

# Review and discussion of common environmental legislation for ocean energy schemes

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# Introduction

- Where are we now in Environmental Licensing?
  - First deployments  First licensing procedures
  - Led to some conflicts
    - Who has the licensing authority? Overlap?
    - Un-informed/un-prepared licensing branches
    - Bureaucracy
    - High environmental demands/not enough demands  $\neq$  coherency



**Frustration time + costs for developers**  
**Environmental Issues / Public perception / NGO**

# Objectives



1. Review of existing European Legislation
2. Incoming Instruments European Legislation
3. Review of current national legislation  
European - USA - Canada
4. Discussion of a common baseline

# 1. A review of existing legislation at European Union level



## Environmental Impact Assessment Directive (EIA Directive: 85/337/EEC)

- Outlines project categories subject to an EIA, which procedure shall be followed and content of the assessment
- Project categories subject to EIA
  - Projects in Annex I: EIA is compulsory
  - Projects in Annex II: EIA is dependent on whether significant environmental effects may occur
- Annex II projects: EIA is required depending on project nature, size and location (proximity to the coast or to a site designated under Wild Birds or Habitats Directives)
- Does not specifically address wave and tidal energy projects however these can be included in:
  - Annex II - Energy Industry: a) Industrial installations for the production of electricity
- For case-by-case examination, the developer should include the relevant criteria set out in Annex III of the Directive

# 1. A review of existing legislation at European Union level



## Strategic Environmental Assessment Directive (SEA Directive: 2001/42/EC)

- To ensure that significant environmental impacts of certain plans and programmes are identified and taken into account during their preparation and before their adoption
- It aims to extend the principles of the EIA carried out at the individual project level to the decision making at the strategic level
- Specific procedures have to be followed by the authority responsible for the plan or programme: environmental report that examines the significant effects including reasonable alternatives (Annex II)
- This Directive requires strategic environmental assessments at an early stage and may assist ocean energy developers carrying out the EIA

## 2. Incoming instruments at European Union level

### Water Framework Directive (WFD: 2000/60/EC)

- It is **water management plan** based on river basins, the natural geographical and hydrological units
- Member States should achieve “**Good status**” (both **ecological and chemical**) of their surface and ground waters by 2015 -> **The factors harming water ecosystems (Annex V) should be addressed**
- Some of the **negative impacts of marine energy projects can compromise these quality standards for a given water body** and are dependent on the operating area location and dimensions
- The **quality standards establish for priority substances released in the water (Annex X)** should be examined prior to marine energy device deployment
- **Monitoring of the priority substances released during the converters installation and operation could be part of the program of measures to be established underWFD**



**Example: geographical river basin division in Portugal, which includes inland surface waters, transitional waters (estuaries), coastal waters and ground waters.**

## 2. Incoming instruments at European Union level



### Marine Strategy Framework Directive (MSFD: 2000/60/EC)

- Constitutes the environmental pillar of the Union's Integrated Maritime Policy and aims to protect marine environment and its resources across Europe through the achievement of "Good environmental status" by 2021
- It aims to regulate human activities in marine waters and the activities related with ocean energy deployment will certainly be included
- Applies to territorial marine waters where Member State has and/or exercises jurisdiction rights and coastal waters not addressed by the WFD
- Some of the negative environmental impacts of ocean energy farms are within the indicative pressures identified in Annex III
- Clarification is needed on some of the reference values for some of the qualitative descriptors e.g. the levels of underwater noise

## 2. Incoming instruments at European Union level



### Maritime Spatial Planning (MSP)

- Is a tool for improved decision making providing a framework for arbitrating between competing human activities and managing their impact on the marine environment -> To balance interests and achieve sustainable use of marine resources
- The plan for the marine areas should be based on the specificities of individual marine regions or sub-regions established under the MSFD
- MSP development includes data collection and stakeholder consultation; subsequent stages are developed under a participatory procedure involving all interested parties
- MSP is a very recent and new process, but an increasing number of Member States are preparing to use it through the implementation of several projects
- There will be a need to link MSP with terrestrial spatial planning, e.g. with regard to the placement of onshore related infrastructure e.g location of power cable

# 3. A review of existing legislation at national level

## Denmark

- The consent procedure for wave energy projects follow a one-stop-shop scheme which was also a procedure used for offshore wind energy projects
- **Since no guidelines and administrative experience exist for it was difficult to follow a one-stop-shop procedure in previous projects (e.g. Wave Dragon)**

