

Ocean Energy Site Identification

Draft Approach

1. Context

Over the recent months, there has been a clear and accelerated shift towards a 'plan led' approach for Ocean Energy (Marine Renewables) in Ireland. This is regarded as a positive shift, particularly when compared with the issues that have bedevilled the wind industry due to the ad hoc 'application led' approach.

The Association is active in the various strategic activities, such as SEAI's SEA/OREDP, the Department of Energy's NREAP for Brussels, Eirgrid's Grid25, and the Department of Environment's foreshore licensing process. While all of these activities are progressing well, supported by our MRIA Vision, they remain at the very high, strategic level. *The allocation of sea areas remains a subject to be addressed.*

There is an opportunity for the Association to take the initiative and identify in as much detail as possible those sea areas where we would envisage development taking place in the period to 2020 i.e. the time frame for the Government's '500MW by 2020' target. Remember that commercial sites will no longer be granted on a first come first serve basis.

In the event that the MRIA take this initiative and provides the agencies with a detailed plan, the Association might significantly reduce the risk of disruption or delay in the coming years and months. Accordingly, the Association is making this effort to see if it can develop and communicate a position on which areas of sea should be developed in the period to 2020.

Given the timeline of the other 'plan led' activities that might be influenced by such a MRIA position, the aim is to identify areas for consideration at the Council meeting in Cork on April 29th.

2. Stakeholders

The key aim of this work is to ensure all of the following stakeholders concur with MRIA's consensus view of which areas of sea should be developed. Key stakeholders are identified along with their role in advancing the OE industry in Ireland:

- *Industry*
 - o Technology developers; technical feasibility of sites and development of technology.
 - o Utilities; commercially viable projects on selected sites.
- *Departments*
 - o DCENR; sponsor the development of the correct areas.

- DEHLG; organise allocation and leasing of these areas.
- DETI; provision of supply chain infrastructure to the correct areas.
- *Agencies*
 - SEAI; validation of these areas via the SEA and OREDP
 - CER; provision of grid connectivity to these areas
 - Regional development agencies; appropriate development planning in these areas
- *Enablers*
 - Eirgrid/ESBN; build out of services to these areas
 - Department of Transport and others; provision of port and supply chain facilities to support these areas

3. About this document

As an initial step to facilitate work toward a consensus view of the areas to be developed, this document proposes an outline approach to site identification. This is a draft document intended to elicit feedback from Council and the refinement of an approach.

This document contains many thoughts regarding the site identification process, organised into the following sections.

- *High level approach* (the overall structure we might like to see adopted).
 - Route 1: Permit to Investigate
 - Route 2: Small Development Projects (<5MW)
 - Route 3: Commercial Scale Development Projects (>5MW)
- *Site designation*
 - Constraints; the initial, obvious constraints on site selection
 - Primary criteria; major influences on site selection
 - Secondary criteria; additional influences on site selection

For reasons of clarification and comprehensiveness, this document repeats the proposals made in the Memo to DEHLG, previously circulated, regarding the licensing process.

4. High Level Approach

At a high level, the suggestion is that sites should be allocated in a process that comprises three Routes so that the 'plan led' approach can...

- Offer a spectrum of consenting levels, to cater for the breadth of development requirements. At this early stage, one process cannot fit all sizes, without becoming cumbersome. Some projects are small R&D exercises. Others are full-blown commercial developments.
- Tailor the level of consenting, appropriate for the significance of the development. Many small projects do not required the level of consenting required by the few large projects.

- Focus resource on those areas where they are required. Not all projects require infrastructure upgrades, for instance.

In line with the recent MRIA Memo to DEHLG, the proposal is to have three 'Routes' as follows:

1. Light: *Permit to Investigate (0MW)*;
2. Medium: *Small Development Projects (<5MW)*;
3. Heavy: *Commercial scale Development Projects (>5MW)*;

Each of these three Routes comprises a number of steps appropriate for the nature of the development.

