RiCORE

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WP 2	Deliverable **2.1**

Marine Renewable Energy Licensing and Regulatory Systems

Workshop 2 Report (Deliverable 2.1)

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Contents

Acronym List

AA – *Appropriate Assessment*

AAMP - *L'Agence des Aires Marines Protégées* [Agency for Marine Protected Areas]

AMETS – *Atlantic Marine Energy Test Site, Co. Mayo, Ireland*

CISE - *Common Information Sharing Environment*

EIA – *Environmental Impact Assessment*

EIS – *Environmental Impact Statement*

EMODnet - *European Marine Observation and Data Network*

EOWDC – *European Offshore Wind Deployment Centre*

EU – *European Union*

GIS – *Geographic Information Systems*

MRE – *Marine Renewable Energy (offshore wind, wave and tidal energy)*

MSFD – *EU Marine Strategy Framework Directive*

MSP – *Maritime Spatial Planning*

OREDP – *Offshore Renewable Energy Development Plan* (Ireland)

SAC – *Special Area of Conservation (EU Habitats Directive)*

SDM – *Survey, Deploy and Monitor*

SEA – *Strategic Environmental Assessment*

SNH – *Scottish Natural Heritage*

SPA – *Special Protection Area (EU Birds Directive)*

UK – *United Kingdom*

WFD – *EU Water Framework Directive*

1. Introduction

RiCORE is a HORIZON 2020 funded project which aims to promote the successful development of offshore renewable energy in the European Union by developing an environmental risk based approach to the consenting of marine renewable projects. This type of approach has been adopted in Scotland and is known as the Survey, Deploy and Monitor (SDM) approach.

The application and adaptation of SDM to other EU countries (France, Ireland, Portugal and Spain) is under analysis during the course of the RiCORE project activities. While it is recognised that each of these countries have their own planning and development legislation, it is also important to realise that a number of elements of the consenting process are derived from EU legislation. This includes, for example, the EIA Directive and Habitats Directive, which may result in regulators and developers having to conduct particular assessments and studies. Offshore wind, wave and tidal deployments will often require study of the same parameters to determine potential impacts but there can be variation in how these impacts are studied and monitored both before and after consent is granted. The adoption of a risk-based approach could ensure greater consistency in the application of EU legal requirements and, in the longer-term could have a positive impact on knowledge generated as well as costs.

Thus, the RiCORE project aims to design ways to accelerate and streamline the environmental requirements associated with consents for novel marine renewable technologies, including offshore wind, wave and tidal projects.

2. Workshop objectives, location and agenda

A series of workshops are planned throughout the RiCORE project. A first workshop was held in Bilbao in Spain on 21st April 2015. It looked at the environmental requirements which apply to projects, in particular monitoring requirements, both pre and post consent.

A second project workshop was held on 21st May 2015 in Paris (referred to as Workshop 2) to explore the regulatory aspects associated with marine renewable energy projects. The objectives set for Workshop 2 were to:

- Determine current national consenting practices, operational experiences and difficulties;
- Compare and contrast approaches to implementation of over-arching EU legislation such as EIA, Birds & Habitats Directives, etc.
- Introduce risk-based management approaches using the Survey, Deploy & Monitor (SDM) methodology as an example;
- Discuss the potential legal and regulatory issues potentially associated with implementation of a risk-based management approach, and
- Identify what is required to enable a risk-based management approach.

The workshop was divided into two parts. The Agenda for the workshop has been included at Annex 1. The first part of the workshop consisted of a series of presentations from various national experts setting out the process and difficulties currently experienced in the consenting of off-shore renewables. These presentations can be found at Annex 2. Workshop participants were then divided into three smaller groups for a first breakout session so that the consenting processes in various countries represented could be compared and contrasted, and any problematic issues or good practices identified.

In the second part of the workshop, Marine Scotland gave an introduction to the SDM approach. Participants were then asked to return to their smaller groups to consider

the benefits and drawbacks of SDM and how such a risk-based approach might be applied in countries other than Scotland.

This report presents an overview of the key topics covered at Workshop 2, and in particular the points raised during the two breakout sessions (referred to as Workshop 2 Report). The findings of the workshop will inform the future work of the RiCORE project, in particular Task 2.2 (Legal and institutional review of national consenting processes) and Task 2.3 (Legal feasibility for the implementation of a risk-based approach).

RiCORE Workshop participants

3. National Practices and Experiences

The first part of Workshop 2 consisted of a number of national presentations on consenting systems in selected EU countries, namely France, Ireland, Portugal, Spain and Scotland (United Kingdom). These presentations were prepared by the national invited experts and presented either by themselves or members of the RiCORE project team from that country. The slides from these presentations are included at Annex 1 of this report.

Following the national presentations, the workshop participants were divided into three breakout groups and asked to compare and contrast their experiences and identify issues of mutual concern. A summary of the common themes and issues identified is presented below.

3.1 Procedural aspects of consenting

In some Member States there is a lack of dedicated legislation for offshore renewable energy. Consequently attempts are made to apply existing legislation to marine developments and this is not necessarily a good fit. The groups highlighted the suitability of a "one stop shop" approach for the consenting of marine renewable projects such as in existence in Scotland, and were of the opinion that this would improve the consenting experience. Experience in Scotland indicated the 'before and after' effects of such an approach. Previous developers had to deal with many different regulators with regard to different permits whereas now there is a "one stop shop" to coordinate authorities and their varying requirements. This was also said to be the case in Spain where consenting of the Biscay Marine Energy test centre *(bimep)* took almost five years for two key reasons. Firstly, the multitude of authorities involved and consents required, and secondly, the fact that for many of the authorities involved this was their first experience of processing an application for a marine renewable energy development; consequently there was a steep learning curve for those involved.

The lack of specified timeframes for decision-making can hinder development. In Portugal, for example, there are fixed time frames for decision-making but in practice this has had limited success; if a response at one stage of development is delayed, the developer is unable to proceed to the next stage, which delays the whole consenting process. In Scotland, if all goes well consent should be granted in nine months (this is a policy target, not a statutory time limit), but in practice it may take longer and can be influenced by the specific aspects of a particular project. There needs to be a better balance between the needs of developers, stakeholders and regulators in the consenting process. In Scotland, there is a clear effort being made to meet specific time frames, even if it is not always achievable given the human and financial resources available to the regulator. The approach taken in Scotland is more holistic whereas, in other countries a more selective and sectoral approach is taken.

Presentations on consenting systems in France and Ireland

3.2 Guidance on consenting processes

A common issue identified was the need for a clear road map and guidance on the applicable consenting process in each country. It was recognised that each country was at a different stage of 'development' of marine renewables and this had profound consequences for the consenting system applied to those developments. Workshop participants were of the opinion that clarity and simplification of the consenting process was actually more important than the time taken to get the required licences. As marine renewable projects are still novel in a number of countries, it remains

unclear to developers and to stakeholders as to how decisions on such projects are actually made. The criteria or standards used to base decisions on are largely unknown to the public and missing in a number of countries. Uncertainties around (novel) technologies and site selection can increase the final costs of the projects and may also result in late changes to the project plan. In some jurisdictions, for example in Scotland, Marine Scotland has been very proactive in developing guidance documents to assist developers in navigating the consenting process and explaining how uncertainty is dealt with when making licensing decisions.

Presentations on consenting systems in Portugal and Spain

3.3 Project Planning

Flexibility in the planning system to incorporate changes in the technology or over-arching project plan was highlighted as an issue of importance in each Member State. In Portugal, projects tend to be planned in two distinct phases. Initially an outline of the project is given approval in principle and is valid for four years. Within that time more specific approval is sought and supporting studies undertaken as the exact specifications of the project become clearer. This is similar to the Rochdale Envelope[1] approach used in the UK. This is initially based on the worst case scenario so that the

[1] This idea is derived from two UK planning law cases: R. v Rochdale MBC ex parte Milne (No. 1) and R. v Rochdale MBC ex parte Tew [1999] and R. v Rochdale MBC ex parte Milne (No. 2) [2000].. It allows a project description to be broadly defined, within a number of agreed parameters, for the purposes of an application for consent. This enables an inherent level of flexibility to be included whilst the project is in the early stages of development. As the project progresses and more detail and certainty are available, further information regarding potentially impactful elements of the project can be provided.

regulators are aware of all possible impacts which over time can be downgraded as the project specification becomes firmer.

There was widespread recognition that marine and land planning systems do not always integrate well together and, in the context of marine renewables with specific onshore requirements, this needs to be addressed and an integrated approach fostered by regulatory authorities. It was clear from discussions within the breakout groups that whilst nested planning systems (where there is a hierarchy of related plans at national, regional and local level) exist in many countries these tend not to integrate offshore considerations and also highlight that the priorities for onshore and offshore areas often conflict. With respect to marine renewables specifically, grid connections are a major issue both in terms of onshore and offshore planning as well as EIA and AA considerations.

Presentation on the consenting system in Scotland

3.4 Role of Spatial Planning

Spatial planning was identified as being critical to enabling development of the marine environment in a sustainable manner. Different countries are at different stages of implanting MSP or a marine planning framework. In Scotland, for example, the marine planning system identifies areas that have appropriate resource, but does not guarantee consent in those areas. This can be contrasted with the approach taken in Spain where a zonal approach has developed: in the red zone, closest to the coast, nothing can be developed; in the yellow zone, developments are possible with certain

constraints, and in the green zone, development is permitted, but despite this approach, there is no integration of the resource opportunity and technology.

Participants were of the opinion that it is better for an investor to know the best areas for development in advance, specifically the areas that are acceptable for project development and the areas that are more sensitive and may have additional regulatory hurdles. Indications on a map that there are constraints in that area is not sufficient for a developer: it is necessary to actually specify where is the best area to plan and construct a project. This type of approach would have the added benefit of giving the developer the desired element of certainty in planning the project.

3.5 Strategic Environmental Assessment

In terms of the effects of EU legislation, it was generally felt that the SEA process should be going further than it currently does in order to give developers more confidence in the areas that are most suitable for development. It was suggested by some workshop participants that the outcome of the SEA should conclude with the identification and designation of preferred areas for development. Whilst some countries have conducted an SEA for marine renewables (offshore wind, wave and tidal) (e.g. Scotland and Ireland), other countries have focused specifically on offshore wind in their SEA (e.g. Spain), whilst others have not yet conducted an SEA and have no specific marine renewable energy plan.

In France, suitable areas for development are identified along with any conflicts of use and technical constraints in an area. This information is then presented and followed by a call for tender for specific projects on the suitable areas. In Spain there appears to be differences in SEA depending on who is the proponent of the plan: when it is a public entity that is planning to produce electricity, the Minister for Industry has indicated that this constitutes a private operation so it is not considered a public plan and not subject to SEA. In Portugal, a SEA has been conducted but this has not resolved all the issues because it was considered that some of the parties involved in the SEA process do not have a strategic vision. As a result, more of an impact

assessment approach has been adopted, which limits the utility of the Portuguese SEA in terms of forward planning. In Ireland, the Offshore Renewable Energy Development Plan (OREDP) was subject to an SEA. This identified the potential resource with all of Ireland's waters having a significant wind and wave energy potential but the OREDP itself has little or no spatial awareness. The result is that almost all of Ireland's waters were identified as suitable for development with all forms of assessment consequently being pushed down to development level.

