Marine Spatial Planning Needs of Marine Renewables Emerging Technologies

Discussion Paper

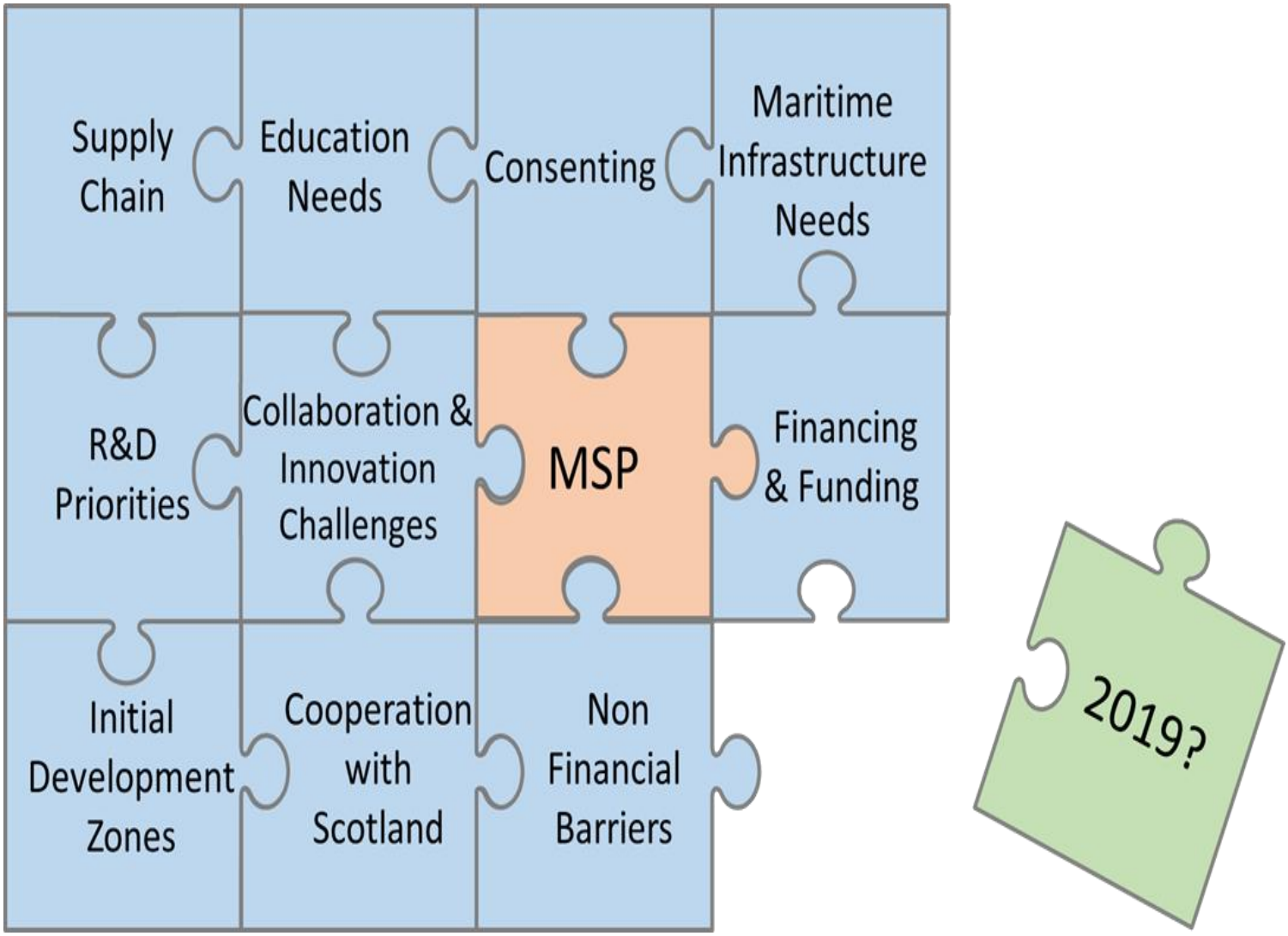
December 14th, 2018

Ireland's EU Structural Funds Programmes 2007 - 2013

Co-funded by the Irish Government and the European Union

EUROPEAN REGIONAL DEVELOPMENT FUND

MRIA's Policy Publications



Preface

There has been a major change in Irish energy policy during the course of 2018. The recent ground-breaking support structure for renewables, known as RESS[1], recognises for the first time that marine renewables have an important part to play in meeting Ireland's 2030 renewable energy targets. These, in turn, are predicated on a substantial step-up in the decarbonisation of the electricity generating system in particular. This will not be possible from terrestrial wind sources alone while solar energy will make some contribution. The other major change is the introduction and rapid implementation of a National Marine Planning Framework (NMPF), popularly known as Marine Spatial Planning[2] (MSP), which is the subject of this Paper.

The NMPF/MSP will influence the framework for all marine developments in future and will have a profound impact over time on all those involved with the sea.

A number of critical issues in marine spatial planning arise from the perspective of the marine renewables emerging technologies of wave, tidal and floating wind energy (and 'hybrids' of floating wind and wave) .... not to mention their mature relation, bottom-fixed offshore wind:

1. *Zoning,* or spatial allocation at sea for various activities, is likely to feature in some way in Irelands marine spatial plan and that is to be welcomed, provided it takes account of a number of core issues dealt with in this Paper.

2. There is undoubtedly going to be an issue with the potential visual impact of offshore wind in particular and one obvious policy possibility would be to introduce a *buffer zone* to exclude all marine renewables within a specified distance from the coast. We spell out the serious, negative consequences for marine renewable energy with an example of such an initiative. A buffer zone approach should be considered with great care and be locally site specific.

[1] *Renewable Energy Support Scheme (RESS) High Level Design* Department of Communications, Climate Action and Environment, 2018

[2] The Irish term - *National Marine Planning Framework* - and the international one -*Marine Spatial Planning*- are employed interchangeably throughout this Paper.

3. There is a need to establish structures which would make it easier to consult and engage with local stakeholders and those potentially impacted by marine renewables development - a long-term *partnership* in the broad sense is needed between marine renewables developers and other marine interests.

4. There are challenges to be tackled in the areas of data and, also, ports infrastructure.

In addition, there is a critical issue for all engaged with the ocean: there is a hyper-urgent need to introduce modern offshore consenting legislation or our globally leading marine renewables energy resources will continue to lie fallow.

Recommendations

This Paper welcomes the National Marine Planning Framework/ Marine Spatial Planning but identifies four key issues that are vital to its success.

The Marine Renewables Industry Association (MRIA) makes the following recommendations:

1. ZONING

The Marine Renewables Industry Association www.mria.ie favours the considered introduction of marine zones which are broadly sector specific i.e. are clear as to what activities are excluded from a zone or parts of it and what activities are suitable to the zone and where therein. This will not be an easy task nor will it take place overnight.

The MRIA recommends that the following features should be considered when zones are being identified:

- Zones must take account of existing rights (e.g. to navigation) where possible
- Links with, and integration where feasible with, the National Planning Framework ashore and with Local Authority plans are vital, particularly for marine renewables which depend on onshore infrastructure such as electricity sub-stations etc.
- A multi-use zone approach should be employed with a tiered system between zones and within zones e.g. along the lines of the systems employed in Australia and Germany.
- Initial priority in detailed zoning should be given to those areas which are deemed by the renewable energy industry and by experts to be resource rich e.g. parts of the Irish Sea and south coast for wind and the area off Counties Clare and Mayo for wave and floating wind in particular. In other words, the initial development zones should be commercial and not confined to experimental technologies.
- Following the first phase of zoning, there should be a short interlude to enable a 'Lessons Learned' review to take place and allow for consultation with all relevant interests - see 8. for more detail
- The existing designated marine renewable test sites in Galway Bay ('SmartBay') and at Belmullet, County Mayo ('AMETS') should be recognised and endorsed in the *National Marine Planning Framework.*
- The NMPF should note the need to increase grid capacity at the Atlantic Marine Energy Test Site (AMETS) facility to 15MW +.

- Furthermore, the testing/demonstration of devices in the category of *marine renewables emerging technologies* (notably floating wind and hybrid devices) should be facilitated by the consenting authorities at commercial arrays in the Irish or Celtic seas prior to exposing such devices to the very challenging test conditions at AMETS.
- There is a need - for both reasons of efficiency and of clarity across the board ranging from developers to communities to the courts – to focus final decision-taking on policy matters to do with both planning (MSP) and consenting ('MAFA') in marine renewables and other relevant sectors (e.g., aquaculture, tourism and fishing) on the Minister for Housing, Planning and Local Government with the 'advice and consent' of other relevant Ministers being required as appropriate. Consenting of individual cases would be a matter for the relevant authorities e.g. An Bord Pleanála for offshore renewables.
- The consenting legislation to be adopted - see below - should take account of the zoning principles set out above.
- NMPF is valuable in its own right but it must be followed up immediately by the next *Offshore Renewable Energy Development Plan* (OREDP) which is due in 2021. OREDP 2 will be an important tool in the practical implementation of MSP.

There are two other issues which are important in zoning. First, the Maritime Area and Foreshore (Amendment) (MAFA) legislation is a critical priority for NMPF as well as in many other regards. Regardless of zoning, no marine renewables development can take place beyond 12nm at present as there is no legislative framework available. The arrangements for consenting within 12nm are outdated and unwieldy. The failure, despite its annual appearance on the legislative schedule for at least 10 successive years, to introduce modern consenting legislation is a major obstacle to exploiting our marine renewables resource and to meeting our national and international energy and climate change obligations and targets.

A draft MAFA Bill was first published in 2013 but ran into legal difficulties which left it in a legal limbo. However, it is understood by MRIA that the marine renewable energy element (which is at an advanced stage of preparation) of the Bill might be moved forward in its own right. A decision is expected in early 2019. This could mean, in practical terms, that a new consenting regime for marine renewables can be added to the Statute Book fairly quickly provided that political priority is given to the Bill and appropriate extra resources allocated to finalise it and guide it through the legislative process.

Second, deeper engagement with EirGrid in MSP is important. Zoning will be a fairly sterile exercise for marine renewables – which, as argued in this Paper, are vital to national renewable energy targets - unless there is alignment between grid development and zones that are rich in energy resources (wind, wave and tides).

2. Buffer Zones

MRIA believes that the application of a blanket national 'buffer zone' (e.g., no renewables development within the buffer zone boundaries) out to, for example, 12nm would freeze and paralyse development of renewable offshore energy. The industry could drop anchor for perhaps 10 years to await the emergence of wave and deep-sea floating wind technology which would enable renewable energy to be exploited well out in the Atlantic....and that, indeed, would depend on the ability of Government to introduce a consenting system to allow developments beyond 12nm!

MRIA recommends that the following approach be taken to dealing with seascape issues which lie at the heart of the buffer zone issue:

- Any proposal for a buffer zone should be considered only with great care and should be locally site specific.
- The governing principle in examining 'seascape impact' issues should be to generate competitively priced electricity with the minimum possible impact on local seascapes and in broad partnership with local interests
- Visualisation Techniques (VTs) that take many factors into account - type of technology, configuration and capacity of devices etc - should be employed to evaluate consenting applications
- An expert group (perhaps under the aegis of the Marine Institute who have undertaken already significant background research and evaluation work on MSP on behalf of the MSP Competent Authority, the Department of Housing, Planning and Local Government) should be convened to design a Code of Practice and Standards for VTs
- As part of the consenting process, developers should be required to submit Visualisations, based on an approved VTs Code of Practice and Standards, of likely impacts on local communities of their planned projects
- Industry to work with appropriate bodies e.g. Commissioners of Irish Lights; Irish Coast Guard to identify appropriate measures to 'mark' wave and tidal devices e.g. hi visibility radar reflectors

3. PARTNERSHIP

A structure or mechanism is required to enable marine renewables and indeed others involved with the sea to engage and consult in a sustained and serious way. Marine renewables 'require' a 'Social Licence to Operate'. The alternative is likely to result in conflict with marine sectors such as fishing and with coastal communities.

MRIA recommends that the Department of Housing, Planning and Local Government consult on the structure for Coastal Partnerships as part of the (second) consultation on the NMPF scheduled for 2019 with the objective of launching a Coastal Partnerships structure, along with the final National Marine Planning Framework, in 2020

MRIA recommends also that any model chosen for Coastal Partnerships should incorporate the following features:

- Consultation with all interested parties in the design of the structure
- A clear remit from Government as, for instance, the *Public Participation Networks* and *Local Authorities Water and Communities Offices* have in their spheres
- It would be desirable to have a statutory basis for the Coastal Partnerships. However, NMPF and renewables are urgent issues and the lead time for legislation could be protracted. It should be possible to launch the CPs initiative without specific legislative backing.
- The initiative should incorporate the following features for Coastal Partnerships:
    - Under the umbrella of the Department responsible for NMPF – Housing, Planning and Local Government
    - Full-time staff, locally placed, with some back up from the Department e.g. in IT, facilitation and coordination
    - Capacity to support local Coastal Partnerships and projects e.g. training, a modest grant scheme to support local studies etc.
    - The geographical scope of each Coastal Partnership to be linked to the offshore zone network which will emerge from the final MSP and which, of course, will deal with a variety of issues as well as renewable energy.

4. DATA..... AND PORTS

There is widespread concern about the lack of data necessary to enable balanced decisions to be made about Marine Spatial Planning, although there is considerable confusion about the issue too

The MRIA recommends that:

- The report currently being prepared on marine data by the Marine Institute and others should focus in the first instance on identifying all data sets relevant to marine matters that are publicly available
- Those data sets relevant to Offshore Renewable Energy should then be made available via SEAI's Ocean Energy Ireland portal
- In addition, the report should be *published* and it should make recommendations about:
    - Gaps in the data which is necessary for MSP
    - How these should be filled and by which Body, along with a timeline
    - Where marine data should be collated and co-ordinated in future e.g. at the Marine Institute and the Geological Survey of Ireland (who together are already collectors of hydrographic data under the INFOMAR scheme)
    - The role (if any) which compulsory reporting (e.g. by energy interests) of data should play, both in respect to data gathered at public and at private expense

Marine renewables of all types are dependent on adequate port facilities including the possibility of fabrication and assembly of devices close to a port; provision of deep water and hardened quay space at ports etc.

The MRIA recommends that:

- The NMPF recognises the key role that ports will play in the exploitation of our offshore renewable energy resources
- The importance to offshore renewable energy development of ports developments in Cork, Foynes and in either west Galway or the Mayo coast should be explicitly recognised in the final NMPF.

Contents

1. *Marine Renewables Industry Association*

The Marine Renewables Industry Association (MRIA) represents the principal interests on the island of Ireland engaged in Marine Renewables Emerging Technologies (MRET)[3]. The Association includes firms engaged in device development and manufacture, utilities and developer interests, professional firms and academic researchers. The Association is an all-island body. For further details, please go to the Association's web page, www.mria.ie . You may follow MRIA on Twitter at *@Marineireland*.

Ocean energy – wave and tidal – has enjoyed a relatively positive policy environment for several years reflected, for example, in the grant schemes of the Sustainable Energy Authority of Ireland (SEAI) and the support for the new National Ocean Test Facility ('Lir', located in Cork) and MaREI, the national centre for marine and energy research. The other, wind powered, elements of marine renewables divide into two categories. 'Floating wind' and 'hybrids' (floating wind linked to wave) are likely to join the official list of marine renewables demonstration technologies[4]. 'Bottom-fixed wind' is a mature technology and widely deployed internationally. The only example of offshore wind in Ireland is the small array off Arklow, County Wicklow. The lack of development of offshore wind to date, other than at Arklow, was due to lack of a route to market and grid capacity issues as well as a failure to introduce a modern consenting system.

The policy landscape for marine renewables is, however, changing fast. Support for the development of the experimental technologies is growing with the imminent introduction of an important new mechanism, a Pre-Commercial Technology Fund, to tackle specific engineering issues standing in the way of wave energy in particular, and generally to help projects in the Technology Readiness Level (TRL) c3-6 range.

The biggest change, however, is in the area of local market opportunity and this will impact principally on bottom-fixed wind in the first instance and later on the other technologies as they reach commercial status. In essence (see 3. below for more detail), Government renewable electricity targets and

[3] Wave + tidal energy = ocean energy + floating and fixed offshore wind and 'hybrids' (i.e. combined floating wind and wave) = marine renewables. The MRETs are wave, tidal, floating wind and hybrids.

[4] The Association decided in mid-2017 to extend its coverage to floating wind and to 'hybrids'. A decision by the Department of Communications, Climate Action and Environment on the addition of floating wind and hybrids to the aid schemes currently focused on wave and tidal is imminent.

imperatives almost dictate that marine renewables will be called on in a substantial way over the next decade.

'.....our offshore renewables potential will be a critical factor in meeting the challenges ahead'

National Marine Planning Framework Baseline Report Department of Housing, Planning and Local Government, Sept 2018

The purpose of this study is to examine the implications of Marine Spatial Planning (MSP) for marine renewable energy. MSP will play a *critical* part in how the opportunity for offshore renewable energy develops (or does not develop) and it will be in force by early 2021 or even earlier.

The terms of reference for the study, which underpins this Paper, are dealt with in more detail at 5. below.

2. Marine Renewables Potential of Ireland

2.1 Opportunity for Marine Renewables Emerging Technologies

An authoritative source, the European Commission-prompted *Ocean Energy Roadmap*[5], takes an ambitious stance in regard to wave and tidal energy:

'Ocean energy is abundant, geographically diverse and renewable. Under favourable regulatory and economic conditions, ocean energy could meet 10% of the European Union's (EU) power demand by 2050……Ocean energy can be an EU industrial success story. With favourable support over the coming decade, Europe will obtain leadership in a global market, worth a potential €653bn between 2010 and 2050 and an annual market of up to €53bn, significantly benefiting the European economy. The successful development of a competitive European ocean energy industry would also place the European industry in a prime position to seize export opportunities in the global market…Today, 45% of wave energy companies and 50% of tidal energy companies are from the EU…. The global market for ocean energy could see 337GW of installed capacity by 2050, a third of this would be in Europe' p.7, 13.

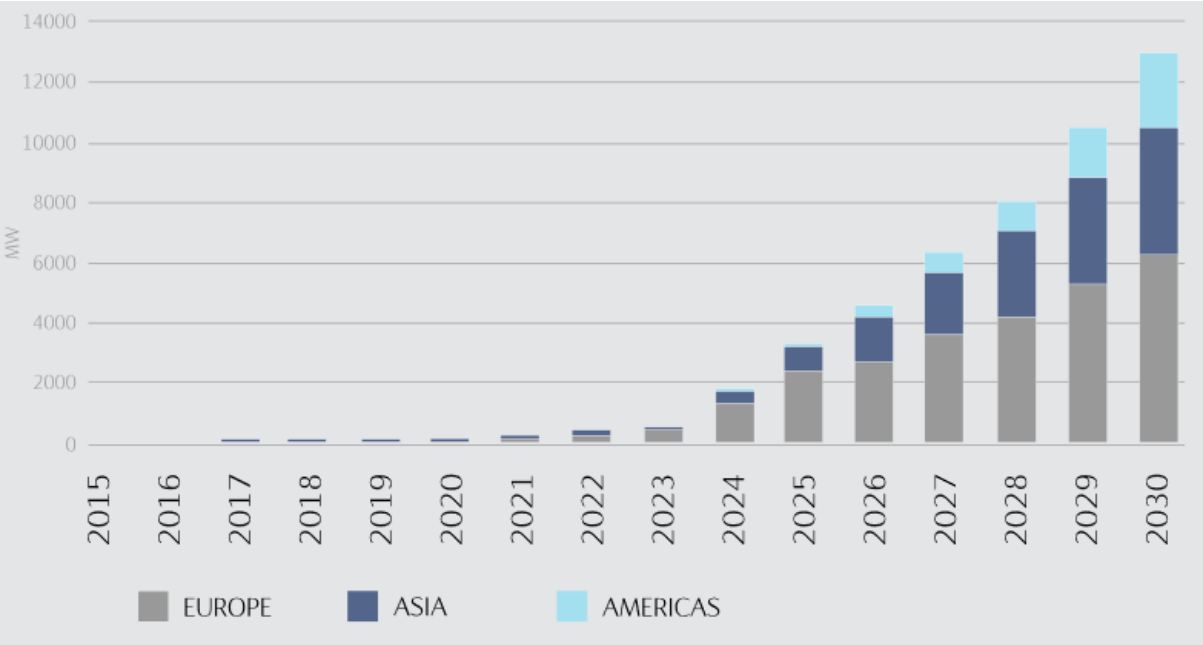
Previous MRIA Papers have set out in detail the state of the art of ocean energy technology, detailed the international economic opportunity it presents and made the argument that in due course ocean energy (not to speak of

[5] *Ocean Energy Strategic Roadmap Building Ocean Energy for Europe.* Prepared for the European Commission, 2016. Available at https://webgate.ec.europa.eu/maritimeforum/en/frontpage/1036.

floating wind and 'hybrids') can achieve an acceptable Levelised Cost of Electricity (LCOE) i.e. become cost competitive[6].

The latest recruit to the MRIA emerging technologies stable, floating wind, is also at an early stage and holds out great promise for the future as is illustrated in Figure 1. Today, the floating wind industry consists almost entirely of Equinor's[7] Hywind 30MW park off the Scottish coast. Growth to at least 30GW forecast by 2030 will entail a more accelerated rate of growth than was seen for onshore and bottom-fixed wind. The potential for Ireland is obvious: we have Europe's highest offshore wind speeds with a potential of 35-40GW (of which 25-27GW is near to shore and thus economical to develop) of floating offshore wind electricity generation potential[8]

Figure 1: Forecast market for floating wind. *Source*: Equinor



The opportunity in marine renewables -resource rich Ireland has three possible dimensions – ENTERPRISE, ELECTRICITY EXPORT MARKETS as well as the scope for LOCAL ELECTRICITY SUPPLY in Ireland.

[6] See, for example, MRIA's *Non-Financial and Non-Technical Barriers to the Development of the Ocean Energy Sector in Ireland Discussion Paper* February 2017 at www.mria.ie

[7] Previously known as Statoil

[8] Source: Eirwind project at www.marei.ie

2.2 ENTERPRISE OPPORTUNITY

The ENTERPRISE element ranges from research and development and device manufacture to operations and maintenance, finance and legal support. This '*supply chain'* in Ireland has an opportunity now in wind-based energy, including offshore wind in the UK which is a major industry today. Irish terrestrial wind energy is also facilitating support companies in Ireland to grow their experience and their skills… as will other forms of terrestrial renewable energy such as solar…. and will enable a number of them to capitalise on the future offshore renewable energy opportunity. To take just one supply chain opportunity in MRETs, a recent report forecasts a global build-out of floating offshore wind of 1GW pa from 2027 rising to 2GW pa from 2030 with the creation of 17,000 new jobs expected in the UK alone[9]. The possibilities, in terms of job and wealth creation, particularly on the west coast of Ireland with its boundless wave and wind resources, are extraordinary.

2.3 ELECTRICITY EXPORT

The aborted *Inter-Governmental Agreement* negotiation some years ago on energy between Ireland and the UK could have enhanced quickly the opportunity outlined above. The arrangements sought then may be revived in time due to UK generation-capacity constraints although the impact of Brexit on this and other aspects of energy is unknown at present. A Memorandum of Understanding between EirGrid and RTE (Réseau de Transport d'Electricité, the French transmission operator) has been signed[10]. The Memorandum of Understanding is an agreement between the two operators to develop the Celtic Interconnector Project. In time, large scale deployment of marine renewables emerging technology devices should drive the cost of MRET based electricity down as 'economies of scale' and the 'learning curve' effect kick in.

2.4 LOCAL MARKET OPPORTUNITIES

Opportunities for wave and floating wind in particular to meet LOCAL MARKET OPPORTUNITIES in Ireland have risen sharply this year for policy reasons, such as demanding 2030 climate change targets, which are explored in full in at 3. A lot of technical issues could be resolved in the new technologies over the next ten years; the intermittency of renewables will be addressed by new electricity storage solutions, particularly in the field of batteries; there may be technical breakthroughs which make them more competitive with traditional energy feedstocks; etc. Two emerging elements that will have a positive impact are floating wind and 'hybrids': devices that combine (floating) wind and wave energy devices.

---

[9] *Macroeconomic Benefits of Floating Offshore Wind in the UK*, Crown Estate Scotland and Catapult Offshore Renewable Energy, September 2018

[10] On 21 July 2016, on the occasion of the visit of President Hollande of France to Dublin

3. National Policy Position

3.1 Marine Renewables and Decarbonisation

Ireland is on a journey to become a country with a vision of the sea as a vital component of our national future.....for instance, the Climate Action and Low Carbon Act, 2015 recognised seafood, agriculture, forestry etc as discrete sectors but not the marine. The *National Adaptation Framework - Planning for a Climate Resilient Ireland*[11] required the Minister for Communications, Climate Action and Environment to develop a series of climate mitigation plans and adaptation frameworks. The NMPF will consider climate change from both a mitigation and an adaptation point of view.

Meeting the European Union's and Ireland's (corresponding) decarbonisation objectives by 2050, will require virtually full decarbonisation of electricity generation and the matching electrification of the heating and transport sectors. These two sectors alone account for around a third of CO_2 emissions.

MRIA expect significant growth in energy storage as well as demand side management solutions and other smart grid developments to facilitate the very high renewable penetration that will be required (see *ESB Networks* innovation strategy[12]: 330,000 homes with e-heat, 1,300MW energy storage and 2,500 MW customer flexibility by 2030). Achieving these targets is vital: the important *Climate Science Special Report* published in the US by leading academics and federal agencies is just one compendium of stark, objective evidence of the potentially devastating climate change underway.[13] It is noteworthy too that the *Citizens Assembly* voted that climate change should be at the heart of Government policy in Ireland[14].

In order to fully decarbonise the energy system by 2050, it is clear that onshore renewables such as wind and solar PV alone will not suffice as these markets will saturate in time and present challenges to the operation of the grid due to their intermittency and lack of output diversity across the projects.... public concerns about terrestrial wind will also have a significant impact. The next step will be to harness the offshore wind resources in the Irish Sea utilising fixed offshore wind technology and, where appropriate, floating offshore wind turbines: suitable locations are near the demand centres; the fixed offshore wind technology at least is already mature and is commercially available to do

[11] Published in 2018 and available at www.dccae.gov.ie
[12] www.esbnetworks.ie/innovation
[13] https://science2017.globalchange.gov/
[14] https://www.citizensassembly.ie

this. This technology will also support more renewables overall on the system because it will provide some diversity compared to land-based wind.

