrecks)

- State legal regimes, such as:
  - coastal management legislation
  - climate change legislation
  - planning law
  - environmental protection
  - regulation of pipelines
  - port management legislation

Issues with Existing Regime

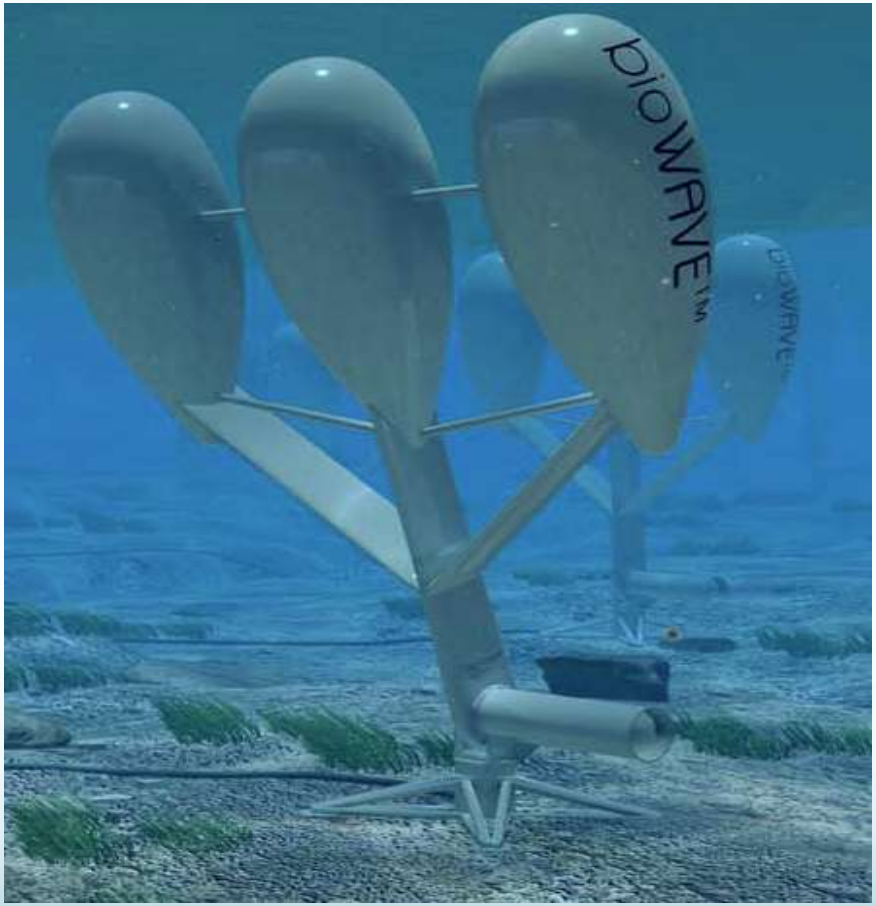
- Environmental impact assessment
- Exploration and exploitation licensing
- Transmission network connection
- Split jurisdiction
- Fragmented/Ad-hoc approach

Environmental impact assessment

- EIA is an expensive process: requiring an excessively detailed report for low impact technologies and small pilot projects adds cost and inefficiency
- Other technologies have homogenised; marine technologies are still numerous and diverse – need for flexibility
- Wide range of marine energy technologies = diverse range of environmental impacts
- Tidal fence and overtopping systems: large-scale alteration of the surrounding landscape, impact on water flows
- Freestanding/submerged turbines: minimal impact

Maui's Dolphin

Rance Tidal Power Station, Brittany, France



BioWave device

Environmental impact assessment

Portugal

- Established a 320 km2 pilot zone for marine energy test projects: less detailed EIA required

Scotland

- Government conducted detailed EIA in high-energy areas to establish baseline data and likely impacts: takes burden off marine energy companies