It may be noted that to identify and characterise the most suitable areas for ORE developments, besides environmental conservation, usage and energy potential, other parameters need to be examined and preferable shared with developers, such as geotechnical studies. For example in Scotland, the Islay project had to be cancelled because it could not be adapted to existing geotechnical conditions, and in France several competing consortium for a tender had to undertake separate investigations in the same area for the Saint Brieux project – each of limited scope. As a result, the retained developer had to change foundation type late in the project, after appropriate geotechnical investigations were undertaken, which in turn modified the projected environmental impact of the project.

3.6 Marine Strategy Framework Directive

The Marine Strategy Framework Directive was identified as driving Member States towards producing regional plans as part of its implementation. This could act as a driver for more data collection which in turn could have a positive impact on marine planning. Currently, however, at a national level in most countries, the SEA is less useful as it collates existing information rather than generating new information to inform planning processes. Scale is also an important consideration. In Ireland, for example, there is no benthic habitat map for the country's marine waters and accordingly it is easier to map the constraints on a regional scale than at a national scale.

Participants emphasised that future offshore renewable energy projects need to be consistent with the requirements of MSFD and help Member States attain Good Environmental Status. For this reason, it was recommended that all long term monitoring conducted as part of consent conditions or project mitigation actions should be consistent with other long term monitoring necessary for compliance with other legal instruments, such as MSFD and WFD. Any data generated from monitoring at a project level should be made available to competent authorities as well as being interoperable and useable for MSFD purposes. This would help ensure that private developments contribute to the 'greater good' in terms of data provision, information sharing and knowledge generation. As some technical challenges persist in relation to how to monitor specific MSFD parameters it was suggested that existing offshore energy test sites could also be utilised to develop and test methodologies relating to certain parameters e.g. noise.

3.7 Environmental Impact Assessment

Along with a request for guidance on national consenting processes, was a call for updated and renewed guidance on Environmental Impact Assessment (EIA). Workshop participants recognised that much guidance exists already on EIA but that sometimes this is perhaps too vague to be useful or too prescriptive to be suitable to small scale, time-limited projects which are often the type of ocean energy project that is seeking consent. Guidance on what is required for an EIA must be proportionate to the development being considered/planned. It was stated that developers are often asked to gather, what they feel is, unnecessary or duplicated information e.g. a requirement to gather data on 'everything' in an area even if the development is unlikely to affect a particular ecosystem or have a significant environmental effect. In some cases, they have been asked to repeat work that has already been done.

Participants felt that there is a definite need to re-focus attention back to where a significant impact is likely, though it was also submitted that this can conflict with the regulators' need to have certainty when making a decision. Regulators may see EIA as an opportunity to gather data for future use, but that is not immediately of use to the

developer who is paying for it. It was stated by many participants that the more baseline data available before beginning the consenting process, the better as this can help to alleviate concerns at an early stage of the process.

Some participants were of the opinion that as the EIA Directive was introduced when the only viable offshore renewable technology was wind, the EIA Directive does not incorporate wave, tidal or solar energy in a suitable way. In both Portugal and Spain different legislation is applied to wave and tidal energy. The sentiment was that an opportunity was missed recently when the EIA Directive was reviewed and amended as Annex II still does not explicitly include these newer technologies. Concern was expressed over the utility of past EIAs and how its long history of application to projects have influenced consenting processes or if they will in future. Developers are sometimes told that a comprehensive EIA will lead to less environmental monitoring in their next development location but developer opinion would suggest that this has not been their experience.


Workshop participants discuss their experiences of consenting process for MRE

In France, a project is due to be launched in 2016 which will collate environmental data into a single place so as to facilitate sharing via a single portal in standardised and acceptable formats. Participation in this project will be voluntary and is dependent on a willingness to share information. One issue that has arisen to date is access rights for users of the data. Fisheries data in particular has been problematic as it is viewed as commercially sensitive. In the longer term, it may be possible to merge the collated

data with publicly available data that has been gathered by French agencies in, for example, a GIS which could then be used to inform planning and project activities. At EU level, it was suggested that the role of public platforms to share information needs further exploration, particularly existing platforms like the Common Information Sharing Environment (CISE) and European Marine Observation and Data Network (EMODnet).

Public funds are needed not only to enable the deployment of ocean energy projects, but also to assume part of the costs relating to EIA studies that are currently paid for entirely by developers. All EU Member States governments want renewable energy so there is a need for sharing the burden and risk between governments and developers. Importance was also placed on the need for an integrated EIA process that would include both the offshore and onshore elements of a projects being included in a single EIA. Experience from Ireland and Scotland indicates that in some cases the offshore EIA has been successfully completed with the onshore EIA causing problems later in the project's realisation. This was experienced during the planning of the European Offshore Wind Deployment Centre (EOWDC), in Aberdeen Bay on the east coast of Scotland, where initially the plans for onshore works, including a substation, were blocked by Aberdeenshire Council. This was overturned on appeal. Developers in Scotland are now able to apply for deemed Planning Permission for the onshore elements of their development at the same time as applying for their consent for the offshore elements, which may help to mitigate against such a situation in future.

Lastly, in situations where tenders are organised in pre-designated areas, such as the case in France, the EIA occurs late in the project, after the developer has been chosen and the main characteristics of the project defined, resulting in increased difficulty to implement changes in the project design (stop or go situation).

3.8 Birds and Habitats Directives

In terms of requirements resulting from the Birds and Habitats Directives, these were cited to cause problems in many countries. In Scotland, it is the main blocking point for

many projects specifically because of need to satisfy the test of “best scientific knowledge” and “no reasonable scientific doubt” which are very difficult to demonstrate in the offshore environment. In Spain, there is a tendency to avoid going into designated sites completely. In France, due to the number of designated sites it is inevitable that some renewable energy projects will be sited within the protected site boundaries or have an impact on them. In Ireland, a very precautionary approach is taken to applying the requirements of the nature conservation legislation and is perhaps attributable to the country’s poor record in implementing EU environmental legislation. In Spain and Ireland, retrospective designation of sites as SACs (and SPAs) has created significant delay and additional requirements in development sites that had already gone through the EIA process (at *bimep* and AMETS respectively). In Portugal, land habitats have been designated but marine areas hosting protected species have not been designated, though this can happen on a case by case basis. Conservation objectives for sites are still being defined in Ireland, Scotland and Spain but in France this process is on-going.

The requirements of the Habitats Directive in relation to Appropriate Assessment and monitoring can suppress the very idea of a project if a developer cannot prove there will be no significant impact in the initial stage. The level of monitoring required to definitively ‘prove’ this mean that from a developer's perspective the project is simply not worth progressing. Given the high proportion of coastal and marine designated sites in some EU countries it is critical that Governments of Member States invest in gathering data and conducting survey work.

3.9 Public Participation

With respect to the requirements for public participation it was stated that it is easier to secure the participation of the public at regional level rather than national level. This should, in theory, make the developer’s requirements easier to fulfil. Project location is a key influencing factor here with participants explaining that beyond 12 nautical miles, many of the other users of the waters are international and so much more difficult to engage in the planning and development process.

3.10 Summary of Key Issues

- Uncertainty regarding roles, processes, application and interpretation of legislation across all participating Member States.
- Fragmentation between Government Departments and lack of synergy with on-shore planning.
- Co-operation, co-ordination and communications mechanisms between authorities.
- In terms of processing of consent applications the “one-stop shop” approach works well in Scotland.
- Guidance is needed to support and inform the consenting process.
- There is a perception that different countries are implementing certain EU legislation more strongly than in others. In the UK, for example, there are examples of refusing consent because of bird issues, deriving from the EU Birds Directive.
- Coherency across nations and consistency within countries. Regional authorities within a country may implement legislation at a different threshold level to attract projects to their region leading to a lack of consistency in approach at national level.
- EIA is too formulaic – does not help to clarify uncertainties – has to be completed rather than providing information to inform process / shape future processes.
- Regulators are reluctant to set the level of acceptable impacts, which can be subject to local specificities.
- It would be helpful if there was a mechanism to transfer knowledge from one country to another especially regarding priority species e.g. Harbour Porpoise.
- Clear need for improved datasets – accessibility and interoperability of data is an issue.
- There can be tension between the regulator’s requirement for tight project envelopes as early as possible, and developers who require flexibility particularly as technology can evolve or need amendment quickly.

- The perception that MRE is experimental rather than commercial still persists in some countries.

Group discussions on national consenting systems

4. Applicability of a risk-based management approach

The second part of the workshop commenced with RiCORE project partners from Marine Scotland presenting the Survey, Deploy and Monitor (SDM) approach developed and applied by them to wave and tidal energy projects. They explained that SDM is based upon three main factors: the environmental sensitivity of the proposed development location, the scale of the proposed development and the device or technology classification. As well as explaining the various elements of the approach, the presentation provided some worked examples of its application to real-life projects, including the Aegir wave farm and Meygen tidal energy projects in Scotland.

During the second breakout session, participants were asked to discuss the feasibility of incorporating a risk-based approach such as SDM into their own national practices, any key potential issues associated with such an approach and future implementation options. The key issues that emerged from the discussion are outlined below.

4.1 Monitoring

There is widespread variation across the EU in terms of what monitoring information is required for offshore energy projects. In Ireland the problem in the marine environment is always the lack of data, so developers always have to submit two years of data. There are no national baseline databases to accelerate the process. If there were specific areas in Irish waters that had reliable baseline data, then the SDM approach would be easier to implement. In France there is no strict policy on the amount or length of monitoring required. Generally two years of data are requested for major projects and one year for smaller projects but this is not based on any legal or policy requirement, it is derived more from customary practice. The Préfet has the discretion as it issues the licence up to 12 nautical miles offshore and beyond that it is the Préfet Maritime that issues the licences for activities located more than 12 miles offshore.

In Portugal, one year of monitoring data is requested for all projects. The regulator then makes an evaluation of the data and establishes whether any additional information is required. This approach does not derive from law but also from custom. In Spain, the monitoring studies required are decided on a case-by-case basis at the scoping stage and will ultimately depend on the scale of the project and the specific location of the project. The developer will then conduct the appropriate studies. There is no standardisation of what studies are required, and usually it is the administration that grants the permit who will determine what monitoring is to be conducted. Rarely would pre-consent monitoring necessitate a year of data collection, usually it would be less. In Ireland and the UK, there appears to be greater similarity between onshore and offshore requirements: usually what would be required for a development on land will also be required for a project offshore.

One way to address the data issue, in the longer term, is through the continued implementation of key pieces of EU legislation. Under the Water Framework Directive and Marine Strategy Framework Directive, Member States are obliged to report on the status of various water bodies so theoretically monitoring data should be available for project planning purposes. There will still be data gaps given that both these instruments focus primarily on water quality. Seabed mapping undertaken for the purposes of this legislation may focus exclusively on the presence of particular habitats and species and not bathymetry, which would be of more relevance to developers and for marine planning generally. This can have pronounced consequences for developers who could be expected to fill the [national] data gaps.

4.2 Benefits of Survey, Deploy and Monitor Approach

SDM was considered by the workshop participants to be a beneficial policy to have in place, and would provide a systematic way of making decisions on offshore renewable projects. It would also add focus to monitoring activities which was viewed as being very beneficial overall. Generally developers will have budgeted money to conduct monitoring so it is sensible to concentrate monitoring studies on the impacts that are most likely. It was also stated that implementation of such a policy could assist

developers in explaining projects, and decisions made on them, to the public and other interested stakeholders. Active public participation could be sought from key stakeholders when deciding the weightings of the different layers of the maps used in SDM. Whilst it could be difficult to gain consensus during such a process, ultimately it should give tangible elements demonstrating to each category of user that 'their' data layer has been integrated, and hence contributed to the decision-making process.