A major step on the journey will be to secure additional renewable energy sources off the west and south west coasts, providing further renewable energy, higher load factors and more diversity in the renewables mix. Options at the moment include nascent technologies such as wave, some tidal, floating offshore wind and hybrids of these. It is likely that a mix of these innovative, emerging technologies will be required in addition, of course, to bottom fixed wind. The ultimate mix will depend on the relevant commercial and technology developments, grid availability, system technology and diversity requirements, domestic consenting factors and the extent to which they are supported through their early development stages. There is also the added attraction of both potential electricity export and capitalising on Ireland's 'early mover' advantage in the innovative technologies with all of the positive implications this may have for supply chain income and job creation, particularly along the west coast of Ireland.

3.2 National Ocean Energy Policy

Ireland–North and South–is a potential renewable energy powerhouse and the sum of its wind (both onshore and offshore), wave and tidal resources is deemed by Siemens to account for one-third of all such resources in Western Europe[15].

Ocean energy - wave and tidal - development is a clear policy concern of the Government of Ireland. It has been singled out as a national priority for research and development support[16]. Supporting the emergence of this industry was set as one of a handful of strategic goals fixed for national energy policy to 2020.[17] The policy statement on the Green Economy, published in November 2012, also highlighted the potential importance of the sector and pledged support.[18] Ireland plays a leading role in a variety of EU supported projects e.g. MARINERG-i, the Bryden Centre etc.

The UCC Beaufort building, part of University College Cork and headquarters of the SFI-funded MaREI Centre, was opened in 2015 and houses the *LiR* national ocean energy tank testing facilities. The new complex and MaREI Centre itself are in receipt of substantial financial support from the Department of

[15] Siemen's presentation at a conference c2011 attended by MRIA

[16] *Report of the Research Prioritisation Steering Group*, Forfas, March 2012

[17] *Strategy for Renewable Energy 2012-2020* Department of Communications, Energy and Natural Resources, 2012

[18] *Delivering our Green Potential - Government Policy Statement on Growth and Employment in the Green Economy* Department of Jobs, Innovation and Enterprise, November 2012

Communications, Climate Action and Environment (DCCAE, previously the Department of Communications, Energy and Natural Resources-DCENR), Sustainable Energy Authority of Ireland (SEAI) and Science Foundation Ireland (SFI) with cash or contributions in kind from around 50 industry partners.

The *SmartBay* Marine and Renewable Energy test site in Galway Bay continues to support the progression of ocean energy and novel marine technologies through the TRL stage gates. The award of the new Galway Bay test site lease in December 2017 allowed for the successful reinstatement of the test site to be completed in late July 2018, after careful planning and accomplishment of pre-reinstatement requirements. The new lease allows for one of the three test berths to be used to test prototype floating wind devices, while continuing to facilitate wave energy devices also. The test site has secured significant capital investment support from industry, SEAI, Science Foundation Ireland and EU public funds. Since 2012, a total of 44 different projects have been supported to use the facility under a special access programme (NIAP). A total of 12 projects have received EU funding and a further two are completing contract negotiation.

The SmartBay Ireland team, in close cooperation with the Marine Institute (Ocean Science Information Services), is providing test site access and marine science support for the following projects: RECODE (to assist in the development and testing of an umbilical cable monitoring system); FORESEA (to support testing and validation of low carbon technologies in marine test centres); MARINA (to promote responsible research and innovation in Europe's R&D); JERICO-NEXT (involves harmonization and improvement of ocean observation and R&D through facilitated access to research infrastructures, and transnational access to the test site); MARINET2 (free access to test sites for marine renewable energy technologies); MaRITeC-X (to assist in the creation of a Marine and Maritime Research and Innovation Technology Centre of Excellence based in Cyprus) and MELOA (tests in Ireland and overall validation of a novel, low-cost and easily deployable ocean surface drifter).

SmartBay Ireland is a partner in the €11m FORESEA project. To date, SmartBay Ireland has granted six support packages for access to the test site. These developers receive free access to test ocean energy-related technologies in real-sea conditions at SmartBay. Work is underway to implement this access before December 2019. The project is funded through the Interreg NWE programme, part of the European Regional Development Fund. The project aims to encourage longer term testing and technology de-risking, thereby

leveraging further investment and enabling progression towards the marketplace.

To the north of SmartBay, work by SEAI is in hand to develop, on a phased basis, a full-scale test site (*Atlantic Marine Energy Test Site*, AMETS) at Belmullet in County Mayo. Although there is probably no device at present which could survive at AMETS in winter (at least!), it is a smart investment in the future and *'successfully tested at AMETS'* could well become a vital marketing tool in ocean energy globally. There is a need to increase the capacity of the grid connection at AMETS to 15MW + to cater for e.g. floating wind devices.

The most important recent policy development in Irish ocean energy was the publication of the *Offshore Renewable Energy Development Plan*[19] (OREDP) in February, 2014. The OREDP contained a number of new initiatives including extra financial support, an initial market support tariff for wave and tidal energy etc. It is being implemented by a Steering Group of officials representing all relevant Departments and agencies. The mid-term review of the OREDP[20] made a number of important recommendations for consideration by Government including the extension of the initial market support tariff to floating offshore wind, an increase in the quantum (MWs) eligible for support and the introduction of a graduated dedicated (to MRETs) tariff range i.e. higher support for early projects and lower support as technology reaches maturity.

3.3 *Renewable Energy Support Scheme*

The long-awaited *Renewable Energy Support Scheme (RESS) High Level Design*[21] for Ireland was published in July 2018. The Paper announced a model (see below) to allocate tariff support to renewable energy generally which holds out considerable hope for, initially, bottom fixed offshore wind and later the emerging technologies of wave, tidal, floating wind and hybrids as they achieve technical reliability and some cost competitiveness. It is a technology neutral approach but with a twist: 'intervention levers', notably caps on specific technologies in each auction, will apply after the first auction in 2019.

[19] OREDP: *Offshore Renewable Energy Development Plan - a Framework for the Sustainable Development of Ireland's Offshore Renewable Energy Resource* Department of Communications, Energy and Natural Resources, February 2014. The Plan deals with offshore wind energy as well as wave and tidal energy

[20] https://www.dccae.gov.ie/documents/OREDP%20Interim%20Review%2020180514.pdf

[21] https://www.dccae.gov.ie/documents/RESS%20Design%20Paper.pdf

Policy drivers

The first driver of the RESS proposal is Ireland's likely performance v EU targets for 2020 and the first auction under RESS will be geared towards 'shovel ready' projects – all of them onshore wind? – which must be completed and connected to the grid by 2020! The RESS Paper states that '.... Ireland is committed to doing everything within its power to closing the gap on the expected shortfall to our 2020 RES binding targets. (p22)'. Thereafter, a different situation will apply.

Ireland was set a Renewable Energy Source (RES) target of 16% by 2020. The latest prediction is that we will achieve 13.2 – 15.4% of this with the latter being on the optimistic side. The RES target is made up of three components: *RES- Heat*, *RES- Transport* and *RES- Electricity*. The latter carries the bulk of the load and had achieved 27.2% (i.e. 27.2% of electricity generated from renewable sources) by 2016 against a 2020 target of 40%. The other two components – RES-T and RES-H are well behind target. The Table below from the RESS Paper illustrates the point:

Table 1 - from p3 of the RESS Paper

	Progress towards targets									Target
% of each target	2000	2005	2010	2011	2012	2013	2014	2015	2016	2020
RES-E (normalised)	4.8	7.2	14.6	17.4	19.7	21.0	22.9	25.3	27.2	40
RES-T	0	0	2.4	3.7	3.9	4.8	5.1	5.7	5.0	10
RES-H	2.4	3.5	4.5	4.9	5.1	5.5	6.6	6.6	6.8	12
Directive (2009/29/EC)	**2.0**	**2.8**	**5.6**	**6.5**	**7.1**	**7.6**	**8.6**	**9.1**	**9.5**	**16**

Source: SEAI

Next comes the 2030 target set by the EU of 32% RES for the whole Union which will be subject to review (upwards?) in 2023. This may well be amended in the short term by the European Parliament to include compulsory national targets with Ireland likely to be required to achieve as much as 28% RES by 2030, a very steep hill to climb given the long timeframes involved in energy developments. The RESS Paper speculates about an Irish RES-E target of as much as 55% but is ambiguous about the timing. It is reasonable to suggest that the working assumption underlying a lot of the Paper is a RES-E of 55% which has deep implications for marine renewables. The Department of Communications, Climate Action and Environment are seeking State Aid approval from the EU for 55% RES-E to provide for all eventualities (p12).

The support model

The model is based on a series of auctions for RES-E support and the working assumption is that all RES-E technologies will require support out to 2025 at least. The capital and operating costs of onshore wind and solar are falling as they move along the learning curve. All auctions will be subject to 'viability gap lookback analysis' i.e. a retrospective review to determine whether all technologies participating in the auction(s) actually needed (and, therefore, need for the future) RESS support to ensure commercial viability.

No mention is made of the emerging technologies of wave, tidal and floating wind as these are dealt with under a separate heading, the *Offshore Renewable Energy Development Plan Mid – Term Review,* which is very positive about them. There is, however, nothing to stop the promoter of any type of technology from participation in any auction.

There will be targeted delivery dates for auction winners and tough penalties for failure to deliver on time. There will be budget caps per auction and scope for caps on individual technologies in order to allow new technology entrants. An Administrative Strike Price per technology i.e. the maximum price DCCAE are willing to pay (via a Public Service Obligation on consumer bills) will also be a feature. There are a lot of other technical points in the Paper (e.g. at p20) – the most important perhaps of these is Uniform Price whereby '.... the level set by the highest value bidder still needed to meet the required amount of RES-E capacity being auctioned. All bidders with offers below the clearing price would receive the auction clearing price' (p20).

The model presumes that energy diversity – which will be helped along by the technology caps referred to above - is natural as costs fall due to technology development, '.....social acceptance challenges and limits to the amount of available land for onshore wind.... (p10)', competitive procurement and an active base of developers. Moreover, proposed amendments to the WEDGs (*Wind Energy Development Guidelines*) are likely to have a direct (negative) impact on the volume of electricity that onshore wind will be able to deliver even though it will be the cheapest form of renewable energy, as the Paper acknowledges (p11)

Because of the differing effectiveness of different technologies, targets and auctions will be set in terms of GWh rather than MW. Table 2 illustrates the 'effectiveness' issue and Figure 2 illustrates the impact of one possible mix on the number of GWh needed to achieve a 55% RES. Table 3 shows a first pass at auction dates.

Table 2– Volume of capacity per technology needed to deliver a sample of 1000GWhrs: from p16 of the RESS Paper:

Technology	Capacity Factor	No. of MWs required to deliver 1,000 GW/hrs.
Onshore Wind	31%	356
Offshore Wind	45%	253
Solar PV	11%	1000
Biomass	85%	134

Figure 2 Volume of new RESS-E generation required - from p12 of the RESS Paper

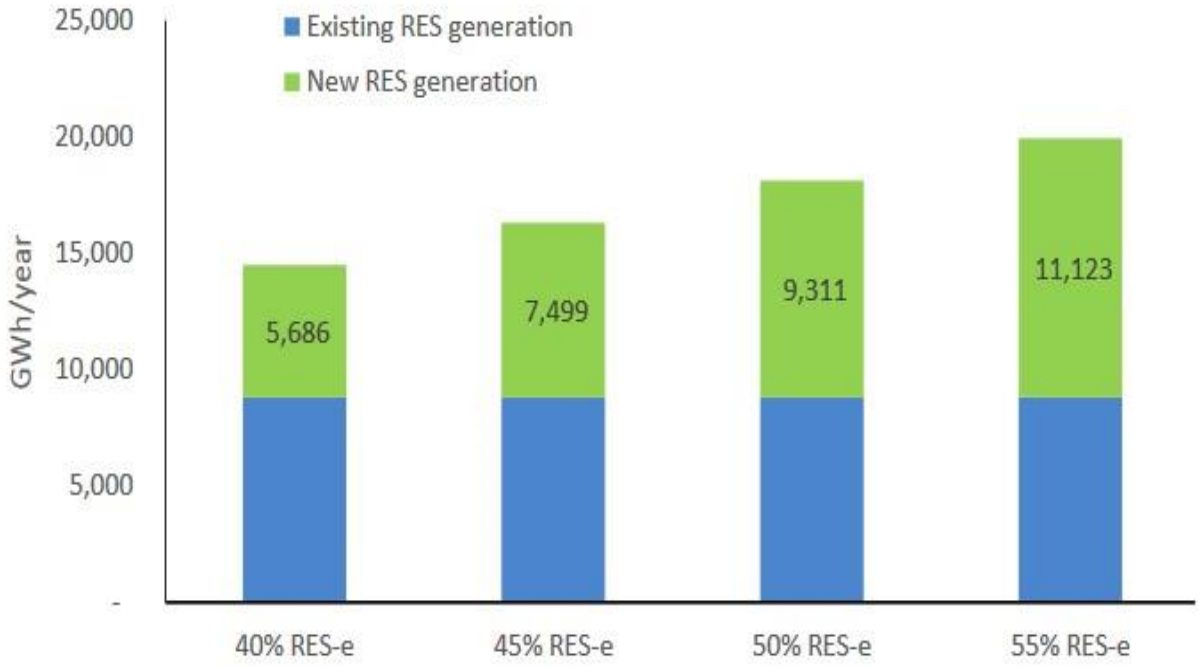


Table 3 – Indicative roadmap of auctions, from RESS Paper, p16

	Auction Capacity (GW/hrs)	Auction Year	Delivery Year (end of)	Single Technology Cap
RESS 1	1,000	2019	2020	No
RESS 2	3,000	2020	2022	Yes
RESS 3	3,000	2021	2025	tbc
RESS 4	4,000	2023	2027	tbc
RESS 5 (possible)	2,500	2025	2030	tbc

Community benefit and shareholdings

There will be a Community Benefit (CB) register and CB will be compulsory for all renewables projects - the rate has been set at €2/MWhr.

Community promoted and owned projects will be facilitated and may be allocated as much as 10% of the capacity under auction at any one auction. Most importantly, there is a requirement for community participation in commercial renewables developments. Developers will be required to make transparent and fair investment opportunities available to communities within 5km of the development with a fall back of 10km but will not be penalised if they fail to attract community investment. The 5/10km rule means that many offshore projects will be exempted by definition.

RESS opens a pathway to commercial deployment for offshore marine renewables for the first time, both in terms of tariff support and in terms of real market opportunity. All of the indications are that the State's 2030 RES-E target (which represents our major contribution to combating climate change) cannot be achieved without a major contribution from marine renewables and, of course, the bulk of the offshore resource is off the west coast and most of it can be exploited only by wave and floating wind/hybrid technology.

3.4 Pre-Commercial Technology Fund

Financial support for ocean energy overall by Government has increased in recent years e.g. SEAI recorded support for project no.120 in August 2018 and is approaching €20m in total expenditure in support of Prototype Development Fund (PDF) projects.

The main State funding for ocean energy companies has been provided by the SEAI PDF and this has met the needs of the industry to date. The original OREDP envisaged up to a further €30m being injected into the industry from about 2018 through to 2020. Some of this would, of course, be required to meet the ongoing investment needs of the various test facilities and the balance would be directed to fund projects under the PDF (and a forthcoming Pre-Commercial Technology Fund (PCTF) – see below).

The MRIA, in a paper published in late 2015, called for the establishment of a Pre-Commercial Technology Fund (PCTF), which would complement the PDF. The PCTF would broadly mirror the approach of Wave Energy Scotland (WES) but with modifications based on Scotland's experience and Ireland's needs. Most importantly, the PCTF should complement, not duplicate, the work of WES. The document proposed that SEAI utilise an SBIR[22] mechanism to seek solutions to various issues (focused, but hopefully not exclusively, on wave energy) via a series of competitions and the provision of 100 % funding.

SEAI is now at an advanced stage of designing a pilot PCTF and it is anticipated that a Call for Proposals on the first topic(s) chosen for 'pre-commercial procurement' will be launched presently. In addition, it is understood that the European Commission will launch a Call under Horizon 2020 to run an EU wide PCTF-like scheme. There will be a challenge to coordinate all of the three approaches – WES, PCTF and 'EU PCTF' – but, nonetheless, the approach is to be warmly welcomed, as it will bring extra funds into the industry. In regard to the PDF, it will continue to fund prototypes and its (intentionally) wide terms of reference mean that the funding offered is flexible for a wide range of TRL developments.

There is still a great deal of policy and practical work to be done to ensure that we exploit our marine renewables opportunity to the maximum extent possible. Most pressing of all, the 'consenting' legislation to support marine economic activity must be updated via *the Maritime Area and Foreshore (Amendment) Bill* where possible positive developments were reported as this Paper was published.

In Northern Ireland, the home of considerable expertise in the marine, e.g. Harland and Wolff Heavy Industries, the first offshore leasing round has taken place and two significant tidal projects (100 MW each) were among those selected. However, the current focus of British energy policy to secure lowest possible cost renewables has militated against MRET and it will be interesting to observe how this ultimately plays out. Significant R & D work continues to be recorded in Northern Ireland e.g.

[22] *Small Business Innovation Research*, a mechanism whereby a State body can procure pre-commercial innovation solutions to issues

under the *Centre for Advanced Sustainable Energy* (CASE) at Queens University Belfast.

3.5 MRIA POLICY STUDIES

This Paper is the ninth in a series of studies into long-term development issues in marine renewables emerging technologies undertaken by the MRIA.

The first Paper dealt with the third-level education needs[23] of ocean energy and led directly to the establishment of a Master's degree in engineering focused on ocean energy executed jointly by a number of institutions (led by University College Cork - UCC) in both Ireland and Northern Ireland.

The second study reviewed research and development in ocean energy in Ireland[24] and was published in September 2012. It identified a series of five research priorities in ocean energy, both for the research community and, also, for those engaged in the allocation of research resources.

The third study examined the supply chain for ocean energy[25] in Ireland and was published in June 2013.

The fourth Paper was published in December 2013 and dealt with the potential for co-operation between Ireland and Scotland in ocean energy[26].

The fifth Paper dealt with the maritime infrastructure needs of ocean energy[27] and was published in December 2014 and focused on ports in particular. A key recommendation was that preliminary planning should commence for a port facility in Mayo which might be needed in the 2030s.

The sixth Paper was published in February 2016 and dealt with funding the development of the ocean energy industry in Ireland and its core recommendation, the creation of a Pre-Commercial Technology Fund, has helped to prompt action in official circles[28].

The seventh Paper was published in February 2017 and dealt with the non-technical barriers to the growth of Irish ocean energy[29].

---

[23] *Third-Level Education Needs of the Ocean Energy Industry – to maximise the job and income potential of Ireland's ocean energy resource* MRIA August 2011

[24] *Research and Development and Ocean Energy- A Review of Research and Development in Ocean Energy in Ireland* MRIA September 2012

[25] *The Supply Chain for the Ocean Energy Industry in Ireland – Discussion Paper* MRIA June 2013

[26] *The Opportunity for Co-Operation and Collaboration between Ireland and Scotland in Ocean Energy* MRIA December 2013

[27] *Maritime Infrastructure Development Priorities to Support Ireland's Future Ocean Energy Industry* MRIA Discussion Paper December 2014

[28] *Funding the Development of the Ocean Energy Industry in Ireland-Discussion Paper* MRIA February 2016

[29] *Non-Financial and Non-Technical Barriers to the Development of the Ocean Energy Sector in Ireland- Discussion Paper* MRIA February 2017

The eighth Paper was published in early 2018 and dealt with the collaboration and innovation challenges facing ocean energy companies[30]

All of these Papers (and others on subjects such as initial development zones, consenting etc.) are available on the Association's website, www.mria.ie .

4. Marine Spatial Planning

4.1 What is Marine Spatial Planning?

An expanding range of activities take place at sea including fishing, recreation, oil and gas exploration and exploitation, renewable energy development, transport, aquaculture etc. In many fields - aquaculture and energy are good examples - activity is growing under 'Blue Growth' policies designed to increase the economic contribution of maritime activities. Ireland's overarching policy for the ocean, *Harnessing Our Ocean Wealth*[31], popularly referred to by its acronym HOOW, is a good example of this modern trend.

There is a long tradition of *sector* (e.g. oil and gas[32]) and *species* (e.g. in the fish and wildlife area[33]) specific policies and management schemes for the marine. However, expanding marine activity coupled with the sensitive marine ecology has led to the emergence of Ecosystem-based Management (EBM), which "seeks to broaden the scope of traditional resource management so that it considers a wider range of ecological, environmental and human factors in the exploitation of resources"[34]. The EU Directive on MSP requires an ecosystem approach[35].

Stakeholder engagement is deemed to be a key feature of MSP. Research in Scotland, a lodestar for Ireland in MSP matters, indicates that MSP is '...making the marine and coastal environment more governable.'[36]

[30] *Collaboration and Innovation Challenges faced by the Ocean Energy Sector and Possible Solutions* MRIA 2018
[31] *Harnessing Our Ocean Wealth – an Integrated Marine Plan for Ireland* Government of Ireland / Marine Coordination Group, 2012
[32] See, for example, *Plan for issue of Petroleum Exploration and Production Authorisations in Irish Offshore Waters during the Period 2015 to 2020* Department of Communications, Energy and Natural Resources, 2015
[33] See, for example, *Red List No.5: Amphibians, Reptiles & Freshwater Fish* National Parks and Wildlife Service, 2011
[34] Smith, G., 2018. *Good Governance and the role of the public in Scotland's marine spatial planning system Marine Policy*, 94, pp.1-9.
[35] EU Directive 2014/89/EU
[36] Smith, G. 2015. *Creating the spaces, filling them up, Marine spatial planning in the Pentland Firth and Orkney Waters, Ocean and Coastal Management, 116, 132-142.*

Table 4: hierarchy of marine governance – *source*: MRIA

Activity and ranking	***Comment***
1.Overarching policy framework	In Ireland, this is dealt with by *Harnessing Our Ocean Wealth*
2. Marine spatial planning	The *National Marine Planning Framework* will complement the terrestrial *National Planning Framework*
3. Sectoral and Local Plans	The *Offshore Renewable Energy Development Plan*[37] is a good example of a sectoral plan while local plans for coastal areas may be decided at a future date.
4. Consenting	Under proposed legislation, this will be dealt with by An Bord Pleanála in regard to offshore renewable energy
5. Operations and enforcement	A body, yet to be designated, will manage leases for ORE

Marine Spatial Planning is a modern tool, a public process, to deal with this complexity and does so with a wide-ranging analysis of how economic activities interact with one another and with the natural environment. The desired practical outcome is used to make decisions about spatial arrangements for human activity in the sea.[38]

The place of Marine Spatial Planning in the *hierarchy* of marine governance is illustrated in Table 4 above.

[37] *Offshore Renewable Energy Development Plan* Department of Communications, Energy and Natural Resources, 2014 – popularly referred to as 'OREDP'

[38] Scholarly definitions etc. of MSP may be found, for example, at *Creating the spaces, filling them up, Marine spatial planning in the Pentland Firth and Orkney Waters* op cit while the Government's initial roadmap for MSP (*Towards a Marine Spatial Plan for Ireland*, Department of Housing, Planning and Local Government, 2017) gives a clear explanation of MSP in lay terms.

4.2 WHY UNDERTAKE MARINE SPATIAL PLANNING?

The Competent Authority for MSP in Ireland, the Department of Housing, Planning and Local Government (DHPLG), is clear about the benefits of MSP which will ensure that '...our marine area will finally have a system comparable to the well-established and tested planning system on land...'[39] The benefits of MSP have been adduced to include:

- Effective management of marine activities
- More sustainable use of our marine resources
- A clear direction for managing our seas including setting objectives and priorities by Government
- Public engagement in the management of the marine area
- More certainty on where activities can take place..... speeds up the consenting process e.g. for offshore renewables
- Integrated social, economic and environmental needs

The DHPLG position, which emerged in 2016 from extensive preparatory work undertaken before the formal national MSP exercise, commenced when the Regulations which transposed the MPS Directive into Irish law were enacted but have since been revoked due to their inclusion in the *Planning and Development (Amendment) Act, 2018* [Part IV].

In particular, the report of the *Enablers Task Force* on MSP[40] identified the potential economic benefits of MSP as being:

- Co-ordination efficiency of Governments i.e. better organised decision taking
- Reduced transaction costs i.e. lower legal, administrative and opportunity costs for investors in maritime activities
- An improved investment climate for maritime business I.e. MSP should enhance certainty

MSP is part of a complex tapestry under the umbrella of *Harnessing our Ocean Wealth* which identified the need for an integrated marine plan underpinned by an efficient and robust marine consent process. The Marine Strategy Framework Directive (MSFD), the Water Framework Directive (WFD) and the National Planning Framework (NPF) all have links to MSP.

Key points made in the MSP Baseline Report[41] about the 'tapestry' include:

- (3.34) 'The National Marine Planning Framework will not replace or remove existing regulatory regimes or legislative requirements governing the operation

[39] *Towards a Marine Spatial Plan for Ireland* op cit
[40] *Enablers Task Force on Marine Spatial Planning*, Marine Institute, 2015
[41] *National Marine Planning Framework Baseline Report* Department of Housing, Planning and Local Government, 2018

of various marine sectoral activities. Rather, it will provide an overarching framework for their continued operation'.

- (3.28) 'The requirements of Directive 2001/42/EC on the assessment of the effects of certain plans and programmes on the environment, more commonly known as the Strategic Environmental Assessment (SEA) Directive, will be addressed in respect of the draft marine spatial plan'.
- (3.29) 'The European Communities (Birds and Natural Habitats) Regulations 2011 (S.I. No. 477 of 2011), transpose the Birds and Habitats Directives in Irish law. The regulations require that a screening for appropriate assessment (AA) is carried out and, if required, that an appropriate assessment is carried out'.
- (3.30) 'External consultants will be employed by DHPLG to carry out the environmental assessments and the results of those assessments will be published along with the draft National Marine Planning Framework'.

The practical users of MSP include the consenting authority (in future - presumably - An Bord Pleanála) for marine renewables under planned Irish legislation, local authorities, environmental agencies, marine business developers etc.[42]. It is important to bear in mind that *MSP is not just about environmental protection but neither is it exclusively concerned with energy development or with local communities.*

However, the benefits of MSP are not unquestioned. Leading MSP scholars[43] have argued that the 'rationalist MSP paradigm is being implemented (internationally) rapidly and extensively' without consideration of the distributional effects of MSP and with only limited experience and tools to guide MSP implementation.

4.3 Background to Marine Spatial Planning in Ireland

The broad need for Marine Spatial Planning has been recognised in Ireland for at least twenty years. While recognising that Coastal Zone Management (CZM)[44] is not the same as MSP, it is worth noting that a draft policy for *Coastal Zone Management*[45] was published in 1997 and this took a brave step in the direction of a planned approach to the marine. Whilst initially published as a draft policy, it was subsequently deemed a discussion document.

[42] See www.muses-project.eu for a list for Scotland.

[43] Flannery et al., 2016. *Exploring the winners and losers of marine environmental governance* in *Planning Theory and Practice,* 17(1), 121-122.

[44] It takes the terrestrial dimension as well as the marine aspect into account.

