Sustainably advancing the Blue Economy

EIA of Marine Renewable Energy projects in the UK

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Overview

- The ‘Blue Growth’ agenda
- Marine Renewable Energy
- EIA, challenges in marine environment
- Precaution vs. Risk
- Improvements to EIA:
  - 1. Deploy & Monitor
  - 2. Rochdale Envelope
  - 3. Strategic Environmental Assessment
- Developer opinions

Context

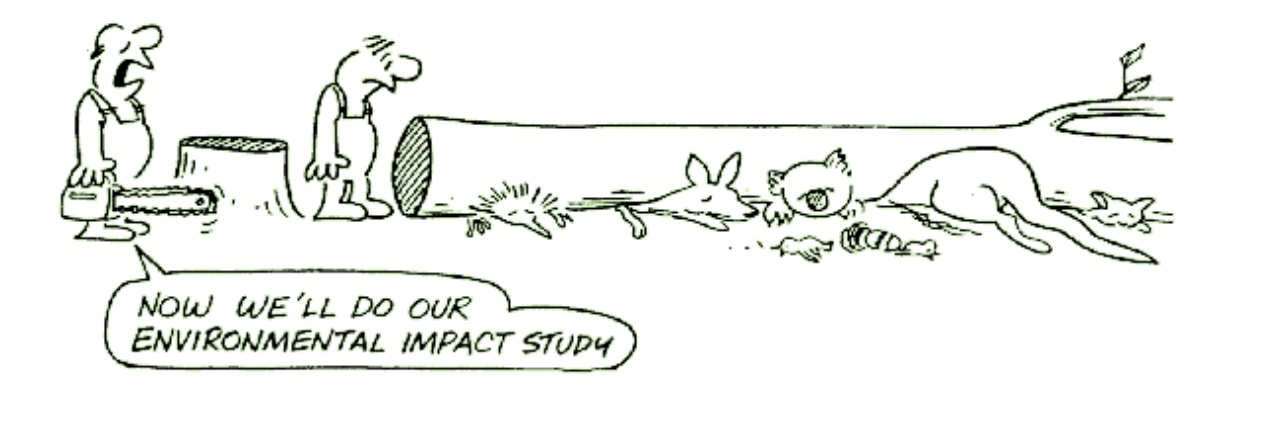
The ‘Blue Growth’ agenda

"harness the untapped potential of Europe's oceans, seas and coasts for jobs and growth… whilst safeguarding biodiversity and protecting the marine environment" (EU)

Marine Renewable Energy

- Offshore wind
- Wave and tidal
  - Full-scale prototype devices and testing
  - Commercial projects, e.g.:
    - Meygen, Pentland Firth - 86 x 1MW, 1.1km^2
    - Pelamis, 15-20 devices, 1km^2

Environmental Impact Assessment (EIA)



- Helps decision-makers consider environmental consequences of proposed actions
- Main regulatory tool for meeting environmental goals in approving projects
- Interface between science and regulation

EIA for Marine Renewable Energy projects

New technology
+
Unknown environment
+
Poorly adapted regulatory frameworks/tools
=

Shortage of relevant, reliable public information
Added time/cost
Poor environmental outcomes

EIA for Marine Renewable Energy projects

Impact assessments in the marine environment are *"the most challenging of all"* (Smith, 2008)

"[MRE] attracts a depth of scrutiny from environmental regulators and statutory nature conservation bodies that more established marine industries such as fishing and shipping have managed to escape."

Merry (2014)

Approach to EIA

Don't put anything in the water, until we know everything

Maybe put some stuff in the water and see what happens, but let's be careful

We need energy so let's not worry too much about the environment

Precautionary → Risk-based → Development-focused

Challenges

- **Integrating science**
  - EIA as a process in which objective scientific knowledge is brought to bear on practical decisions
  - How to make this a reality?
- **Managing risks**
  - Environmental
    - Unknown technologies in little-known environment
  - Technology
    - Rapidly developing technology – final project likely to be different to the one consented
    - How to incorporate into the EIA/consenting process?
  - Project
    - Time/cost of process
- **Balancing** need to develop renewables with local ecosystems