The applicability of a risk-based management approach is discussed by participants

Workshop participants were of the opinion that implementation of SDM could help address some of the recognised flaws within the EIA process. In Portugal, for example, scoping is not obligatory and the first time the competent authority meets the developer is when he/she is submitting their application for consent. This needs to be changed so that developers working in a Portuguese context benefit from the expertise of the regulators earlier in the consenting process. SDM was thought to assist with this. A similar situation exists in Spain, where there is no mandatory scoping stage for Annex I projects and the decision is left to the developer. This can be contrasted with Annex II projects, where scoping is mandatory. In France, Ireland and Scotland, there is compulsory pre-application consultation where the developer liaises with the regulator early in the process. In Scotland pre-application consultation is compulsory for certain types of marine licence applications and though it is not compulsory for consent applications, it is normal practice. In Ireland, however, the formal requirement of monitoring comes only after the submission of the EIA and is attached to the

consent granted, usually with stipulations as to what and how much monitoring is required.

4.3 Possible problems associated with the Survey, Deploy and Monitor Approach

A key concern expressed during the workshop was that many Member States do not have the necessary data to prepare the environmental risk maps needed to implement SDM in the same way as Scotland. Some countries are unable to map their offshore protected areas. There was also some concern about how “buy in” could be obtained from the public and stakeholder groups regarding the weightings of the different layers used in the SDM model.

Regardless of the availability of data in specific Member States, a broader issue of concern relating to the implementation of SDM was whether sufficient knowledge exists about offshore areas to be making development decisions that could potentially have major impacts, augmented by the uncertainties associated with novel technologies. There could be a risk of over-simplification of the decision-making process. One suggestion mooted was to validate the process by scientific experts first. It could be time consuming to gather data, particularly where there are gaps. Issues of scale also come in to play here. In France, for example, there are three maritime regions with very different characteristics each with their own data gaps and so it would be difficult to build reliable sensitivity maps to be used as a basis for decision-making.

Constraints may not be solely environmental or ecological but are also linked to different competencies such as maritime traffic and urban planning. There may be difficulties in integrating all these issues and weighting them in one system. SDM as implemented in Scotland is based on three elements – project size, device risk and environmental sensitivity. There may be an issue with duplication of environmental items in both the environmental constraint map and the device risk checklist which could lead to them being double-counted. Some participants felt that the checklist

should also include non-biological factors such as cultural heritage and that the checklist is biased towards biological parameters. This could have the effect of improving the overall score with other low-risk scores and potentially masking larger issues. Overall it was felt that SDM, as described, was best suited to small scale, low risk projects and act as an important first step in giving guidance to developers. It is worth noting that this was the original aim of Marine Scotland, who developed SDM to accelerate consenting processes for small scale, low risk projects.

4.4 Compatibility with Existing Processes

The SDM approach appears to be compatible with the existing consenting systems in France, Portugal and Spain since these countries already have a risk-based approach albeit implemented informally or through their administrative system. On occasion, onerous monitoring activities will still be attached as conditions to the licence granted, even if it is just a pilot project (e.g. Windfloat project in Portugal). Participants felt that SDM could be incorporated into the existing processes in these countries either in a formal manner or an informal manner. In France, the *L'Agence des Aires Marines Protégées* (AAMP) [Agency for Marine Protected Areas] already utilise a matrix approach which enables risk assessments for individual species or receptors to be conducted and then uses the maximum impact level as a basis for decision-making, rather than the geometric mean method used in SDM. Some participants were of the opinion that the geometric mean was not the most suitable method as this calculation gives the same importance to each individual component. The French method may reduce costs by concentrating survey work on the most important species/habitats rather than all of these. However, it was noted that concentrating efforts on a particular species might save money for a project developer, but not necessarily overall project development time.

As a first step to decide whether SDM could be compatible with existing processes, it would be necessary to determine what existing data are available in each Member State. There appears to be a joined-up approach in Scotland with other statutory agencies, such as Scottish Natural Heritage (SNH) which is actively involved in

designing and implementing SDM but this might not be the case in other countries. It was clear from the overview presentations on national consenting processes that there are a multitude of regulators involved in consenting marine energy developments and often communication and cooperation between these entities can be severely lacking.

Implementation of the MSFD and MSP Directives could help address some of the data gaps that need to be filled before successfully implementing SDM but this is a long term action. Not all countries have marine planning systems in place as yet and accordingly their influence and role in instigating additional data collection or collation of existing data is likely to continue on a less formal or *ad hoc* basis. Resources, both human and financial, are a major limiting factor in most Member States.

4.5 Summary of Outcomes

- All consenting processes still apply, SDM merely guides on what pre-consent environmental information may be required. It does not impact upon the number of consents needed.
- Maps generated for SDM might reveal potential issues early on, which would assist developers in planning their projects.
- SDM may not offer sufficient certainty to enable developers to convince backers of the viability of the project.
- Some concerns about the status of SDM, namely that SDM is solely a policy document and it cannot give certainty.
- SDM can offer developers of small, low-risk projects a reasonable possibility that only one year of survey work will be required.
- SDM is not suitable or should not be applied to large-scale (mega) projects.
- The possibility of a competent authority funding part (or all) of the pre-consent survey work should be further explored.
- SDM could act as a way of transferring knowledge from developers to regulators with respect to novel technologies, thereby enabling better and more scientifically-based decisions to be made going forward.

5. List of annexes

Annex 1 – Presentations on National Perspectives

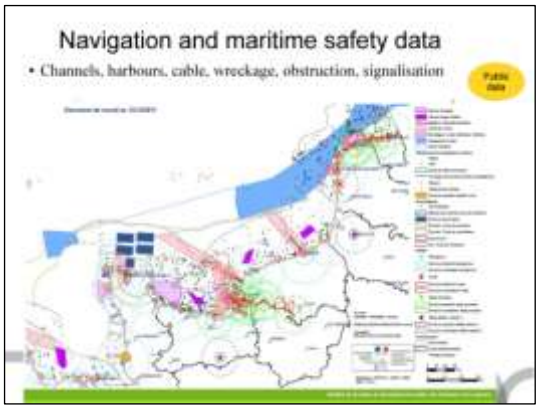
- France by Philippe Sergent, CEREMA
- Ireland by James Massey, RPS Consultants
- Portugal by Margarida Almodovar, Director General of Sea Policy
- Spain by Juan Bald, AZTI
- Scotland by Paul Smith & Ian Davies, Marine Scotland

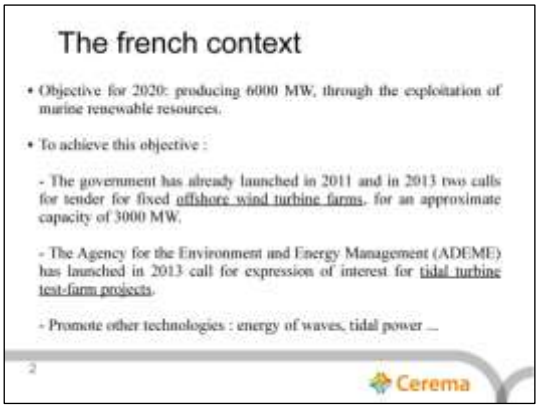
Annex 2 – Survey Deploy and Monitor Presentations

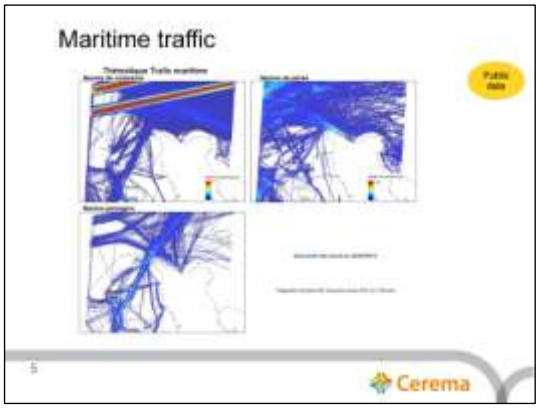
- Marine Scotland by Paul Smith & Ian Davies, Marine Scotland Science

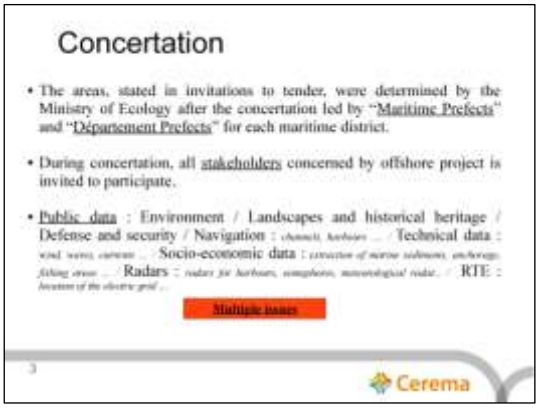
Annex 1 – Presentations on National Perspectives