[45] Brady Shipman Martin 1997 *Coastal Zone Management - A draft policy for Ireland.* Prepared for the Department of Arts, Heritage, Gaeltacht and the Islands; the Department of Environment and Local Government; and the Department of Marine and Natural Resources. A copy is held by the Marine Institute.

The Marine Renewables Industry Association's second policy Paper had a strong MSP element to it. *Initial Development Zones*[46], published in 2010, called for the establishment of four Initial Development Zones in order to expedite the development of the industry. The then Department of Communications, Energy and Natural Resources (now Communications, Climate Action and Environment-DCCAE) published the important *Offshore Renewable Energy Development Plan* (OREDP) in early 2014 which called for inter alia an integrated approach to marine planning.

Alas, very little happened for a long time to introduce marine planning at any level, probably for several reasons. First, the historic 'sea-blindness', which is now gradually fading away, of the Irish people may have played a part. Second, the challenge – which is still with us – of an entirely unfit-for-modern-purpose offshore consenting system may have been perceived as a major blockage (which it remains) to marine policy development. Third, the political and public administration systems were distracted by the 'Celtic Tiger' phenomena, and with cleaning up its aftermath from c2009 onwards. Fourth, the awareness of renewable energy and of Ireland's bountiful resource was low. Finally, there was no legal requirement to do marine planning!

Nonetheless, Marine Spatial Planning has emerged in Ireland recently due to a number of factors such as the influence of HOOW, the emergence of the offshore renewable energy opportunity and general economic recovery. The most important influence by far, however, was the European Union.

The EU adopted an MSP Directive, EU Directive 2014/89/EU in 2014, that establishes an EU-wide framework for MSP[47] and requires Member States to have Marine Spatial Plans in place by 31 March, 2021. The introduction of MSP on a Union-wide basis had been well-signalled in advance and significant preparatory work was undertaken by both the European Commission and various Member States including Ireland. [48].

As part of the implementation of HOOW, the Marine Coordination Group (an inter-Departmental group of civil servants dealing with various marine matters) in association with the Marine Institute commissioned a study to review all international, European and national law relevant for the development of a framework for marine spatial planning (MSP) for Irish waters in 2014.[49] This study suggested a range of options for MSP in Ireland together with criteria for testing

[46] *Initial Development Zones – To Focus on Realizing Ireland's Ocean Energy Potential* Marine Renewables Industry Association, 2010. Available at www.mria.ie

[47] It is well summarised in *Towards a Marine Spatial Plan for Ireland* op cit

[48] Notably in *National, International and EU Legal Instruments Relevant to the Development of a Marine Spatial Planning Framework in Ireland* Marine Institute, 2014 and *Enablers Task Force on Marine Spatial Planning* op cit

[49] Available from https://oar.marine.ie/handle/10793/1039

those options. In parallel, a review of international best practice in marine spatial planning[50] was also commissioned.

Both these studies informed the work of the Enablers Task Force (ETF) on MSP who were tasked with developing an appropriate MSP framework for Ireland within which the scope and objectives of an overarching national marine spatial plan will be defined. Their report[51], published in 2015, has largely been followed through by DHPLG in their approach to MSP. For example, the ETF recommended a 'Broad brush national marine spatial plan (based on HOOW) to be followed by one or more detailed sub-national plans' (p59) and that implementation of MSP will be achieved through 'Providing a plan-led, cross-sectoral, spatial policy framework which will guide...specified marine licences and consents' and 'Providing an overarching and integrated national spatial marine plan with which marine sectoral plans and coastal land use development plans can be aligned' (p91).

Ireland transposed the EU MSP Directive through the European Union (Framework for Maritime Spatial Planning) Regulations 2016, which have since been revoked by Part 5 of the Planning and Development (Amendment) Act, 2018.[52] The latter provides that the National Marine Planning Framework has an equivalent status to the National Planning Framework. A dynamic exercise, led by DHPLG, to prepare the NMPF is now underway and the first public consultation on the Baseline Report to support NMPF has commenced.[53]

4.4 Other countries experiences of MSP

Marine Spatial Planning is underway in much of the EU and there are useful experiences to be drawn on also from Australia, Norway and Canada[54]. A number of relevant examples are briefly dealt with below.

European Union

France

France, unlike the UK and the Netherlands, has not had a consistent maritime ambition. As a result, development of maritime activities has not always been a national priority. Coastal authorities have been long involved in spatial planning out to 12nm. There are currently no official maritime spatial plans in existence in France. With a highly decentralised governance system, four inter-regional

[50] Available from https://oar.marine.ie/handle/10793/1041

[51] *Enablers Task Force on Marine Spatial Planning*. Available from www.ouroceanwealth.ie/publications

[52] http://www.irishstatutebook.ie/eli/2018/act/16/section/66/enacted/en/html#part5

[53] MRIA is a member of the *National Advisory Group on Marine Spatial Planning* at DHPLG. See the consultation document *National Marine Planning Framework Baseline Report* Department of Housing, Planning and Local Government, September 2018

[54] To look into international practice further, see, for example, *Review of Marine Spatial Planning Best Practice of Relevance to Ireland* Flannery, Queens University Belfast, 2014

Directorates for the Sea (*Direction InterRégionale de la Mer – DIRM*) cover the whole coast of metropolitan France: East Channel-North Sea; North Atlantic-West Channel; South Atlantic; Mediterranean. For each of the four coastlines, plans are established under the authority of the Coordinating Prefecture (*Préfets Coordonnateurs*), the prefecture of the region (*Préfet de Region*) nominated for that purpose, and the maritime prefecture (*Préfet Maritime*). French legislation transposing the EU's MSP Directive provides that MSP will be implemented through strategic planning documents (*Stratégiques de Façade*) and in parallel with implementation of the EU Marine Strategy Framework Directive

Germany

The German MSP is interesting because it gave some emphasis to facilitating economic development (including wind farm development) and it aims to manage key sectors so as to avoid conflict. It established zones within which defined uses are given favourable treatment and it involved relatively little stakeholder participation.

The Netherlands

MSP in the Netherlands can be traced back to at least 2005 and led ultimately to an integrated management plan for the (Dutch) North Sea, the latest version of which covers the period 2016-2021. The National Water Plan provides a policy framework for MSP based on the Water Act, and includes the Policy Document for the North Sea 2016-2021 as an appendix.

There are a number of interesting features to the Dutch approach. Only central government has jurisdiction over marine areas beyond 1 km from the coast. However, the first kilometre has a complex governance system involving shared competences between municipal, provincial and national bodies. There are zones, integrated permitting, 'opportunity maps' and protection of area-specific natural features while implementation is undertaken principally through the permitting process.

Interestingly, the fishing community in the Netherlands was reported recently to have protested about being 'crowded out of traditional fishing grounds' by wind farm developments – both those in place and those planned – and claimed that 25% of Dutch fishing areas will be out of bounds to them due to wind farms by 2025[55]. See also 7. below for (negative) comments on MSP in the Netherlands by interviewees for this Paper. The Dutch MSP spatial allocation to 2021 is illustrated at Figure 3 on the next page.

[55] Reported in the *Guardian* on 1 June 2018

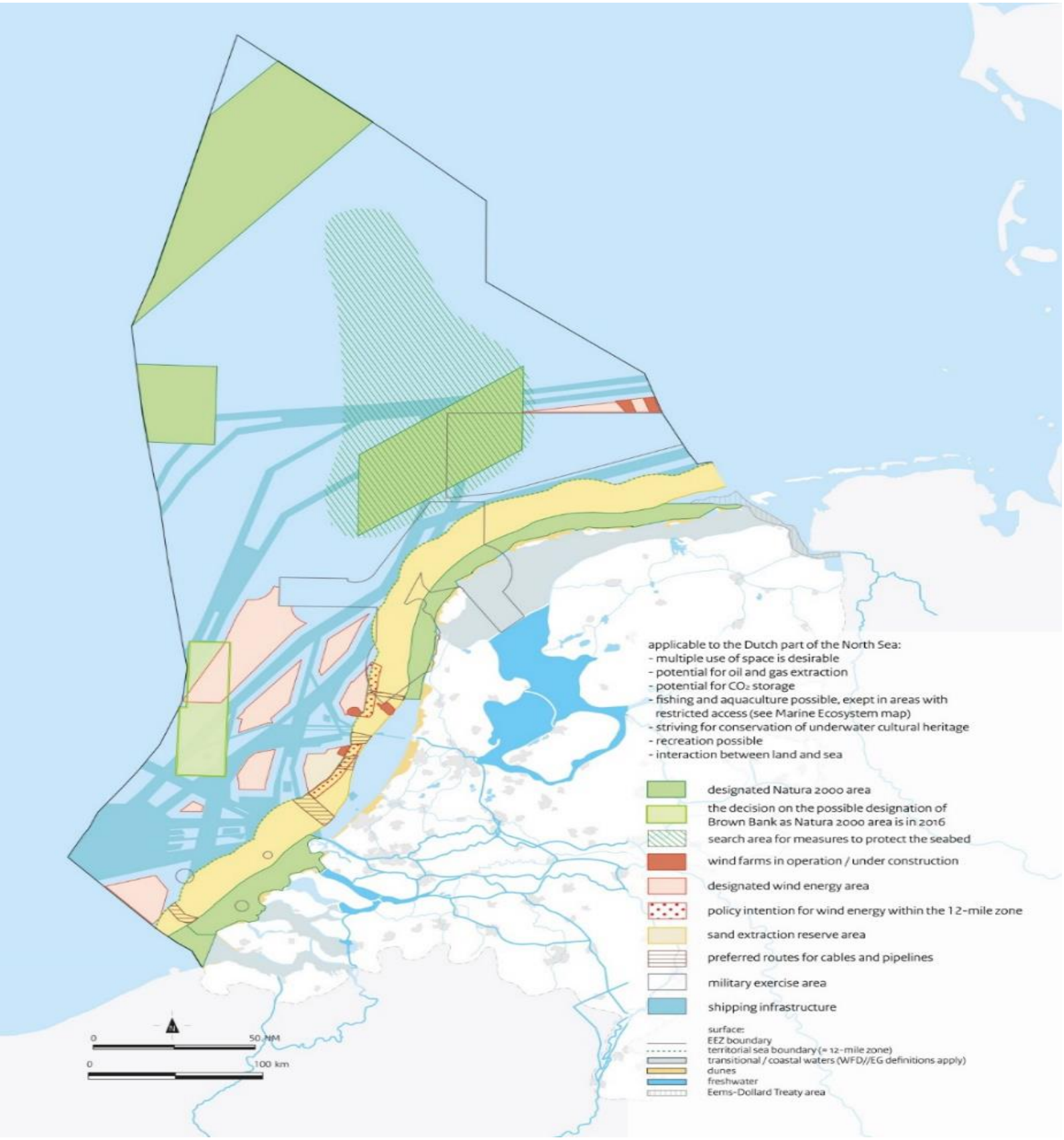


Figure 3: Netherlands spatial allocation to 2021. *Source*: Presentation by Lodewijk Abspoel, Ministerie van Infrastructure en Waterstaat at DIT as part of MSP public meeting organised by DHPLG on 23 October 2018 Green: marine protected areas. Pink: offshore wind energy. Yellow: strategic sand buffers for coastal protection. Blue: shipping lanes

England, Northern Ireland and Wales

The UK is divided into marine planning regions with an associated planning authority that prepares a marine plan for each area. In Scotland, Wales and Northern Ireland, the devolved administrations are the planning authorities while the *Marine Management Organisation* (MMO) is the planning authority in England. Overall, the UK marine plans are intended to provide guidance to support licensing authorities and broadly indicate suitable locations for individual activities i.e. there is no zoning per se[56]

Responsibility for MSP is devolved from 0 to 12 nautical miles offshore in Northern Ireland and Wales and out to 200 nm in Scotland.

In England, the Department for Environment, Food & Rural Affairs (DEFRA) is the competent authority for marine planning, while the body responsible for preparing marine plans is the MMO. There is no national MSP but, rather, the marine area has been split into 11 marine plan areas where local plans are being drawn up under the overall guidance of the MMO. Each English Plan must have a sustainability appraisal, incorporating a Strategic Environmental Assessment. The first plans, the East Marine Plans, were published in 2014. In 2018, the second marine plans covering the South area were adopted. These are now being followed by plans for the North West, North East, South East and South West.[57]

Scotland

Scotland has set a demanding target of 50% of energy consumption (electricity, heat and transport) from renewable sources by 2030. The Scottish experience of MSP is of particular interest to Ireland because Scotland too has significant offshore renewable energy resources and a similar ambition to be a leading industrial player in the field. The historic involvement of the Crown Estate[58], now through Crown Estate Scotland, in the policy mix in Scotland[59], particularly the priority given to marine renewables, is also noteworthy.

Scotland came to MSP earlier than Ireland and did so with relatively 'legislation and policy - rich' backing as is illustrated in Table 5[60]

[56] Flannery op cit

[57] https://www.gov.uk/government/publications/marine-plan-areas-in-england

[58] The Crown Estate manages the seabed and inter alia leases portions of it to e.g. to offshore energy developers.

[59] See, for example, *New offshore wind leasing for Scotland- Discussion Document* Crown Estate Scotland, 2018

[60] *Creating the spaces, filling them up, Marine spatial planning in the Pentland Firth and Orkney Waters* op cit

Table 5: Underpinning of Scottish MSP *Source*: MRIA

Year	***Legislation/Report/Plan***	***Comment***
2007	Advisory Group on Marine and Coastal Strategy reports for Scotland	Minister-chaired and recommended MSP
2009	Marine and Coastal Access Act (UK)	Prepared for MSP and extended Scottish remit to 200 nm
2010	Marine (Scotland) Act	Granted Scotland further rights in planning out to 200 nm
2011	Marine Policy Statement (UK)	Set out the principles for MSP throughout the UK
2011	Blue Seas Green Energy – A Sectoral Marine Plan for Offshore Wind Energy in Scottish Territorial Waters	Dealt with initial sites for offshore wind development
2015	Scottish National Marine Plan	Overarching planning framework for all marine activities in Scottish waters. Scotland is setting up 11 Scottish Marine Regions
2016-to date	Regional Marine Plans for 11 Scottish regions	Regional plans will cover sea areas extending out to 12 nautical miles and will be developed by Marine Planning Partnerships, mandated through Ministerial Direction. The Clyde Region and the Shetlands Isles are the first two of these regions to take forward their plans.

A particularly interesting feature of Scottish MSP is that initial sites (arguably, 'zones') for offshore renewables development were recognised in advance of the 2015 Scottish *National Marine Plan.* In 2009, The Crown Estate undertook the first stage of lease bidding on Scottish Territorial Waters and provisionally awarded 10 sites to bidders. The Scottish Government undertook a Strategic Environmental Assessment (SEA) of the sites (the UK SEA, on the other hand, identifies strategic areas suitable for development). The Scottish Government also commissioned an

economic impact assessment of the sites. In 2011, Scottish Ministers finally decided on six sites[61] i.e. four years prior to the final MSP.

The Pentland Firth and Orkney Waters (PFOW) are an important area for marine renewables (e.g., the European Marine Energy Centre – EMEC – is located there). PFOW was the first, pilot marine spatial planning area in Scotland – the pilot plan was published in 2016 – and was among the first area in the world to deal with marine renewables issues from an MSP perspective.

REST OF WORLD

Great Barrier Reef Marine Park (GBRMP), Australia

GBRMP's MSP followed the international trend of following an ecosystem approach and is identified with a zoning approach to MSP. The zoning at GBRMP is based on eight zones that range from 'general use zone' to 'preservation zone' at the other end of the scale. The consultation process appears to have been comprehensive (over 31,000 submissions over 2 phases) and focused on a draft zoning plan. One useful lesson of GBRMP is that '.... it was concluded that .... the pattern of zones within a multiple use protected area should avoid sudden transitions from highly protected areas to areas of relatively little protection. The concept of 'buffering' (i.e. a graduation in zone types) should be applied wherever possible'[62]. A weakness is that GRBMP is perceived to have no management plan.

Norway

MSP in Norway takes the form of integrated management plans for three regions of its EEZ including one for the Barents Sea and Lofoten which was particularly prompted by the oil and gas industry. The two interesting features of the latter MSP are, first, that it was initiated by a ministerial steering group and implemented through existing sectoral legislation i.e. there was no MSP-specific law at that time. Second, it involved limited stakeholder consultation[63]. It is also one of the only plans in the world that integrates fisheries management actions with those in other marine sectors. The plan is advisory only and does not provide detail on managing specific human activities. In terms of implementation, this is the responsibility of the relevant ministries and management bodies who are expected to manage their sectors consistent with the integrated plan and hence could provide lessons for Ireland in this regard.

[61] See *Blue Seas Green Energy – A Sectoral Marine Plan for Offshore Wind Energy in Scottish Territorial Waters* Scottish Government, 2011

[62] Flannery op cit

[63] Flannery op cit

Eastern Scotian Shelf Integrated Management (ESSIM) initiative, Canada
ESSIM, which concluded in 2012, is regarded as a good example of MSP and it focused on ecosystem health, sustainable development and integrated management with an emphasis on sectoral integration. However, a leading MSP scholar comments that the ESSIM plan has a '.... weak implementation strategy which eschews coordinated action planning in favour of sectoral planning' and that '...a) transitioning to MSP will require lead agencies to develop ecosystem-based work practices; and b) applying EBN require place-based rather than sectoral based implementation strategies'[64]. One interesting feature is that the boundary setting involved in ESSIM was not, seen with the benefit of hindsight, to have been well prepared and it led to controversy which detracted from the overall exercise.

Research Projects
In addition to national initiatives mainly studies and pilot projects relating to MSP have been conducted through research funding. Relevant examples include *Transboundary Planning in the Northeast Atlantic* (TPEA, 2012-2014) and *Supporting Implementation of MSP in the Celtic Seas* (SIMCelt, 2015-2017), both covering the Atlantic, and *PlanBothnia* (2010-2012), *BalticSeaPlan* (2009-2012) and *Baltic SCOPE* (2015-2017).[65]

4.5 MSP Issues for Ireland

The Marine Spatial Plan will cover Ireland's maritime area which extends from the mean high-water mark to in excess of 200nm offshore and covers 490,000km^2 compared, for example, with the Netherland's North Sea area of 57,000km^2. The relevant Department (Housing, Planning and Local Government) has dealt with the issue so far in a commendable fashion with a strong effort to involve the public (two series of public meetings) and interest groups (via a Ministerial National Advisory Group) as well as publications (e.g. the recently published Baseline Report[66]).
Marine Spatial Planning is important because, as one respected study points out, 'we cannot do without MSP in an increasingly crowded sea'[67] and there is a strong wish on the part of the DHPLG, the lead Department, to have a strong planning framework at sea to match, and to link with, the terrestrial National Planning

[64] *Review of Marine Spatial Planning Best Practice of Relevance to Ireland*, Wesley Flannery, Queens University Belfast (2014)
[65] Full information on these projects can be found at https://ec.europa.eu/maritimeaffairs/policy/maritime_spatial_planning_en and their respective individual websites, where available.
[66] *National Marine Spatial Planning Framework Baseline Report* op cit
[67] *Improving Governance through Local Coastal Partnerships in the UK* Stojanovic and Barker *Geographical Journal*, December 2008

Framework. Property rights at sea[68], though, are quite different than on land - there is no private property at sea. The marine area belongs to the State. Resources in the water column are 'common pool resources' with the right to fish. Sea surface rights are also held in common with the right of navigation.

There is a lack of integration between terrestrial and marine planning in the EU generally and this will be highlighted once marine renewables development takes place – it has already been a challenge in Scotland[69]. The issue arises because every marine renewables development ultimately has associated terrestrial infrastructure – sub-stations, grid connections etc – and the 'planning permission' arrangements at sea and on land are different. Hopefully, the new Irish consenting legislation will address this issue and the likely appointment of An Bord Pleanála (which deals with aspects of terrestrial planning as well) as the consenting body for marine renewables should be a positive step in that direction.

MSP is not, however, a panacea[70] and it will not necessarily go smoothly in Ireland. For one thing, it is not a well-developed practice (most MSP around the world has been undertaken since 2000). The experience of other countries is sobering with '...MSP, at least as practiced in the European Member States, is perceived as having an in-built bias towards the market forces that drive our economy'[71]. This has led to some difficulty elsewhere e.g. the Netherlands (see 4.4 above). Scholars have identified other issues for concern in the global experience including the failure to provide delivery mechanisms for MSP, failure to integrate activities and the 'win-win' presumption[72].

Two particular issues that have been identified as critical in the literature on Marine Spatial Planning emerged too in our discussions with the wide variety of parties interviewed for this study: the spatial allocation of activities (zoning) and engagement with the public, particularly affected coastal communities and interests.

5. Terms of Reference

The Introduction at 1. summarised how the policy environment for marine renewables is now developing on two levels. The first level relates to the experimental technologies, MRIA's core interest, which continue to be steadily

[68] This topic, and the related issue of Sovereign Rights, is dealt with fully in *Ecosystem Based Ocean Governance –The Sustainable Management of Cold Water Corals (CWC) and associated biodiversity -A State's Property Rights Approach,* Mark Mellett, unpublished PhD thesis, National University of Ireland Galway, 2009

[69] *The Pentland Firth and Orkney Waters and Scotland – Planning Europe's Atlantic Gateway* Johnson, Kerr and Side *Marine Policy*, 2015

[70] *Maritime spatial planning and marine renewable energy* Anne Marie O'Hagan *Planning Theory and Practice*, 2015

[71] *Maritime Spatial Planning -'ad utiltatem omnium*' Rhona Fairgrieve *Planning Theory and Practice*, 2015

[72] *Surely not all planning is evil?* Christina Kelly Planning Theory and Practice, 2015

supported by Government and research bodies in a fairly comprehensive fashion. The second, and much broader, level relates to the evolving domestic market opportunity for electricity generated in offshore Ireland. The reasons for this were dealt with at 3. earlier. One consequence is that Marine Spatial Planning is now being expedited and a full framework - *National Marine Planning Framework* - is being developed in a comprehensive manner.

The terms of reference for the study that led to this Paper were to examine:

'...the marine spatial planning needs of Marine Renewables Emerging Technologies (MRET) and the arrangements required to ensure the appropriate development and deployment of MRET offshore'[73].

In practice, many of the discussions with those interviewed for the Study did not differentiate between MRET and mature, *bottom-fixed wind* that will deploy much earlier than e.g. wave energy and which, in any event, *will set the scene for how the new technologies are treated later by both the relevant authorities and by local communities and interest groups.*

The support of the *Sustainable Energy Authority of Ireland* for this project is gratefully acknowledged. In light of SEAI support, this paper was written with a Republic of Ireland emphasis to it. However, it should be noted that the Association is an all-island one and this is reflected in the make-up of MRIA's membership.

6. Strategic Issues Explored

The Association undertook a review of the issues outlined at 5. above during the Summer of 2018 in interviews, on a face to face basis in many instances, with a wide range of interests, particularly in Ireland and also the United Kingdom. A list of the 35 individuals, companies and institutions interviewed for this paper is contained in Appendix 2.

The interviewees were probed about their knowledge, views and opinions as well as their concerns about MSP. Particular attention was given to specific issues identified at an earlier stage: international role models for Irish MSP; zoning in its various possible forms; and all aspects to the relationships needed for marine renewables to advance under a Marine Spatial Planning regime.

In line with the normal practice in MRIA Papers, direct quotes are given anonymously. However, a record of most views – over 300 substantial views were recorded by the Association in the course of preparing this Paper – is set out at

[73] Agreed with the *Sustainable Energy Authority of Ireland*.

Appendix 3[74]. Typically, just a handful of 'voices' is quoted under each heading in the main body of the Paper below to give a 'flavour' of the opinions expressed.

7. Issues and Views

There are many other parties with an interest in the marine apart from renewable energy. These range from long-established interests such as fishers, who are vital to coastal communities, to environmental organisations (e.g. BirdWatch Ireland who play an important role in protecting birds and biodiversity) to recreational interests, public bodies etc. We engaged across the spectrum for this study and the views expressed about MSP are grouped together under various headings below.

7.1 General Views on Marine Spatial Planning

There was a broad welcome for MSP as well as, perhaps, a limited understanding in some instances of what it is all about:

'If not effective, if not controversial, then there will be a missed 'conversation' about areas of resource and all it does is kick the key issues down the road and leaves the real issues of MSP for developers to deal with'

'Ideally, MSP is a process, a National Plan in the first instance while regional and sectoral plans will follow later and at a lower level'

'The biggest issues surrounding the development of an MSP are:

- *The lack of a coordinated consenting process i.e. the MAFA Bill.*
- *No legislative process for offshore renewable energy (ORE) outside the 12 nm limit.*
- *No clear designation of areas for various activities, renewable energy (wind, wave and tidal) other than the broad designations in the OREDP.*
- *Lack of a good marine database'.*

'MSP is great opportunity particularly when you have a great resource offshore as Ireland does. It represents a real opportunity for sectors to work together and build a big marine economy with real social benefits. But, it takes time, Scotland, for instance, started down this road in 2000 and it is still going on there and evolving'

'We need MAFA in order to locate wind etc further offshore and therefore address visual impact issues with local communities'

'It is noticeable that in Northern Europe there are countries where the State gets the consent for a zone, gathers environmental data etc and this allows e.g. wind developers to bid for projects at 'zero' or 'low' tariff support levels'

There is some doubt, however, about the capacity of Government to deliver MSP and this is coloured by the lack of modern consenting legislation ('MAFA'):

[74] Some views are omitted altogether because they are too company specific or because they are commercially sensitive. All views, however, are on file with MRIA.