Subject / Authority	Description / Notes
Use of sea territory / Coastal authorities	Consent given by relevant national and local authorities based on: location, EIA, consultation process and decommissioning
Electricity production / Danish Energy Authority (DEA)	DEA followed the consent procedure for offshore wind farms
Sea cables / DEA	The consent was given on the condition that cables without oil should be used
Connection to the local distribution grid / Local distribution network operator	A point of connection with charges was established based on a list price (the experience concerning wind offshore technology was valuable).
Safety-occupational health / Danish maritime authority	Permitting regarding occupational health (the plant would be used in a regular basis by scientific and technical staff). Existing regulations for offshore fish farms served as a basis.
Insurance / Insurance Company	Device insurance based on the evaluation of the construction (e.g. a CO <sub>2</sub> fire extinguishing device was installed in the control container and the container was sealed to protect the electronic equipment)

# 3. A review of existing legislation at national level

## Portugal

- The consent procedure for wave energy projects is already established in legislation
- **An Environmental Impact Declaration should be produced by:**
  - **Regional Development Authority (CCDR)**
  - **Nature Conservation and Biodiversity Institute (ICNB)**
  - **Ministry of Spatial Planning and Environment**
- An Environmental Incidence Study (EIS) is required if the project is not listed in the national EIA bill, which is the case of ocean energy projects
- The EIS is a less demanding administrative instrument than a full EIA

Legislation	Description
DL 51/2004	License process of electricity production from renewable energy sources including wave energy.
Joint decision 66/2005	Components to be described and evaluated in the Environmental Incidence Study for wave power projects: <u>Gas emissions</u> (that are going to be avoided) <u>Seascape</u> <u>Geology and geomorphology</u> <u>Natural values</u> <u>Patrimony</u> <u>Noise</u> <u>Soils</u> <u>Spatial classification</u> <u>Population</u>
DL 5/2008	Legal framework for the utilization of the public natural marine resources. Establishes the geographical limits of the Portuguese Pilot Zone (PPZ). Creates a management entity for the PPZ as well as the license process of the projects within it.

# 3. A review of existing legislation at national level



## Spain

- Ocean energy projects are not yet listed as projects that should be subject to an EIA
- However the competent authority (usually the Environment Ministry) can ask for such assessment if it deems it necessary
- At present: some EIAs are being prepared for ocean energy projects that are to be located in coastal waters of the Basque country
- Efforts have been made by public and private authorities in order to develop guidelines to assist EIA development in the marine environment

# 3. A review of existing legislation at national level

## United Kingdom

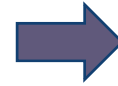
- A complete EIA for commercial ocean energy deployments is required
- There are a number of required licences 
- Developers should develop a proposal on the project with regard to its potential for environmental impact and navigation safety
- Scotland: regulation and legislation covers ocean energy development and a Marine Bill is currently being drafted -> It is intended that the process should be streamlined, include Marine Spatial Planning and adopt a “one stop shop approach”.

Legislation	Description / Notes
Food and Environmental Protection Act, FEPA (1989)	Licence relating to the proposed deposits on the seabed
Electricity Act (Section 36; 1989)	Governs marine energy converters generating over 1 MW
Coast Protection Act, CPA (Section 34; 1949)	Concerns safety and navigation issues as well as environmental issues
European Protected Species EPS	Licence may be required if deemed necessary by the environmental regulator
Lease from the Crown state	Within territorial waters the ownership of the seabed and, with the exception of coal, oil and gas, the rights to explore and exploit the Continental Shelf are vested in the Crown Estate
Planning Authority permissions	To connect to the electrical grid

# 3. A review of existing legislation at national level

## United States

- Overlap in supervision between federal and state government:
  - States jurisdiction goes up to three miles from shore (Submerged Lands Act)
  - Federal government owns all lands beyond that to 12 nautical miles
- Federal Energy Regulatory Commission (FERC) -> jurisdiction within federal waters
- Minerals Management Service (MMS) -> assign jurisdiction over ocean energy resource use
- FERC licence application: a preliminary permit (temporal exemption; up to 3 years) to developers of demonstration projects to allow them to experiment the technology



Jurisdiction	Responsibilities
State	<ul style="list-style-type: none"> <li>- EIA</li> <li>- Siting (varies from state to state – sometimes siting regulation is local instead of state-headed)</li> <li>- Safety: construction and maintenance</li> <li>- Laying of transmission cables</li> </ul>
Federal	<ul style="list-style-type: none"> <li>- Environmental assessment if project overlaps endangered species habitat</li> <li>- Interstate transmission</li> <li>- Approval of wholesale electricity rates</li> </ul>

Common site permitting issues include

- 1) Energy transmission (new transmission lines and interconnections)
- 2) Resource assessments (logical place for such an installation)
- 3) Permitting processes (agencies involved)
- 4) Study of the population(s) affected (creation of local jobs, community benefits, hazards, public acceptance/opposition, etc)
- 5) Resource rights (ocean waves in this case, wind in the case of wind energy)
- 6) Environmental laws