Route 1: Permit to Investigate (0MW)

To facilitate continued research and development, applicants would be able to apply at any time for a Permit to carry out initial non-intrusive activities such as resource assessments, sea-bed surveys and environmental baseline studies on areas of the sea-bed in a cost-effective and easy manner.

Route 2: Small Development Projects (<5MW)

In line with the concession granted by CER, following lobbying by MRIA, in this Route applicants would be able to apply at any time to gain a Lease to develop small commercial and non-commercial projects (<5MW) on areas of the sea-bed outside of the 'plan led' approach (Route 3 below).

This Route is intended to provide a means for small wave, tidal and connected test site projects to be developed on an ad-hoc basis.

Route 3: Commercial scale Development Projects (>5MW)

This Route is intended to facilitate large scale commercial projects. To ensure the infrastructure and effort is organized optimally, this Route should be organized into competitive 'Calls' .

The remaining subsections explore in more detail each of these Routes.

5. Route 1: Permit to Investigate (0MW)

Purpose

To carry out initial non-intrusive activities such as resource assessments, sea-bed surveys and environmental baseline studies on areas of the sea-bed in a cost-effective and easy manner.

Scope

Permits would not allow the installation of equipment, other than for resource assessment or environmental test purposes. It would not cover the deployment of grid or non-grid connected conversion technology (i.e.WEC) for test and validation purposes. It would not cover the deployment of

cables for the collection or export of energy. Permits would likely have a maximum duration of three years.

Rules

Permits would not be exclusive and multiple permits could be issued to developers who wish to undertake studies over the same area of foreshore. The permit would not grant the holder any rights in respect of applications under Routes 2 or 3.

It is not envisaged that a Permit would attract any 'rent' fees.

Allocation Process

The process to secure a Permit would be very light. A Permit application could be submitted to the Department (of Environment, Heritage and Local Government-DEHLG) for consideration at any time. Information might be delivered to Statutory Consultees but a public consultation would not be required nor any requirement to advertise in local or national newspapers. It is envisaged that the Department would commit to respond to a Permit application within 90 days.

5. Route 2: Small Development Projects (<5MW)

Purpose

The purpose of Route 2 applications is to develop small pre-commercial and non-commercial projects (<5MW) on confined and disparate areas of the sea-bed. Projects would include small wave, tidal and demonstration devices connected to test sites.

Projects proposed under Route 2 would likely utilize the CER's process to connect small <5MW wave and tidal projects, connecting directly to the DSO's (ESBN) network at any number of locations along the coast.

Applications for small projects under Route 2 are not likely to be organized according to any particular spatial pattern. Proposed locations will be defined by the local features of sites, and may be located anywhere around the coast of Ireland informed by the SEA and OREDP.

It is not expected that there will be a significant number of Route 2 applications and the majority of applications will be for deployment at test sites.

Scope

Applications for lease under this Route would entitle the applicant to install and operate equipment such as conversion technology and subsea cables/pipes for some prolonged duration in line with the proposal.

Rules

Applications under Route 2 would be limited to MEC of 5MW. Projects wishing to expand production beyond 5MW MEC would need to apply under Route 3.

Leases awarded under this Route would entitle the applicant to exclusive use of the area leased, for the duration of the Lease as proposed by the applicant in line with the project plan.

Applications under Route 2 can be submitted for any area of the sea, except those areas already designated for large scale development under Route 3.

It is not envisaged that Leases granted under Route 2 would attract 'rent' fees, commensurate with the pre-commercial nature of the projects.

Allocation Process

The process to secure a Lease under Route 2 would be reasonably straightforward. Following pre-planning consultation with potential applicants, the Department might publish a date for Route 2 applications. Applicants will be expected to provide documentation appropriate for the nature/extent of the project proposed, sufficient to allow the Department to make a judgment regarding the merits of the proposal, in the context of the SEA.

Information might be delivered to Statutory Consultees, including a public consultation. It is envisaged the Department would commit to respond to a Permit application within a fixed period.