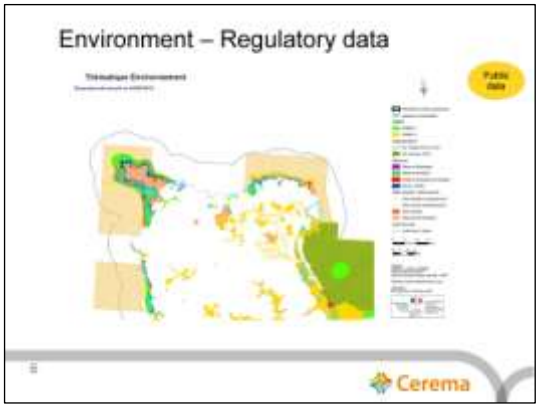
FRANCE

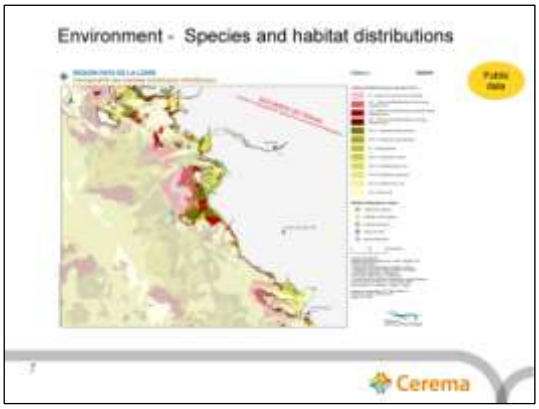


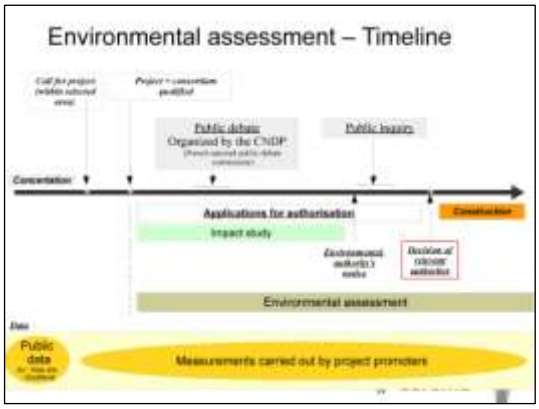


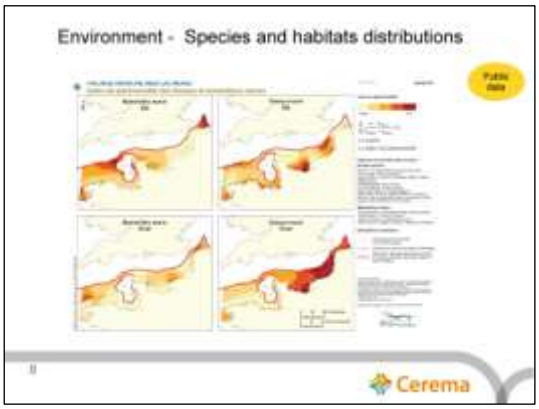




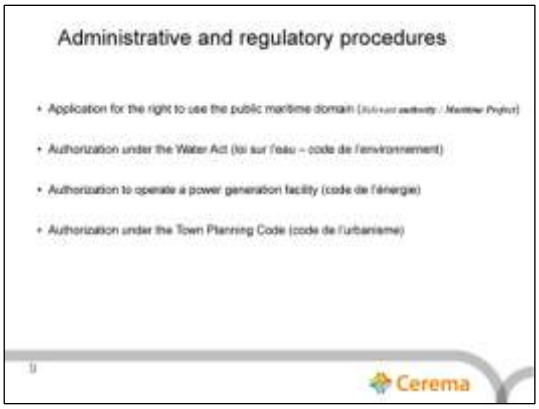


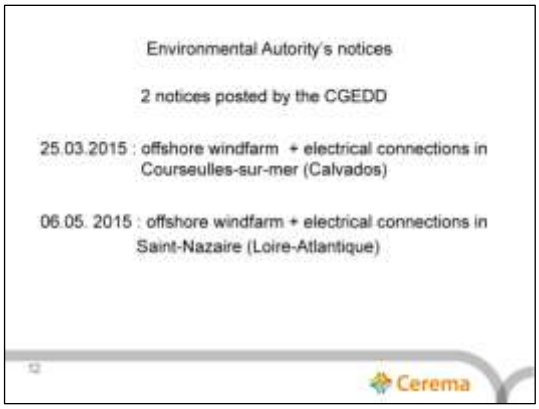

Environment - Species and habitat distributions
Public data
Cerema

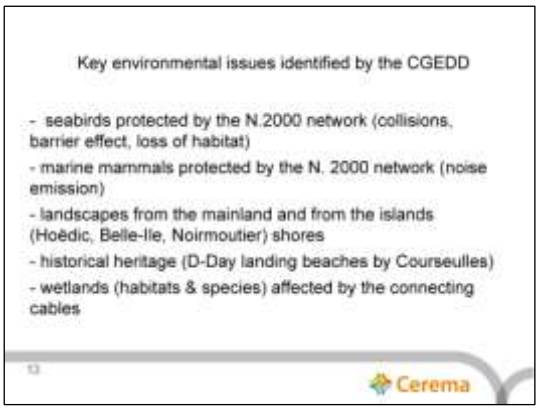

Environmental assessment – Timeline
Public debate
Organised by the CNDP
Public inquiry
Concertation
Applications for authorisation
Construction
Impact study
Environmental assessment
Public data
Measurements carried out by project promoters

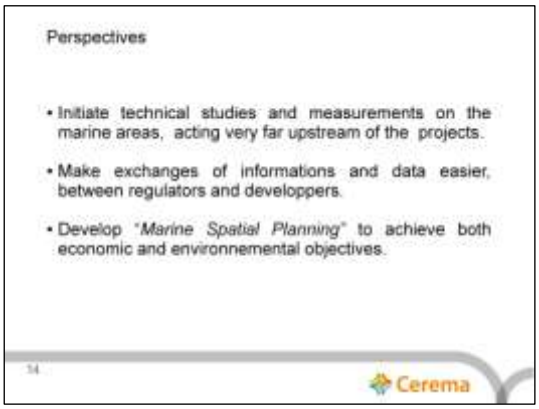

Environment - Species and habitats distributions
Public data
Cerema


Environmental assessment
Role of the environmental authority
Project manager starts the impact study
Preliminary focus
Filing of the impact study
Environmental Authority (CGEDD)
Environmental Authority's notice
- file of the public enquiry
- non-biding
Cerema


Administrative and regulatory procedures
• Application for the right to use the public maritime domain
• Authorization under the Water Act (loi sur l'eau – code de l'environnement)
• Authorization to operate a power generation facility (code de l'énergie)
• Authorization under the Town Planning Code (code de l'urbanisme)
Cerema


Environmental Autority's notices
2 notices posted by the CGEDD
25.03.2015 : offshore windfarm + electrical connections in Courseulles-sur-mer (Calvados)
06.05. 2015 : offshore windfarm + electrical connections in Saint-Nazaire (Loire-Atlantique)
Cerema

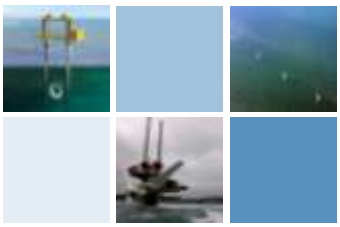

Key environmental issues identified by the CGEDD
- seabirds protected by the N.2000 network (collisions, barrier effect, loss of habitat)
- marine mammals protected by the N. 2000 network (noise emission)
- landscapes from the mainland and from the islands (Hoëdic, Belle-Ile, Noirmoutier) shores
- historical heritage (D-Day landing beaches by Courseulles)
- wetlands (habitats & species) affected by the connecting cables
13
Cerema


Perspectives
• Initiate technical studies and measurements on the marine areas, acting very far upstream of the projects.
• Make exchanges of informations and data easier, between regulators and developpers.
• Develop "Marine Spatial Planning" to achieve both economic and environnemental objectives.
14
Cerema

Annex 1 – Presentations on National Perspectives

IRELAND

RPS



RiCORE-Project
21st May 2015
Paris Workshop

Irish Offshore Renewable Licencing

Dr James Massey
RPS Group

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RPS

The Ocean Energy Strategy

- **Phase 1 Development: (2006 – 2008) institutional and industrial. Support for the design and construction of scale model prototypes, support will be given to strengthen research facilities, and to develop offshore test facilities.**
- **Phase 2 Pre-Commercial Single Device:(2008 – 2012) constructing a fully operational pre-commercial wave energy converter supplying power directly to the electricity network.**
- **Phase 3 Pre-Commercial 10MW Array: Unless the devices can be arranged effectively in an array, large scale deployment**
- **Cost benefit and regulatory assessment.**
- **Phase 4 Commercial Deployment:**

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Ireland

- **National Strategy and Policy**
- **Current Activity**
- **Licencing and Consenting**
- **Issues and Uncertainties**

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RPS

Offshore Renewable Energy Development Plan 2015

- **Acknowledging the current state of readiness, the targets from the Strategy**
- **New targets**
  - Robust Governance structure for ODREP – to be complete 2014, reviewed in 2017 and 2020
  - Increase Exchequer support for Ocean Research, Development and Demonstration Sites
    - AMETS (2016)
    - Galway SmartBay
    - Cork Test Site
    - IMERC, 2016
    - Beaufort Laboratory, 2015
    - Prototype Development Fund, 2016
  - Initial Market Support Tarrif for Ocean Energy (2016 – €260/MWh up to 30MW)
  - Export Markets, 2014
  - Supply chain for Offshore Renewable Industry
  - Communication – Open for Business
  - International Collaboration
  - New Planning and Consenting System (2015)
  - Environmental Monitoring
  - Infrastructure Development

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Marine Renewable Energy

- **Irelands Ocean Strategy, Irelands Energy Policy (White Paper and Green Paper), Sea Change, Horizon 2020**
- **EC Directives**
- **Renewable Energy Policy**
- **Policy Drivers**
- **Policy Support Mechanisms**
- **Policy Initiatives**
- **Policy Indicators and targets**

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RPS

Current Development

- **Existing consents for MRE Projects in Irish waters**
  - *Offshore Wind*: **Two leases** are in place for the development of Offshore Windfarms at the Arklow Bank and the Codling Bank in the Irish Sea.
  - *Offshore Wind*: Arklow Phase 1 has been developed – seven turbines – 3.6 MW
  - *Offshore Wind* – following some site investigation works, Codling Bank, Arklow Phase II and Kish Bank were tendered but not awarded for 24 month baseline surveys (also First Flight – NI)
  - *Tidal Energy*: To date, no licences have issued for tidal energy projects.

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Current Development

- **Existing consents for MRE Projects in Irish waters**
  - *Wave Energy*: A **site investigation licence** was issued to Sustainable Energy Authority Ireland (SEAI) for the purposes of exploring a site off Belmullet, Co. Mayo as a testing facility for full-scale wave energy devices.
  - *Wave Energy*: A **site investigation licence** was issued to CETO Wave Energy Ireland to assess the suitability of a location for the development of an electricity generation station using wave energy between Freagh Point and Spanish Point in County Clare.
  - *Wave Energy*: **Site investigation licences** have issued to ESB Energy International Ltd in respect of the WESTWAVE project at Achill Island, Co. Mayo and Killard, Co. Clare.

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Other Licencing

- **Construction and operation of an electricity generating station, Commission for Energy Regulation (CER)**
- **Grid Connection – Electricity Supply Board Networks / EIRGRID**
- Permit to search for archaeology
- Foreshore permits for actions in the foreshore including site investigation, survey, deployment of equipment
- Seismic and geophysical survey is regulated for energy under the Oil and Gas legislation. Site investigation is exempt, but drilling is covered under EIA regulations
- **The Department's current position of not accepting new Offshore Renewable Energy (ORE) applications other than those for site investigation and demonstration projects will remain in force for the foreseeable future (DECLG, February 2014)**

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Licencing in Ireland – inshore

- The laying of subsea cables within the Irish Inshore Region (0 – 12 nm) would require a Foreshore Licence under the Foreshore Acts 1933 – 2009 from the Minister for the Environment, Community and Local Government;
- The development of an offshore array and sub stations within the Irish Inshore Region (0 – 12 nm) would require a Foreshore Lease under the Foreshore Acts 1933 – 2009 from the Minister for the Environment, Community and Local Government;

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Legislation and Issues identified in ISLES

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Licencing in Ireland – offshore

- The laying of cables / development of an offshore sub station within the Irish Offshore Region (12 - 200 nm) would require the consent of the Minister of Communications, Energy and Natural Resources under the Continental Shelf Act, 1968.
- The laying of cables / development of an offshore array and sub stations within the Irish Offshore Region (12 - 200 nm) would require the consent of the Minister of Communications, Energy and Natural Resources under the Continental Shelf Act, 1968 – **however, there is no identified licensing system or competent authority**

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EIA and AA

- **EIA follows international best practices.**
- **National guidance based on terrestrial planning**
- **Appropriate Assessment required**
- **EIA process can be lengthy and has several Depertments with equal consent / veto rights**
- **Includes several public consultation periods and requirements**
- **Likely EIA time – 18 months.**
- **Survey requirements are only stipulated after EIA review in the RFI process.**
- **Survey requirements are not stipulated (currently following 24 months for sensitive species and international guidance – COWRIE, OSPAR etc.)**

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EIA and AA

- **Natura sites can be included up to significant distances (150km) for marine projects**
- **Stage 1 (Screening) and Stage 2 (Impact Assessment and Mitigation) only. No case history of accepted compensation.**
- **EIA / AA process must include Article 12 (Annex IV) species assessment for the marine.**
- **Baseline Acoustics - modelling of constructions and operation and realtime acoustic monitoring likely to be required.**
- **Real-time current and turbidity monitoring likely**
- **No case history for licence or Derogations for disturbance. Disturbance includes behavioural response of individuals.**
- **DAGH (2014) guidelines.**

Possible Solutions

- **Inclusion of near shore potential in Local Area Plans and Strategies**
- **ESB purchasing method**
- **Local area schemes of island communities**
- **Completion of the Westwave, AMETS and SmartBay infrastructure.**
- **Government lead / backed projects (SID – streamlined conscenting)**
- **Introduction of Marine Spatial planning areas**
- **Legislative reform**
- **Identification of marine renewables in Government research strategy.**
- **MARIE, Beaufort, Test site complex**
- **Tariff issues**
- **Completion of interconnectors (France and UK)**

Issues

- Currently, there is no overarching planning or marine management system operating seawards, a number of authorities are 'co-custodians' of the marine environment.
- No planned MSP, no existing ICZM
- Multiple permissions are required for an application.
- A streamlined system is identified as a goal of the ODREP.
- The Maritime Area and Foreshore (Amendment) Bill 2013 which devolves some powers to LA and clarifies issues is still to be presented to the Dail (Irish Parliament)
- The existing systems are relatively untested.
- Despite announcements of technology neutral permissions for SmartBay, AMETS and Westwave, permissions only cover infrastructure or site investigation activities.