# 3. A review of existing legislation at national level



## Canada

- Projects are approved and monitored by a series of federal and provincial environmental agencies and associated laws
- **There is an obligation to carry out an environmental assessment under one of the of the following different types**
  - Screening
  - Comprehensive
  - Mediation
  - Review panel
- **An authorization is required under the Federal Fisheries Act regarding the potential effects on fish habitats**

Permit/Agency	Intent or requirement
EIA / Fisheries and Ocean	Section 35 of the Fisheries Act (habitat protection) states that alteration of habitat requires authorization from Minister; EIA required
Fish Habitat Protection / Canadian Environmental Assessment Agency	Administers the Canadian Environmental Assessment Act. Tidal energy project under 5 MW will likely need a screening level EA. Projects over 5 MW will require Comprehensive Study
Navigable Waters Protection Division Authorization / Transport	Authorization required for construction of works in/over/through inland and coastal navigable waterways
Marine Protected Areas / Fisheries and Oceans	Authorized under the Oceans Act; currently none in New Brunswick, Musquash Estuary, Bay of Fundy designated as area of interest in 2000
Marine Wildlife Areas / Environment	Extend from 12 to 200 nautical miles offshore, not yet designated
National Marine Conservation Areas (NMCA) / Parks	The only NMCAs are located in and
National Energy Board (NEB) license / National Energy Board	has jurisdiction only if electricity would be exported out of or if federal cabinet explicitly gives jurisdiction over a project
Species At Risk Act / Canadian Wildlife Service of Environment Canada, Fisheries and Oceans Canada and/or parks	To prevent wildlife species from becoming extinct, to provide for the recovery of wildlife species that are becoming extinct, endangered or threatened as a result of human activity and to manage species of special concern

# Environmental assessment legislation in other technologies (offshore wind)

## Summary of some national consent procedures

United Kingdom	The Netherlands	Denmark
<ul style="list-style-type: none"> <li>- Follows a pre-qualification procedure based on developers financial standing and offshore and wind turbine expertise</li> <li>- Qualified developers make an offer (bid) for a chosen location within the SEA areas; the lowest bids get an Agreement of Lease from Crown Estate</li> <li>- An EIA has to be carried out and the consent can only be attained after public notice and consultation process</li> <li>- Department of Trade and Industry (DTI) has set up a one-shop-stop in the form of Offshore Renewables Consents Unit (ORCU) to aid with the consent applications</li> </ul>	<ul style="list-style-type: none"> <li>- The developer send his project initiative to the Ministry for Transport, Public Works and Water Management</li> <li>- The response includes guidelines for the permit request and the developer initiative is made public</li> <li>- The permit submission, established under the Public Works and Water Management Act (WBr), should contain the plans for construction, the plans for decommissioning and an EIA</li> <li>- For parks outside the 12 miles zone an EIA is required only for the areas where impacts are considered significant</li> </ul>	<ul style="list-style-type: none"> <li>- The Danish Energy Authority (DEA) controls the one-stop-shop permitting procedure</li> <li>- The permitting procedure involves a pre-qualification round based on financial, legal and technical qualifications after which the chosen developers could place a tender offer</li> <li>- The successful applicant still has to do an EIA and await public consultation process after submission the complete application with the EIA</li> </ul>

# 4. Discussion of a common baseline for EIA legislation on ocean energy projects

- EIA will be an essential element of approval of future large scale ocean schemes
- How the process can be streamlined:

## 1. Tailored

Identification of key aspects (Device + location characteristics)



Assessment instruments eg: Check lists and matrices

## 2. Scoping

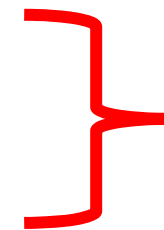
Establish extent / 'intensity' of environmental work



Important for project nature: single unit/small array/farm

# 4. Discussion of a common baseline for EIA legislation on ocean energy projects

- Public participation
  - Important dissemination tool
  - Improve public and public entities acceptance
  
- **EIA should include:**
  1. Project description
  2. Baseline characterization
  3. Impact identification and evaluation
  4. Mitigation measures
  5. Monitoring plan



Applies to  
Installation,  
Deployment and  
Decommissioning

# 4. Discussion of a common baseline for EIA legislation on ocean energy projects

- Adaptive Management
  - Critical uncertainties (underwater noise, collision risk, electromagnetic fields, FAD effects)
  - Knowledge base / experience increases
  - **Feedback** into EIA design - Improve efficiency / Cost effectiveness



# Good bye



[EQUIMAR Wiki address for public consultation](#)

[www.equimar.org](http://www.equimar.org)

## Thank you for your attention

