

RPS

Development of a Marine Renewable Energy Strategic Framework for Wales



Marine Renewable Energy Seminar, Pembrokeshire

January 2010

Drivers

- Need for **Secure** and **Diverse** Energy Supply
- Need for **Regional Control** of Energy Developments
- Need for '**Clean**' Energy Technologies
- Need for **Reduction** in greenhouse gases and contribute to Climate Change Targets
- Minimising both impact on the environment and **Future Legacy** issues
- **Regional** control over the Energy chain from source to end user
- Need for **Sustainability** to be at the heart of development licensing decisions

Need for Integrated Management of the Marine Environment



Project Background

Requirements

A Strategy Framework that is

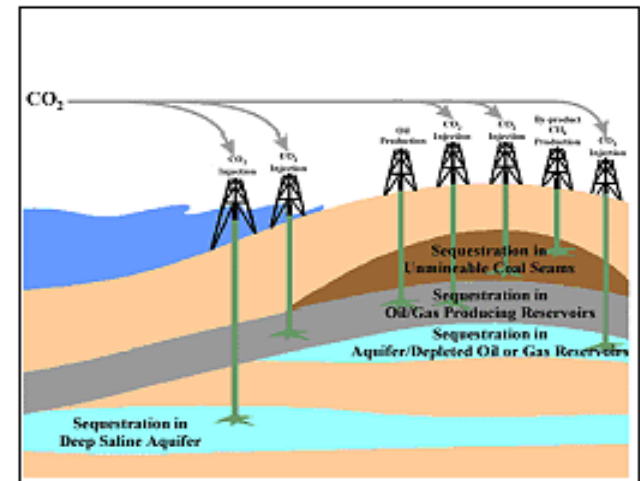
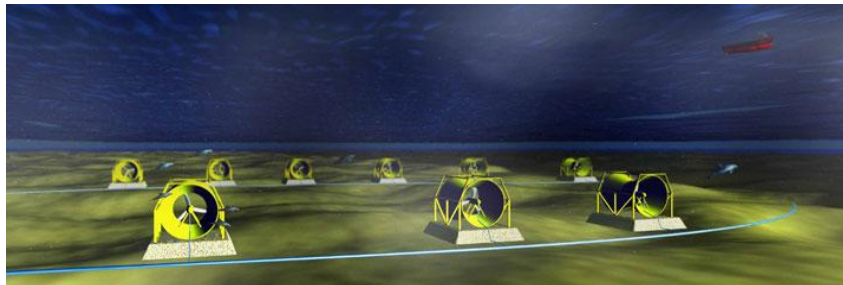
- Comprehensive
- Implementable
- Sustainable
- Transparent
- Defensible

Whilst providing for

- Development Aspirations to be realised;
- Renewable Energy Targets to be met; and
- Management Responsibilities maintained



- Tidal Stream
- Wave
- Wind
- CO₂ Storage



Various geological sequestration options -
source: IEA GHG

Stage 1 (completed 2008)

- Identification of Information (and data gaps);
- Consultation;
- Spatial Analysis and Initial Constraints Mapping

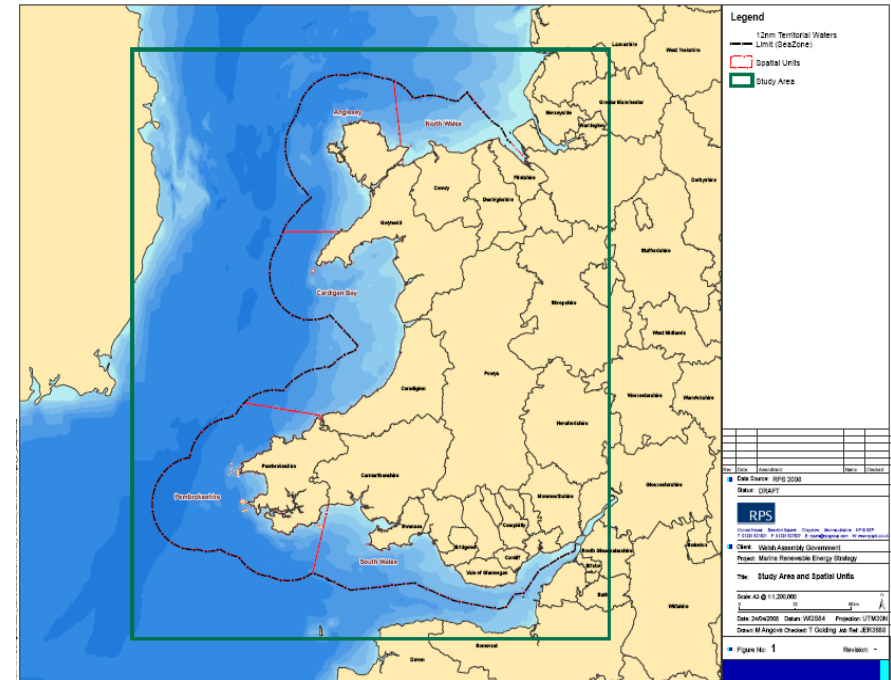
Stage 2 (underway)

- Collection of information and commissioning of studies identified by Steering Group as being critical in order to fill evidence gaps identified during Stage 1

Stage 3 (2010)

- Development of Framework

Overall Objective that benchmark targets for energy generation are met in a manner which represents a truly sustainable approach, seeking to ensure that economic and social objectives respect environmental limits.