'The important thing is the MSP also needs MAFA (Maritime Area and Foreshore Amendment Act) *and the second generation of OREDP'*

'There is no clear pathway through to offshore, how do you gauge risk in the absence of MAFA – it is an inditement of the Government system that they are still, after all of those years, arguing about MAFA'

'If I was an ORE developer, I wouldn't come to Ireland, the process is too complex, everything takes too long'

'For a successful MSP to be implemented, it should also include the following:

- *Legal basis for the rights of marine users and locations.*
- *Establish a conflict resolution process between different users.*
- *Integrate existing rights into the MSP mapping.*
- *Time limitation of user rights should be implemented. Unused Leases should be nullified after a defined timeframe.*
- *Need to integrate into Local Authority, County and City Development Plans (Seascape and Visual, Landscape and Visual) to ensure supporting policies for ORE development.*
- *Cross Border cooperation and integration.*
- *Visual Zones of Acceptability.'*

'You could be cynical and say that MSP will be too 'soft', that lip service will be paid to it. Must recognise the complexity of the marine area and the lack of MAFA contributes to this'

'MSP engagement is not useful unless the ante is upped i.e. firm suggestions re zones and priorities are raised'

'Everyone has problems with marine spatial planning i.e. 'allocating' in some way the sea space among different activities e.g. the Norwegians have a huge issue in this area'

'The MSP should identify the issues, enable discussion around them and go on from there. The lack of communications is amazing e.g. by agencies; between agencies'

'People resources to follow up on MSP is a huge issue. If you want to plan the offshore and to implement your plans, then you must put people and money behind it'

The perceived issues surrounding environmental protection offshore also impacts on views and priorities for MSP:

'Big issue is delay in designating Marine Protected Areas (MPAs) due to delays with the MAFA Bill. Designation would help to secure nurseries for fisheries, help seabirds. In addition, the offshore Natura reserves need to be designated'

'Our concern is with biodiversity, water conservation, water quality etc. Our specific concern is with Marine Protected Areas which by law must be designated by 2020. We are worried that MSP will go through without the MPAs being designated which we hope will be more extensive than the Natura 2000 sites'

'Interestingly, in the past Ireland ran afoul of EU over Birds and Habitats Directives, Natura sites etc. involving the National Parks and Wildlife Service. There was no management plan, State had to do full assessment and very shortly c300 aquaculture licence applications will be dealt with after a log jam of many years duration'

'Ireland has far too many Natura designations and we don't want to see the same happen at sea'

7.2 International Role Models

A lot of insight into international experience in Marine Spatial Planning emerged from the interviews.... but the broad consensus was that only Scotland offered a general role model for Ireland:

'There is difficulty in a strict approach along the lines of what happened in Germany where a powerful wind lobby helped generate a very exclusionary set of zoning arrangements'

'The Dutch were even more 'generous' than the Germans. They fast tracked offshore wind, use huge towers and had to engage in advanced engineering to deal with various issues that arose as a consequence of concentrating developments so much'

'France has just completed a consultation on MSP. Interestingly, they identified issues and have a website to enable people to vote on them in terms of their order of importance. The French consultation started from a scientific base and has developed into a democratic exercise as well.'

'Nobody is bothered by planning issues (e.g. MSP or consenting) in Scotland'

'The Scottish MSP system is good because they have 'all of the ducks in a row' – consenting authority, plan etc. The 'system' in Ireland is far too fragmented'

'Scotland's MSP effort was successful because there is a clear and functioning system, people are clear as to who to talk to. The lack of a dedicated agency in Ireland makes the MSP situation here difficult and the opportunity to prepare a first-class MSP may be lost'

'The Dutch, German and Belgian experiences of MSP are bad. On the other hand, Scotland has regional advisory councils and MSP experience is relatively good. But, the fishers in the west of Scotland complain of being overrun by offshore wind and, reportedly, this now prevents fishing vessels transiting through the Caledonian Canal'

7.3 Zoning

Zoning – the spatial allocation of activities – emerged quickly in many conversations as a key issue for MSP:

'If there is no zoning, what will come out of MSP, what is point of MSP without zoning?'

'MSP should deal with how competing uses of space – offshore energy v shipping v fishers etc – should be prioritised'

'Best guess, that the MSP will identify areas of priority for certain activities and may involve criteria-based framework a la Scotland and they may also go for a fit with the National Planning Framework which is strategic in nature but is also hierarchal'

'There should be no 'no go' areas and developments should take place provided you can show that there is no more than an acceptable level of impact e.g. on the environment etc'

'The MSP won't go for Zones....but there will have to be a spatial driver there somewhere'

'Beware of zealots who. If they got their way, would want to designate/'protect' the whole coastline'

'There is no framework, apart from EIA, to enable policy prioritisation of space at sea'

'The marine spatial plan is about assigning acceptable uses of the sea space starting with existing and progressing with future potential emerging uses. In order to maximize the space while

protecting the environment, activities should co-exist if deemed appropriate. For example, Sea Fisheries could integrate well with ORE.'

'ORE developments should be sited near to the grid system and Eirgrid can probably deal with it in 500MW 'lumps' '

The need to integrate MSP with terrestrial planning (the National Planning Framework) was recognised:

'Linking MSP and terrestrial planning together is hugely difficult. No nation has yet done it successfully. But there is a need to link them and perhaps the best way would be to link regional marine plans with their terrestrial equivalents.... beware though of stakeholder consultation fatigue'

'An Bord Pleanála has a big role in ensuring that the sea planning and terrestrial planning interact effectively'

'This is easy at a policy level. MSP must 'speak' to the NPF and this should not be a big issue so long as developments e.g. cables from offshore energy takes account of existing infrastructure such as gas pipelines etc'

'We need to do MSP and terrestrial planning in parallel. No point in doing MSP if it doesn't link in with consenting system, NPF'

'MSP should not be based on existing (Irish terrestrial) planning which has tied itself up in knots because, for example, of Appropriate Assessment etc. Projects e.g. motorways are too expensive or impossible to do. Europe seems to do things faster than we do. Do they have less robust regimes?'

'It should be made clear from the onset how the MSP links in with MAFA and terrestrial planning. The key players and their roles and responsibilities should be clearly defined. The MSP should provide the policy basis for ORE, specifying designation of renewable energy zones and offshore grid connection corridors, and setting out exclusion zones. The plan should identify option areas for the purpose of MAFA.'

There was recognition too of the need to develop a methodology to identify zones with a trend in favour of multi-use sites with 'fuzzy' boundaries:

'Enough work has been done to identify resource hotspots. I see no problem with zoning areas provided there is proper consultation with stakeholders. Ultimately, this will boil down to deciding what goes where and may well play out in the courts'

'Thinking about zoning on land is evolving. It was originally seen as a way to avoid conflict but the terrestrial planning world is increasingly moving from single-use zoning to mixed matrix zoning, we are moving to a new model which sets out 'what you can do' and 'what you cannot do' in a particular area and this is the approach which would make sense offshore - it involves fuzzy boundaries'

'There is a move internationally away from mono-sites to multi-user sites which e.g. in the case of aquaculture needs power for sensors particularly as research is underway into remote management from shore centres'

'We need criteria/a framework with which to identify zones for ORE'

'ORE development should take place where most feasible. Development should be prioritised at sites which perform best over the following criteria:

- *wind and wave resource,*

- *technical feasibility,*
- *grid capacity,*
- *proximity to current / planned port infrastructure,*
- *environmentally acceptable,*
- *least impact on existing constraints mapped (existing submarine cables, etc.).'*

A tiered system for development areas should be employed similar to that of onshore wind development. The system should be based on the criteria above, considering locations with better grid access, and matching grid availability timing and likely technology development horizons moving forward.'

'Zones are a good idea...whether they are reflected in the Plan or not is a different question!'

'Identify zones and get on with it.... we are looking at floating wind'

'The alternative to zoning is performance criteria applied in 3D at sea compared to 1 x D on land. No one has done it so far'

'Closeness to shore and all that entails are a big issue – its busy, contested and offshore energy makes a visual impact'

'Think about using the Citizen's Assembly model...the Assembly is already dealing with climate change'

'We have a very poor record of public consultation e.g. the Metro North so-called consultation'

There were mixed views on whether or not Initial Development Zones should be set up for the emerging technologies – see the MRIA Paper[75] of almost ten years ago for more detail on the IDZ concept. Some interviewees tended to confuse IDZs with test facilities such as the Atlantic Marine Energy Test Site in County Mayo:

'Pilot zones for floating wind are possible for the Celtic Sea – perhaps 50-100MW in scale?'

'Don't lose WestWave, set up a pilot zone for wave off Clare for perhaps 30MW'

'(the grid operator, EirGrid) would welcome this approach. It would be a valuable learning experience, help to develop procedures, would show commitment and demonstrate that Ireland and its agencies are open for business'

'Initial zones are a double-edged sword as they may be sterilisation instruments e.g. interpreted as the only areas for development and therefore by implication everywhere else should be ruled out'

'The MSP should allow for emerging and maturing technologies. IDZ should be considered for both early stage/ small scale technologies and also allow for their deployment at scale. Commercial investments in these technologies would only be secured after successful demonstrable projects at reasonable scale. The scale of project that needs to be developed should be agreed upon with industry to ensure that right level is reached in order to enable future commercial projects. These zones would need to be funded by a National body such as SEAI, potentially with support from industry, and with a clear delivery.'

'IDZ should be open to mix of ORE technologies such as wave, offshore wind, floating wind and even floating solar PV. Increasing renewable technology diversity is a key policy objective which

[75] *Initial Development Zones* Marine Renewables Industry Association, 2010. Available at www.mria.ie

has been reinforced by the recent high-level design paper of the Renewable Electricity Support Scheme. The remit of AMETS should also be expanded to include all suitable ORE technologies demonstration projects for that site'

'The learning argument for Initial Zones is open to question – how long do you need to build up 'learning'? '

Another major issue to emerge related to 'Buffer Zones' (see 9. below for a more detailed treatment) which would have the effect of excluding one or more forms of marine renewables technology from specific areas e.g. to preserve sea views from ashore:

'Put bottom-fixed wind on to the 'banks' in the Irish Sea out of sight of communities – start with the least contentious areas'

'Buffer zones are not a silver bullet – attitudes and suitability of areas will change as you go around the coast'

'Buffering – where is the evidence to support it?'

'Buffer zones may be desirable but the industry is driven by economics and closing off areas close to shore via buffer zones may render projects uneconomic'

'Do we need to focus on floating wind which should lie well offshore e.g. go for a pilot in the Celtic Sea and avail of the new Ireland-France interconnector'

'The whole visual impact issue for offshore wind is driven in part by a consenting regime that is currently confined to the 12-mile limit'

'Buffer zones will push floating wind technology up the Agenda'

'Wicklow has a lot of applications in the pipeline. A big issue in Wicklow is 'distance from shore'. Other countries are putting in buffer zones of e.g. 10 km

'People are likely to be comfortable with a buffer zone of 10-12km – turbines etc then blend into the background'

'The Dutch have a buffer zone'

'Starting with offshore wind, the further off the coast that renewables projects are.... the better...10-12 miles

'Out of sight, out of mind'

'High priced houses looking out to sea – their owners will oppose offshore wind and glare and noise could also be problems'

'The development and use of the marine environment will result in visual impact of both the sea and landscape. It would be more effective for this impact to be considered and debated at a plan level, including its acceptability, rather than leaving the developer to champion this issue.'

'Buffering is something that should not be introduced until a serious study has been made of the downside risks to it'

'A small number of large developments out of sight is a lot better than a large number of small developments – visual impact is everything especially for offshore wind'

7.4 Conflict and Resolution

A lot of potential for conflict between marine renewables and local communities was identified and the issue of relationships and conflict mitigation emerged as a key to the success of MSP

'Marine renewables are like young horses – they are champing at the bit and they need to rein in and go slowly even though there is enormous urgency about the need for more alternative energy. Attention must be paid to the traditional users (of the sea) such as the seaweed industry and we need to avoid massive offshore installations'

'People and their views on how offshore energy affects the landscape will be critical'

'Is MSP going to be a bull fight? How are we going to deal with conflict resolution'?

'If renewables are imposed on traditional fishing grounds, there will be war'

'Most sensitive stakeholders from offshore renewable energy perspective are fishers, local communities, bird and mammal groups and perhaps shipping and navigation generally'

'Biggest issue is fishermen, including shell fishermen...but it is worth noting that the experience elsewhere is that wind farms, for example, have created valuable sterile nurseries'

'Given that the Habitats Directive has crippled terrestrial wind...witness the overthrow of various An Bord Pleanála decisions e.g. on Habitats grounds .... will we see all the terrestrial issues and the groups that raise them move offshore?'

'The reaction of coastal communities – tourism interests, NIMBYs, fishers - is critical. Some form of compensation may be needed and there are other interests e.g. shipping, telecoms etc to be dealt with SACs to be worked around'

'Biggest conflicts will be between offshore renewable energy and fishers'

'Fishers and local communities. Note that there is fierce resistance (this was an element of the Corrib controversy) in communities at being used as a conduit for a resource e.g. gas, water which is going elsewhere'

'A major issue if wind farms are built on traditional fishing grounds – a very serious dispute could ensue'

'Most sensitive stakeholders from offshore renewable energy perspective are fishers, local communities, bird and mammal groups and perhaps shipping and navigation generally'

'It comes down to consulting people and the current round of MSP consultation is not creating trust'

7.5 Partnership Arrangements

The need for structures to enable relationship building, to facilitate trust and to provide for conflict mediations and mitigation emerged as a priority – some form of partnership between coastal communities and e.g. marine renewables is a major issue:

'Inevitable that MSP at the sectoral/regional level will lead to greater competition between users and a resolution process is needed'

'The big issue will be trying to get a consensus between different sectors who are used to getting their own way and who have no history of dealing with other interests'

'The best way to alleviate any concern is to ensure early and wide engagement with all stakeholders, and allow for their participation in plan developments.'

'There is potential for conflict across the spectrum of different marine sectors/users..... a conflict resolution process between different users should be established to minimize the impact of potential conflict on either sector.

This process should include:

- *Agreed form and value of compensations/damages (e.g. as per the IFA and Network Infrastructure)*
- *Agree user rights and hierarchy of priorities with a set of guiding principles*
- *Develop independent adjudication system in conflict resolution.'*

'Don't underestimate the processes...MSP is a political process. Consultation is needed but the structures available for such engagement are immature'

'Coastal partnerships need to be looked into seriously. A classic instance is Bantry Bay where the seaweed harvesters feel that decisions were made behind their backs'

'Coastal partnerships would involve long term dialogue and communications in which community interests are exposed to the science and technology involved in offshore renewable energy etc- rather than top down decision-taking and then conflict, go for ongoing discussions'

'It would be useful to set up a Forum involving MRIA and fishing groups'
'Fishers don't own the sea but we have been there for a long time and want to hold what we have'

'There is room to talk and to work it out. Fishers can't stop offshore renewable energy, we need to get to a position where we have a symbiotic relationship'

'We are not afraid of MSP. It is good for Ireland, particularly the economy and for the fishing community'

'MRIA should create an opportunity for offshore renewable energy and fishers to sit together and ultimately, perhaps, develop an MoU'

'You have to be realistic – everything will be challenged. The key thing is to follow the process and note that project development takes ages in Norway, which is regarded by some as the ideal in this field, because of objections etc'

'The best way to alleviate any concern is to ensure early and wide engagement with all stakeholders, and allow for their participation in plan developments.'

'Scotland has taken a regional plan approach which could be a good model and is based on existing coastal partnerships which has the disadvantage potentially of leaving out those who are not in such partnerships'

'The MAFA bill should provide a clear roadmap for the consenting of developments of varying size and scale, including the process by which both Foreshore leasing or Marine leasing (outside the Foreshore area) and terrestrial planning requirements will be handled. The roadmap should show the interrelationship between terrestrial development plans and MSP spatial plans. Consenting requirements based on both MSP and Terrestrial planning should be provided to facilitate marine

developments. The SEA and Habitats Appropriate Assessment [process] must be aligned for both the MSP and Terrestrial Development Plans.'

7.6 Data Challenges

There was a surprising amount of concern and, indeed, confusion about what data is available to support MSP and about its adequacy and management:

'From a grid point of view, there is a big offshore data gap e.g. how far offshore do you have to go to get a high load factor with wind, bottom fixed and floating? Is it possible and desirable to have an international network of ORE (west coast of Ireland to Denmark?) such that intermittency issues are dealt with e.g. no wind in one area is compensated for by wind elsewhere on the network?'

'Need to introduce some form of compulsory reporting of met ocean data similar to that which applies in the Netherlands. Data could be lodged with the Marine Institute and the Geological Survey of Ireland who have the experience skills etc to store and to integrate it at least to some degree'

'Dissatisfied. Fishing is the biggest issue with ORE and there is a lack of data about fishing grounds; there is also a lack of environmental data – all needed for modelling purposes at all levels'

'It is amazing how little wind data that we have'

'There are always going to be data gaps, science is imperfect. Need to make decisions based on best data available'

'A centralised database would be too complex, perhaps'

'The Marine Institute should be charged with the task of organising a central data base'

'There are probably between 50-60 data sets out there at present'

'Is there enough, is it all feeding in and being co-ordinated?

'There is a lot of 'large-scale' data on Irish waters via the INFOMAR programme as well as resources such as the Marine Institute vessels etc. If MSP could identify areas for offshore renewable energy development, then the State resources such as INFOMAR could be directed to developing detailed data for these areas which would support developers and help the zones' early development. It wouldn't negate EIA's etc but would lead to early resource exploitation'

'Data availability is limited and has been developer driven and therefore often confidential in nature. Further data will be required in order to develop the MSP. However, the level of data required will need to reflect the resolution level considered by the MSP. More detailed specific site assessment data will also be required by any project.'

7.7 Other Suggestions

A variety of suggestions were made on other topics which are possibly relevant to MSP with a particular emphasis on the critical importance of marrying MSP to grid development as well as issues relating to safety and to leasing:

'How fast can EirGrid respond to new demands? There is about a 5-year turnaround in regard to cabling and the strengthening of the network is another issue – perhaps 10 years for a major offshore project involving substantial strengthening'

'ORE developments should be sited near to the grid system and Eirgrid can probably deal with it in 500MW 'lumps' '

'There are three issues for the Coast Guard arising from marine renewables with a particular regard to wind. First, there must be a system to lock down (wind) turbines to rescue someone from the tower and, indeed, a good emergency plan is vital; second, we are concerned about the possibility of an incident whereby a ship goes aground within an array and it may be leaking oil – how do we handle that, who is responsible? Finally, there is the whole area of safety and regulation'

'Shock and awe are a bad approach to this (leasing of offshore sites to ORE) ...do not want a situation where this is done on a once off basis and then nothing happens for years. Grid would much prefer regular rounds involving perhaps 500MW a time – a 'little and often' is the way the grid operator would want to go.....and by the way it would lead over ten years to 5GW of new capacity!'

'It is worth looking at the scale of Scottish leasing rounds which were too long (in terms of time horizon) and had no focus on emerging technologies which put the Scottish Government 'off' '

8. Zoning – Key to Marine Spatial Planning

'Good fences make good neighbours'
Making Wall by Robert Frost, 2014

8.1 Zones

Marine Zones – the allocation of space for specific activities and to protect specific environmental features - and their eminent cousins, 'buffer zones' - emerged as a critical issue for Irish Marine Spatial Planning from desk research into academic findings on MSP, other countries' experiences and from the interviews undertaken for this study.

There is a widespread expectation that MSP will bring about zoning – see 7.3 above and also Appendix 3. The most obvious alternative – pure *policy guidance* as the sole instrument to inform consenting of specific projects – would not be a popular choice by Government decision-takers arising from the current MSP-system consultation process now underway.

It would lead to concern by industry ('how are we supposed to know where we can develop our wave farms' might be a typical view of investors in future); by environmental groups ('Unless there are clear lines, we will have to go to court to defend every environmentally sensitive area as developers will try to get legal interpretations in favour of their projects'); and by community groups ('We will have to protect our fishers and our seascapes by legal action because the marine renewables industry has deep pockets and will try to get interpretations of policy by the courts which are sympathetic to development').

There is no doubt, of course, that MSP will feature in the courts from time to time but no one's interest will be served by a pure policy approach to MSP.

8.2 Zoning Practices Elsewhere

Northern Ireland [76]has tentatively adopted[77] a rather pure 'policy guidelines' approach to MSP. The Plan sets out the position of various sectors e.g. energy and identifies 'key activities policies' to guide decision-taking by consenting and regulatory authorities. Where a particular sector is identified as being supported by the Plan, then there is a 'presumption in favour' of the activity... but there are no spatial designations.

The *Netherlands*[78], by way of contrast, has a strong spatial aspect to it. Interestingly, the Netherlands confines wind farms to specific areas but allows e.g. aquaculture within those areas. *German*[79] planning has zones specified for particular activities e.g. marine renewables with scope for multi-use and a grading system e.g. 'priority' for a specific activity; 'reservation' for an explicit activity etc. A lot of German sea space is not zoned. A point to bear in mind is that Dutch and German MSP are deemed (correctly or otherwise) to be biased in favour of renewable energy – see 4.4 and 7.2 above. *Belgium*[80], on the other hand, has a detailed, zoned plan for its 65km long coastline/3,454km^2 maritime area which represents less than 1% of the Irish sea space! The need for detailed zoning is obvious – the small Belgian sea area is immensely busy with fishing, wind farms and, above all, merchant shipping.

Scotland's Marine Spatial Plan[81] is well regarded in Irish circles (see 7.2 above). The Scottish Plan's approach could be interpreted as a cross between Ireland's *Harnessing Our Ocean Wealth*, the recent DHPLG *National Marine Planning Framework Baseline Report* and the *Offshore Renewable Energy Development Plan* i.e. a combination of strategic policies and objectives and of sectoral policies. However, as set out earlier at 4.4, Scotland has regional locational guidance which was the next step after their Strategic Environmental Assessment i.e. well in advance of their formal MSP.

[76] www.daera-ni.gov.uk/topics/marine/marine-planning
[77] Approval will await the restoration of the Northern Ireland Assembly

[78] https://www.government.nl/documents/policy-notes/2015/12/15/policy-document-on-the-north-sea-2016-2021
[79] www.bbsr.bund.de/BBSR/DE/Home/bbsr_node.html
[80] www.environment.belgium.be
[81] www.gov.scot/Publications/2015/03/6517

8.3 Conclusions and Recommendation on Zoning

The MRIA favours the considered introduction of sector specific zones i.e. are clear as to what activities are excluded from a zone or parts of it and what activities are suitable to the zone and where therein. This will not be an easy task and nor will it take place overnight. Criteria to identify zones must be determined, data assembled (and, where necessary, new data collected and analysed) and the data must then be overlaid on charts and maps utilising techniques such as GIS.

One action that would speed up this process would be to include in the first Irish Marine Spatial Plan a consolidation of the Strategic Environmental Assessments undertaken to date. This would provide a starting point and at least identify those areas which are unsuitable for specific maritime activities.

A geographic information system (GIS) is a framework for gathering, managing, and analysing data. Rooted in the science of geography, GIS integrates many types of data. It analyses spatial location and organizes layers of information into visualizations using maps and 3D scenes. With this unique capability, GIS reveals deeper insights into data, such as patterns, relationships, and situations—helping users make smarter decisions.

---

www.esri.com

Decisions must be made....and implemented. Some zones may be quite 'self-selecting' e.g. there may be areas of high environmental sensitivity in which development may be severely restricted; areas in which a variety of activities can happily live alongside one another; and areas in which no marine renewables activity will take place anyhow because there are no viable resources e.g. limited wind speeds etc. Overarching all of the analysis and other work will be the imperative for securing broad interest-group support and this is dealt with at 10. below.

It is probable in most instances, however, that the analysis will suggest a blend between protection and development e.g. a particular zone may be focused on wave developments but include areas of environmental importance and protection while another zone might be focused on recreation and fishing with limited scope for renewable energy.

The blended approach is in line with modern thinking as reflected, for example, in the EU's Horizon 2020-funded *Multi-Use in European Seas (MUSES)* project[82] which

[82] See www.muses-project.eu

is examining the scope for Multi User (MU) combinations in the marine environment. The MUSES consortium recognise energy as being a prime candidate for combinations with other sectors e.g. with environmental protection, fishing and tourism in selected marine areas. Whilst the MUSES project does not have an Irish partner, it is probable that its findings will also have relevance to the Irish context. It is also interesting to note the unprompted suggestions made about the scope for marine renewables to work positively with fishing and aquaculture in the interviews for this Paper. To realise this opportunity, however, would entail a change in licence/lease and, also, liability insurance requirements as these do not at present allow for joint occupation and operation.

It is beyond the capacity of MRIA to identify in detail zones for marine renewables or, indeed, any other activity although the most resource rich areas are fairly obvious in both the Irish/Celtic Seas (particularly for wind energy) and the Atlantic coast (particularly for wave energy and floating wind/hybrids).

The Marine Renewables Industry Association www.mria.ie favours the considered introduction of marine zones which are broadly sector specific or sector weighted i.e. are clear as to what activities are excluded from a zone or parts of it and what activities are suitable to the zone and where therein. This will not be an easy task nor will it take place overnight. It should be undertaken in a phased basis as illustrated in Table 6 below - phasing is desirable in order to make best use of planning and policy resources and to facilitate engagement and consultation through the partnership approach recommended at 10. later.

The MRIA recommends that the following features should be considered when zones are being identified:

- Zones must take account of existing rights (e.g. to navigation) where possible
- Links with, and integration where feasible with, the National Planning Framework ashore and with Local Authority plans are vital, particularly for marine renewables which depend on onshore infrastructure such as electricity sub-stations etc.
- A multi-use zone approach should be employed with a tiered system between zones and within zones e.g. along the lines of the systems employed in Australia and Germany.
- Initial priority in detailed zoning should be given to those areas which are deemed by the renewable energy industry and by experts to be resource rich e.g. parts of the Irish Sea and off the south coast for wind and the area off Counties Clare and Mayo for wave and floating wind in particular. In

other words, the initial development zones should be commercial and not confined to experimental technologies.

- Following the first phase of zoning, there should be a short interlude to enable a 'Lessons Learned' review and consultation to take place before commencing the second phase of NMPF zoning. The process involved is illustrated at Table 6 below.
- The existing designated marine renewable test sites in Galway Bay ('SmartBay') and at Belmullet, County Mayo ('AMETS') should be recognised and endorsed in the Marine Spatial Plan.
- The *National Marine Plan Framework* should note that grid capacity at the Atlantic Marine Energy Test Site (AMETS) should be increased to 15MW +.
- Furthermore, the testing/demonstration of floating wind devices should be facilitated by the consenting authorities at commercial arrays in the Irish or Celtic seas prior to exposing such devices to the very challenging test conditions at Belmullet.
- There is a need - for both reasons of efficiency and of clarity across the board ranging from developers to communities to the courts – to focus final decision-taking on (usually) policy matters to do with both planning (MSP) and consenting ('MAFA') in marine renewables and other relevant matters (e.g., aquaculture, tourism and fishing) on the Minister for Housing, Planning and Local Government with the 'advice and consent' of other relevant Ministers being required as appropriate. Consenting of individual cases would be a matter for the relevant authorities e.g. An Bord Pleanála for offshore renewables.
- The consenting legislation to be adopted - see below - should take account of the zoning principles set out above.
- NMPF is valuable in its own right but it must be followed up immediately by the next *Offshore Renewable Energy Development Plan* (OREDP) which is due in 2021. OREDP 2 will be an important tool in the practical implementation of the marine spatial plan.

There are two other issues which are important in zoning. First, the Maritime Area and Foreshore (Amendment) (MAFA) legislation is a critical priority for NMPF as well as in many other regards. Regardless of zoning, no marine renewables development can take place beyond 12nm at present as there is no legislative framework available. The arrangements for consenting within 12nm are outdated and unwieldy. The failure, despite its annual appearance on the legislative schedule for at least 10 successive years, to introduce modern consenting legislation is the major obstacle to exploiting our marine renewables resource and meeting our national and international energy and climate change obligations and targets.

