Marine Renewables Industry Association response to *DRAFT Offshore Renewable Energy Plan II A National Spatial Strategy for the transition to the Enduring Regime*

20 April 2023

The Marine Renewables Industry Association (MRIA) represents the principal interests in Ireland engaged in marine renewable energy. The Association embraces firms engaged in device development and manufacture, utilities and developer interests (including major project developers engaged in offshore wind), professional firms and scientific researchers. For further details, please go to the Association's web page, www.mria.ie . Also, please see Twitter at @Marineireland.

We welcome the opportunity to make a submission regarding the *DRAFT Offshore Renewable Energy Development Plan II A National Spatial Strategy for the transition to the Enduring Regime* (hereinafter referred to, for convenience, as OREDP II or the Plan). We were pleased to participate in the Advisory Group set up to support the evolution of the Plan but disappointed that the core of OREDP II, the draft Broad Areas of Interest (BAIs), was not presented to the Group for discussion prior to publication.

Our main concerns about the Plan are threefold. First, the suggested Broad Areas of Interest have inappropriate boundaries that will adversely affect Floating Offshore Wind (FLOW) developments because it concentrates them in shallow (in FLOW terms) waters and in some cases partially or completely excludes suitable FLOW sites that are being advanced by experienced international FLOW developers. Moreover, it excludes consideration of possible BAIs in the Irish Sea and off the west coast. Second, it constrains deployment of the latest and planned iterations of Bottom Fixed Wind (BFW). Third, it lacks ambition and scale (e.g., involves about 5% max of our Exclusive Economic Zone) and is not a basis on which to deliver 30GW of offshore wind in the Enduring Regime while there is concern too about how OREDP II engages with Phases 2 and 3.

We believe that the Plan should enable project promoters to determine which technology to employ i.e., it should be technology neutral. BFW is now being planned for water depths up to as much as 90m. This represents a major technical challenge but, nonetheless, BFW projects should not be *confined* interminably, as is apparently advocated at p61, to 60m water depths or less. In addition, the Plan should provide for new technologies which are likely to reach commercial deployment status post 2030. The key new technology here for Ireland will be wave energy which would enable Ireland to exploit its huge wave resource off the west coast – wave devices of scale (such as that developed by Ireland's Ocean Energy) are now being deployed at a pilot, test level. Tidal energy too will have a part to play, particularly in supplying small local communities – Ireland has several top-class tidal energy device developers including ORPC and GKinetic

The Plan is flawed in that it confines BFW development, as described above, while FLOW platforms at the scale envisaged for 2030 deployments (i.e., 15+ MW turbines) makes most engineering, cost and economic sense in *deeper* waters. This approach would be ruled out by the proposed BAI upper depth limits.

The boundaries set for the draft BAIs may, inadvertently, rule out a lot of projects and will militate strongly against the Enduring Regime unless modified.

In addition, the final OREDP II should make provision for offshore energy storage (particularly important in the context of offshore hydrogen production) and should also take cognisance of onshore infrastructure, landing points and cable routes which are of particular importance in the context of hybrid grid connections at coastal locations.

1. Action Plan

The Association appreciates that the Department of Environment, Climate and Communications (DECC) offshore energy team is stretched by the urgent need to develop and deliver both a policy and a regulatory framework for Offshore Renewable Energy (ORE) and by the target of up to 7GW of offshore wind by 2030. However, a degree of confusion has arisen for industry about the timing and sequence of various plans and policy initiatives following the publication of both OREDP II and the *Statement on the Policy Framework on the Development of Phase Two Offshore Wind* (hereinafter, the Statement).

The draft OREDP II was published for consultation on 24th February 2023, AHEAD of the publication of the Statement. The OREDP needs to be the basis for *all* DMAPs, including those ultimately determined for Phase 2 and Phase 3. A DMAP, conceptually, should already be forward looking and, like any marine plan, should also be subject to review to ensure that policy changes are reflected at later stages if need be. Accordingly, DECC should clarify, as part of an exercise to finalise the Plan, that OREDP II is applicable (or not) to both Phases and to the Enduring Regime and include revised BAIs (which should be technology neutral) and make provision too for BAIs in the Irish Sea and off the west coast.

There is an urgent need for DECC to publish a consolidated action plan setting out how the various elements of the different policies fit together. It would have the added advantage of enabling responsibilities and timelines to be included as well e.g., the transition from DHLGH to MARA. It should be flexible to enable it to include all other outputs as they arise (e.g., Marine Protected Areas, interconnector policy, port developments etc) from the Offshore Wind Delivery Task

2. Phases 2 and 3 DMAPs

The Plan currently relates only to the Enduring Regime. It sets out the Broad Areas of Interest (BAIs) for ORE which ultimately will lead to ORE Designated Maritime Area Plans (DMAPs) being identified in accordance with the process set out in the Maritime Area Planning Act, 2021.

Nonetheless, clarification is sought in regard to the DMAPs envisaged for Phases 2 and 3 and, therefore, at this stage, apparently beyond the aegis of the Plan. Focusing on Phase 2, which is fairly imminent, will the southern indicative BAI ('Celtic Sea East Broad Area') contained in the Plan form the basis for selection of a Phase 2 DMAP? Also, what is the position in the south east: will the possible second DMAP lie outside of the southern BAI or will it too be contained within it?

Moreover, the Association is surprised at the omission of the mid-west area from Phase 2, given its proximity to grid and in light of the mooted 'hybrid' connections policy, and also by the exclusion of Ireland's full Irish Sea area where developers have well-worked plans, significant demand exists and grid capacity may be available. Finally, arbitrary foundation depth limitations unreasonably rule out possible longer term Bottom Fixed Wind developments utilising the latest technology.