6. Route 3: Commercial Scale Development Projects (>5MW)

Purpose

The purpose of the Route 3 application process is to concentrate commercial scale projects (>5MW) in the most appropriate areas of the sea-bed. Given the scale envisaged, proposals under Route 3 would likely be mostly comprised of wave energy arrays.

Projects proposed under Route 3 would require significant and deliberate grid upgrade projects (110kV or 220kV). *By concentrating Route 3 projects within designated zones the number of grid upgrade projects required to facilitate the maximum ocean energy can be ameliorated.*

Route 3 is designed to focus and organize large scale projects into a pattern that maximizes the output of Ocean Energy, for the level of resource and investment by the State and industry, in order to expedite Ireland's commercial Ocean Energy opportunity ahead of other jurisdictions.

Scope

Applications for lease under Route 3 would entitle the applicant to install and operate substantial quantities of equipment such as conversion technology and subsea cables/pipes for prolonged duration on extensive areas of the sea bed.

Rules

The Department would designate areas for development under Route 3. These areas would be declared and published well in advance, such that Route 2 is open to smaller project developments.

In line with the OREDP, it is envisaged that the Department would commit to a schedule of 'Calls' from 2011 where each 'Call' would represent an invitation for industry to submit applications to develop parts of sea areas designated for development.

Applications under this Route 3 could exceed 5MW. The MEC of any give project would only be limited by the guidance provided for each Call, as is appropriate for the area of sea being offered.

Leases awarded under this Route would entitle the applicant to exclusive use of the area leased for the duration of the Lease.

It is envisaged that Leases granted under Route 3 would attract 'rent' fees, commensurate with the commercial nature of the project (see below).

Allocation Process

Schedule

The Department should signal the intention to hold a series of competitive 'Calls' for proposals to develop large-scale OE projects within the designated areas of the foreshore.

The designation of areas should be informed by the SEA, OREDP, Marine Spatial Planning, recommendations from the MRIA (this process) and other stakeholders in the industry.

By communicating this schedule of Ocean Energy leasing Calls, the relevant stakeholders (above) will be able to plan the key stages of large scale development, by ensuring essential enablers of the industry such as grid, ports and technology development in a "plan-led" manner.

Pre-application consultation

In advance of any given Call it is envisaged that the Department would encourage applicants, and other interested stakeholders (regional development agencies, Eirgrid, etc) to enter pre-application consultation, to inform and refine the nature of proposed projects in line with the objectives for the area in the call. This will likely discourage inappropriate proposals thereby saving time and cost. It would also likely inform the Department regarding the appetite for and nature of likely proposals for the Call being contemplated.

Application Call

For any given Call, the Department should specify deadlines for application submissions. All applications submitted before this deadline will be considered to have been submitted at the same time and will be evaluated in as a single Call.

Applicants under Route 3 will be expected to provide documentation appropriate for the nature of the project proposed, sufficient to allow the Department to make a judgment (below) regarding the merits of the proposal, over other competing proposals.

Pre-Qualification

Proposals would be evaluated against published criteria which will deliver the best outcomes for the industry taking account of the early stage of development of the sector and also the significant risks associated with early stage projects.

Suggested criteria cover:

- Health & Safety
- Commitment to Development Ocean Energy in Ireland
- Financial Strength
- Experience, competence, knowledge and capability
- Business Plan
- Technical, Engineering & Environmental Plan

In particular, it is essential that Ocean Energy leasing rounds are based on set criteria designed to allocate Ocean Energy sites to the optimal mix of capable developers, rather than on an auctioning process. An auctioning process will likely result in Ocean Energy sites being allocated to fragile proposals, ill-equipped to meet the significant financial and risk challenges in the Ocean Energy industry.

Consenting

Successful bidders to a competitive Call will be awarded an Agreement for Lease which will grant the developer exclusivity over the area of sea-bed outlined in their proposal for a period of 4 years in which they will have the opportunity to secure all consents for the project. During this period, the developer will need to maintain the Agreement for Lease in good standing and report at regular intervals to DEHLG and other stakeholders on progress being made. If insufficient progress is being made, the DEHLG should have the right to withdraw and cancel the Agreement for Lease in order for it to be offered to another party. Hence, the Agreement for Lease would operate on the “use-it or lose-it” basis. If the developer maintains the Agreement for Lease in good standing and secures all consents for the development, the developer will then have the right to apply for a Lease on the area of foreshore involved.