A draft MAFA Bill was first published in 2013 but ran into legal difficulties which left it in a legal limbo. However, it is understood by MRIA that the marine renewable energy element (which is at an advanced stage of preparation) of the Bill might be moved forward in its own right. A decision is expected in early 2019. This could mean, in practical terms, that a new consenting regime for marine renewables can be added to the Statute Book fairly quickly provided that political priority is given to the Bill and appropriate extra resources allocated to finalise it and guide it through the legislative process.

Second, deeper engagement with EirGrid in MSP is important. Zoning will be a fairly sterile exercise for marine renewables – which, as argued in this Paper, are vital to national renewable energy targets - unless there is alignment between grid development and zones that are rich in energy resources (wind, wave and tides).

Table 6: Suggested sequence of MSP zoning actions *Source*: MRIA

Type of Activity	Detail	Comment
Identification of criteria to identify zones in final NMPF	In NMPF, as agreed by Government, by c2020	The NMPF should incorporate findings from all relevant SEAs
Designation of Phase I NMPF Zones	Irish Sea/area(s) identified by 'Eirwind'/ Counties Clare and Mayo	Informed and underpinned by *Offshore Renewable Energy Development Plan* No.2 and dialogue at Coastal Partnerships
'Lessons Learned' review and public consultation	Should be undertaken once the Phase I Zones identified	There will be lessons to be learned from all stakeholders and this brief but comprehensive exercise, together with the maturing of a Coastal Partnerships structure, is vital to keep all stakeholders engaged in MSP in a positive fashion
Phase 2 NMPF Zones	Follows on immediately from the 'Lessons Learned' exercise	The priority should be given to areas, identified utilising Phase 1 criteria but amended by 'Lessons Learned' findings

9. Buffer Zones

'A buffer zone is an area created to separate opposing forces or groups which belongs to neither of them'

www.collingenglishdictionary.com

9.1 Background to Buffer Zones

A key issue identified during the interviews conducted for this study is the possibility of a national buffer zone to exclude marine renewables projects and, thus, in particular to eliminate or to reduce to 'acceptable' levels any visual impact on coastal communities. This may be prompted by concerns about bottom fixed offshore wind *but could affect other technologies as well*. Buffer zones, as just outlined, are a separate issue to all other forms of zoning. A starting point might involve a ban on development within 12 nautical miles of the coast i.e. 22.24 km from the mean High-Water mark. This, it must be emphasised, is not a national policy position but it is an obvious and important option open to policy-makers and also a serious fear of those interviewed for this Paper. Therefore, it must be examined here.

The interest in a buffer zone or zones is probably driven by peoples' impressions of the presumed visual impact of offshore wind. More important, however, is awareness of the supposed negative impact, on visual amenities at least, posed by specific planned wind farms, notably on the east coast of Ireland, including the Dublin and Wicklow areas. A number of projects have some form of consenting which was granted a generation ago (in terms of offshore wind technology!) for substantial wind farms in those areas. There is an obvious possibility that the coastal communities affected could mount a campaign to prevent those projects taking place and the potential for political overspill-effect onto other renewable projects could be severe.

Appendix 1 sets out MRIA's current understanding of all seven projects around the Irish coast which may regard themselves as having some form of historic consenting rights. Regardless of how the fate of the seven cases ultimately transpires (perhaps determined by the courts?), there undoubtedly will be an argument that perceived 'close to shore' renewables developments can never be permitted to arise again. Hence the interest in buffer zones. Indeed, the whole of the Irish coast could be put forward for a buffer zone as there is logically no reason

why visual impact would be any less for those living in areas of low population intensity compared to those living around Dublin Bay or in coastal Wicklow.

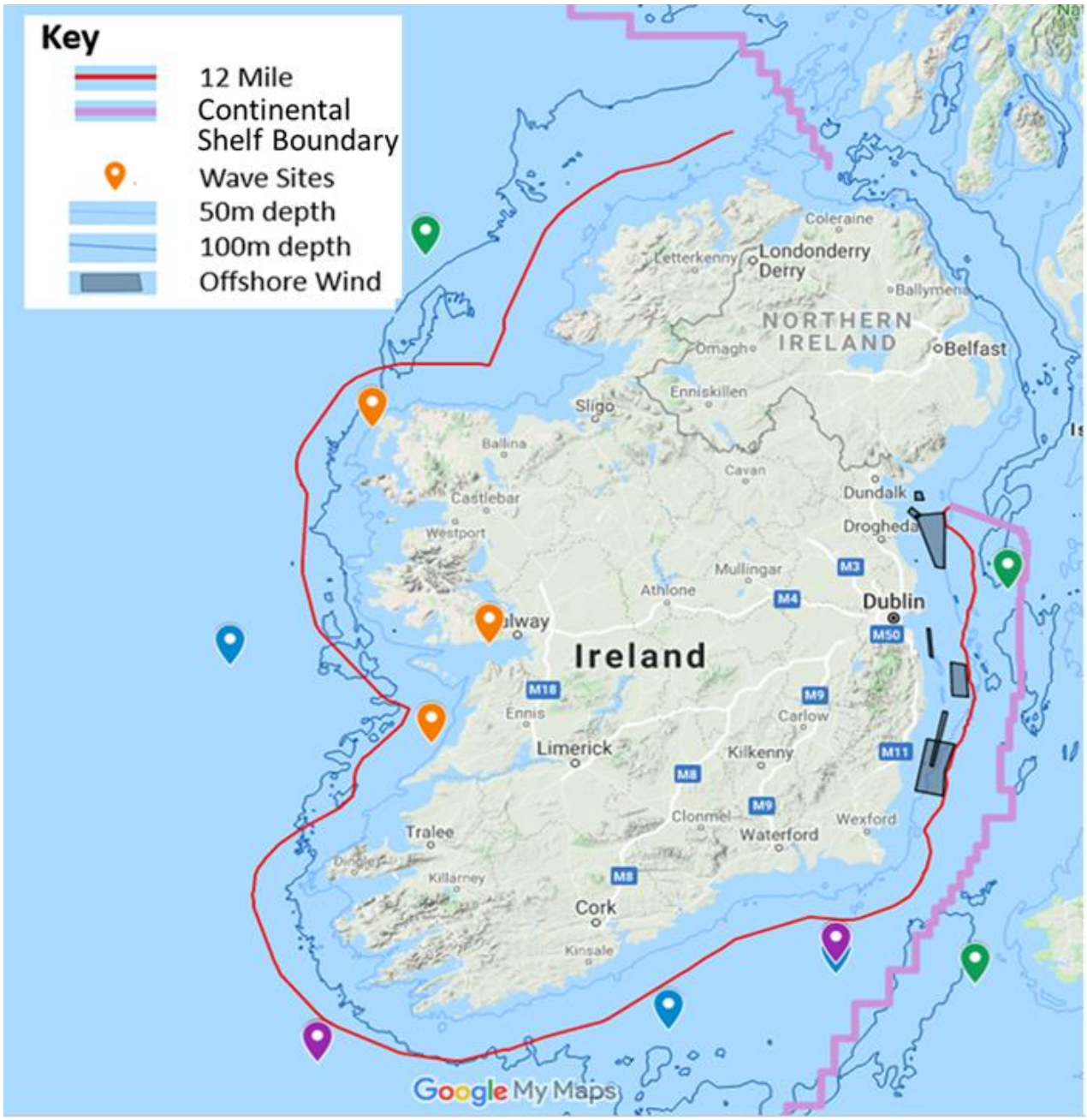
9.2 General impact of a sample, 12nm, Buffer Zone

Figure 4 illustrates the blunt and negative impact on marine renewables of the putative buffer zone. The Figure illustrates that:

- There is relatively little space in any event available in the Irish Sea for Irish marine renewables as the Irish limit runs quite close to shore
- A 12nm buffer zone could rule out almost all bottom fixed wind in the Irish Sea and off the south coast due to the depth limitation inherent in the technology
- It would also rule out tidal energy development off Wicklow and in the Shannon estuary area - the only relatively resource rich sites in Irish waters
- A buffer zone would lock out floating wind from viable sites (i.e. sites close to grid connections and to ports - both among the cost drivers which would be adversely affected by a buffer zone) on all coasts
- It would also prevent wave energy arrays from exploiting suitable sites (e.g. in terms of water depth) that are close to shore which will be important, at least in the early years of this challenging technology.
- Moreover, a blanket ban would impact without cause on those wave and tidal devices that are sub-surface or have minimal visual effect due to only a minor surface presence

These points are further developed in later sections.

Figures 4: Illustrates the impact of a 12nm buffer zone. The quasi-triangular marks in green etc outside are existing data buoys. 'Offshore Wind' refers to the main wind farm cases with some form of consent. The bold pink line is the Continental Shelf boundary and the red line illustrates the sample, 12nm, buffer zone boundary discussed in this Paper. *Source:* MRIA



9.3 Wave Energy

Wave Energy Convertors (WECs) at present can take many forms depending on the technology solution chosen. They can take the form of being fixed to the bottom or floating and secured by moorings. They can be deployed close to the shore or well offshore. The choice among these variables will be determined by local seabed and other environmental factors as well as the form of technology suited to the site. The emergent state of wave energy technology should also be borne in mind - it is not clear yet which technology approach(es) will become the norm. However, all WECs have a number of factors in common:

- All forms of Wave Energy Convertors interact with the water surface
- They have low visual impact (maximum superstructure envisaged is 12-15m high, albeit painted for safety reasons in a high visibility colour, typically yellow).
- Normally, they require a minimum sea depth of 50m to operate effectively
- The 'distance to port' is an important cost-driver because the devices typically are of such a scale that they require a significant (and therefore expensive) tug to deploy them and, later, to remove them for maintenance etc – this problem will be acute off the north west coast because of the lack of port facilities between south Galway and Killybegs in south-west Donegal.[83]

The impact of locating commercial wave energy developments outside the buffer zone[84] would be to increase their operating costs and, thus, impose a disadvantage on wave energy on top of its already heavy emerging technology challenges. Extra costs would arise from the considerations outlined above but also from issues such as a requirement for longer mooring lines, extended (and very expensive) electricity export cables, loss of electricity due to the extra distance to shore etc. Indeed, Exceedence Ltd[85], one of the leading renewable energy fin-tech houses globally, estimate that the *relocation of a theoretical small wave deployment from the Atlantic Marine Energy Test Site, Site A, to a point just outside of the buffer zone would increase operating costs for such a project by in excess of 20%!*[86]

[83] See MRIA paper on maritime infrastructure needs at: www.mria.ie/documents/c4a46712f4cf756fb277c60bc.pdf

[84] The test and experimental sites, as noted earlier, are all located within the 12nm buffer zone

[85] www.exceedence.com

[86] Exercise undertaken by Exceedence as part of the work to prepare this Paper

Figure 5: small WEC relocated from AMETS site A to a point just outside the buffer zone. *Source*: Exceedence Ltd

9.4 TIDAL ENERGY

Tidal energy technology is at a more advanced stage than wave energy. Although the tidal resource in Ireland is limited[87], there are leading Tidal Energy Convertor (TEC) companies in Ireland – such as Tidal Flyer and GKinetic – which will need to develop their own test and, possibly, commercial sites e.g. on the River Shannon and who should not be put at a disadvantage in global markets by virtue of an all-encompassing buffer zone approach.

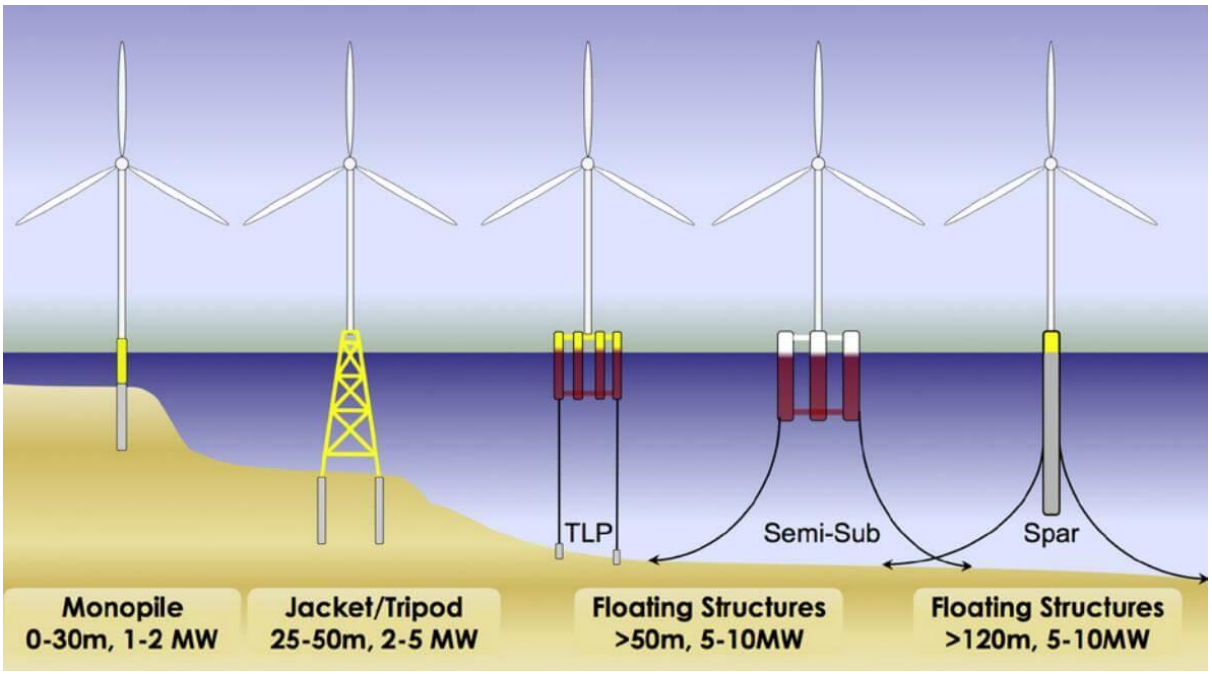
TECs take either a floating or a fixed form depending on the technology approach taken. They are constrained in their location by where the tidal stream resource is i.e. they have much less discretion over site locations than wave and wind farms. All forms of TECs interact with the currents beneath the water surface. They make little or no visual impact except for marker buoys. At full scale, it is envisaged that those forms of TECs that *do* have a surface dimension will have a superstructure at full scale of less than 10m. TECs are depth limited and it is unlikely that TECs will emerge that can be deployed beyond 50m in water depth. Clearly, the cost arguments made against 'pushing' wave devices outside of a 12nm buffer zone apply to tidal energy as well in addition to a further unique constraint: normally the 'useable' tidal stream is close to shore and in relatively shallow waters.

[87] Unlike Northern Ireland, which has a significant resource on the Antrim coast

9.5 Wind Energy

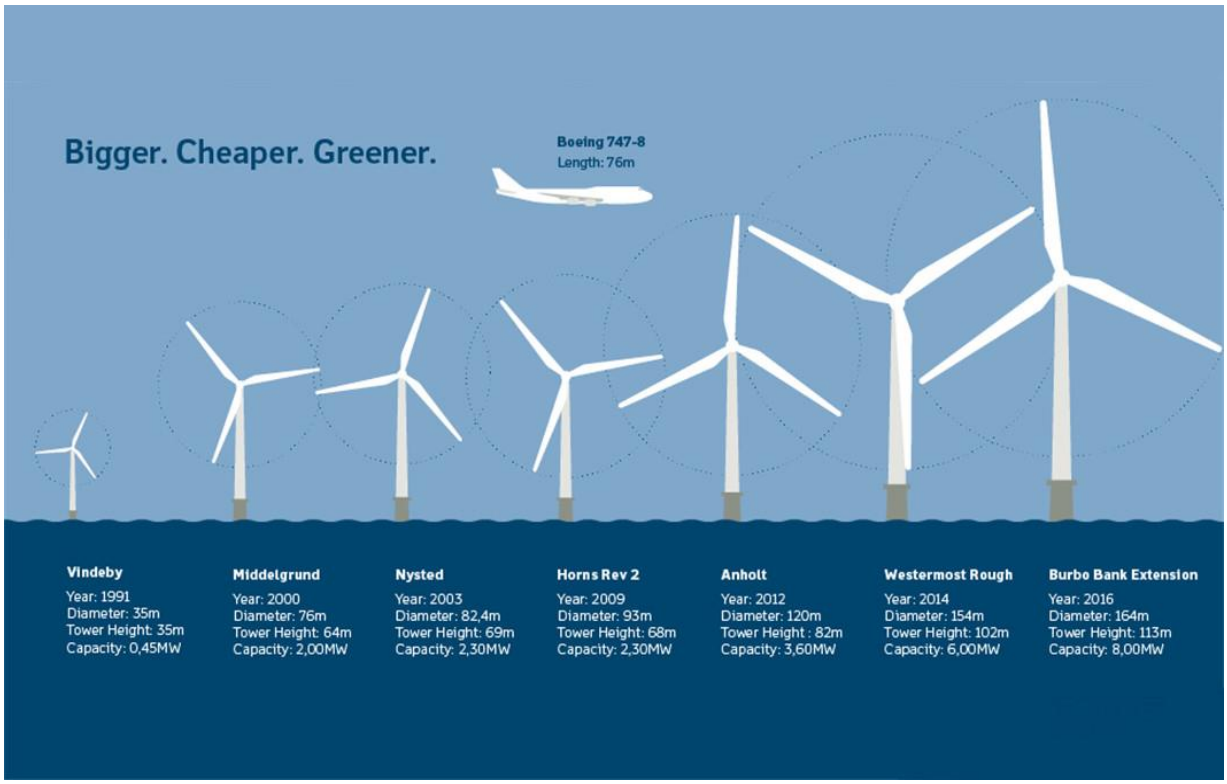
Offshore wind energy takes several forms as is illustrated in Figure 6. For our purposes, we will distinguish only between 'bottom fixed wind' (monopile and jacket/tripod) and the emerging technology of 'floating wind' which is of particular interest to MRIA.

Figure 6: Forms of offshore wind energy devices. *Source: Deep Water - The next step for offshore wind energy,* European Wind Energy Association, 2013



As the only mature technology of those under consideration (and, therefore, the only source of data on issues such as impact of distance from port), we will give some consideration to offshore wind.

Figure 7: Growing capacity of offshore wind turbines. *Source:* DONG Energy from *European MSP Platform Sector Fiche: Offshore Wind Energy*



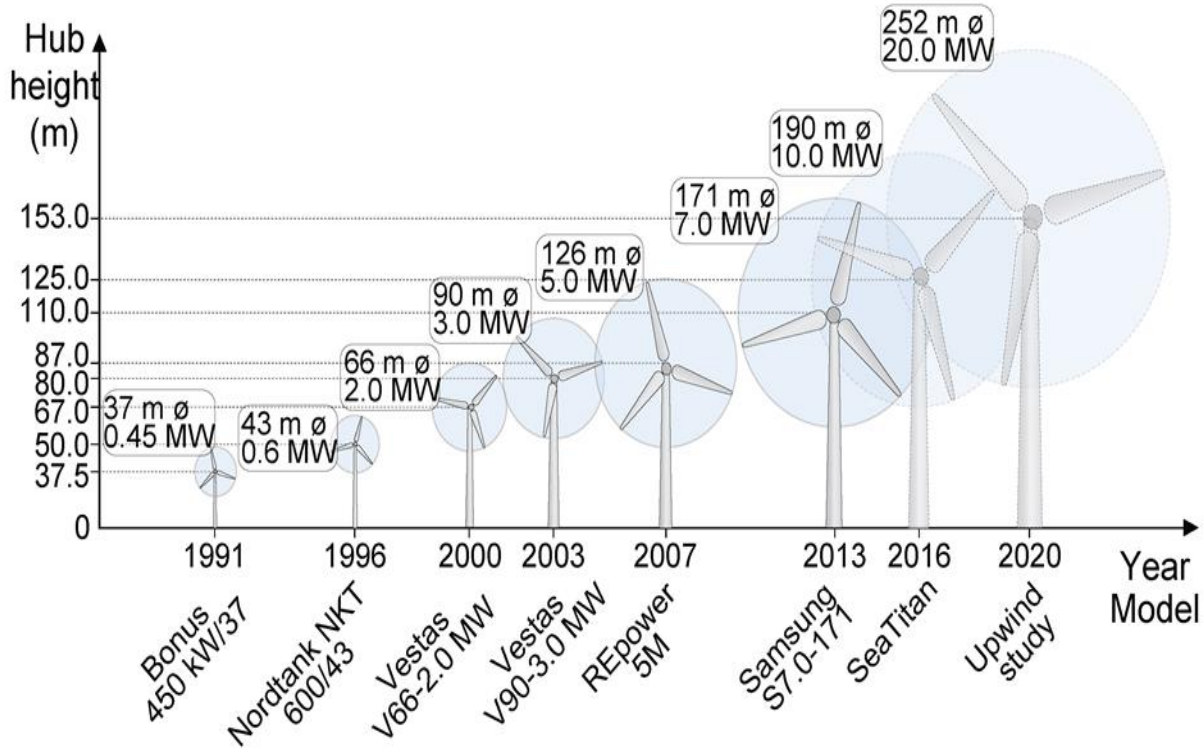
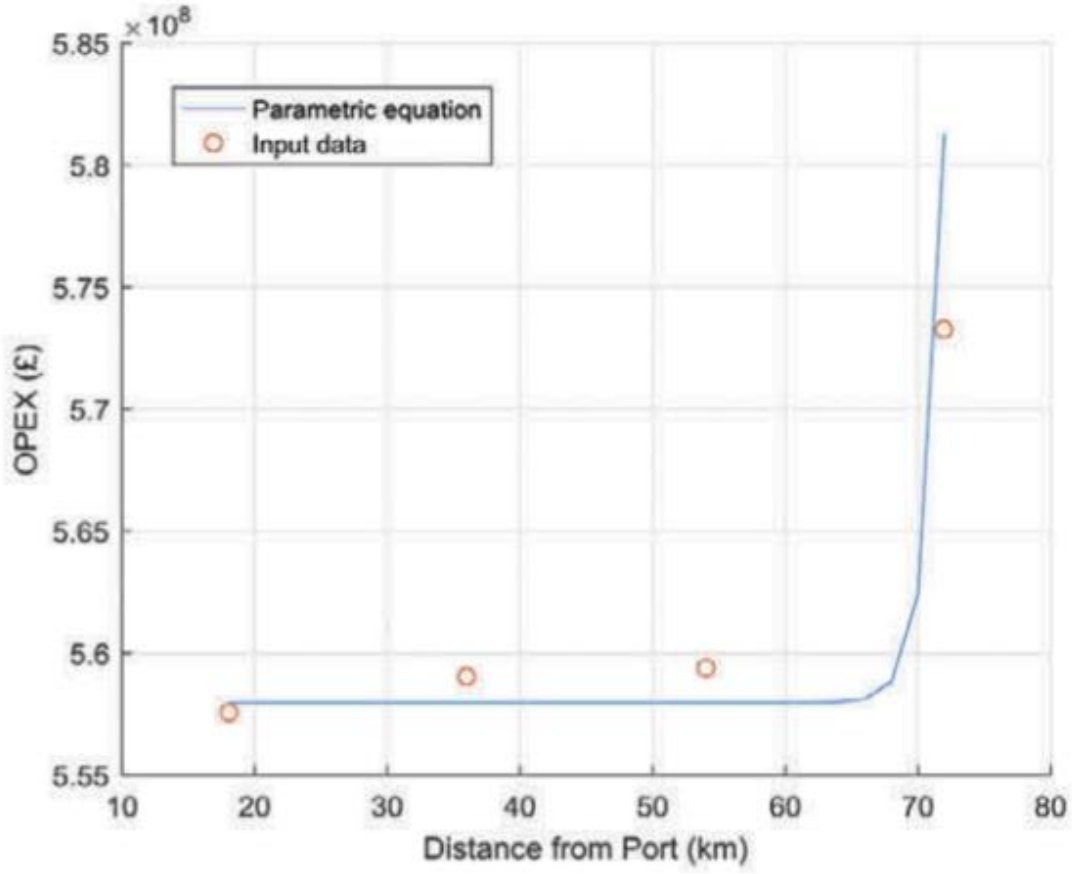


Figure 8: Growing height of offshore wind turbines. *Source*: *A Multi-Objective Optimization Framework for Offshore Wind Farm Layouts and Electric Infrastructures*, Rodrigues et Al, *Energies* 2016, *9*(3), 216;

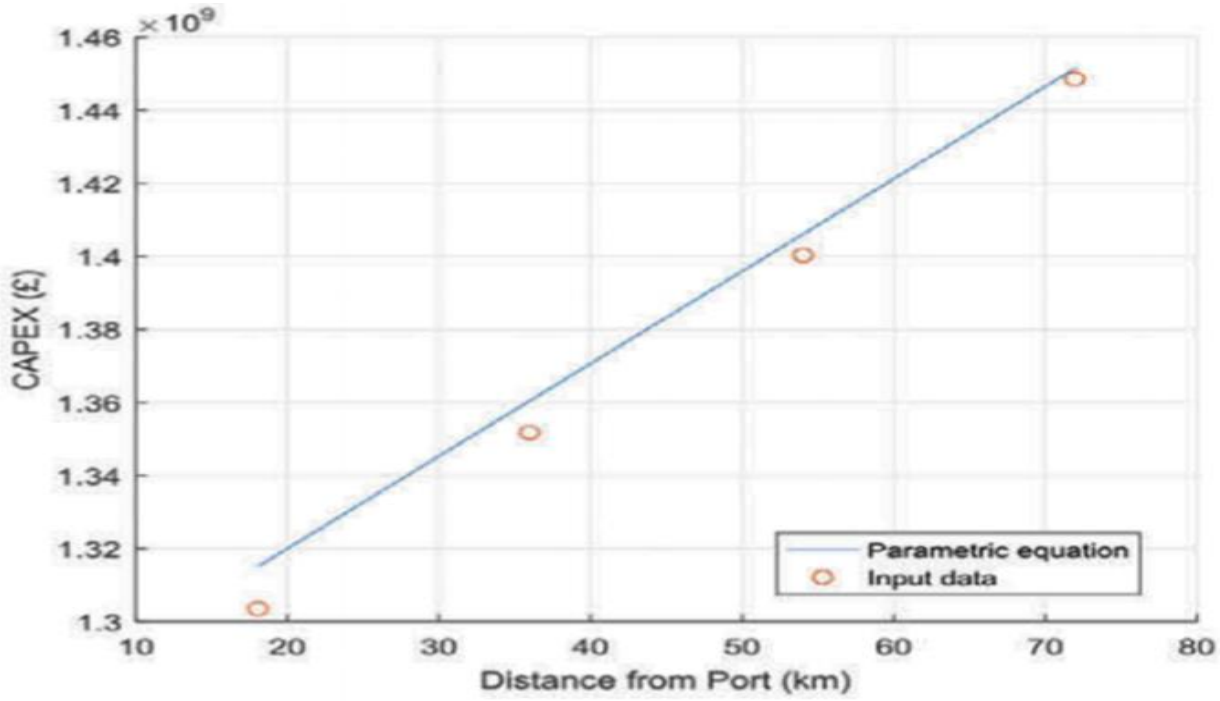
Figure 7 above illustrates the growing capacity of offshore wind turbines while Figure 8 shows how they are increasing in height. Figure 9 below opens the door to understanding the potential economic impact of buffering on offshore wind

Figure 9: Impact of distance from port on wind farm operational costs. *Source: Parametric CAPEX, OPEX, and LCOE expressions for offshore wind farms based on global deployment parameters*, Anastasia Ioannou, Andrew Angus & Feargal Brennan, 2018, Energy Sources, Part B: Economics, Planning, and Policy, 13:5, 281-290



Figures 10 and 11 below bring the point out unambiguously – the further offshore the wind farm, the higher the capital expenditure involved and, crucially, the higher the Levelised Cost of Energy (LCOE).