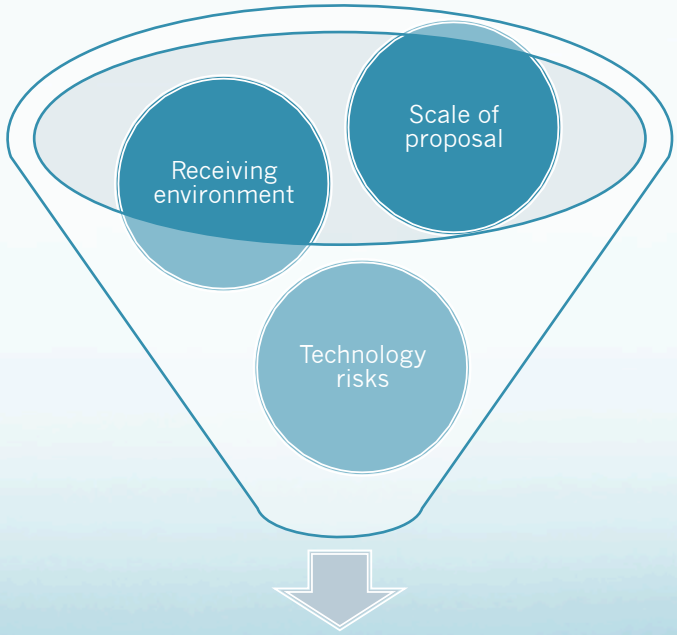
Improving EIA: environmental risk

(1) Deploy & Monitor

- A form of **adaptive management**
- **Initial deployment** based on likely risks
- Where sufficient data exists for a sensible risk-based assessment, EIA requirements will be lower
- Deployment is then **monitored** for adverse impacts
- Can also conduct an initial **survey** to exclude the most sensitive sites

Scotland's Survey, Deploy & Monitor Guidance

- "Risk-based approach to help address uncertainties in licensing for offshore renewables development"
- Ensure that an evidence-based decision is made
- Allows a decision maker to fast-track proposal where appropriate.

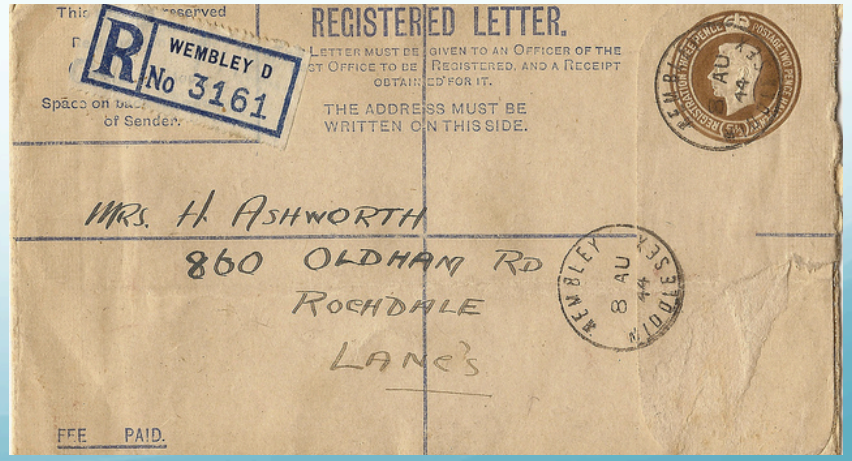


Low, Medium or High Risk Classification

Improving EIA: technological risk

(2) Rochdale Envelope

- Allows consenting to take place while recognising that **eventual project will be different** due to technological developments
- Projects are consented within an ‘envelope’
- Developer generally applies for consent on a **‘worst case scenario’** basis
- Almost universally used by MRE developers in the UK



Improving EIA

(3) Strategic Environmental Asessment (SEA)

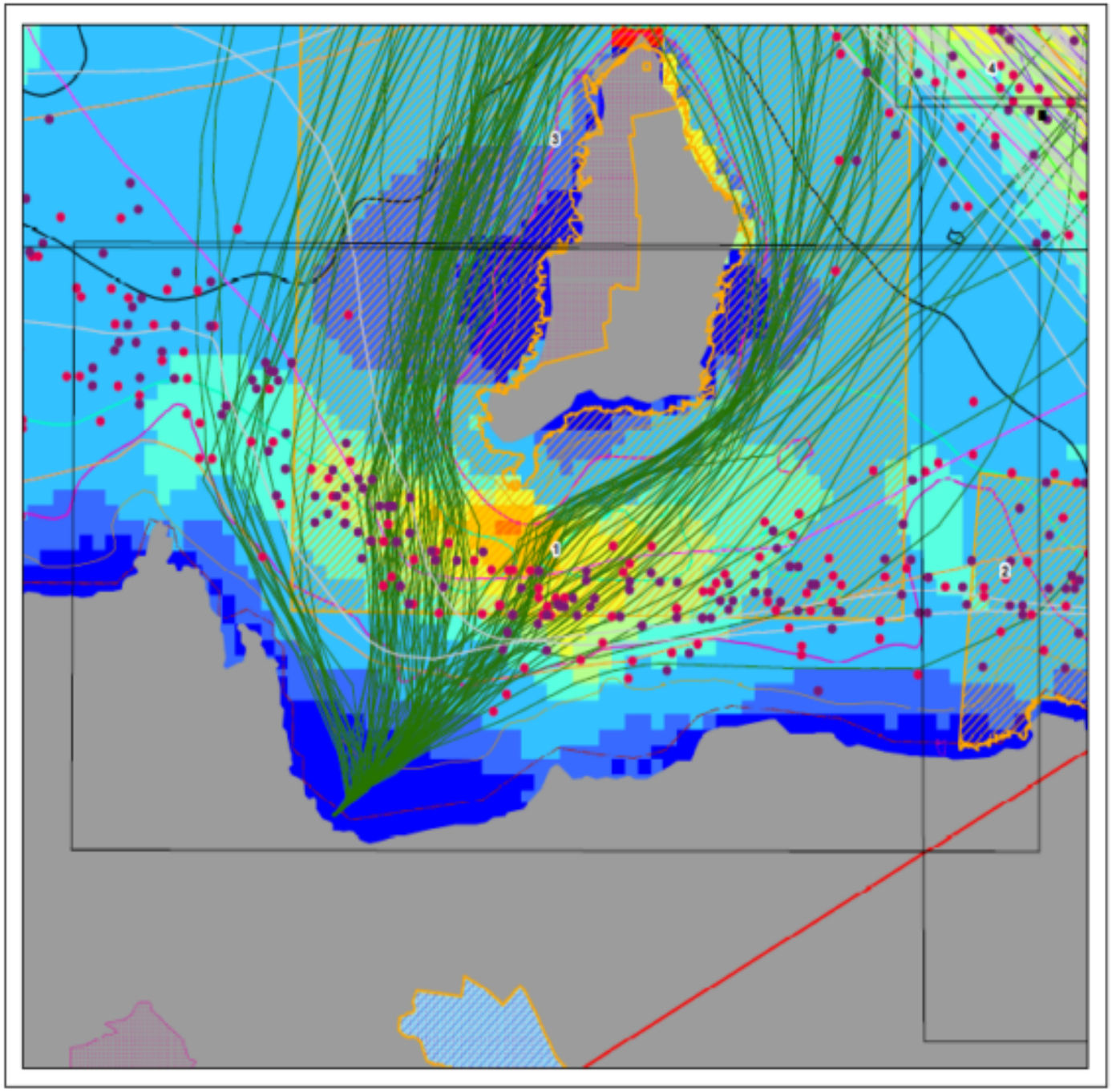
- Essentially an EIA process conducted at the policy level, rather than the project level
- Can potentially strengthen and streamline EIA by:
  - identifying scope of potential impacts and information needs;
  - establishing some baseline data;
  - addressing strategic issues; and
  - reducing time and effort for individual EIA