A Lease will entitle the developer to construct, deploy, commission and operate and maintain their project over the period of the lease. At this early stage of the industry, the process must allow for a spectrum ranging from pre-commercial to commercial developments. Accordingly, it is proposed to have three types of Lease (and associated Agreements for Lease) as follows:

- Pre-commercial leases of up to (say) 8 years duration with the right to extend the lease for a further (say) 7 years for projects up to 50MW in size (15 year lease). Under this lease a nominal rent would be paid.

- Semi-commercial lease of up to (say) 8 years duration with the right to convert the lease to a commercial lease for a further (say) 17 years on exercise of an option to convert to a commercial lease (25 years in total). Under this lease a nominal rent would be paid up until the option to convert to a commercial lease is exercised at which time a commercial rent is payable.
- Commercial lease of 25 years duration for projects greater than 50MW. Under this lease, a commercial rent would be paid.

In addition, leases should have 'extension periods' to enable projects to be commissioned and de-commissioned so as to avoid reducing the operational period.

7. Site Designation

In line with the high level approach outlined above, it is envisaged that small projects and site investigations could be considered on an ad-hoc basis at any appropriate location, informed by the SEA. *In contrast, consenting of Commercial Scale Development Projects would be focused into pre-designated areas according to a schedule.*

Ideally, the designation of those areas for large scale commercial development, and the schedule of consenting Calls, would generate the most optimal compromise of the numerous constraints (technical feasibility, resource availability, environmental sensitivity, public acceptance...).

Having a unique insight into some of these constraints, industry should provide policy makers with substantial guidance in respect of the designation of sites. This section proposes an approach the MRIA might use toward the designation of sites.

In contrast with the SEA (which has legal implications), the work done here is aimed at expediting Ocean Energy in the short term by seeking to reach a consensus among MRIA Council Members so that efforts can be focused on development, rather than adjudication. It is a broad-stroke exercise. The broader vision for Ocean Energy is addressed in the OREDP.

Basic Assumptions

There are some basic assumptions we can apply when considering which areas should be designated for development.

Schedule of Calls

The entire area for 500MW of development will not be allocated in a single Call. The Department will likely want to do an initial 'safe' Call, before ramping up to further calls. We can assume there will be at least [2] Calls for projects prior to 2020.

Order of magnitude

It makes sense to only seek to designate areas totaling a size that is likely to be required for 500MW, so that resources can be focused, and inhibitors (e.g. NGO opposition) reduced.

In the time horizon we are concerned with we are looking to have some 5000 km² designated for development. This figure has been taken from the recent Pentland Firth area where 600MW of wave projects have secured Agreements for Lease in an environment with a less energetic wave resource.

In reality a small proportion of this will be occupied. However, a larger area should be open for Call to allow for developers to select optimal locations within the sites.

A more accurate indication of the size required may relate to the linear frontal distance. To accommodate 500MW it may be necessary to designate 50km of front extending to the 12 mile (22km) nautical limit.