Figure 10: Impact of distance from port on capital cost. *Source*: see Figure 9



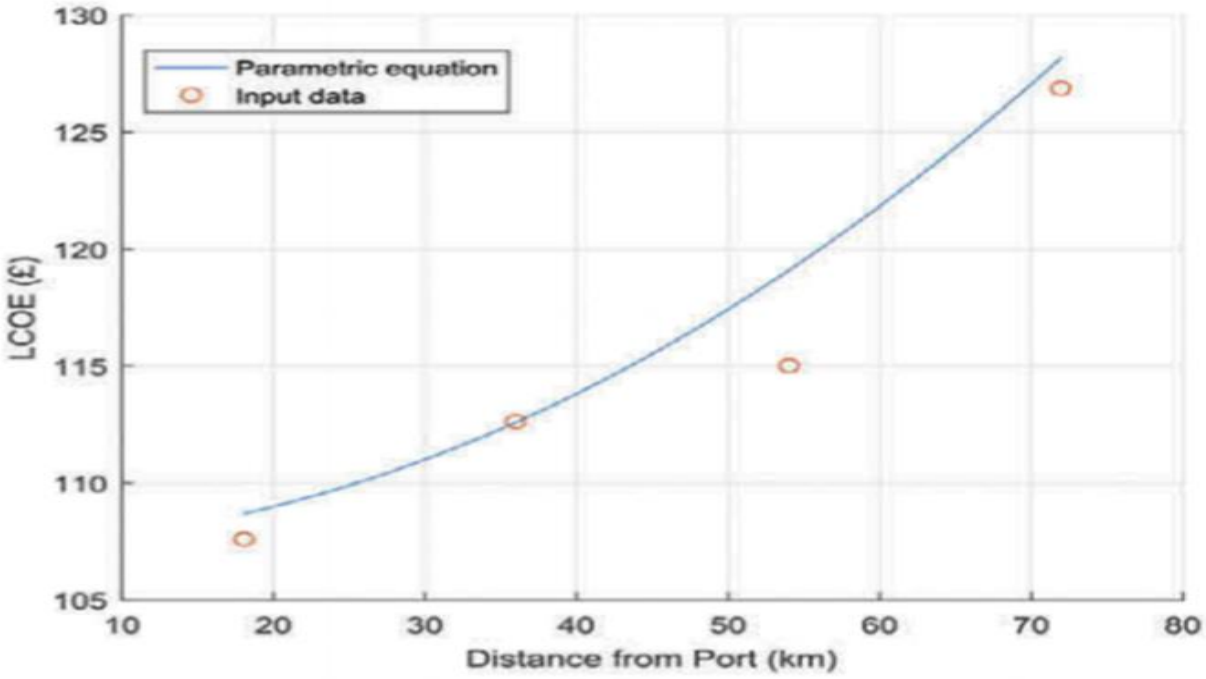


Figure 11: Impact of distance from port on Levelised Cost of Energy. *Source:* see Figure 9

Finally, the size of offshore wind projects is increasing, as illustrated in Figures 12 and 13, and, importantly, while the trend is towards larger projects, these projects are gradually moving further offshore where water depths, a key limitation, allow.

Figure 12: Trend in size of projects. *Source: The European offshore wind industry, Key trends and Statistics*, Wind Europe 2017

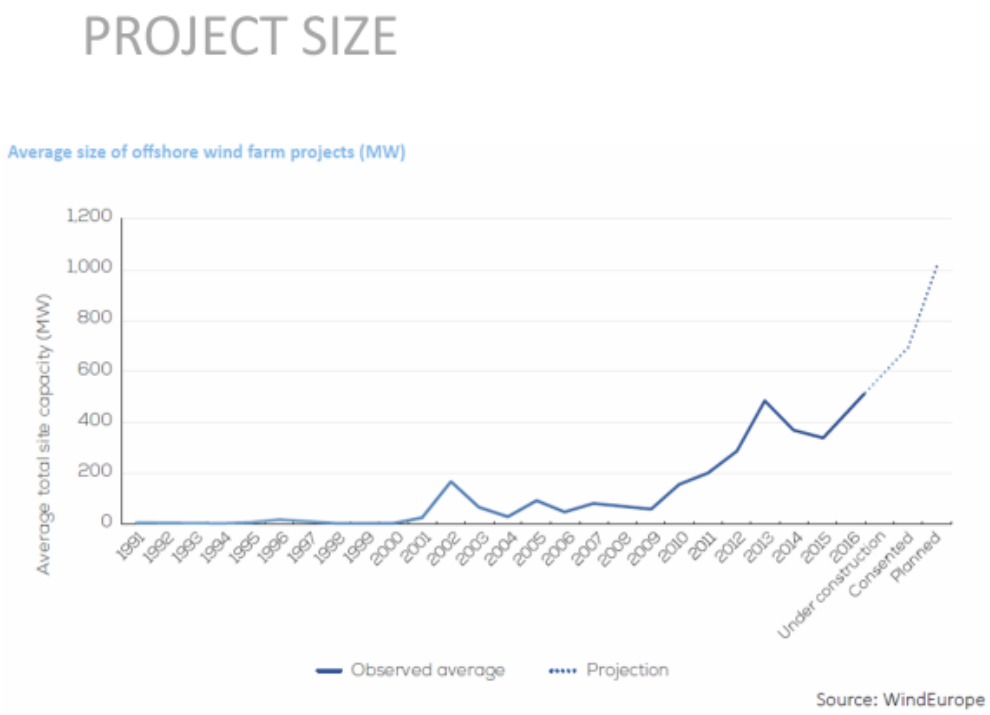
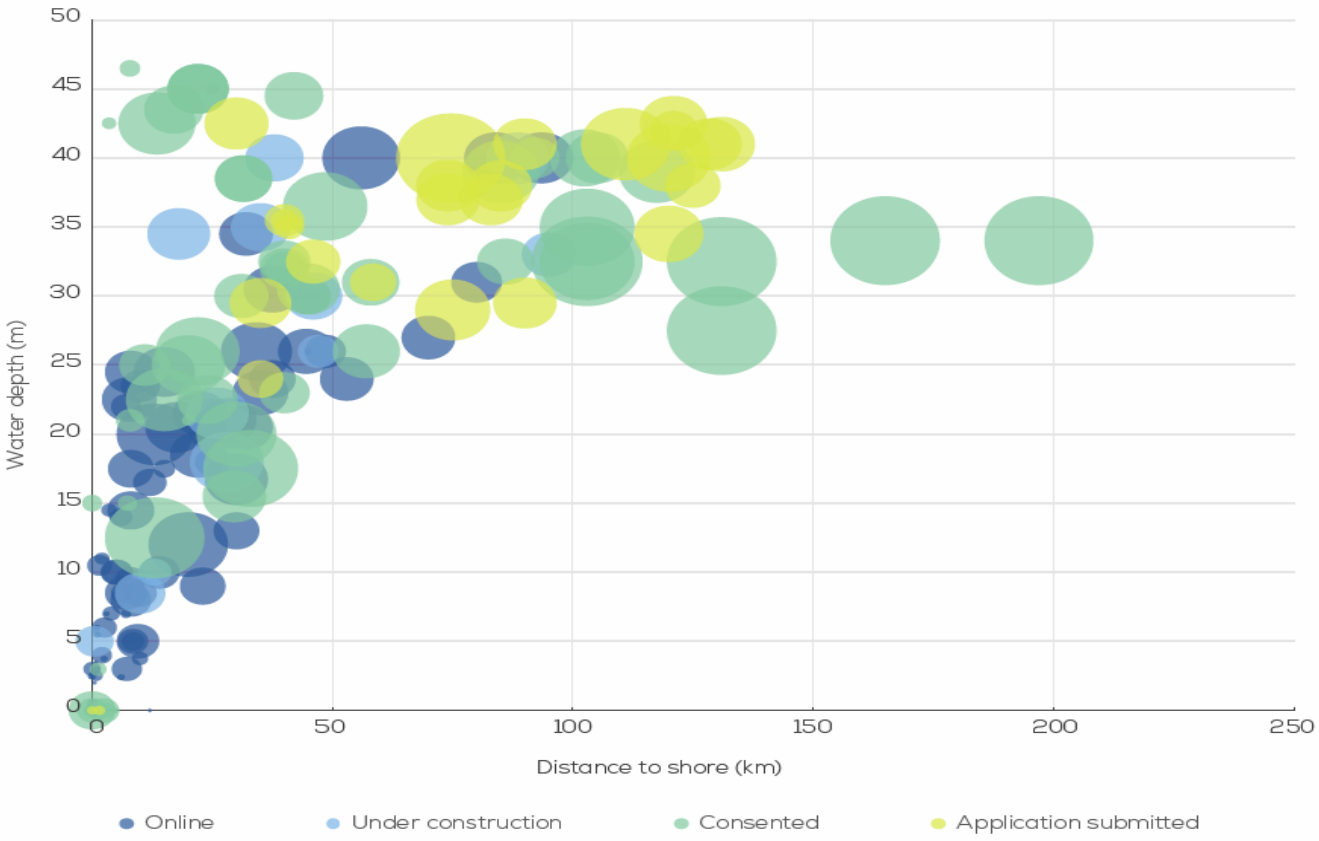


Figure 13: Trend in size of projects and distance from shore. *Source:* see Figure 12



Fixed offshore wind - the ubiquitous current technology - is, like its floating relative, constrained by where wind resources are located. It is wave height limited for both installation and operations and maintenance reasons. It is depth limited to less than 50m and all suitable sites in Ireland lie within 12nm of the coast. *Floating wind* also faces some wave height limitations. It normally requires a minimum depth of 50-60m at least and probably 100m in many instances. The effect of a buffer zone on floating wind, as illustrated in Figure 4 is that it would exclude the technology - which, again, has a significant distance-to-port cost driver - from access to key sites off the west and south coasts.

Distance to shore is a key variable in all offshore renewables. It impacts on capital expenditure – cable length and installation costs are important here. It affects operating expenditure under a variety of headings: increased steaming time to sites, the availability of suitable vessels and their costs are particularly important. Indeed, crew transfer vessels such as catamarans tend to be limited to waters out to c12nm and after that there is a step change upwards in cost as Offshore Support Vessels, common in the oil and gas industry, are called into play.

9.6 Conclusions and Recommendations on Buffer Zones

Buffer zones are a blunt instrument. They are best avoided as they increase both capital and operating costs, for all marine renewables and consequently have a negative impact on the cost of electricity produced. A 12nm buffer zone would deeply disadvantage all of the emerging technologies (wave, tidal, floating wind and hybrids of wave and floating wind machines) as well as bottom fixed wind. It would lock marine renewables out of much of the technically and/or economically viable marine area. A 12 nm buffer zone would gravely undermine attempts to achieve the national renewable energy targets set for 2030.

Buffer zones introduce additional costs in the form of bigger tugs for device deployment, longer mooring lines, extended electricity export cables, loss of electricity due to extra distance to shore etc. These additional costs, all of which result in a higher Levelised Cost of Energy (LCoE), apply irrespective of whether the technology relates to wave, tidal, floating wind or hybrid structures.
A balanced approach must be adopted. The achievement of our renewable energy targets must be addressed by having marine energy harnessed in a way that results in competitively priced energy while minimizing any adverse impact on the local seascape.

An alternative and better approach to buffer zones is to apply visualization tests[88] that take many factors into account, notably the type of technology being used; the height and configuration and capacity of the devices (even when using the same technology, e.g. wind - the height of the devices will vary depending on the configuration and output capacity of the units); and the scale of development. The visualization tests should be technology-specific and within any given technology the tests should be multi-faceted.

While bigger devices are generally perceived to be more invasive in an area, the public may form a different view when all factors including safety concerns are considered. The larger output devices will allow a particular capacity to be achieved using a smaller number of units. The local community may prefer this rather than having a much bigger number of small output devices making up the array. Where the technology permits, placing more than one turbine on a single floating wind device in order to achieve a particular capacity should be encouraged as this avoids major increases in both hub height and blade length and it reduces the number of foundations in the array. Increased stability and greater safety are associated with units that have lower hub heights and smaller blades as these units will have a lower centre of gravity and will be supporting less weight in the air.

We believe that our conclusion on buffer zones is as well-founded as it is stark. *The application of a blanket national buffer zone out to 12nm would freeze and paralyse the development of all forms of renewable offshore energy – the industry could drop anchor for at least 10 years to await the emergence of advanced and economic wave and deep sea floating offshore wind technology which would enable renewable energy to be exploited well out in the Atlantic.*

Ireland would lose its opportunity to build a leading supply base position in the emerging marine renewables technologies. The capacity to develop marine renewables in the Irish Sea would be severely constrained and the southern and western coasts too might see little development. The implications for national energy policy are obvious. A buffer zone would sterilise areas due to the technical constraints of the technologies e.g. minimum or maximum depth limits; resource location; wave heights; LCoE impact, distances to ports; etc. It would also have severe negative implications for Ireland's international and EU climate change and renewable energy targets. A national 12nm buffer zone would also be impractical insofar as THERE IS CURRENTLY NO LEGAL BASIS FOR DEVELOPING MARINE RENEWABLES OUTSIDE OF THE 12NM LIMIT and, until that situation changes, there

[88] Information on Visualisation tests may be found at Seascapes and Seascape Assessment – A Review of International Practice, The Heritage Council and at Offshore Renewables – Guidance on Assessing the Impact on coastal landscape and seascape, Scottish Natural Heritage

would de facto be *NO POSSIBILITY OF ANY FORM OF MARINE RENEWABLES IN AN IRELAND SURROUNDED BY A 12NM BUFFER ZONE.*

We have argued earlier that the achievement of national renewable energy targets out to 2030 will require substantial marine renewables developments. A blanket buffer zone would put paid to that avenue and it would make an irreparable hole in our capability to meet national and international energy and climate protection targets. History would judge a 12nm buffer zone to be a profoundly unwise initiative, albeit with noble motivation behind it.

Nonetheless, there will be supporters of the view that some marine renewables will cause adverse visual impacts on some communities and this could become a cause for conflict[89]. What should be done?

MRIA recommends that the following approach be taken to dealing with seascape issues which lie at the heart of the buffer zone question:

- Any proposal for a buffer zone should be considered only with great care and should be locally site specific
- The governing principle in examining 'seascape impact' issues should be to generate competitively priced electricity with the minimum possible impact on local seascapes and in broad partnership with local interests
- Visualisation Techniques (VTs) that take many factors into account - type of technology, configuration and capacity of devices etc - should be employed to evaluate consenting applications
- An expert group (perhaps under the aegis of the Marine Institute who have already undertaken significant background research and evaluation work on MSP on behalf of the MSP Competent Authority, the Department of Housing, Planning and Local Government) should be convened to design a Code of Practice and Standards for VTs
- As part of the development consenting process, developers should be required to submit Visualisations, based on an approved VTs Code of Practice and Standards, of likely impacts on local communities of their planned projects
- Industry to work with appropriate bodies e.g. Commissioners of Irish Lights; Irish Coast Guard to identify appropriate measures to 'mark' wave and tidal devices e.g. hi visibility radar reflectors

[89] GE are developing Haliade-X, a 12 MW turbine which will be 260MW tall i.e. 80% of the height of the Eiffel Tower in Paris!

10. Partnership is Vital

10.1 TRANSACTIONAL V RELATIONSHIP APPROACHES

A recurring theme in the interviews undertaken for this Paper was the opinion that conflict is inevitable between marine renewables and civil society[90]. In practical terms, conflict was deemed likely between e.g. potentially visually intrusive renewables technology and residents along the coast; between renewables and marine environmental protection interests; and, particularly, between marine renewables and the fishing industry and fishing communities around the coast which are concerned about renewables hampering access to fishing grounds, potential damage to stocks, spawning and breeding grounds, etc.

Table 7. Features of different types of engagement between a community and a company[91]

Criteria	Transactional	Relationship
Basis of engagement	Exchange based Only do what is useful to the company Arms-length	Shared vision Shared effort Shared resources Respectful
End Goal	To get consent Company satisfaction with exchange Maintain equilibrium Company control of threats/ concerns. Community pressure for recurring and increasing euro value payments /'hand-outs'	Beyond compliance Satisfaction with product/outcome Co-create a new future together Meet both sides' needs Working together on shared agendas is the goal, not the dollar value of payments A forum for negotiation
Purpose	Meet immediate needs and win as much as possible To manage risks	Meet both immediate needs and longer-term ends To construct
Roles played by participants	Company manages its own interests and attempts to control The community asks Them vs us Confrontational	Partners in common interest Co-constructs Clear criteria for accessing funds
Practiced	In the board room In the court room	At a local level In the community
Boundaries/rules	Pre-existing/Present system	Defined by participants
Participants identity	Separate and maintained	Linked and changed
Scope of commitment	Limited to specific exchange Temporary	Includes both process and product/ outcome

[90] i.e. the so-called 'third sector' of society, apart from Business/Markets and Government.

[91] This Table and the Paper's references to SLO draw on the excellent '*How to improve your Social Licence to Operate – A New Zealand Perspective*, New Zealand Ministry for Primary Industries, 2014.

Ongoing nature	Requires re-negotiation Each transaction is increasingly complex	Re-negotiation (while complex) is to establish the next step in the process to achieve shared long-term goals

The policy approach to date to 'renewable energy communities' has concentrated on the traditional *transactional* style as illustrated in Table 7 above. The most recent policy publication on renewable energy, the *Renewable Energy Support Scheme*[92]*,* generally seeks to increase community participation in, and ownership of, renewable electricity projects. It provides for financial support for community renewables projects; a mandatory Community Benefit Fund (€2/MWh); and mandatory community and citizen investment opportunities (for residents up to 10km from projects). It is an exchange-based avenue to seeking community and interest group support. It is supported by facilitatory/capacity building mechanisms: communities will be offered 'trusted advisors' and other forms of assistance which are focused on the financial participation dimension.

These initiatives are a welcome development and may well play a positive part in terrestrial cases. However, circumstances for renewable energy are different at sea: marine renewables will develop under leases from the foreshore custodian, the State[93]; projects may be built out of sight from land, over the horizon; it is more difficult to define what or who is the 'community': nearest port? those with a sea view, etc? Moreover, traditional terrestrial community incentives have limited application in the ocean due to high capital cost and complexity (community owned marine renewables projects are, thus, unlikely) while Community Benefit Funds and private investment opportunities too may have limited application in marine renewables[94] e.g. they may lie outside the 10km boundary for mandatory investment.

A financial transaction-based approach to communities – however broadly defined – will not be *sufficient* for a successful marine renewables industry to grow and thrive.

10.2 Social Licence to Operate

The development of marine renewables in Ireland will be driven in part by a successful *relationship*-based engagement with the interest groups and communities on whom the industry impacts - marine renewables need a *Social Licence to Operate* (as do other industries and interests) particularly as conflict

[92] *Renewable Electricity Support Scheme (RESS) High Level Design* op cit
[93] Subject to certain rights such as navigation and fishing.
[94] For more on this, see www.mria.ie/site/assets/files/1016/mria_ress_submission_2017.pdf

with renewable energy interests is widely anticipated! SLO has been variously defined as 'free prior and informed consent of local communities and stakeholders' (World Bank, 2003)*, 'the acquisition and ongoing maintenance of the consent of local stakeholders' (Pike, 2012)* and 'a set of concepts, values or practices that represent a way of viewing reality for industry and stakeholders .....to create a forum for negotiating whereby the parties involved are heard, understood and respected' (Nelsen, 2009)*.

The key point to bear in mind is this: *a Social Licence to Operate is an outcome and not a process and many different ways may be used to achieve an SLO.* In Ireland, some form of partnership between the marine renewables industry and relevant interest groups is required (even in the event of community financial participation) to achieve an SLO. At a national level, this will take the form of liaison and dialogue between MRIA and appropriate bodies e.g. in the fishing industry. More challenging is local engagement: how can a Social Licence to Operate be achieved for a specific region or bay or project? In particular, what mechanisms and supports already exist or will be required in future to facilitate the process?

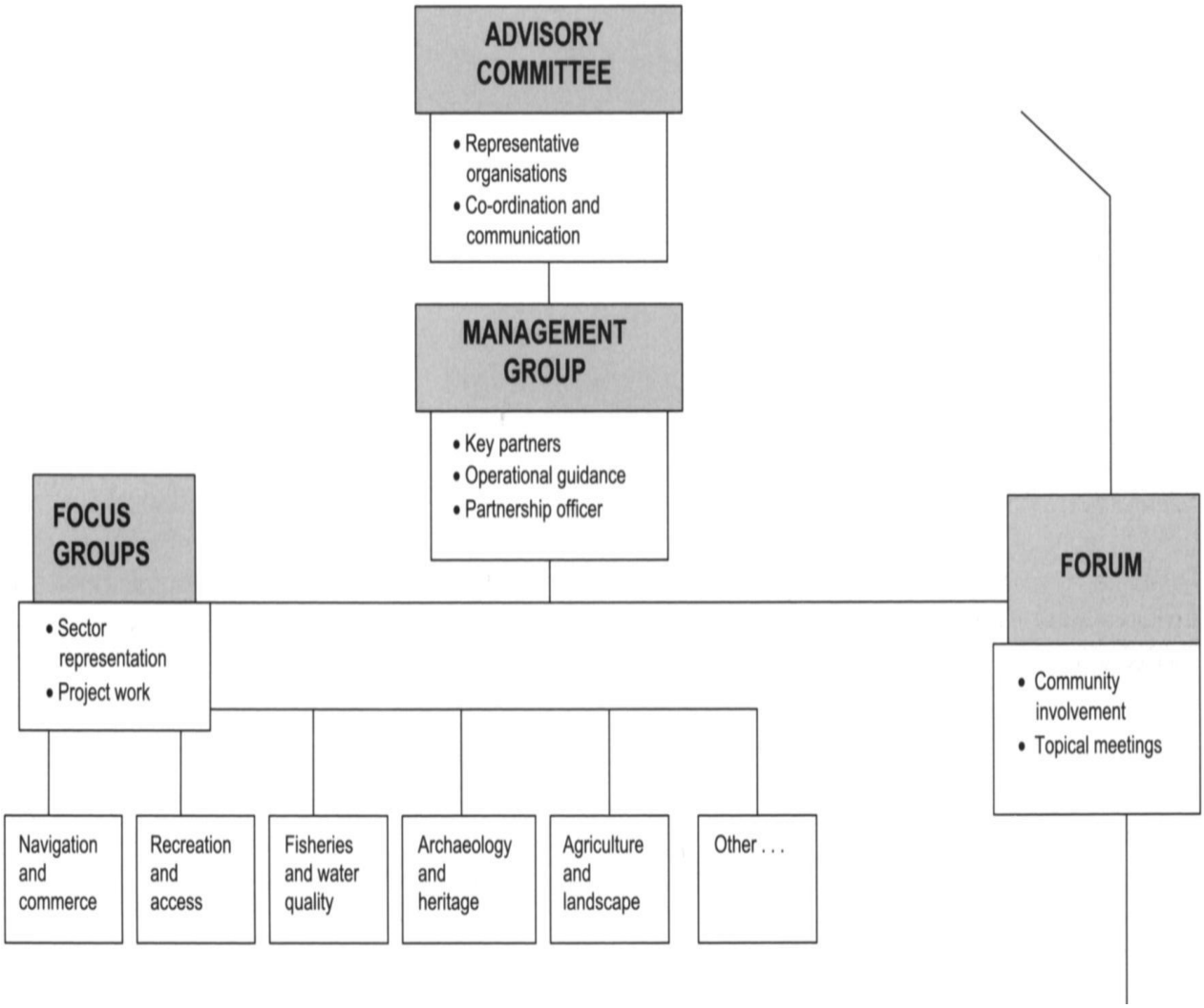
Arguably, the linchpin between national government and local communities tends to be local authorities or County Councils, who have limited powers in the coastal and marine space. It may be worthwhile, therefore, to explore other, complementary, mechanisms which could provide channels for communication and wider participation in the development planning process.

10.3 UK COASTAL PARTNERSHIPS

The UK's *Coastal Partnerships* are one successful model to consider for Ireland. There are over 50 in existence and they developed from a need to integrate and manage actions and activities at the coast, particularly between national and local government scale activity. Coastal Partnerships are based on *Integrated Coastal Management* principles and each is comprised of Government agencies, local authorities, private sector organisations and other interested bodies who work together across the land-sea 'interface'. Each Partnership employs a co-ordinating officer and some of them have further staff as well. Figure 14 below illustrates a typical Partnership.

* Quoted in *How to Improve Your Social Licence to Operate A New Zealand Perspective* op cit

Figure 14: example structure of a Coastal Partnership[95]



There have been criticisms of the Coastal Partnership model on grounds of efficiency, legitimacy and effectiveness as well as concern that it adds to the complexity of marine planning. Nonetheless, they are regarded as having improved attitudes and understanding concerning coastal problems and are perceived to have contributed to the management of coastal areas and to promoting community-based and 'bottom up' approaches. Previously, it was argued that the Partnerships should be placed on a statutory basis.[96]

With the advent of marine planning in the UK, Coastal Partnerships were seen as having the potential to add value to the work of the Marine Management Organisation in England, for example, by contributing to the overall stakeholder engagement that the MMO needs to carry out as a part of marine planning.

[95] *Improving Governance through Local Coastal Partnerships in the UK* Stojanovic & Barker *The Geographical Journal*, December 2008
[96] Stojanovic & Barker op cit

Whilst this does not equate to a statutory basis, the MMO has expressed its endorsement of the Coastal Partnership Network since 2010.[97]

In Scotland there are six local Coastal Partnerships. These are represented on the Scottish Coastal Forum (formed in 1996) to encourage debate at national level on coastal issues. The Marine (Scotland) Act, 2010 provides for national and regional marine planning. The latter will be developed by Marine Planning Partnerships in 11 regions. Two are currently operational. The former Firth of Clyde Coastal Forum has now evolved into the Clyde Marine Planning Partnership.[98] The Shetland Isles also has a marine planning partnership.[99] Regional marine planning powers are, and will be, delegated to the Partnerships by Scottish Ministers. These powers will not include consenting or licensing responsibilities which will be retained by the central Scottish Government's *Marine Scotland* directorate and by local authorities.