Australia

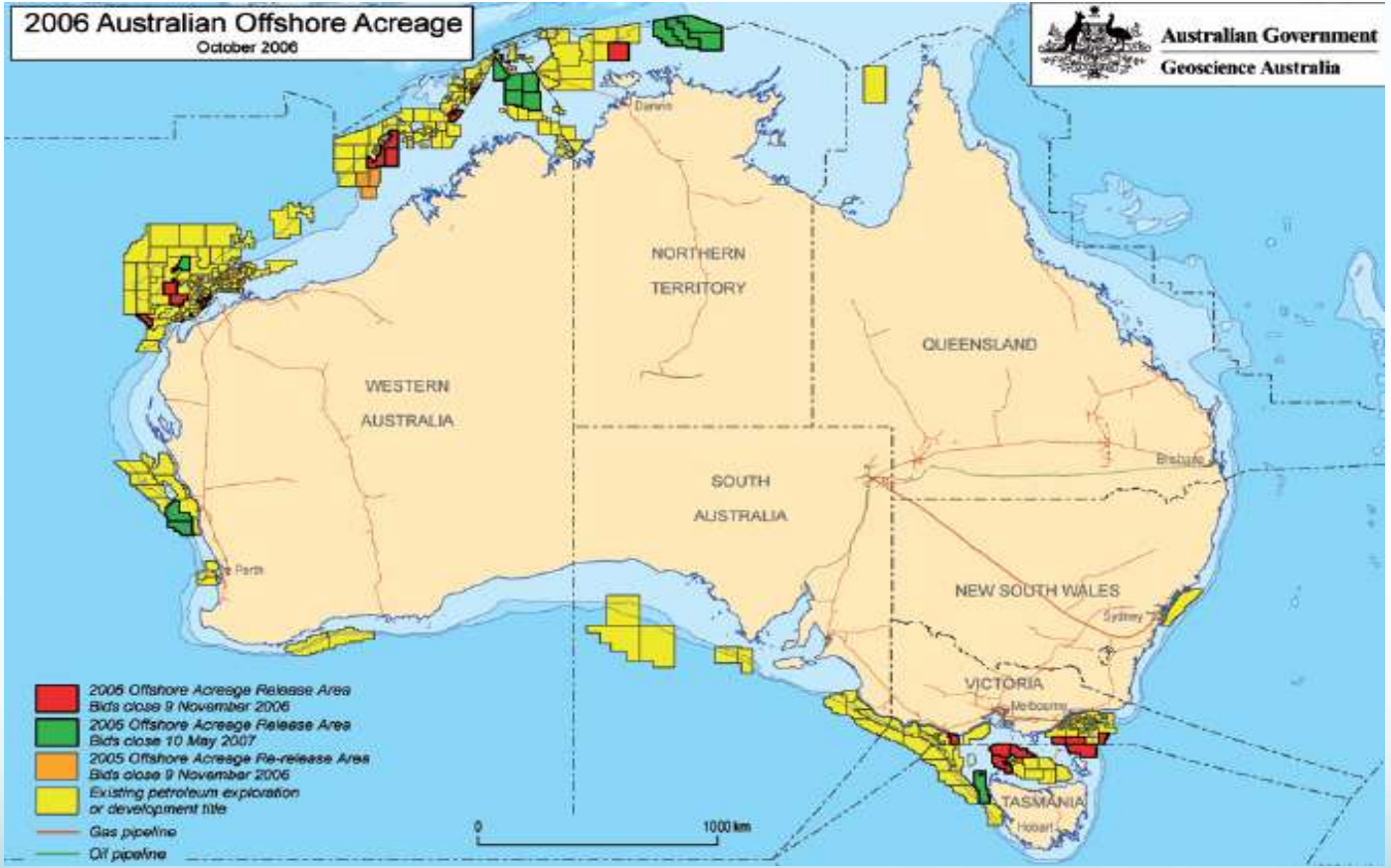
- Exploration licensing regime for coal/gas/geothermal applies less stringent EIA requirements for exploring/assessing resource

Exploration Licensing

- Well-established system of exploration/mining licences for coal, gas and oil (including offshore), and even geothermal - relatively uniform across jurisdictions
- Exploration for resources on ‘a use it or lose it’ basis
- EL also provides a framework for drilling and testing: differing requirements based on activity
- No such system is in place for marine energy: company may spend time and money ‘prospecting’, but will not have exclusive rights
- Particularly a problem for tidal systems: only a handful of potential locations
- State governments have approached licensing differently, developing the licensing process as and when applications arise: lack of uniformity and uncertain regulatory landscape
- EL could be used to guarantee rights over a resource and provide a framework for testing and prototype deployment

Australia’s wave resource

Australia’s tidal resource



Offshore oil & gas exploration licences

Transmission Network Connection

- All large energy generators need to connect to the transmission network: building this infrastructure is expensive
- Scotland: “significant constraint to the future development of marine renewables”[1]
- Coal power stations benefit from existing network: renewable energy generators have to bear cost of building new lines
- BUT, can’t operate the transmission lines – gift to operator
- Future generators will want to connect using this infrastructure, but will not have to pay the company that built it = unfair distribution of costs
- Recent rule-change proposal in Australia to fix this problem was drastically toned down: basic structure of the regime left in tact