Current Progress

- **Test sites in construction**
- **Beaufort, IMERC and MAREI centres**
- **SEAI – developing EIA guidelines for Offshore renewables**
- **ODREP SEA completed**
- **IOSEA5 completed acknowledging renewables**
- **Maritime and Foreshore Act on government agenda 2015**
- **Ireland UK interconnectors (Moyle and East West) operational**
- **Ireland France interconnector at final route selection stage**
- **AMETS and Westwave completing baseline surveys.**
- **Northern Ireland commercial tidal (Torr Head) progressing – (EIRGRID are a major stakeholder).**

Uncertainties

- Tariff
- Monitoring baseline (default to UK requirements)
- Permitting without statutory deadline
- Unclear procedures
- SAC and SPA interactions – Precautionary Principle
- Process of EIA and AA can be extremely difficult and lengthy without clear ability to identify risks at early stages (based on terrestrial renewable experience (2 years + monitoring and 18 months consenting))
- No clear guidance of requirements – monitoring, SEIA, HIA
- Uncertainties not limited to renewables in the marine consenting

Conclusions

- **As the industry is less developed - leads will be taken on consenting, monitoring and EIA requirements from adjacent jurisdictions.**
- **Clear EU level guidelines on any of these areas will be adopted or adapted for Irish development.**
- **Lack of consenting certainty is due to lack of demand on proposed systems.**
- **As test site infrastructure (and procured generation sites) are completed, expected rapid increase in applications and therefore clear development of regulatory systems.**
- **Not currently commercially viable to wider generation industry without resolving the tariff issues.**

Annex 1 – Presentations on National Perspectives

PORTUGAL

I. **The legal regime applicable to the preparation, amendment, revision and suspension of the instruments of spatial planning of the national maritime space;**

SOME EXEMPLES – Renewable Energies

ALLOCATION PLANS – Private Initiative

The usage is not provided in the situation plan?

The interested party can make an application for the preparation of the Allocation Plan

Allocation Plan

Objectives and the reasons for drawing up the allocation plan
Geo-spatial representation of spatial and temporal identification of uses and activities to develop.

planning contract

title

Maritime Spatial Planning Instruments

SITUATION PLAN (Public initiative) Approved by a Government decree
identification of marine environment protection and preservation sites and the spatial and temporal distribution of current and potential uses and activities
Strategic Environmental Assessment

ALLOCATION PLANS (Public or private initiative) Approved by a Government decree
For different uses and activities of national maritime space areas or volumes (compatible or made compatible with the situation plans)
Evaluation of the effect of plans on the environment, in accordance with what is legally approved Environmental Impact Assessment

SITUATION PLAN

Existing Potential

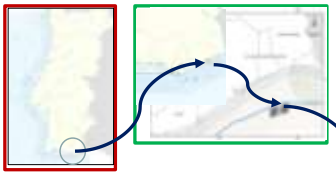
ALLOCATION PLANS

Use or activity
(proposals)

when the allocation plan (private initiative) is approved the permit shall be granted

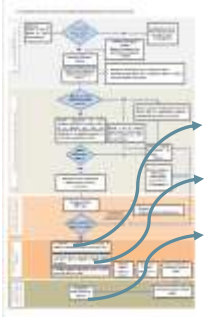
SOME EXEMPLES – AQUACULTURE

ALLOCATION PLANS – Public Initiative



- Characterization of the area (oceanographic characteristics, physico-chemical, biological, sea floor, currents, tides, depths
- compatibility with other uses and activities (fishing, tourism, shipping, etc.).
- natural and cultural resources,
- environmental assessment impacts
- Land-sea interaction (land support áreas)

ALLOCATION PLANS – Private Initiative



Elaboration:

Is the private initiative is welcome by the public entities the planning contract is celebrated.

The Allocated Plan is developed by the private entity (art.° 20.° a 25.°) and submit to the responsible public entity

Approval – title for the private use of the ublic domain

The Allocation Plan is approved by a Government decree and is automatically integrated on the Situation Plan

ALLOCATION PLANS
Conflict between uses or activities

Good Environmental Status Marine waters and Coastal Zones

1. Greater economic advantage

2. Maximum coexistence of uses or activities.

Possible Realocation of Uses and Activities

- **To another area with equivalent conditions**
- **Cost are supported by the responsible for the realocation**

- **Number of jobs;**
- **Qualification of human resources;**
- **Volume of investment;**
- **Economic viability of the project;**
- **Prediction of outcome;**
- **Contribution to sustainable development;**
- **Creating value;**
- **Expected synergies in related activities;**
- **Social responsibility of stakeholders**

II. The legal regime applicable to titles of private use of national maritime space;

iii. One-stop-shop

The legal regime applicable to titles of private use of national maritime space

Titles for the private use of Maritime Space

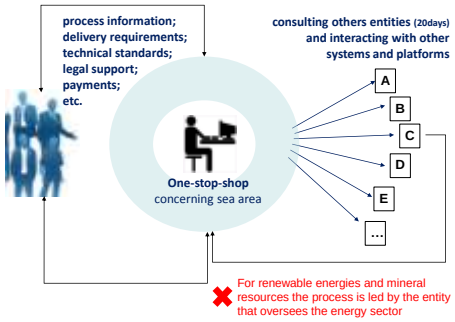
Common use - is not subject to a title of spatial use

The national maritime space is for public use and benefit, particularly regarding their leisure functions.

Private Use – space is carried out under a title of use

The private use of the national maritime space is permissible, subject to the reservation of an area or volume, for the development of marine resources, means or ecosystems services usage, resulting in greater public benefits than that obtained by the common use.

One-stop-shop - simplifying procedures



For renewable energies and mineral resources the process is led by the entity that oversees the energy sector

The legal regime applicable to titles of private use of national maritime space

Titles for the private use of Maritime Space

Private Use – space is carried out under a title of use

Authorizations	Licenses	Grant
Pilot projects for new uses or technologies, or activities that are not of a commercial	the temporary, intermittent or seasonal private use has a maximum duration of 25 years)	Prolonged and uninterrupted use, lasting more than 12 months. < 50 years

- Reconstitution of the altered physical conditions that do not result in a benefit
- Adoption of the necessary measures for the maintenance of the good environmental status of the marine environment and coastal areas
- Coordination and articulation with other licenses or titles (i.e. activity)

THANK You!

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Annex 1 – Presentations on National Perspectives

SPAIN

Expert Workshop 2. Dealing with the risk of licensing marine renewables: the role and experience of regulators
Thursday, May 21st, 2015 – Paris, France

CONSENTING PROCESS FOR OCEAN ENERGY IN SPAIN

Juan Bald and Iratxe Menchaca
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Herrera Kaia, portualdea z/g, 20110 Pasaia (Spain)
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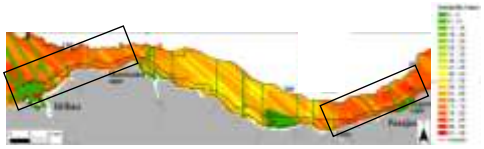
This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 646436.

MSP | CONSENTING PROCESS | EIA | CHALLENGES

In Spain there is no a specific MSP policy for wave and tidal projects….but……

Galparsoro, I., P. Liria, I. Legorburu, J. Bald, G. Chust, P. Ruiz-Minguela, G. Pérez, J. Marqués, Y. Torre-Enciso, M. González, A. Borja, 2012. A **Marine Spatial Planning** approach to select suitable areas for installing wave energy converters on the Basque continental shelf (Bay of Biscay). *Coastal Management Journal*, 40: 1-19.



Expert Workshop 2. Dealing with the risk of licensing marine renewables: the role and experience of regulators
Thursday, May 21st, 2015 – Paris, France

- Marine Spatial Planning
- Consenting process
- EIA
- Challenges

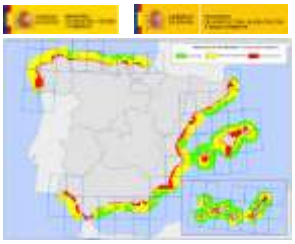
This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 646436.

MSP | CONSENTING PROCESS | EIA | CHALLENGES

For offshore wind projects….