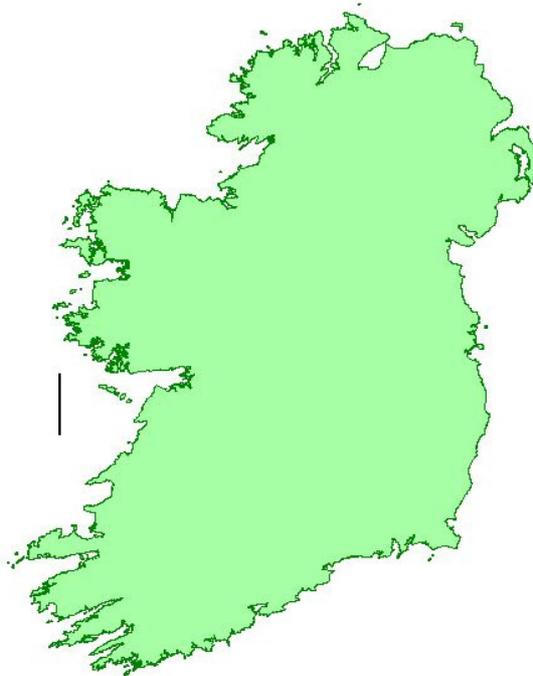


Fig: illustration of 50km of designations

12nm Limit

While Ireland has the power to lease areas beyond the 12nm limit, the current legal instruments are such that it is likely to be much simpler to limit area within 22km of the shoreline.

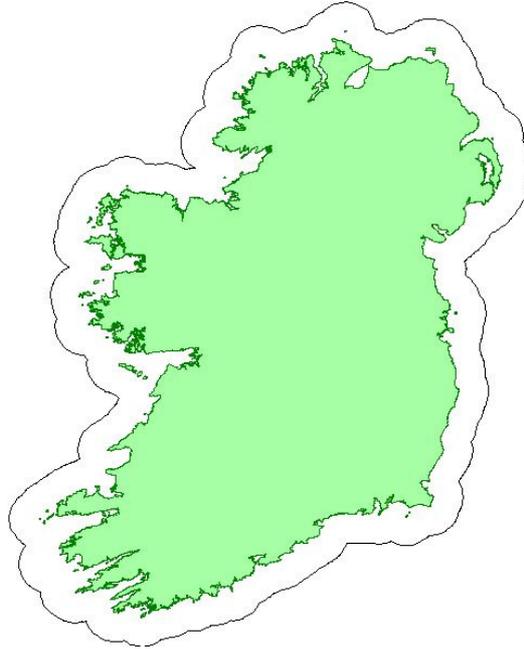


Fig: 22km distance

West Coast

If an alternative route (Route 2) exists to facilitate small wave and tidal projects on an ad-hoc basis, then site designation can focus on facilitating large scale wave energy. For the purpose of designating large development sites, we can assume that commercial wave energy projects should only be contemplated on the West coast.

Note, however, that the site designation would have an impact on small wave and tidal projects, in so far as Route 2 as it is currently envisaged here would not allow applications in designated areas. Therefore, one of the criteria below is to avoid those areas that are more suited to small wave or tidal projects when designating areas for large commercial projects.

First Criteria

Beyond the basic assumptions, there are a number of initial criteria that can be applied without too much debate (perhaps).

No go areas

There are numerous areas where development is possible but the level of conflict with other users would make development much less desirable. They include:

- *Navigation*; including well known navigation channels in and out of ports
- *Archeology*; known ship wreck locations
- *Ecology*; designated sites, and habitats
- *Heritage*; national heritage areas

- *Aquaculture;*
- *Test sites; WETS, Spiddal*
- *Wind energy; existing offshore wind energy projects and applications*

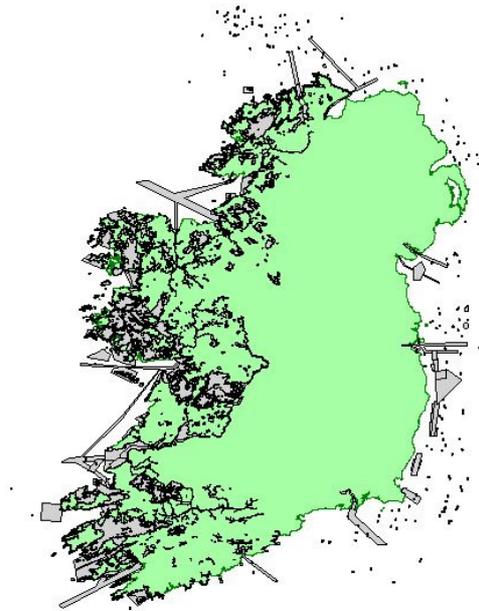


Fig: illustration of No Go Areas

Depth

There is a limit to the depth that technologies will want or need to go in the period to 2020. Given there are near shore devices, there should be no upper limit, i.e. 0m.