It is worth noting that the recent Scottish Crown Estate Bill will allow the Scottish Government to transfer the function of managing a Scottish Crown Estate asset (e.g. part of the foreshore) to inter alia a community organisation (although 'community organisation' is not defined).

10.4 Transferability of Coastal Partnership Model to Ireland?

Establishing Coastal Partnerships in Ireland would, at first sight, present significant challenges:

- There is no national coastal management policy so arguably there is nothing for Partnerships to link with and, thus, it could require a lot of time and expenditure to set them up as well as provide the necessary link to applicable policy objectives;
- They would need continuous resourcing: Partnerships set up on an *ad hoc* basis to deal with one immediate issue (e.g. a local marine renewable development) will not gain the experience and legitimacy to contribute strongly to overall MSP and implementation
- The geographical remit of each Partnership would need consideration: should boundaries be set at estuary, bay, county or regional level?

However, the need for a Social Licence to Operate is critical to marine renewable projects and some form of Coastal Partnership model is a key to this.

---

[97] See http://www.coastalpartnershipsnetwork.org.uk/our-role-with-the-mmo/ and associated Letter of Endorsement (accessed 3 October 2018)

[98] See http://www.clydemarineplan.scot/

[99] See https://www.gov.scot/Topics/marine/seamanagement/regional/partnerships/Shetland and https://www.nafc.uhi.ac.uk/research/marine-spatial-planning/shetland-islands-marine-regional-planning-partnership/

Such an approach could also assist with various legal requirements requiring public consultation.

10.5 Adapting Existing Mechanisms

There are existing approaches that could be adapted to provide a mechanism (or even just a model framework to guide policy-makers) to enable communities, local interests, industry and Government to meet, build relationships and ultimately contribute to practical MSP at a local level.

The first possibility is the *Coordinated Local Aquaculture Management Systems* (CLAMS) model. CLAMS is an initiative to manage the development of aquaculture in bays and inshore waters at a local level. It is a comprehensive approach, from the viewpoint of aquaculture interests at least, and conceivably could be adapted for local MSP in terms of structure, scale and operation.

The next option for consideration is the *Public Participation Networks* (PPN)[100]. There are 31 of these, one in each local authority area, set up under the Local Government Act, 2014. The purpose of the PPN initiative was to enable more input by citizens into decision making at local government level. The PPNs have over 12,800 groups as members and these are drawn from voluntary groups (e.g. cultural groups), local environmental groups (e.g. BirdWatch Ireland) and groups who are socially excluded (e.g. people with disabilities). The annual funding of each PPN amounts to €80,000pa and is provided jointly by the Department of Rural and Community Development and by local authorities. The Department also funds training programmes for PPNs and provides them with member database software.

The Local Authority Waters and Communities Office[101] (known as LAWCO) is another initiative, set up in 2016, inter alia to engage with local communities in the management of our 'water environment' and is derived primarily from the EU Water Framework Directive (WFD). The objectives of LAWCO are to coordinate the water quality work of local authorities (i.e. regionally) and to engage local communities and promote public participation in the management of the water environment. LAWCO is funded by the Department of Housing, Planning and Local Government. There are twelve community water officers around the country as well as three regional coordinators and three back-up staff. LAWCO has a Community Water Development Fund to support community-based water related projects with grants of up to €25,000 being

[100] See www.drcd.gov.ie for more information and a link to the PPN Annual Report for 2016
[101] See www.watersandcommunities.ie

available. It is unclear whether these already cover coastal and marine waters, or could do so in future years.

Finally, there is the *Sustainable Energy Communities* (SEC) *Network* linked to the Sustainable Energy Authority of Ireland. There are over 200 communities already participating in the Network, interested in various aspects of community energy issues. SEAI support them with regional mentors, networking opportunities such as participation in regional and national events and with information. The SECs, ideally, identify and develop local projects such as in energy efficiency and then seek SEAI capital grants under the Better Energy Communities programme[102].

10.5 Conclusions and Recommendations on Partnerships

None of the bodies outlined above are immediately transferable as a platform for community, interest groups and offshore renewable energy industry engagement and relationship building in Ireland.

The *UK Coastal Partnerships* appear to work well but are strongly staffed compared to the various Irish initiatives outlined which admittedly are not involved directly in MSP. The *CLAMS* approach is probably suited best to an individual sector rather than to MSP. The *PPNs* are focused on groups who may not be naturally interested in MSP. *LAWCO* is interesting insofar as it is focused on water and it is under the aegis of the MSP Competent Authority, the Department of Housing, Planning and Local Government. However, given its link to the Water Framework Directive, it is inherently focused on river basin management (over half of the offices are located inland). It should be noted, however, that the WFD also applies to coastal waters so there is scope to be involved with the coast and its communities. LAWCO could be spread too thinly if it took on MSP in addition to its current responsibilities.

Nonetheless, a structure or mechanism is required to enable marine renewables and indeed others involved with the sea to 'acquire' a Social Licence to Operate. The alternative is likely to result in conflict between marine sectors as well as individual projects, such as marine renewables developers and coastal communities, fishers etc. Internationally, few marine planning systems include conflict resolution mechanisms and this is often identified as a challenge or gap[103].

It is beyond the remit of this study to design a detailed structure for Coastal Partnerships (CPs) in Ireland or to determine whether it could be incorporated

[102] See www.seai.ie/sustainable-solutions/community-projects/community-network/

[103] Anne Marie O' Hagan op cit

into an existing structure e.g. LAWCO but its desired characteristics are fairly evident.

MRIA recommends that the Department of Housing, Planning and Local Government consult on the structure for Coastal Partnerships as part of the (second) consultation on the NMPF scheduled for 2019 with the objective of launching a Coastal Partnerships structure, along with the final National Marine Planning Framework, in 2020

MRIA recommends also that any model chosen for Coastal Partnerships should incorporate the following features:

- Consultation with all interested parties in the design of the structure
- A clear remit from Government as, for instance, the Public Participation Networks and Local Authorities Water and Communities Offices have in their spheres
- It would be desirable to have a statutory basis for the Coastal Partnerships. However, NMPF and renewables are urgent issues and the lead time for legislation could be protracted. It should be possible to launch the Coastal Partnerships initiative without specific legislative backing.
- The initiative should incorporate the following features for Coastal Partnerships:
    - Under the umbrella of the Department responsible for NMPF – Housing, Planning and Local Government
    - Full-time staff, locally placed, with some back up from the Department e.g. in IT, facilitation and coordination
    - Capacity to support local Coastal Partnerships and projects e.g. training, a modest grant scheme to support local studies etc.
    - The geographical scope of each Coastal Partnership to be linked to the offshore zone network which will emerge from the final NMPF and which, of course, will deal with a variety of issues as well as renewable energy.

10. Other Important Issues - Data and Ports

Data

As noted at 7.6 above, there is widespread concern about the lack of data necessary to enable balanced decisions to be made about Marine Spatial Planning, although there is considerable confusion about the issue with MRIA hearing from various sources that there is a range of variously 50 to 400 data

sets associated with the Irish marine! The Marine Institute in conjunction with other Government agencies is believed to be undertaking a survey on the matter in connection with the MSP process. Comprehensive and credible data is vital to successful planning offshore and key to that is establishing what data is currently available, where it is held and what is necessary for a future in which the marine space will be busy, important and utilised by a range of actors, particularly marine renewables, who have not to date been engaged in Ireland's seas.

The MRIA recommends that:

- The report currently being prepared on marine data by the Marine Institute and others should focus in the first instance on identifying all data sets relevant to marine matters that are publicly available
- Those data collections relevant to Offshore Renewable Energy should then be made available via SEAI's Ocean Energy Ireland portal
- In addition, the report should be *published* and it should make recommendations about:
    - Gaps in the data which is necessary for MSP
    - How these should be filled and by which Body, along with a timeline
    - Where marine data should be collated and co-ordinated in future e.g. at the Marine Institute and the Geological Survey of Ireland (who together are already the de facto collectors of all hydrographic data under INFOMAR)
    - The role (if any) which compulsory reporting (e.g. by energy interests) of data should play, both in respect to data gathered both at public and at private expense

Ports

Marine renewables of all types are dependent on adequate port facilities including the possibility of fabrication and assembly of devices close to a port, to deep water and to hardened quay space. MRIA has drawn attention[104] in the past to the importance of addressing the gap in port capacity between Galway to the south and Killybegs to the north and recommended that early planning should take place for the provision of suitable facilities at Rossaveal in west Galway or along the Mayo coast in light of the wave and wind resources in that

[104] MRIA Discussion Paper on Maritime Infrastructure Development Priorities to Support Ireland's Future Ocean Energy Industry *2014*

area. Such facilities would complement the role of Foynes which has ambitious plans to support ORE, notably at the southern end of the west coast. This is an important issue because of the key part that 'steaming time to port' plays in the economics of renewable energy - see 9. above.

Yet another review of the capacity of ports to cater for offshore renewables is imminent and there are indications are that it will bypass the issue just outlined. In addition, the recent interest in developing marine renewables - particularly offshore wind - off the south coast determines that the Port of Cork will have a critical part to play and Government support for any plans by the Port to expand its available land bank must be given priority. In any event, Marine Spatial Planning clearly has the potential to make an impact on all ports and their development plans.

The MRIA recommends that:

- The NMPF recognises the key role that ports will play in the exploitation of our offshore renewable energy resources
- The importance to offshore renewable energy development of ports developments in Cork, Foynes and in either west Galway or the Mayo coast should be explicitly recognised in the final NMPF.

Appendix 1

MRIA u*nderstanding of status of long-standing offshore wind farm projects*

Project	**Location** -info from websites etc where available	**Grid connection**	**Foreshore Lease**	**Scale**
Codling Bank – Fred. Olsen Renewables and Hazel Shore Ltd	'...approximately 13 kilometres off the east coast of Ireland, between Greystones and Wicklow'	No	Yes, circa 2005-7 for 99 years	220 turbines in range 2.5MW -5 MW; may seek a further 200 turbines
Parkwind Oriel – Parkwind NV and local investors	'...lies 22km off the coast of Dundalk, Co Louth'	Yes	Conditional offer for a foreshore lease, requires CRU licences, onshore planning consents etc	330 MW
Dublin Array – Innogy Renewables Ireland and Saorgus Energy	'10 km off nearest coast of Dublin and Wicklow'	No. They had a grid offer under the Gate 3 system but handed it back due to the cost of maintaining it and lack of visibility on a tariff	Foreshore lease application submitted	600MW
Sure Partners Ltd – SSE (Scottish and Southern Energy) Renewables	'...13 km offshore the Co. Wicklow coastline, the East of Arklow...'	No	Yes, circa 2002 for 99yrs	494.8 MW
Fuinneamh Sceird Teoranta FSTeo	Skerd Rocks Galway	No. Also had a grid offer under gate 3 but handed it back.	No. Foreshore lease application submitted	100 MW with potential for more
Hibernian Wind Power - ESB	Drogheda to Clougher Head	No	Licence application for site surveys submitted; this doesn't allow for an application for consent	Not specified
Gaelectric North Irish Sea array	Rockabill to Clougher Head	No	Licence to undertake site surveys, surveys complete. Licence expired	Not specified

Issues arising from table above

1. Leases may have longstop dates for project progress
2. Technology associated with leases may have become dated and there is no/no easy legal 'tool' to provide for amendments to leases that have been issued
3. Potential impact of O'Grianna judgement[105] ('project splitting'), need to consider onshore infrastructure in EIA
4. Impact of new EIA Directive?
5. Possible public perceptions regarding lack of consultation

[105] Ó Gríanna & ors -v- An Bord Pleanála & ors. [2017] IESCDET 101.

Appendix 2

List of Bodies Interviewed

Eirgrid

Ocean Energy Europe

Birdwatch Ireland

MacCabe Durney Barnes

Bluwind Energy

Department of Housing, Planning and Local Government

DP Energy

Eirwind

MaREI

SmartBay

ESB

Irish Wind Energy Association

Mayo County Council

Irish Coast Guard

Queens University Belfast x 2

Sea Fisheries Protection Authority

National Inshore Fisheries Forum

Ocean Energy Limited

Port of Cork

Arthur Cox

Parkwind

SSE

Scottish Enterprise

Department of Communications, Climate Action and Environment

Irish Sailing Association

Arup

Electricity Association of Ireland

Irish Whale and Dolphin Group

Irish Wildlife Trust

Coastwatch Ireland

Marine Institute

Dublin Institute of Technology

Irish Fish Producers Organisation

Killybegs Fish Producers Organisation

Appendix 3

Further Opinions of Stakeholders

The section numbering in this Appendix follows the pattern set in the main text at 7. above.

7.1 General Views on MSP

'Won't get people on board if MSP is too vague – deals with planning environment, complies with Directive etc. People won't engage with it unless there is something to get exercised about'

'We are going to miss an opportunity by doing the bare minimum. MSP is based on an EU Directive which doesn't really involve forward planning'

'MSP is a process, an outcome. The raising of public awareness, what MSP has to offer, the public discussions – all can be valuable. All too often, MSP is seen as a series of red boxes, of zones, of boundaries and that is not what it is about at all'

'*The lack of a legislative framework is a concern and we would like to have seen something at this stage. In Scotland, MSP was carried out against the background of Marine Scotland which gave an institutional framework for consenting and, also, a modern consenting system was in place. It was very clear. That is not the case in Ireland where stakeholders will struggle to understand MSP'*

'MSP, in line the National Planning Framework (NPF- which deals with terrestrial areas) experience, only becomes relevant to most stakeholders when it becomes local e.g. area development plans. MSP is high level, people relate when they are able to ask 'where do I fit in' and perhaps get an answer'

'A holistic approach should be taken in the MSP to support the long-term decarbonisation of Ireland's economy by 2050. Key aspects to consider in respect to this national goal are:

- *the increasing offshore renewable development that will be required and their on-going operations and maintenance needs. This should include the requirements of both mature and emerging technologies.*
- *Declining oil and gas exploration and production, and related assets set for decommissioning that could be reutilised.*
- *Optimising and leveraging existing onshore grid, ports and other infrastructure investment.*
- *Close integration with Eirgrid planning to maximise both existing and future planned grid capacity. The findings of the Eirgrid's 2011 'Offshore Grid Study'*[1] *and any subsequent updates should be considered as part of MSP.*
- *The potential role of carbon capture in conjunction with offshore geological carbon storage in reaching full decarbonisation.'*

([1] Eirgrid, 2011: *Offshore Grid Study: Analysis of the Appropriate Architecture of an Irish Offshore Network*)

'There are too many Government Departments involved in the marine space generally which means that policy is fragmented, complex and very difficult for lay people to understand'

'Onshore is becoming very difficult and offshore is becoming more and more significant'

'There are two aspects to MSP: get people involved in the management of oceans and, second, resolve or at least predict conflict and do so at a local level. The first MSP will be a template for the future and it doesn't look as if it will do that'

'In principle, a good MSP should provide a balanced approach for all marine users with clear guidance and synergies identified. A poor MSP would be one which disproportionately favours one type of marine users to the detriment of others, and which fails to take a strategic long-term view encompassing development policy relating to different sectors (energy, sea fisheries, tourism and leisure, transport etc.).'

'*The most important thing about MSP is that it should help ensure that our marine resources are managed. History is full of examples where this did not happen with bad consequences e.g. over-fishing'*

'The Scottish MSP system is good because they have 'all of the ducks in a row' – consenting authority, plan etc. The 'system' in Ireland is far too fragmented'

'MSP is about a vision for the Irish people. There needs to be transparency in terms of the options – need to give people options and alternatives'

'Eirgrid started to develop a grid that could be built on and on....it would be sustainable. Eirgrid knows how the offshore architecture could be built up and has developed internal papers on cable sizing, underwater convertor stations etc'

'Eirgrid doesn't know how the generation will build up and can't respond until this is determined. ISLES didn't, incidentally stretch around to the west coast– it focused on two areas: Donegal to Scotland and down the Irish Sea'

'How fast can Eirgrid respond to new demands? There is about a 5-year turnaround in regard to cabling and the strengthening of the network is another issue – perhaps 10 years for a major offshore project involving substantial strengthening'

'To support offshore energy, Eirgrid needs a 10-year time horizon and then would be able to keep the pipeline of connections open – note that the Commission for the Regulation of Utilities (CRU) would need to bless this!'

'The other big issue for Eirgrid is partnering e.g. with data centres which want Green credentials. Incidentally, companies, for instance, can get together and generate their own electricity under a 'closed distribution systems operator' which involves two separate legal entities'

'Eirgrid is obliged by law to respond to applications to connect to the grid although the view of the CRU is important'

'There is 18,000km of underwater cable being laid in Europe at present in over 100 separate projects. Eirgrid is responsible for cable out to 12 NM and after that things are hazy'

'The framework for is the Offshore Renewable Energy Development Plan (OREDP) and this has been a key driver of MSP as well as the EU Directive'

'The MSP is national and it will be high level and 'light' similar to Scotland's effort...it will try to 'sink in' the OREDP'

'Once MSP is finalised, all consenting applications will be required to be MSP compliant'

'Many of the major projects proposed for the East coast were granted (if they were granted) foreshore leases back in the early noughties and there was very little if any public engagement'

'The data on which the Dublin/Wicklow projects are based is generally very dated and based on outdated technology. Is there any instrument within Foreshore Licensing to enable the updating of technology? I doubt it'

'What impact will the O'Grianna judgement on project splitting have on the East coast wind farm projects which stem from the early part of the century for the most part'

'OREDP Mk 2 needs targets and this will bring the emerging technologies into the unpleasant area for politicians and officials of hard decisions about location decisions etc'

'The Enduring Connection Policy has opened up the possibility of offshore wind with 600MW for all technologies available – it will prioritise projects that are 'running out' of consent and favour 'shovel ready' projects'

'MSP will give certainty for process'

'MSP has to have a statutory basis to work'

'Our involvement with MSP was in regard to its economic impact e.g. on fisheries rather than on creating new jobs; it was about the impact on the existing economic landscape'

'Our review of the impact of MSP was undertaken over several years. Looked at all potential users e.g. fishers/shipping/naval etc and aimed to identify zones. Worked closely with the Crown Estate, undertook a consultation and did the study on a multiuser basis. Sought to identify zones that would suit marine energy and those that would not. Ended up with multi user areas, no exclusive zones but you still have to go to the Scottish Government and the Crown Estate for consent'

'The Crown Estate did 'calls' in its glory days on a competitive basis. A big issue arises when projects didn't go ahead although the Crown Estate. Choice now is to deal with applications on an 'as needed' basis or you can follow the French model of releasing sites'

'The real issue with the experience in Scotland to date of zoning etc is not the 'lock up' of sites but rather that we were dealing with little companies with limited resources'

'An active Integrated Coastal Zone Management would be an important tool for the linking of MSP and NPF'

'Onshore is becoming very difficult and offshore is becoming more and more significant'

'We (Ireland) should have undertaken MSP a long time ago e.g. at the start of the downturn. It is essential to unleashing the potential of the coast, particularly in the West'

'MSP is a good way to go, it will identify areas that have the maximum ORE resources and where development will have the minimum impact'

'*The most important thing about MSP is that it should help ensure that our marine resources are managed. History is full of examples where this did not happen with bad consequences e.g. over-fishing'*

'MSP gives us the opportunity to manage our resource wisely'

'We are going to miss an opportunity by doing the bare minimum. MSP is based on an EU directive which doesn't really involve forward planning'

'There are two aspects to MSP: get people involved in the management of oceans and, second, resolve or at least predict conflict and do so at a local level. The first MSP will be a template for the future and it doesn't look as if it will do that'

'There was a position paper on what was effectively MSP, Coastal Zone Management, twenty years ago but it went nowhere'

'There are similarities between the marine renewables emerging technologies and aquaculture: both are important at EU level, they address the crisis areas of food and energy and there is a lack of interconnectivity between them and other 'actors' '

'Most aquaculture in Ireland is and will be in high energy sites, compared to Scotland where it is concentrated in sea Loughs and Norway (Fjords). Current aquaculture technology can deal with wave heights up to 5m'

'Marine Institute has an aquaculture strategy and a related research group'

'There are 1800 inshore boats i.e. under 12m. The vessels up to 10m fish within 6 nm of the shore while the 10-12m boats go out as far as 30 nm. The inshore fishers are the biggest sector of the Irish fishing industry. We one of the main stakeholders in fishing and we are organised into 6 regional fora'

'The fleet divides into several categories

- *Razon (worth €3-4mpa)*
- *Lobster and crab (predominantly 10-12m vessels)*
- *Whelp*
- *Handline Mackerel*
- *Clams*
- *Scallop*
-

'MSP is good for the inshore fishing industry – it will identify where we work, will mark our territory'

'We are a regulator to ensure compliance with regulations determined by the Department of Agriculture, Food and Marine, who are very engaged across this space including fisheries ports, and from Brussels'

'In principle, a good MSP should provide a balanced approach for all marine users with clear guidance and synergies identified. A poor MSP would be one which disproportionately favours one type of marine users to the detriment of others, and which fails to take a strategic long-term view encompassing development policy relating to different sectors (energy, sea fisheries, tourism and leisure, transport etc.).'

'There are too many actors involved in offshore consenting etc. There is a need for one stop shop equivalent to Marine Scotland or the similar body in the Netherlands'

'The MSP won't go for Zones....but there will have to be a spatial driver there somewhere'

'Best guess, that the MSP will identify areas of priority for certain activities and may involve criteria-based framework a la Scotland and they may also go for a fit with the National Planning Framework which is strategic in nature but is also hierarchal'

'The MSP will map out shipping routes, SACs etc and indicate areas, if only by implication, for offshore energy development'

'There is a need to use MSP to draw all sorts of 'strings' together e.g. environmental interests, Harvesting Our Ocean Wealth ambitions and targets etc and to identify the trade - offs involved'

'Everyone has problems with marine spatial planning i.e. 'allocating' in some way the sea space among different activities e.g. the Norwegians have a huge issue in this area'

'The consenting authority needs to be ready to make hard calls'

'Quite keen to see the MSP process work its way down to detailed plans as soon as possible. The Norwegians have done this well. There is a need, though, to do this top down and do not start with the detail'

7.2 International Role Models

'The German experience from an offshore grid point of view is noteworthy. First, it is quite law-based. Second, for reasons of pollical expediency, a lot of German offshore grid went through one sub-station and this was and is challenging'

'What do we want from MSP? The German MSP tells people what to do. It covers the EEZ but not coastal waters which are dealt with by local authorities. The German system is streamlined for planning but not for execution'

'Nowhere is Europe is ideal in its approach and a H2020 project ('TAPAS') is seeking to break the logjam. We need a new paradigm for risk assessment – everything has an impact including tourism, aquaculture and energy'

'Scotland is a good example of MSP where the NGO's were listened to. The Netherlands/Denmark/Germany group are an early example of MSP and they worked together to streamline oil and gas, shipping etc and they worked cross border – the latter is a major gap in Ireland. However, in practice the Netherlands etc did not do enough for nature even though they did so on paper so that there are no more limpets in the area because of the impact of background oil. Ireland by way of contract has six different examples of limpets'

'Department (of Housing, Planning and Local Government) has to ensure that there is a spatial aspect to MSP but don't need to do it in the same detail as Wales whose Plan is far too long and complex'

'*I am critical of the Northern Ireland plan which pulled together sectoral policies and legislation and didn't look down beneath these to identify 'hotspots' of both opportunity and conflict. It doesn't put the Planning into MSP e.g. identifying the best sites for various activities and seeking to solve conflicts. It simply collates what is already there'*

'*The lack of a legislative framework is a concern and we would like to have seen something at this stage. In Scotland, MSP was carried out against the background of Marine Scotland which gave an institutional framework for consenting and, also, a modern consenting system was in place. It was very clear. That is not the case in Ireland where stakeholders will struggle to understand MSP'*

'There are too many Government Departments involved in the marine space generally which means that policy is fragmented, complex and very difficult for lay people to

'Germany extends local authority planning's remit out the twelve-mile limit'

'Concerned that the recent Welsh Government energy plan which did not rule out an impact on Irish Natura sites – this needs to be dealt with by the Irish Government'

'Belgium has everything planned down to the finest detail but they have a coastline of just 35 or so kilometres in length!'

'In some European countries (Belgium? Germany?) prepare areas for development i.e. get consenting, do EIA etc. Different to the Ireland and UK practice but why not emulate it?'

'Other countries have zones e.g. the Netherlands. Ireland is looking (as Northern Ireland did) to a policy led approach plus hard lines'

'You can see Scottish offshore renewables driven by the original national Marine Plan and now they are updating their sectoral plans. How is the Irish process going to work?'

'What do we want from MSP? The German MSP tells people what to do. It covers the EEZ but not coastal waters which are dealt with by local authorities. The German system is streamlined for planning but not for execution'

'MSP could be a mechanism to deal with conflict and good examples to look at are Belgium, Germany and Rhode Island in the US'

'Belgium uses mapping extensively and has undertaken MSP for its small maritime territory (69km coast line). Could we follow this example at national level? The Belgians are at MSP for 15 years'

'Integrated Coastal Zone Management goes back many years. It is not on the same statutory basis as MSP which arises from an EU Directive – Ireland, Portugal and Spain were among those who historically paid no more than lip service to this area'

'Scotland prepared a national framework and that then feeds down to local plans. In England, there is no overarching strategy – it has lots of generic objectives but lacks detail'

'The Northern Ireland MSP is quite good and similar to the Scottish approach. The Atlas is very good but the MSP lacks detail on the spatial side although there is good spatial data available. Moreover, there is little evidence of integrated coastal zone management or of involvement of the local communities and not much on fisheries either'

7.3 Zoning

'MSP is not the right forum for 'zoning' – that belongs to some blend of MAFA and the next OREDP'

'The Netherlands is good at matching activities e.g. offshore wind potting fishing and this is done in such a way that the fishing does not interfere with service vessels supporting the turbines'

'MAFA is the zoning instrument'

'Statoil did the right thing with Hywind by placing it well off the Scottish coast'

'An important issue (for floating wind) is the actual layout of arrays – could be ok if clustered rather than giving the impression of 'caging' and blocking the view'

'The biggest issue is the designation of areas, when they will be open for development and how robust the whole process is'

'Our review of the impact of MSP was undertaken over several years. Looked at all potential users e.g. fishers/shipping/naval etc and aimed to identify zones. Worked closely with the Crown Estate, undertook a consultation and did the study on a multiuser basis. Sought to identify zones that would suit marine energy and those that would not. Ended up with multi user areas, no exclusive zones but you still have to go to the Scottish Government and the Crown Estate for consent'

'MSP should be carried out on a national level to ensure a coordinated spatial plan to deliver on key EU / National policies. Such an approach would be particularly beneficial in developing the marine space to best support decarbonisation. The plan could be optimized to make best use of onshore/offshore grid development, interconnection and export markets, while minimizing societal and end consumer costs.