After been subject of evaluation according to the Law 9/2006 of SEA

In 2009, the Strategic Environmental Study of the Spanish coasts for the installation of offshore wind farms (http://www.aeeolica.org/uploads/documents/562-estudio-estrategico-ambiental-del-litoral-espanol-para-la-instalacion-de-parques-eolicos-marinos_mityc.pdf)



RESULTS

- Exclusion zones (Red) 62%
- Areas with some environmental restrictions (Yellow) 34%
- Suitable Zones (Green) 3%

MSP | CONSENTING PROCESS | EIA | CHALLENGES

- Marine Spatial Planning and Strategic Environmental Assessment have been identified as tools which can support and inform future consenting of ocean energy projects.
- Some countries are in the process of developing MSP systems and others have already zoned sea areas for marine renewable energy development

MSP | CONSENTING PROCESS | EIA | CHALLENGES

In Spain no dedicated consenting process exists for ocean energy technologies

The consenting process is based on **three main legal instruments**:

- **Royal Decree 1028/2007** establishes the administrative procedure for processing applications for electricity generating facilities in territorial waters
- **Law 21/2013**, December 9th, on Environmental Impact Assessment
- **Law 2/2013**, of 29 May, for protection and sustainable use of the coast

RiCORE

ricore-project.eu

MSP | CONSENTING PROCESS | EIA | CHALLENGES

The **Ministry of Agriculture, Food and Environment**, through the Directorate General of Coasts - is in charge of the authorizations and concessions regarding the occupation of maritime-terrestrial areas

The **Ministry of Development**, through the Directorate General of Merchant Navy - authorizes the precise activities when they affect maritime safety, navigation and human life at sea

The **Ministry of Industry**, through the Directorate General for Energy Policy and Mines is the decision-making body and it is responsible for granting the administrative authorization

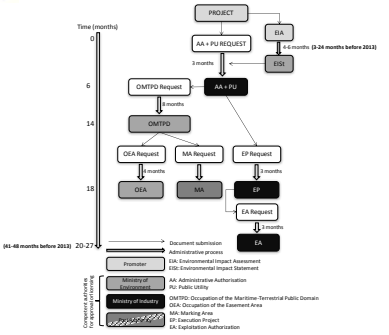
Regional governments can participate in the process depending on their competences. In particular, regional governments (there are 17 in Spain) are the decision-making bodies when the site is in internal sea areas (i.e. sea areas lying between two capes)

MSP | CONSENTING PROCESS | EIA | CHALLENGES

Consenting is still regarded as a non-technological barrier to the progress of marine renewable energy industry, due to the complexity of consenting processes and the lack of dedicated legal frameworks

Barriers	Recommendations
Uncertainties regarding environmental aspects of the projects. Uncertainties and lack of information of the different public agents who have to take decisions	Public database on monitoring results and conclusions, implement a **risk-based approach** during the decision-making process
Lack of guidance to developers	Development of procedures and guidelines
Lack of an integrated planning	Implementation of strategic plans like MSP and SEA
Administrative procedures	The implementation of a 'one-stop-shop' approach or a well coordinated procedures between different consenting bodies
Long lead-in times for approvals	Establishment of fixed time frames and deadlines

MSP | CONSENTING PROCESS | EIA | CHALLENGES



REFERENCES

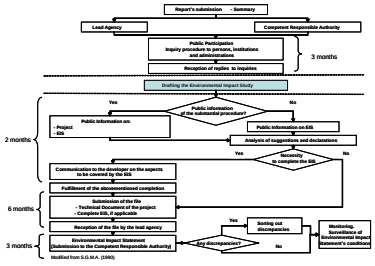
Bald, J., del Campo, A., Franco, J., Galparsoro, I., González, M., Liria, P., Muxika, I., Rubio, A., Solaun, O., Uriarte, A., Comesaña, M., Cacabelos, A., Fernández, R., Méndez, G., Prada, D., Zubiate, L., 2010. ***Protocol to develop an environmental impact study of wave energy converters***. Revista de Investigación Marina 17(5): 62-138
http://www.azti.es/rim/component/content/article/28.html

Simas, T., A. M. O'Hagan, J. O'Callaghan, S. Hamawi, D. Magagna, I. Bailey, D. Greaves, J.-B. Saulnier, D. Marina, J. Bald, C. Huertas y J. Sundberg, 2015. **Review of consenting processes for ocean energy in selected European Union Member States**. *International Journal of Marine Energy*, **9:** (0): 41-59.

IEA-OES, 2015. **Consenting processes for ocean energy on OES member countries**. 58 pp. http://www.ocean-energy-systems.org/news/consenting-processes-for-ocean-energy/

MSP | CONSENTING PROCESS | EIA | CHALLENGES

According to the Law 21/2013, December 9th, on Environmental Impact Assessment, all projects devoted to the production of energy on the marine environment are subject to be evaluated through a simplified environmental impact assessment process



Expert Workshop 2. Dealing with the risk of licensing marine renewables: the role and experience of regulators
Thursday, May 21st, 2015 – Paris, France

¡¡¡Thank you very much for your attention!!!

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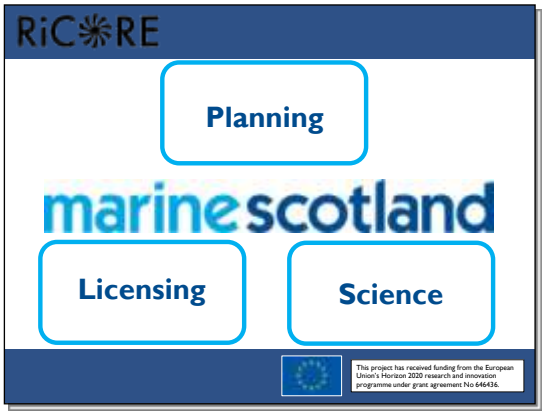
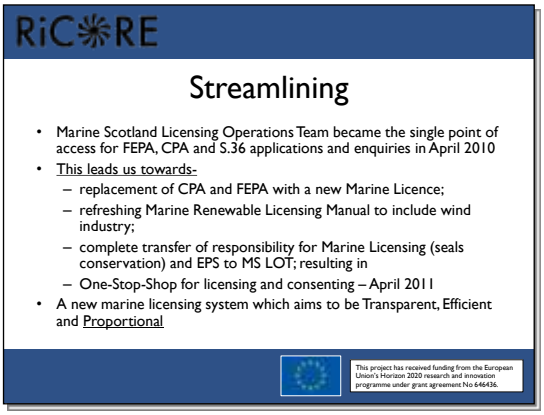
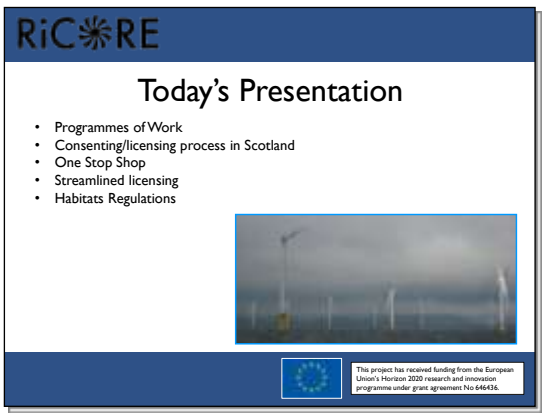
This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 646436.

Annex 1 – Presentations on National Perspectives

SCOTLAND







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ricore-project.eu

Processing applications - Renewables

- Marine Licence
  - Statutory consultees are SNH, SEPA, NLB and MCA
  - Current list of non-statutory consultees extended
  - Public notification
  - Determination in 12 weeks – but!
- Section 36 Consent
  - Statutory consultees are SNH, SEPA and Local Authorities
  - Public notification
  - Mirror marine licence vice versa
  - Determination (objective) in nine months

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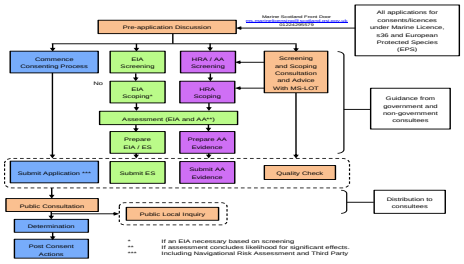
Key Stages in the Marine Licence Application Process



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Process Timeline - Renewables

May take three years!

Screening (Baseline)	EIA Scoping	Prepare EIA	Apply for all consents	Submit to Ministers
Developer lead consultation with interested parties including local	Licensing consultees but wider as needed including local	Licensing consultees as per EIA Regulations including local	Public notification and advertised. Wider ranging community involvement	Submission to Ministers for determination

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Habitats Regulations

The following Regulations are collectively termed the Habitats Regulations for inshore waters and Offshore Marine Regulations (OMR) for offshore waters and give protection to designated species and habitats designated through implementation of the Habitats Directive and the Birds Directive (Directive 2009/147/EC of the European Parliament and of the Council on the conservation of wild birds).

- The Conservation (Natural Habitats, &c.) Regulations 1994;
- The Conservation (Natural Habitats, &c.) Amendment (Scotland) Regulations 2004;
- The Conservation (Natural Habitats, &c.) Amendment (Scotland) Regulations 2007;
- The Conservation (Natural Habitats, &c.) Amendment (No. 2) (Scotland) Regulations 2007;
- The Conservation of Habitats and Species Regulations 2010 which replace the Conservation (Natural Habitats, &c.) Regulations 1994 (as amended) in England and Wales (and to a limited degree in Scotland - as regards reserved matters); and
- The Offshore Marine Conservation (Natural Habitats, &c.) Regulations 2007 and associated amendments.

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Habitats Regulations

- Regulation 48 of the Habitat Regulations 1994 and 2007 and Regulation 21 of the OMR 2010 state that if a plan or project is in, or adjacent to, a Natura site, or, regardless of location, wherever the development has potential to affect the qualifying features of a Natura site, then the proposal must undergo a HRA.
- Where the possibility of a likely significant effect on these sites cannot be excluded, either alone or in combination with other plans or projects, an AA should be undertaken in view of the site's conservation objectives by the Competent Authority in compliance with the Council Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Fauna and Flora (the EC Habitats Directive).

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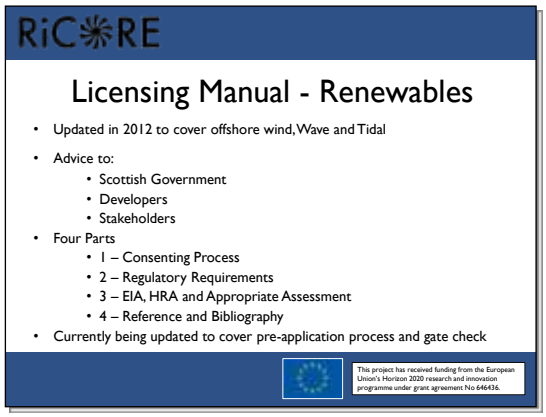
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Licensing Manual - Renewables
• Updated in 2012 to cover offshore wind, Wave and Tidal
• Advice to:
• Scottish Government
• Developers
• Stakeholders
• Four Parts
• 1 – Consenting Process
• 2 – Regulatory Requirements
• 3 – EIA, HRA and Appropriate Assessment
• 4 – Reference and Bibliography
• Currently being updated to cover pre-application process and gate check
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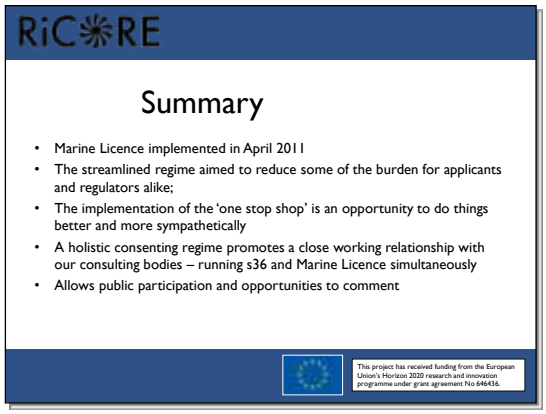
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Summary
• Marine Licence implemented in April 2011
• The streamlined regime aimed to reduce some of the burden for applicants and regulators alike;
• The implementation of the 'one stop shop' is an opportunity to do things better and more sympathetically
• A holistic consenting regime promotes a close working relationship with our consulting bodies – running s36 and Marine Licence simultaneously
• Allows public participation and opportunities to comment
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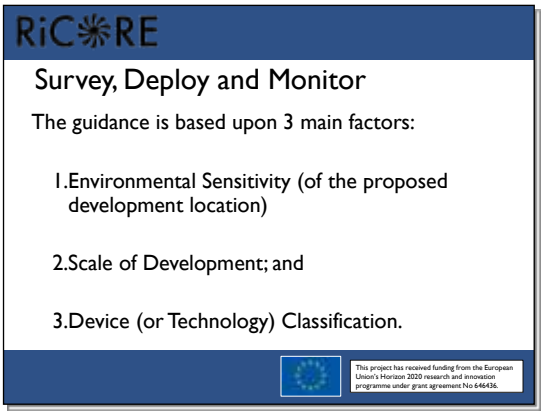
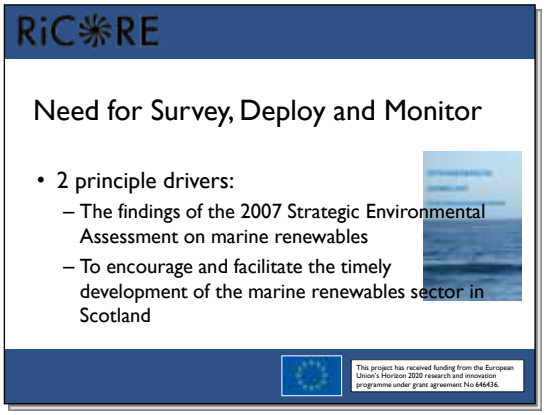
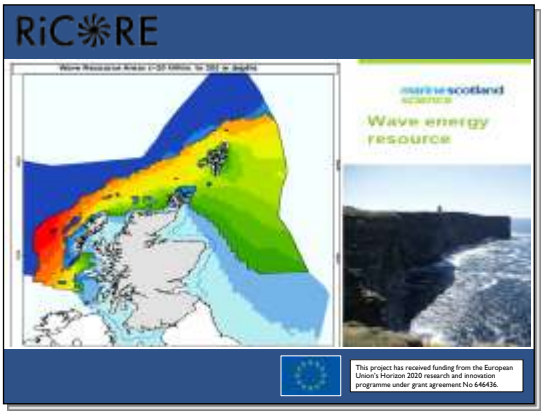
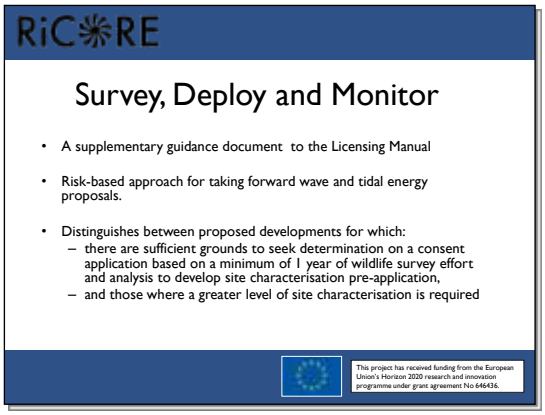
Annex 2 – Survey Deploy and Monitor Presentations