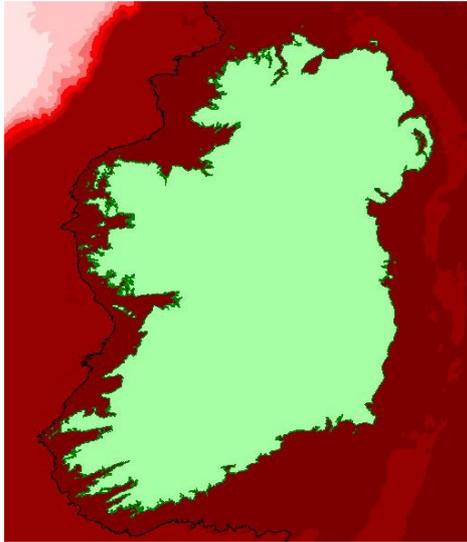


Fig: Depth 100m limit

Resource

Although each technology can commercially exploit a variety of resource levels, the industry might do well to encourage site designation in those areas where there is the most commercially viable resource. Given the basic assumption (above) about the nature of the large scale developments at these sites, the resource in question is likely to be wave energy, since tidal energy will likely seek consent under Route 2.

Ideally commercial viability should comprise both the quantity and quality of resource, and the ability to operate (e.g. survive, O&M). However, in the absence of information, and for the purpose of this broad-stroke approach we might set a lower limit of [$>30\text{kW/m}$].

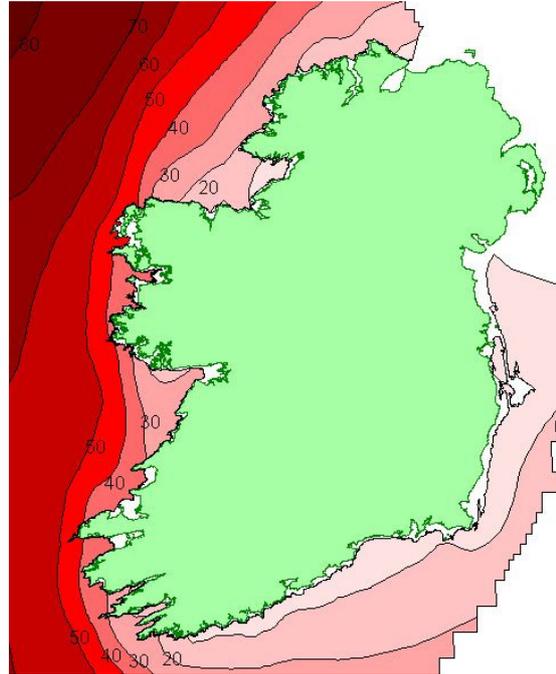


Fig: annual average wave resource (ESBI)

Combined

By combining the initial criteria we might exclude those areas which are not desirable for commercial scale development in the period to 2020.

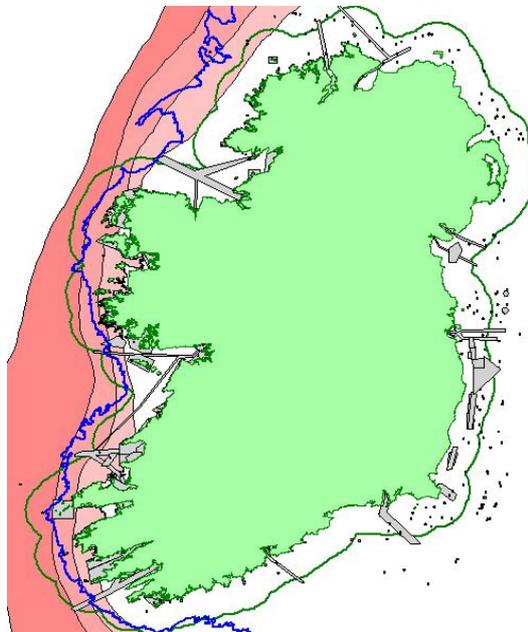


Fig: combined initial criteria

The map (above) shows

- Green: 22km limit
- Blue: 100m depth
- Red: wave power
- Grey: No go areas

Secondary Criteria

In addition to the first criteria above we might consider a number of additional factors to qualify our preference for the designation of areas.