Improving EIA

(3) Scotland's SEA

- Initiated in 2007 as part of broader Marine Spatial Planning process
- A large-scale environmental baseline exercise - provided an indication of the environmental constraints upon sections of the marine environment
- Results used to inform **planning guidance** for MRE projects
- **Follow-on group** formed to identify research projects that needed to be initiated and funded to fill

Figure 6.1b: Tidal Resource Detail Map Area 1



PENTLAND FIRTH AND ORKNEY WATERS MSP FRAMEWORK AND LOCATIONAL GUIDANCE

Fig: Tidal Resources Details Area - 1

Legend

- UK Land
- Strategic Area of Interest
- Bathy Contours, m
  - 10
  - 20
  - 30
  - 50
  - 100
- Bird Conservation Value >50
- Important Breeding Colonies
- Wetland Conservation (Ramsar)
- Special Areas for Conservation (SAC)
- Sites of Special Scientific Interest (SSSI)
- Special Protection Areas (SPA)
- Proposed Special Protection Areas (pSPA)
- VMS Fishing Vessels North Scotland 2007
- VMS Fishing Vessels North Scotland 2008
- Reserved
- Special Category (Fishing, Military, Sailing)
- Hi Speed Craft
- Special Category (Ports & Law)
- Passenger ship
- Cargo Ship
- Tanker
- Other vessel

Average Currents Speeds (m/s)

- 0.00 - 0.25
- 0.25 - 0.50
- 0.50 - 1.00
- 1.00 - 1.20
- 1.20 - 1.40
- 1.40 - 1.60
- 1.60 - 1.80
- 1.80 - 2.00
- 2.00 - 2.50

Date	March 1, 2010	
Projection	British National Grid	
Spheroid	Airy 1830	
Datum	D_OSGB_1936	
Data Source	CE, OS, SeaZone, SEPA, JNCC, SNH	
File Reference	J:\P1109\Mxd\Resources\Details\ Fig_Tidal_Resources_Area-1.mxd	
Checked	Produced By	Harshal Galgale
	Reviewed By	David Wotherspoon

AECOM

METOC

Km

0 0.125 0.5 0.75 1

Developer opinions

- Interviews with 8 MRE project developers
- **Survey, Deploy & Monitor**
  - 'as good as anything' – need to get devices into the water
  - gives EIA a sense of perspective
  - encourages good project/technology design – aim for benign technology in less sensitive areas, at appropriate scale
  - regulators nervous that it will be seen as a shortcut
  - developers also nervous – what if regulator wants more evidence, do developers have to remove devices?
- **Rochdale Envelope**
  - 'Common sense' – has been going on a long time before the cases
  - Essential for consenting 'buildable' projects
- **SEA**
  - Essential to allow for leasing rounds to take place · useful strategically
  - But not that useful on the project level
    - no impact on where developers site projects
    - doesn't inform anything
    - developers have to do everything anyway

Thank You
(Merci, Danke, Dank je wel, Dank u)

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