MARINE SCOTLAND









Constraints Models

INDUSTRY ENVIRONMENT HERITAGE

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Environmental data layers, part 3

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Other areas of environmental importance

Nursery areas for commercial fish species
Spawning areas for commercial fish species
Areas of importance to breeding sea birds
Areas of importance to seabirds in winter
Areas of importance to marine mammals

Layers are weighted according to their importance as impact receptors in the licensing process.

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Environmental data layers, part 1

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Areas with environmental designations

Bird reserves and Important Bird Areas
Local nature reserves
Special Areas of Conservation
Special Protection Areas
Sites of Special Scientific Interest
Offshore candidate SACs and SPAs
Offshore draft SACs and SPAs
Offshore possible SACs and SPAs
RAMSAR sites

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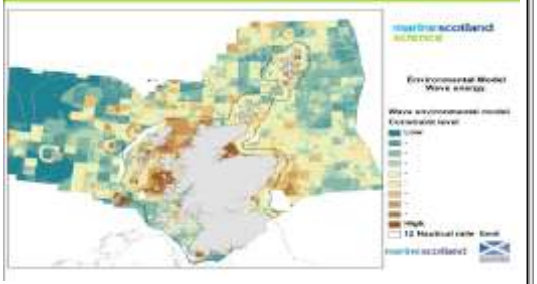

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Environmental data layers, part 2

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Areas with potential for designation

Possible sea haul out sites
Areas of importance to basking sharks
Areas of search for potential MPAs
Areas of search for seabird aggregations

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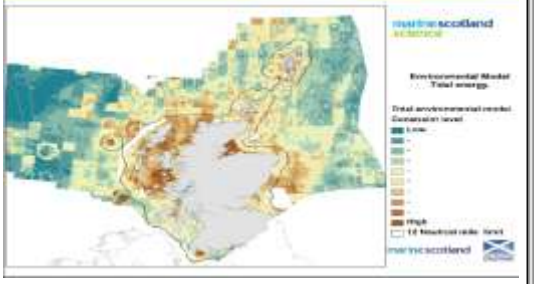

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Scale of Development

- The scale of the development is assessed on a three point scale, as below:

	Criteria	Assessment
Small Scale:	Up to 10MW	L
Medium Scale:	More than 10MW, to 50MW	M
Large Scale:	More than 50 MW	H

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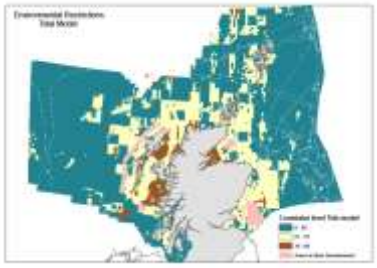

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Device or Technology Risk

- Device Risk is an expression of how the device or technology (including moorings or support) is installed, moves, behaves and interacts with the surrounding environment and is a broad assessment of the potential effects of the device on marine life.
- A number of environmental hazards are considered – Many of which are highlighted in the report 'A Review Of The Potential Impacts Of Wave And Tidal Energy Development On Scotland's Marine Environment' commissioned by the Scottish Government and issued by Aquatera

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Environmental Sensitivity

- The maps are relevant only to wave and tidal development and those factors which might influence the duration of site characterisation studies.
- They are neither an overall assessment of a site's environmental richness or biodiversity nor of its complete environmental sensitivity or sensitivity to other forms of development. The maps are subject to revision and upgrade as more datasets become available and/or existing ones renewed.
- Following any discussions deemed necessary with the developer, Marine Scotland will assign an overall assessment of High, Medium or Low environmental sensitivity.

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	Environmental hazards related to the device/technology	Assessment of environmental significance (H, M L)
1	Potential for harmful collision between marine mammals/basking sharks and offshore wave and tidal energy converters and associated moorings/support structures	
2	Potential for harmful collision between diving birds and with the moving turbine blades / hydrofoils of tidal energy converters.	
3	Direct loss of protected or sensitive sub-littoral seabed communities due to the presence of wave and tidal energy converters and associated moorings/support structures on the seabed The potential wider/secondary effects on protected or sensitive sub-littoral seabed due to installation and operation of wave and tidal energy converters and associated moorings/support structures	
4	The potential for release of polluting substances to the sea	
5	Potential barrier to movement for marine mammals/basking sharks due to physical presence of wave and tidal energy converters and associated moorings/support structures The potential for cetaceans / basking sharks to become entangled in mooring lines Potential risk of entrapment of marine mammals (cetaceans/seals)/ basking sharks from wave and tidal energy converters and associated moorings/support structures	
6	Potential for direct loss of habitat used by seals/otters due to the installation of shoreline wave energy converters Direct loss of breeding habitat used by coastal breeding birds due to the installation of shoreline wave energy converters Direct loss of protected or sensitive littoral coastal communities due to the placement of shoreline / nearshore wave energy converters The potential wider/secondary effects on protected or sensitive littoral coastal communities due to installation and/or operation of wave and tidal energy converters and associated moorings/support structures	
7	Operational noise: The potential effects on marine mammals and basking sharks from underwater noise generated by: device operation; and the presence of support structures. The potential effects on marine mammals/basking sharks from shock/pressure waves generated by wave and tidal energy converters. The potential effects on marine mammals from above surface noise generated by wave and tidal energy converters. The potential effects on diving birds of underwater noise and vibration generated by wave and tidal energy converters The potential effects on diving birds of above surface noise generated by wave and tidal energy converters with generators/air turbines housed in surface-piercing components	
8	Installation noise: The potential effects on marine mammals and basking sharks from underwater noise generated by: device installation The potential effects on diving birds of underwater noise and vibration generated by wave and tidal energy converters during drilling activities	
9	Potential displacement of essential activities of marine mammals/basking sharks due to the presence of wave and tidal energy converters and associated moorings/support structures Potential displacement of essential activities of marine birds due to the presence of wave and tidal energy converters and associated moorings/support structures Potential effects of changes in turbulence on foraging success of marine birds due to the presence of wave and tidal energy converters and associated moorings/support structures	
10	Potential for harmful collision or other interaction with migratory fish	

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Summarising the overall project risk

- The assessment of overall project risk is based on assessments of environmental risk, project size, and device (technology) risk. These are each categorised as High, Medium or Low. It is necessary to summarise these three assessments into a single project risk assessment.
- The procedure to undertake this is as follows:

1. Each individual assessment is scored 1, 2 or 3 for Low, Medium and High assessments respectively.
2. The geometric mean of the scores is calculated by multiplying the scores together and taking the cube root of the product. i.e. Geometric Mean = ((X1)(X2)(X3))1/3
3. The overall project risk is expressed as High, Medium or Low according to the geometric mean

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Proposals Assessed As Low Risk or Uncertainty

- If the environmental risk information is considered robust or underpinned by strategic survey information we might consider fast tracking the application.
- 1 year of site characterisation data (or equivalent) requested to inform an EIA, HRA (if this is required) and licence application.
- Should further data be required, the EIA and licence application may go forward in parallel with the additional survey work

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Project Risk

Geometric mean score	Overall risk
1 – 1.60	Low
1.61 – 2.20	Medium
2.21 – 3.0	High

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Proposals Assessed As Medium Risk or Uncertainty

- An approach intermediate to that of High and Low risk schemes.
- Initial presumption that 2 years of site characterisation data would be required.
- However, if Marine Scotland considers after one year that the environmental risk is less than anticipated, or that the data gathered to date have been adequate to inform both the EIA and HRA processes, then they would be prepared to discuss relaxation of the requirements for further site characterisation, on receptor-specific or hazard-specific bases.

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How Does it Work in Practice?

- Environmental risk is expressed as low, medium or high
- It is used to guide the requirements for pre-application site characterisation and assessment of the environmental interactions of the devices.
- It is a risk management process with the purpose of applying an appropriate and proportionate approach to licensing which depends upon the circumstances surrounding the development proposal.
- The approach takes account of unknown risks and/or the application of precaution in the early years of assessing licensing novel/contentious and potentially risky applications

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Proposals Assessed As High Risk or Uncertainty

- A large development proposed for an area of higher environmental sensitivity and device risk could have an overall project environmental risk assessment of High.
- Little scope to apply a fast-tracking approach.
  - minimum of 2 years site characterisation data would be necessary to support an application.
- In addition, the developer would normally be expected to undertake testing and impact monitoring of a test device or demonstration array elsewhere, providing the results of studies on wildlife interactions with their device(s) in support of their application.

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Impact Monitoring Requirements

- Impact monitoring, post-construction, of test devices or arrays is likely to be a condition on most consents granted, not least so as to provide the information necessary to support subsequent applications for further, perhaps Medium or High risk, schemes.
- The nature and duration of this will, however, be project specific and only determined and agreed once (or if) consent has been secured.