1 Scottish Marine Renewables SEA (2007).

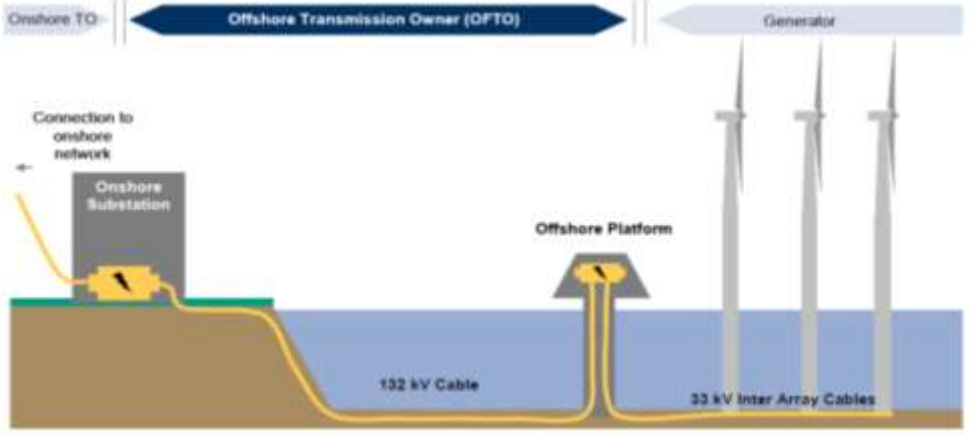
Transmission Network Connection

UK

- Special offshore transmission regime
- Transmission network owners bid to build, own and operate offshore transmission platform and line

Texas

- Similar system
- ‘Competitive Renewable Energy Zones’
- Transmission companies tender for infrastructure projects



Split Jurisdiction

- Maritime jurisdiction split between state/federal governments
- 3 nautical miles[1]
- Projects within 3 nautical miles of the coast regulated by state legislation and the EPBC Act (and other federal legislation)
- Projects beyond this limit regulated by Sea Installations Act 1987 and other federal legislation
- Potentially dealing with two separate regulatory regimes, depending upon how far from the coast the project is situated

1 Offshore Constitutional Settlement (1979) and Coastal Waters Acts

Ad-hoc Approach

- Lack of a considered regulatory framework means that local authorities are often uncertain which legislation to apply for site tenure and development approval
- Tendency to ‘invent’ regulation = delay and added cost
- Inappropriate requirements, e.g. excessive EIA requirements ‘just to be sure’
- Various relevant bodies for licensing/unclear delineation
- Clear method in commercial legal practice is unlikely to emerge: likely that further fragmentation of approach will occur

Ad-hoc Approach

Scotland

- Dedicated licensing system for marine energy projects

UK

- Established the Marine Management Organisation and a licensing process for marine energy

Portugal

- One dedicated management body for its pilot area

Spain

- Collated and integrated applicable legislation into a single administrative procedure

New Zealand

- Similar position to Australia: no specific regime
- Marine energy regulated by Resource Management Act 1991
- Crest Energy: first large-scale tidal project recently approved (200 1Mw turbines)
  - ~5 years
  - Long-winded EIA
  - Maori claim issues
- No ELs: very limited tidal locations – likely to be competition/dispute
- Limited grid connection options

Policy Measures

- Measures to actively encourage marine energy:
  - Feed-in tariffs. e.g.:
    - France: €150/MWh for 20 years
    - Portugal: €260/MWh for first 4MW installed, down to €76/MWh for 20-100MW installed
    - Ireland: €220/MWH
  - Multiplied Renewable Energy Certificates (not relevant until marine energy projects are in operation)
  - Grants, subsidies and tax breaks, e.g.:
    - UK: £22million Marine Renewables Proving Fund
    - NZ: NZ$8 million Marine Energy Deployment Fund

Summary

- Ease current regulatory burden:
  - Gradated EIA requirements
  - ‘One-stop’ system for licensing
  - Prototype/RE zones
  - New rules for grid connection

- Measures to actively encourage marine energy:
  - Feed-in tariff
  - Multiplied RECs
  - Further grants, subsidies and tax breaks

Thank You

Glen Wright
glen.w.wright@gmail.com
0406007306