Stage 1 – Identification of Information**Stage 2 – Collection of information and commissioning of studies to plug data/information gaps**

Priority Studies based on Steering Group Feedback

1. Distribution of Marine Mammals
2. Collision Risk - Marine Mammals
3. Underwater Bird Behaviour and potential Collision Risk
4. Collision Risk – Fish
5. Potential Effects of Wave and Tidal Devices on Military Interests
6. Positive Effects

Stage 3 – Development of Framework

Purpose of Research

- To provide information on how marine mammal populations use high tidal energy environments in Welsh territorial waters, including information on dive depth and underwater behaviour, and the significance of these habitats for local populations.
- To help provide information on a generic level as regards the potential for collision risk while assessing the applicability of a variety of complementary methods for surveying marine mammals in high tidal energy environments.

Approach

- Literature review and workshop (in order to consult with relevant stakeholders)
- Field research has included:
 - Shore based observations
 - Boat based tracking (visual & acoustic) of individuals in areas of high tidal flows
 - Telemetry of grey seals



Purpose of Research

- To undertake a review of the potential risks to diving birds from underwater marine renewable devices in Welsh waters.

Approach

- The first stage of this research project was to identify the combination of factors (device type, species behaviour) where the risks to birds are significant. These included:
 - Information on renewable devices and identifying potential risks to diving birds
 - Species-by-species review of diving bird underwater behaviour
 - Assessment of potential risk depending on factors such as diurnal foraging routine, dive shape, underwater time budgets etc.
 - The second stage is currently underway and the aim is to develop a field survey method to assess risk to diving birds



Purpose of Research

- To provide an objective assessment for potential for fish to collide with wave or tidal devices, including monitoring data where available.

Approach

- Literature review of existing information
- Consultation to inform identification of potential/actual risks to fish
- Evaluation of information to understand risks
- Identification of potential mitigation measures and the circumstances in which such measures might be effective.
- Development of a conceptual model



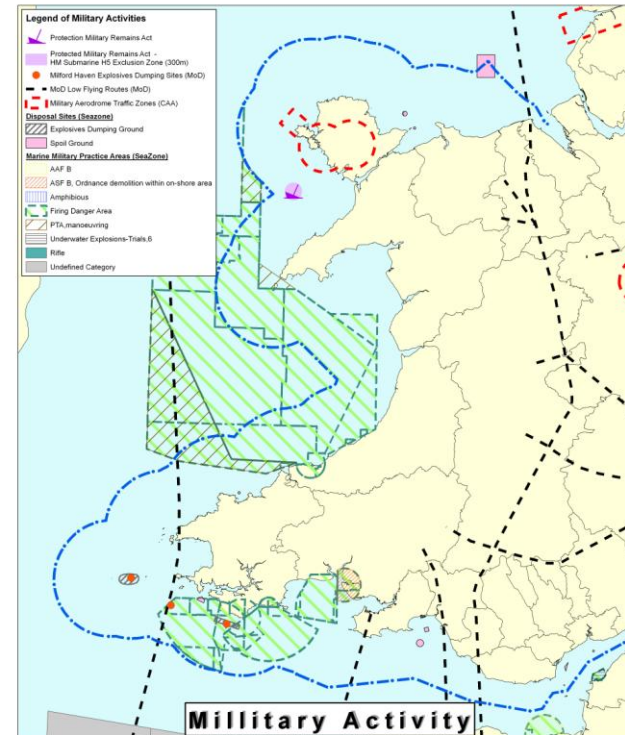
Stage 2 – Potential Effects of Wave and Tidal Devices on Military Interests (completed)

Purpose of Research

- To determine if the development of wave and tidal devices represent a particular concern for the MoD with the aim of assessing the potential for MoD interests to be a constraint to development and the degree of constraint that it may represent.

Approach

- Through consultation with MoD representatives potential conflicts can be identified between marine renewables industry and MoD activities by:
 - Identifying areas where the MoD are active and obtaining information on those activities
 - Providing information in terms of areas of interest to industry and generic device information to the MoD (e.g. device type, requirements for developments)
 - Identifying potential conflicts MoD activities (e.g. disruption of radar and sonar, collision risk)
 - We have developed a standard approach to consultation with the MoD

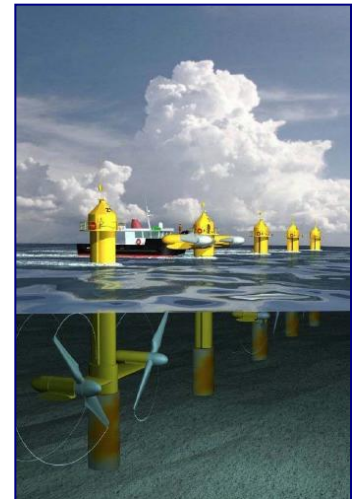


Purpose of Research

To increase understanding and awareness of known and predicted positive effects associated with marine renewables

Approach

- A need to understand the positive impacts associated with marine renewable developments was highlighted during the Stage 1 literature review and consultation process. The following steps have been completed:
 - Literature search
 - Workshop with representatives of local government, industry, academia and conservation bodies to discuss potential benefits and identify potential benefits not addressed in literature search
 - A review of methods to maximise any positive effects and, where feasible, an assessment to determine if/how such positive impacts could be used as mitigation



Approach

- Detailed consideration of the knowledge-base collated during the Stage 1 data collection, Stage 2 research studies and various consultations at different stages of the process will be used to:
 - Develop scenarios for sustainable renewable developments within Welsh waters
 - Assess how targets for renewable energy can be met, with consideration to existing constraints, identifying areas of preferred development.

Objective of the Framework

- To ensure benchmark targets for energy generation are met in a sustainable manner ensuring economic and social objectives respect environmental limits.





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