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Supporting Documentation

- Comprehensive guidance on options for survey and monitoring in connection with marine renewable development is available via the SNH website.
- In addition, detailed guidance on the EIA and HRA processes, as they relate to marine renewables development, is available through Marine Scotland's Marine Renewables Licensing Manual.

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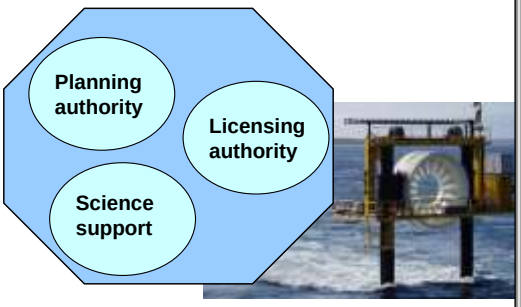
Survey, deploy and monitor policy

Dr Ian M Davies
Renewables and Energy Programme Manager
marine scotland science

Scale of Development

Scale of development	Criteria	Assessment
Small	Up to 10 MW	L
Medium	More than 10MW, to 50MW	M
Large	More than 50MW	H

Marine Scotland's roles in renewable energy



Device (or Technology) Risk

	Environmental hazards related to the device/technology	Assessment of environmental significance (H, M L)
1	Potential for harmful collision between marine mammals/basking sharks and offshore wave and tidal energy converters and associated moorings/support structures	
2	Potential for harmful collision between diving birds and with the moving turbine blades / hydrofoils of tidal energy converters.	

Survey, deploy and monitor policy

The policy is based upon 3 main factors:

1. Environmental Sensitivity (of the proposed development location)
2. Scale of Development; and
3. Device (or Technology) Classification.

3	Direct loss of protected or sensitive sub-littoral seabed communities due to the presence of wave and tidal energy converters and associated moorings/support structures on the seabed The potential wider/secondary effects on protected or sensitive sub-littoral seabed due to installation and operation of wave and tidal energy converters and associated moorings/support structures	
4	The potential for release of polluting substances to the sea	
5	Potential barrier to movement for marine mammals/basking sharks due to physical presence of wave and tidal energy converters and associated moorings/support structures The potential for cetaceans / basking sharks to become entangled in mooring lines Potential risk of entrapment of marine mammals (cetaceans/seals)/ basking sharks from wave and tidal energy converters and associated moorings/support structures	

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10	Potential for harmful collision or other interaction with migratory fish	

7	Operational noise: The potential effects on marine mammals and basking sharks from underwater noise generated by: device operation; and the presence of support structures. The potential effects on marine mammals/basking sharks from shock/pressure waves generated by wave and tidal energy converters. The potential effects on marine mammals from above surface noise generated by wave and tidal energy converters. The potential effects on diving birds of underwater noise and vibration generated by wave and tidal energy converters The potential effects on diving birds of above surface noise generated by wave and tidal energy converters with generators/air turbines housed in surface-piercing components	

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Environmental Sensitivity (of the proposed development location)

Considerations

Designated areas,
protected species,
protected habitats and
other relevant environmental factors.

8	Installation noise: The potential effects on marine mammals and basking sharks from underwater noise generated by: device installation The potential effects on diving birds of underwater noise and vibration generated by wave and tidal energy converters during drilling activities	
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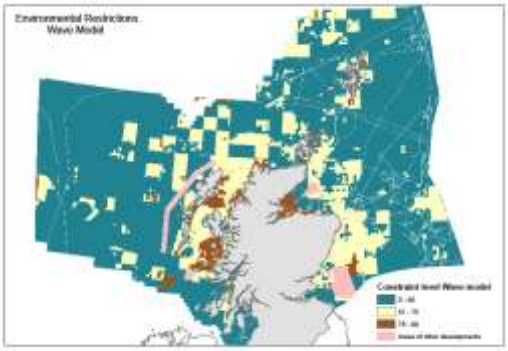

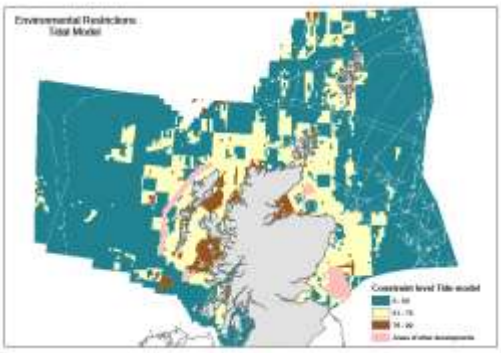

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Aegir

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Aegir
Scale of Development

Scale of development	Criteria	Assessment
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Aegir

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	Aegir	
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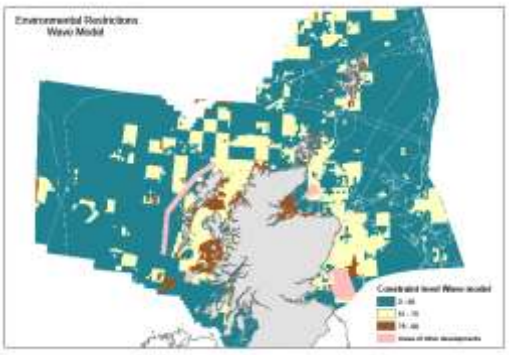

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Aegir conclusion

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Size of development ?

Device risk ?

Environmental sensitivity ?

Conclusion

Aegir

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10	Potential for harmful collision or other interaction with migratory fish	

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Meygen project, Tidal stream 86MW (61 turbines)

Meygen

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Meygen

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Meygen

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Meygen

7	Operational noise: The potential effects on marine mammals and basking sharks from underwater noise generated by: device operation; and the presence of support structures. The potential effects on marine mammals/basking sharks from shock/pressure waves generated by wave and tidal energy converters. The potential effects on marine mammals from above surface noise generated by wave and tidal energy converters. The potential effects on diving birds of underwater noise and vibration generated by wave and tidal energy converters The potential effects on diving birds of above surface noise generated by wave and tidal energy converters with generators/air turbines housed in surface-piercing components	

Meygen

3	Direct loss of protected or sensitive sub-littoral seabed communities due to the presence of wave and tidal energy converters and associated moorings/support structures on the seabed The potential wider/secondary effects on protected or sensitive sub-littoral seabed due to installation and operation of wave and tidal energy converters and associated moorings/support structures	
4	The potential for release of polluting substances to the sea	
5	Potential barrier to movement for marine mammals/basking sharks due to physical presence of wave and tidal energy converters and associated moorings/support structures The potential for cetaceans / basking sharks to become entangled in mooring lines Potential risk of entrapment of marine mammals (cetaceans/seals)/ basking sharks from wave and tidal energy converters and associated moorings/support structures	

8	Installation noise: The potential effects on marine mammals and basking sharks from underwater noise generated by: device installation The potential effects on diving birds of underwater noise and vibration generated by wave and tidal energy converters during drilling activities	
9	Potential displacement of essential activities of marine mammals/basking sharks due to the presence of wave and tidal energy converters and associated moorings/support structures Potential displacement of essential activities of marine birds due to the presence of wave and tidal energy converters and associated moorings/support structures Potential effects of changes in turbulence on foraging success of marine birds due to the presence of wave and tidal energy converters and associated moorings/support structures	

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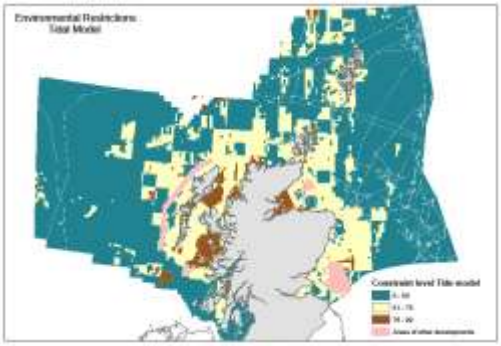
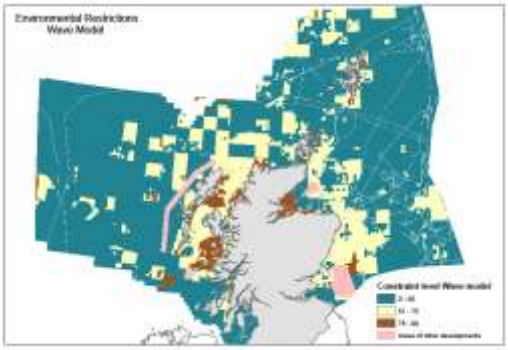
10	Potential for harmful collision or other interaction with migratory fish	

Environmental Sensitivity (of the proposed development location)

Considerations

Designated areas,
protected species,
protected habitats and
other relevant environmental factors.

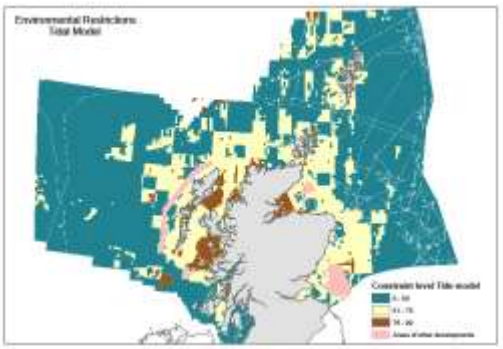




Meygen conclusion

Size of development	**?**
Device risk	**?**
Environmental sensitivity	**?**

Conclusion



Stage 1: Scoping studies

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Scoping Studies for marine renewable energy using TCE MaRS modelling.

A) Identify broad availability of resource (wind, wave, tidal stream and technical constraints (e.g. distance from shore)


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Data layer		
Bird reserves	Offshore candidate SACs and SPAs	Areas of search for potential Marine Protected areas
Important Bird Areas	Offshore draft SACs and SPAs	Areas of seabird aggregation
Local nature reserves	Offshore possible SACs and SPAs	Areas of importance to vulnerable sea birds
Special Areas of Conservation	RAMSAR sites	Areas of importance to marine mammals
Special Protection Areas	Nursery areas for commercial fish species	
Sites of Special Scientific Interest	Spawning areas for commercial fish species	

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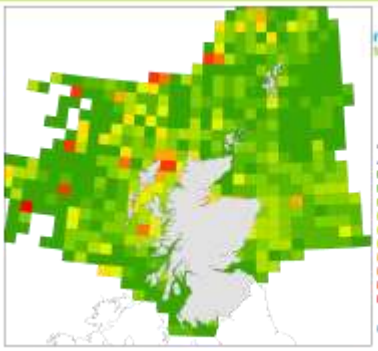
Scoping Studies for marine renewable energy using TCE MaRS modelling.

B) Identified constraints that make consenting more difficult. Grouped them as:

Industrial factors

Environmental factors

Socio-economic factors



Layers included into each theme

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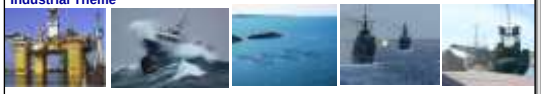
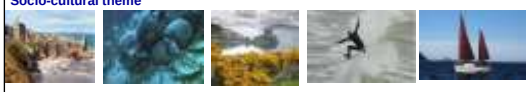
Environmental Theme

Industrial Theme



Socio-cultural theme



Weighting of conservation designations

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Data layer	Weighting
RAMSAR sites	H
Special Areas of Conservation	H
Special Protection Areas	H
Offshore candidate, draft or possible SACs and SPAs	H
Sites of Special Scientific Interest	H/M
Possible sea haul out sites	M/H
Bird reserves	M
Local nature reserves	M
Important Bird Areas	L