Nonetheless, there will likely still be a need for sub plan areas with greater focus on specific types of development and/ or congested areas. Some local authorities and users will focus on these particular locations and will need greater detail in these areas. The national level plan should act as a guiding framework for these more detailed sub plans.'

'Ocean energy – wave and tidal – are, due to the stage of their technology development, going to be at the end of the queue for space and may well find themselves in conflict with bottom fixed wind'

'Fuzzy boundaries v tight line boundaries: it all comes down to good procedures to identify impacts. The management of areas is vital. Interestingly, the Arklow Bank wind farm has de facto become an MPA and this sets a good precedent – species breed there because there is no fishing'

'Zones are a good idea...whether they are reflected in the Plan or not is a different question!'

'There is high offshore ocean energy resource off the west coast but projects would have to be developed in very deep waters. There would be value in establishing an open Atlantic Ocean test site of up to 100 meters, to allow technologies to be demonstrated at these depths in order to maximize this resource. Offshore wind in shallow waters is well proven but costs and operational issues associated with fixed bed technology in deep water projects (up to 60 meters) needs to be investigated further. Floating wind is a novel technology with great potential. A deep-water test site would provide space to demonstrate the survivability and operability of a floating wind farm, and to test suitable anchoring solutions for the west coast.'

'Dublin, Wicklow and the Irish Sea coast of Wexford are all problematic due to concentrations of sea bird colonies etc'

'Big issue is delay in designating Marine Protected Areas (MPAs) due to delays with the Maritime Area and Foreshore (Amendment) Bill. Designation would help to secure nurseries for fisheries, help seabirds. In addition, the offshore Natura reserves need to be designated'

'Once the UK leaves the EU, Ireland will have a significant proportion of all EU sea birds'

'Big issue is the resource capacity of wildlife interests such as BirdWatch Ireland to major ORE developments'

'A critical issue for MSP is to ensure that potential heavy use ORE areas are not fragmented'

'Zoning would be efficient'

'MSP may provide criteria to identify activities that are compatible or incompatible e.g. near shore aquaculture and tidal energy may be incompatible; may say that particular activities must be x km from the shore....'

'Important to note that DHPLG cannot hold off on decisions e.g. regarding Foreshore Licenses pending MSP. This was well established by two cases – Highfield Solar (solar) and Element Power Maighne (onshore wind farm)'

'Note that acceptable levels of impact can be determined if alternative solutions are found. For example, in the case of Bellevue Port in Waterford, a marsh area was taken up by the Port development but that was ok because another habitat was created nearby'

'You can convince people to support developments such as ORE'

'I have a real concern about vexatious objections to developments'

'Can Eirgrid deliver connections to meet the needs of ORE? Do they have an offshore strategic plan? Eirgrid should start the planning process in obvious locations for offshore, even to the point of starting environmental assessment'

'Concerned about zoning. Will MSP set out parameters like the Natura and Water Directives did? '

'There will always be clashes between ORE and nature – dolphins for example can go anywhere and some species have a capacity to learn about devices in the water and avoid them. For instance, Moneypoint is still a good foraging area for Dolphins despite all of the activity there'

'Be aware that there are differences within species so that the bottle nose dolphin seems to be a lot 'brighter' than the common dolphin'

'It will be important to 'install and monitor' the impact of ORE e.g. through the WestWave project'

'Broadly supportive. Award that a roadshow is going around but attracting low members. Quite used to Government consultations which often amount to box ticking exercises'

'There is a move internationally away from mono-sites to multi-user sites which e.g. in the case of aquaculture needs power for sensors particularly as research is underway into remote management from shore centres'

'Designating areas for 'protection' at sea must be based on robust science which demonstrates extreme sensitivity – we fall back too often on the 'precautionary principle''

'Buffer zones will push floating wind technology up the Agenda'

'An Bord Pleanála has a big role in ensuring that the sea planning and terrestrial planning interact effectively'

'This is easy at a policy level. MSP must 'speak' to the NPF and this should not be a big issue so long as developments e.g. cables from offshore energy takes account of existing infrastructure such as gas pipelines etc'

'Live updates of new and existing marine planning applications/decisions and mapped areas should be provided in the same manner as terrestrial planning.'

'We need to do MSP and terrestrial planning in parallel. No point in doing MSP if it doesn't link in with consenting system, NPF'

'The local authorities should be the consenting body up to 5km off the coast which would ease the interface between marine and terrestrial planning'

'Linking MSP and terrestrial planning together is hugely difficult. No nation has yet done it successfully. But there is a need to link them and perhaps the best way would be to link regional marine plans with their terrestrial equivalents.... beware though of stakeholder consultation fatigue'

'Good examples of practical no go areas for any ORE that interferes with sea birds is Skerries, North County Dublin which is home to 80% of the European population of Roseate Terns and KIlcoole/Newcastle which is home to the breeding ground of the Little Tern'

'Sensitivity mapping exercise which take account of 'behaviour' of species e.g. identify those birds that dive into the sea to fish and therefore this will help to identify areas and species that may be impacted by wave and tidal devices specifically'

'Marine sensitivity mapping is important – maps show the distribution of species and tells you where specific areas are sensitive...plan to cover 40 species. We are building a tool which will be useful to developers'

'We have had wonderful support in our studies from developers with plans for wind farm developments who have shared their data with us'

'Each array will need a substation and the more MWs you can push through that substation; the lower costs will be'

'Offshore Renewable Energy should take place where it makes sense from both the perspective of developers and of stakeholders – note there is likely to be a different reaction to developments in Dublin Bay (strong on leisure, residential areas etc) and, for example, Cork Harbour which is already industrialised'

'The reality is that grid will drive where developments take place and so Clare around to Brandon Head in Dingle to Galway Bay is an obvious area. Huge strengthening of the grid is needed to bring the waters off Mayo on line.'

'It would be very positive for industry if Eirgrid were to build an offshore cable, it would send out a very good message'

'Mayo may not suit for development at present because of the long steaming time from Killybegs – Mayo needs a port; Shannon Foynes has good port facilities to support North Kerry and Clare – there is great grid there and no commercial traffic'

'The reality is that grid will drive where developments take place and so Clare around to Brandon Head in Dingle to Galway Bay is an obvious area. Huge strengthening of the grid is needed to bring the waters off Mayo on line.'

'It would be very positive for industry if Eirgrid were to build an offshore cable, it would send out a very good message'

'Mayo may not suit for development at present because of the long steaming time from Killybegs – Mayo needs a port; Shannon Foynes has good port facilities to support North Kerry and Clare – there is great grid there and no commercial traffic'

'Offshore: there is a Marine Institute report due later this year which should provide the basis for designating MPAs. Inshore: there is a report listing protected areas but there is no mapping'

'Fuzzy boundaries v tight line boundaries: it all comes down to good procedures to identify impacts. The management of areas is vital. Interestingly, the Arklow Bank wind farm has de facto become an MPA and this sets a good precedent – species breed there because there is no fishing'

'We have a particular concern about birds and there really hasn't been any research into the area of birds and marine renewables, although many birds fly close to the water and this may reduce risk'

'The key point is that Member States are supposed to have a coherent network of MPAs – Ireland doesn't have the legislation even to create MPAs!'

'The first MSP should have 'layers' overlaid which show 'hotspots' for biodiversity e.g. mussel beds; spawning grounds for ray and skates.....recognise that offshore structures create spawning grounds'

'Need to figure out what is to be done with the environment before zoning and then zones for economic activity are almost self-selecting'

'We cannot operate on the basis of saying this area of sea space is for food, this is for energy etc. Zones must involve multiuse'

'The Dutch and Belgians do zone in detail but they have relatively small sea areas to deal with. Nonetheless, Ireland should follow the same approach'

'There is high offshore ocean energy resource off the west coast but projects would have to be developed in very deep waters. There would be value in establishing an open Atlantic Ocean test site of up to 100 meters, to allow technologies to be demonstrated at these depths in order to maximize this resource. Offshore wind in shallow waters is well proven but costs and operational issues associated with fixed bed technology in deep water projects (up to 60 meters) needs to be investigated further. Floating wind is a novel technology with great potential. A deep-water test site would provide space to demonstrate the survivability and operability of a floating wind farm, and to test suitable anchoring solutions for the west coast.'

'We never had zoning in Shetland although the Marine Protected Areas represented de facto zoning. Zoning was regarded as too arbitrary by the local community....and insufficiently fluid. Ended up identifying areas of opportunity and areas of constraint based on evidence, stakeholder feedback. In Shetland, this led to locational guidance based on areas of opportunity and constraint. Used a GIS model'

'Zoning has distinct boundaries while areas of opportunity/constraint are marked by 'fuzzy' boundaries with guidelines developed'

'Scale of zones etc may be an issue in MSP'

'Buffering is touchy. For example, German fishers feel that they are losing out with buffering and that planning authorities etc regard their activity as mobile'

'Common and compatible methodologies to undertake assessments in terrestrial/marine environment should be agreed and specified, particularly where there is a need to undertake cumulative assessment.'

'MRIA or another appropriate organization should consider funding/establishing a national monitoring network (for marine birds, mammals and sea fisheries) to provide a baseline for cumulative impact assessment purposes. The accumulation of this data could shorten the consenting timeline for projects and provide an 'evidence base for change' post development. The raw data should remain confidential to the developers/MRIA if funded by developer contributions.'

'Extent of cumulative impacts in any particular area that would be acceptable should be identified. Guidance should be developed on the number and scale of windfarm developments allowed in any one general location (This could relate to ornithological impact or visual impact for example).'

'Deepwater aquaculture does go very well with offshore sources of power such as floating wind and wave. In the future, we won't be able to do anything with fin fish near to shore, it has to be done offshore. Note that there is lots of research to show that aquaculture is going to skyrocket globally'

7.4 Conflict and Resolution

'There will always be clashes between ORE and nature – dolphins for example can go anywhere and some species have a capacity to learn about devices in the water and avoid them. For instance, Moneypoint is still a good foraging area for Dolphins despite all of the activity there'

'Arrays can become great fish breeding grounds; how do you stop fishing boats entering what could be a danger area?'

'*Issues: fishers don't want lines and maps. They are concerned about ORE – they assume it is going to happen; they are reluctant to share information. Environmental interests consider that MSP should be all about environmental issues and the designation of key environmental areas. There are two perspectives in aquaculture: Department of Agriculture, Food and Marine are sceptical about MSP and want to retain their independence while the aquaculture industry is enthusiastic about MSP. Aquaculture interests welcome a plan led approach and indeed see it as enabling tourism too. The recreational interests are positive about MSP including the sailors and they are concerned about the environmental interests constraining their activities. The ports are enthusiastic and saw the benefits of MSP in Northern Ireland and Scotland. They see MSP as underpinning their own often criticised plans. Irish Lights are happy so long as navigational safety is secured and respected'*

'*Due regard must be given to existing cables and pipelines although offshore renewable energy may not impact on sailing for instance'*

'The initial Irish offshore wind locations in the Irish Sea are also areas where there is a considerable store of aggregates and this could lead to conflict'

'Interests most likely to have the greatest potential for conflict with ORE are:

- *Shipping, Ports, Harbours and Ferries, and their future development plans,*
- *Sea Fisheries development and policies,*
- *Other ORE developers through the cumulative impact effect.*

'The closer to shore one goes, the greater the density of actors. Further offshore the main issue would be with fishers but this issue seems to have been satisfactorily resolved in other countries'

'Need a vision of what can be achieved and then involve the communities'

'The environmental NGOs recognise the need for offshore renewable energy but want a commitment to monitoring and strong baseline evidence about birds, habitats, marine species etc'

'The closer to shore one goes, the greater the density of actors. Further offshore the main issue would be with fishers but this issue seems to have been satisfactorily resolved in other countries'

'The aesthetic architecture of wind farms (including floating wind) needs to be more attractive rather than, for example, the very severe designs adopted by the Dutch – this would help with community groups'

'We need to communicate the benefits of offshore renewable energy to fishers who are good at diversifying their businesses – opportunities include servicing offshore renewable energy, operations and maintenance, surveys etc'

'There is a need to start engagement with interests and communities at an early stage, perhaps even with the schools'

'We need to communicate the benefits of offshore renewable energy to fishers who are good at diversifying their businesses – opportunities include servicing offshore renewable energy, operations and maintenance, surveys etc'

'How do you deal with conflict such as fishers v ORE....we don't even do cost-benefit analysis'

'The key thing for sailors is the wind – direction and strength'

'A key thing is the availability of infrastructure ashore for yachtsmen'

'Irish sailors generally race rather than cruise, although they do cruise internationally. Part of the strategy to encourage cruising saw local authorities on the west coast providing buoys but the only real answer is marinas which have a high net return to local communities'

'The cruising sailor is an independent man.... even if an area is zoned exclusively for one activity, he will go in there'

'Yachtsmen expect areas to be zoned off for wind farms which could be challenging any event for yachts. The only concern would be around offshore renewable energy blocking access to shore facilities and racing areas'

'The sailing community will support MSP except where it impacts negatively on races and courses'

'Ocean energy – wave and tidal – are, due to the stage of their technology development, going to be at the end of the queue for space and may well find themselves in conflict with bottom fixed wind'

82 'The MSP should identify the issues, enable discussion around them and go on from there. The lack of communications is amazing e.g. by agencies; between agencies'

'Natura 2000 is too tightly defined. A classic example is Roaring Water Bay in west Cork where the reef is protected by scallop dredging is permitted and so the designation does not protect the ecosystem, it simply protects features of the ecosystem. Another example are

certain species of sharks and rays that are threatened with extinction and which are not provided for in Natura. MPAs should protect biodiversity'

'We have a real concern about the impact on the environment of sub surface mining; also, about the negative impact of seismic testing which has had a widespread but unquantified impact'

7.5 Partnership Arrangements

'Coastal partnerships would involve long term dialogue and communications in which community interests are exposed to the science and technology involved in offshore renewable energy etc- rather than top down decision-taking and then conflict, go for ongoing discussions'
'We should try for an MoU – there could be cross pollination between the two sectors within 12 months. Offshore renewable energy needs to avoid white fishing and prawn grounds where possible'

'MRIA to organise a Forum between offshore renewable energy and fishers twice a year – get a relationship going'

'*The big issue MSP in going to raise is the possibility of fishers being put out of traditional fishing areas – this is something we need to be wary of'*

'A big concern is about seismic surveying (by offshore wind) which disturbs fish patterns and could affect fish productivity and the NGO's are on to this issue as well. We want a scientific body, ICES to look into this. The other big issue is the noise generated by offshore wind turbines which may affect fish fertility. Wind farms can't be anywhere near breeding grounds'

409 'Killybegs want to become an offshore training facility and what better way to do that than to put a training facility – a platform – into the sea'

'The important thing about inshore fishing is that MRE needs to be aware of static gear such as lobster pots etc'

'Talk allays fear. Good to have an informal Forum and get to know each other and learn about each other's industries'

'Need a vision of what can be achieved and then involve the communities'

'As already discussed in answer to question 1, a conflict resolution process between different users should be established to minimize the impact of potential conflict on either sector. This will require ongoing processes for activities related to the maintenance of ORE projects over their lifetime'

'*We need to deal with local NGO's on East coast such as Coastal Concern and East Coastal Alliance as well as local authorities and other interest groups'*

'Likely that someone in the environmental sphere will seek a judicial review of any zoning decisions while aquaculture, ORE are ready for it'

'Fishing is the obvious issue and remember that it is difficult to envisage fishing taking place near to wave arrays'

'The biggest challenges will be dealing satisfactorily with fishers and citizens. Shipping and environmental interests do not represent insurmountable obstacles'

'Fishers want to constrain everything. Pelamis did a lot of engagement with fishers who provided data anonymously on where they fish, when and for how long'

'Critical to get fishers involved in the process and, interestingly, in Shetland they provided data for the Atlas''

'Aquaculture is big in Shetland and the small-scale fishers saw offshore renewable energy as a source of work which is what happened with aquaculture – their attitude to offshore energy was shaped by their positive aquaculture experience'

'There is a different culture in Scotland with regard to offshore renewable energy due to the oil and gas experience – communities see offshore renewable energy as providing jobs as oil and gas decline'

'The environmental NGOs recognise the need for offshore renewable energy but want a commitment to monitoring and strong baseline evidence about birds, habitats, marine species etc'

'Shipping could be a problem with regard to radar 'visibility' – a specialist study was undertaken that showed that one early plan for a wind development in Dublin Bay would block the radar coverage of ships entering or leaving the Bay and a change to the design was mooted to deal with this issue'

'Fishers and local communities. Note that there is fierce resistance (this was an element of the Corrib controversy) in communities at being used as a conduit for a resource e.g. gas, water which is going elsewhere'

'There is potential for 'clashes' e.g. between humpback whales and ORE moorings and we can only deal with this on a 'try it and see' basis – zoning is not the only or a long-term solution as we can predict where whales are likely to be up to 2 years ahead but not 5 years ahead'

'*There is good support for aquaculture e.g. Clew Bay. Our only concern is with a small group of NGO's and salmon anglers'*

'Developers need to sit down and talk to communities about priorities – if for example, zero change in the environment is the priority, then don't do developmental things'

'Co-operation and communications ae the most effective way of dealing with fishers in regard to offshore renewable energy'

'We had a good experience with a company laying a cable in the South East recently: they engaged with us from an early stage...the communications were great, they were very engaging'

'The first thing we would do (if an offshore renewable energy project is declared in our territory) would be to ask our colleagues in the UK about their experiences'

'The precedent of how they were and are treated by Oil and Gas is important for fishers. A big issue with them is data - small vessels are not obligated to operate AIS and this will affect our developments within 12-mile limit,

'We need to communicate the benefits of offshore renewable energy to fishers who are good at diversifying their businesses – opportunities include servicing offshore renewable energy, operations and maintenance, surveys etc'

'Urgent need for collision risk modelling with birds and mammals and make safe projects a priority'

'Involve all stakeholders from the beginning. There should be open access to data and the role of local intermediaries is vital'

'Inshore fishing is not well documented unlike offshore fishing and there is limited information available about non-quota species. ORE will have limited impact on recreational locations e.g. there is little sailing in the west where, also, visual impact should be of limited influence*'*

'Most offshore projects in Scotland have community officers and these are incredibly valuable'

'Note that surfing is incredibly important/influential in the UK'

'Tourist industry will be concerned about marine renewables if it affects 'tourist' views'

'The aesthetic architecture of wind farms (including floating wind) needs to be more attractive rather than, for example, the very severe designs adopted by the Dutch – this would help with community groups'

'From the environmental point of view, we need to know what the impact of marine renewables will be? What will be the mooring arrangements? It is important to note that there is a depth 'cut off' point, due to light penetration considerations of around 20 metres (25 in clearer water e.g. off the west coast) for hotspots for kelp which in turn are important for fish'

'There needs to be a mitigation strategy built into offshore structures i.e. build in diversity e.g. put holes in the base of moorings and bases so that lobsters can live there'

'Can we have multiuse seaweed farms? Provide mussel ropes around moorings for marine renewables and.... other ways of attracting species'

'A big issue that needs to be addressed up front is decommissioning i.e. robust rules need to be built in from the start'

'Aquaculture can co-exist with offshore renewable energy and there may be opportunities for mussel growing on at least bottom-fixed offshore wind'

'Companies are looking to offshore renewable energy to look at things such as hydrogen generation and reverse osmosis'

'Biodiversity is important. Some structures can operate as artificial reefs; it may be possible to restrict activity around arrays – depending on the technology involved – to fishers etc. It is all about people and about developing trust'

7.6 Data Challenges

'Is there enough, is it all feeding in and being co-ordinated?
'I have the impression that there is a vast amount of data available e.g. in the oil and gas sector but it is not brought together in a central repository or repositories and that will hold back MSP – an issue to watch is who pays for pulling all of the available data in one or two State institutions'

'The National Biodiversity Data Centre is run by the Heritage Council and is located in County Waterford. It is good and getting better with regard to onshore data e.g. butterflies but is very poor with regard to marine data'

'Common and compatible methodologies to undertake assessments in terrestrial/marine environment should be agreed and specified, particularly where there is a need to undertake cumulative assessment.'

'MRIA or another appropriate organization should consider funding/establishing a national monitoring network (for marine birds, mammals and sea fisheries) to provide a baseline for cumulative impact assessment purposes. The accumulation of this data could shorten the consenting timeline for projects and provide an 'evidence base for change' post development. The raw data should remain confidential to the developers/MRIA if funded by developer contributions.'

'Extent of cumulative impacts in any particular area that would be acceptable should be identified. Guidance should be developed on the number and scale of windfarm developments allowed in any one general location (This could relate to ornithological impact or visual impact for example).'

'There is a lot of 'large-scale' data on Irish waters via the INFOMAR programme as well as resources such as the Marine Institute vessels etc. If MSP could identify areas for offshore renewable energy development, then the State resources such as INFOMAR could be directed to developing detailed data for these areas which would support developers and help the zones' early development. It wouldn't negate EIA's etc but would lead to early resource exploitation'

'MPA's must be underpinned by scientific data, by evidence and e.g. investment in tracking data will help to fill gaps; a study of the 'before' and 'after' effects of Offshore Renewable Energy (ORE) deployments would be extremely useful'

'Assessing the cumulative effects (e.g. clustering of wind farms) on birds is important. Birds have an 'energy budget' which could be used up by flying around individual turbines within a cluster...with adverse effects'

'Birdwatch needs to watch (in regard to bird sensitivity mapping) that their data comes from a wider field than just half a dozen wind developers which won't be of sufficient detail to meet the needs of an Environmental Assessment'

'Data is unsatisfactory at present and not helped that Coast Guard and Commissioners of Irish Lights seek to sell data'

'Need up to date information on biology issues; navigation; mammals and sea birds. There is good data on shipwrecks and archaeology. Incidentally, the BirdWatch survey of bird sensitivity stuff should be fed into the Marine Atlas'

2Dissatisfied. Fishing is the biggest issue with ORE and there is a lack of data about fishing grounds; there is also a lack of environmental data – all needed for modelling purposes at all levels'

'The Marine Atlas gives lots of data while there is also a lot of GSI type data available'

'Lots of data was collected by locals in Shetland and the area moved from hand drawn maps to GIS, AIS etc (datagov.ie and openspatial.ni) – we have come a long way in the last few years. Data is just one aspect of MSP'

'Ground conditions play a big part in all forms of ORE and there is a big role generally for INFOMAR. Note though that INFOMAR deals only with seabed surveys using side-scanning sonar etc and ORE would need to calibrate this with bore holes'

'There is data all over the place e.g. the OPW has significant offshore data arising from its flood control studies; RPS etc has data arising from various jobs; Marine Institute has data base arising from INFOMAR but it is not detailed enough'

'There ae extensive GIS sources available on the EPA site. The CSO also has a remit in this area'

'I have the impression that there is a vast amount of data available e.g. in the oil and gas sector but it is not brought together in a central repository or repositories and that will hold back MSP – an issue to watch is who pays for pulling all of the available data in two one or two State institutions'

'We are getting there with regard to a central data base. But the information is either very site specific or at too crude a level of resolution'

'A centralised data base would be too complex, perhaps'

'The Marine Institute should be charged with the task of organising a central data base'

'We don't have enough data e.g. maps of sea grass beds. We need more biodiversity data and there is also a concern that climate change could be causing shifts in the location of various species'

'There is not enough data about discharges into the marine and the whole issue of discharges needs to be incorporated into the MSP'

'Compulsory lodging or reporting of data is desirable. The Environmental Protection Agency is really good at data'

7.7 Other Suggestions

'Leasing rounds and timelines should reflect actual realistic development timelines for technology at commercial scale. The size of sites should be at least current commercial scale development size with potential for scalability. Leasing rounds must be integrated, and be consistent with, onshore/offshore grid development plans and policies. A fair and open process is required for assigning Maritime Options.'

'Realistic development timelines need to be set to nullify unused leases in order to prevent hoarding of valuable marine space. New legislative instruments are required to cover existing unused leases to ensure their development within a defined timeframe. Legal penalties should be considered to penalize leaseholder for non-development of a site. IDZ should be given longer timeframe for delivery given the likely delays that are associated with more novel projects.'

'There needs to be a mitigation strategy built into offshore structures i.e. build in diversity e.g. put holes in the base of moorings and bases so that lobsters can live there'

'Can we have multiuse seaweed farms? Provide mussel ropes around moorings for marine renewables and... other ways of attracting species'

'An important issue (for floating wind) is the actual layout of arrays – could be ok if clustered rather than giving the impression of 'caging' and blocking the view'

'It would be a good idea to look at multiuse offshore platforms involving, for example, wind turbines, long lines for seaweeds and shellfish etc'

'It would be very positive for industry if Eirgrid were to build an offshore cable, it would send out a very good message'

'Can Eirgrid deliver connections to meet the needs of offshore renewable energy? Do they have an offshore strategic plan? Eirgrid should start the planning process in obvious locations for offshore, even to the point of starting environmental assessment'

'Natura 2000 is too tightly defined. A classic example is Roaring Water Bay in west Cork where the reef is protected by scallop dredging is permitted and so the designation does not protect the ecosystem, it simply protects features of the ecosystem. Another example are certain species of sharks and rays that are threatened with extinction and which are not provided for in Natura. MPAs should protect biodiversity'

'Arrays can become great fish breeding grounds; how do you stop fishing boats entering what could be a danger area?'

'Security is an issue, wind farms in particular could readily become dropping off points for drug smugglers who could store illicit drugs at the base of e.g. a wind turbine or inside tower'

'Keeping the shipping lanes open is a key issue for shipping and the North Sea, due to energy activities, has now got de facto shipping motorways'

'Nowhere is Europe is ideal in its approach and a H2020 project ('TAPAS') is seeking to break the logjam. We need a new paradigm for risk assessment – everything has an impact including tourism, aquaculture and energy'

'There is no limit over time about how far out to sea we can go with aquaculture. In fact, the further out the better for aquaculture as there are less problems with blooms and so on and the biological environment is more stable'

'There is a need to insist on Open Access to data'

'Deepwater aquaculture does go very well with offshore sources of power such as floating wind and wave. In the future, we won't be able to do anything with finfish near to shore, it has to be done offshore. Note that there is lots of research to show that aquaculture is going to skyrocket globally'

'We need Government policy on renewable energy targets to lead to a framework for allocating sites and this should consider Eirgrid's views on what is possible'

'ECP for grid needs to be matched to the RESS decisions and leasing rounds.'

'It is worth looking at the scale of Scottish leasing rounds which were too long (in terms of time horizon) and had no focus on emerging technologies which put the Scottish Government 'off' '

'We need leases of 25 years minimum with a view to repowering or decommissioning'

'Ireland should seek to avoid the Pentland Firth model where GWs were leased or so it seems, it turned out to be a box ticking exercise to reach targets with little positive practical impact'