Eirgrid upgrades

Sites designated for large scale Ocean Energy development will need to be served by the transmission grid. While we might like to think we can expedite upgrade projects, we must recognize the existence of Gate 3 wind projects and the programme of work already underway at Eirgrid to serve those projects.

We know that the ITC process has recently been completed and has set dates for the upgrade of transmission networks to support applications in the Gate 3 process. It might be prudent for the MRIA to focus its preference for sea areas to fit in tandem with these existing plans, such that the provision of transmission grid can be expedited alongside existing plans.

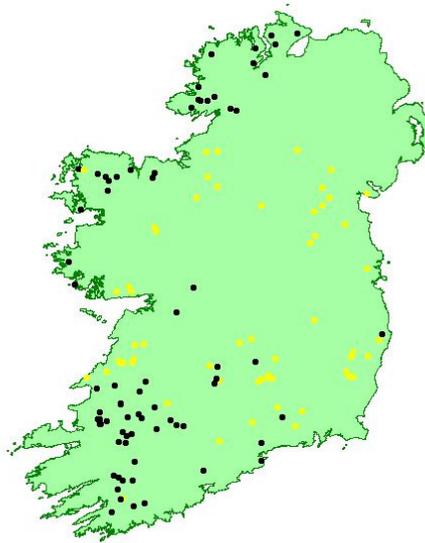


Fig: Gate 3 projects with dates specified in the ITC <2015

If we were recommending two Calls, we might identify the sites in locations appropriate for projects arising from the date of those Calls.

Consenting Difficulty

We know from similar overhead line projects that Commercial Scale Development Projects will face substantial consenting difficulty, particularly in those areas which have already be protected (SPA, SAC, NHA etc).

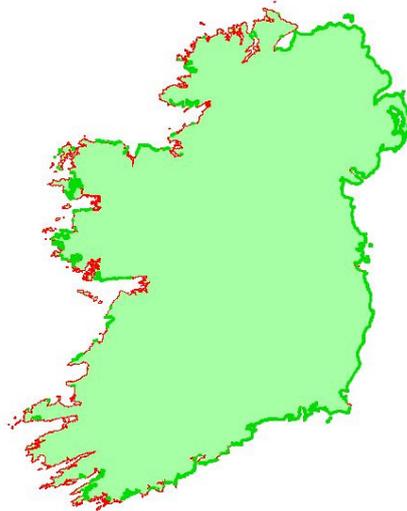


Fig: protected coastline (red)

We might prioritise areas where the level of sensitivity, protection and opposition from cable landing locations to transmission networks is least challenging.

Distance to Port

The distance to adequate port facilities and supply chain infrastructure will likely be another consideration.

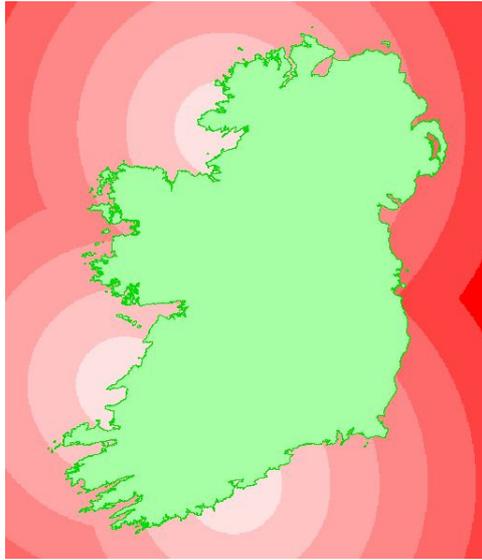


Fig: distance to nearest major port

All Criteria

All of these criteria are presented in the map below...