There is concern too in the sector about the capacity – staff numbers and skills - of Departments to develop DMAPs, in possibly up to two Phase 2 locations, in the short time scale envisaged. Experience informs MRIA Members that it will take a lot of time – at the very least 12 months - to get this initiative through the DMAP establishment process, including the required SEA and AA.

3. Provisional Broad Areas of Interest (BAI)

The key concerns of MRIA about the Plan in draft form are the BAIs' provisional borders, which will provide the borders of areas *within which* DMAPs will be chosen for the Enduring Regime at least, and the omission of BAIs in the Irish Sea and off the west coast.

The BAIs presented for consultation fail to take industry knowledge into consideration and also miss an opportunity to leverage the existing work and investment by industry (undertaken through the developer-led approach) that has facilitated understanding of where the best sites are. Moreover, the opportunity to prime the FLOW sector, a new enterprise development opportunity for Ireland, may be lost as investor confidence in Ireland's ability to plan effectively for floating wind has been damaged by the BAI approach so far.

We are surprised at the selection of a BAI off Donegal ('North West Broad Area') which does not, in our view, readily fit the criteria set for the selection of BAIs (e.g., industrial opportunities, demand centre proximity and interconnectors). FLOW suitable port facilities in the area – notwithstanding the *fisheries* port of Killybegs - do not stand comparison with the potential on the Shannon Estuary. We note too the exclusion so far of a BAI off the west Mayo coast, an area which should, on the face of it, meet the BAI criteria under several headings.

We also query the exclusion of the east coast and the assumptions that have been made in this regard. Development opportunities in the Irish Sea should be considered as part of the OREDP. The draft Plan and the Statement seem to suggest that development in Irish Sea will *not* be facilitated under Phase 3 and the Enduring Regime even with regard to FLOW. We appreciate the that DECC may wish to identify Phase 2 DMAPs first but, once these have been identified, DMAPs for Phase 3 (which is confined to FLOW) and for the Enduring Regime on the east coast should be identified to allow for additional projects, extensions to Phase 1 projects and alternative routes to market if these can be progressed sustainably.

It is important to take account of the fact that it takes 10 years+ to develop and build an offshore renewable energy farm. For instance, the Seagreen Offshore Wind farm off the Scottish coast was awarded seabed rights by the Crown Estate in 2010. The project achieved first power in August 2022 and will enter into full operation in the summer of 2023. This project involves turbine foundations at 58m water depth. Installing bottom fixed turbines in these depths was deemed not possible when the project was consented. It is crucial that assumptions are not made in OREDP II about technology now that could hinder innovation and Ireland's ability to meet our challenging targets.

Our detailed apprehensions about the boundaries of the BAIs are set out below in the draft Plan. The proposed BAIs and their boundaries:

- Exclude sites, or parts of sites, of high potential which should qualify by the Plan's own selection criteria. These sites are the result of a high level of due diligence and are deemed 'consentable' (i.e., they are judged to be both suitable as commercial projects and as potentially acceptable to other stakeholders, including the general public and environmental interests)
- Have arbitrary boundaries e.g., the eastern boundary of the southern BAI is seemingly set by reference to a cable route and yet a cable further to the west bisects the BAI!
- Unnecessarily divide sites selected by wind farm developers for review – this is evident in the mid-west BAI ('Mid-West Broad Area') and also in the southern BAI
- Are too small to provide for the Enduring Regime ('...at least 30GW floating energy beyond 2030' - p12), particularly when the likely requirements of the forthcoming Marine Protected Areas (MPAs) are taken into account; the Plan states (p22) '...the location of the MPAs is not known' and a governance regime for them has yet to be announced.
- *Reflect a startling lack of ambition for a Plan which could apply out as far as 2050 - the provisional BAIs represent just 4.5-5% of the Irish Exclusive Economic Zone while, by comparison, policy seeks to designate 30% of Irish waters for MPAs by 2030!*

- Boundaries are too limited (for FLOW). One key feature of FLOW is the scope to locate it well offshore. The provisional BAIs do not recognise or capitalise on this key feature.

- Make no provision for further development of Bottom Fixed Wind. As we note above, BAIs should be technology neutral. This would enable project promoters to harness innovation and determine which technology to employ.

- Moreover, the BAIs do not take account of e.g., the differing seabed typography in the three BAIs identified so far

We are particularly concerned by the artificial upper limits set by the BAI boundaries in the Draft in terms of water depths for FLOW:

- The SEA undertaken for OREDP II dealt with the sea space out to 200m so there is no limitation on BAIs out to that depth in terms of assessment
- The depth limit set in the Plan is based on a misunderstanding (see p39-40) of FLOW and affects the basic economics of FLOW projects:
    - Early FLOW projects (e.g., Kincardine, 15km from Aberdeen in shallow waters; 1 x 2MW and 5 x 9.5MW first generation floating devices) are in relatively shallow waters and are of a technical *demonstration* nature with smaller turbines than those being planned for Ireland
    - The Hywind Tampen FLOW development is located 140km off Norway and is located in 260m-300m water depth. It started production in November 2022 with 7 x 8.6MW turbines and another 4 x turbines of a similar capacity are being installed at present. The Plan (p82) states that '...current floating wind projects are installed at depths ranging between 60m to 120m' which is incorrect in its span.
    - From a commercial perspective, shallow waters can prompt higher costs for FLOW because of measures necessary to deal, for example, with storm surges and, particularly, because of complex mooring systems required in inshore waters.
    - In the view of MRIA Members with FLOW expertise, FLOW makes engineering, cost and economic sense in 85m-200m + water depths which are ruled out, possibly for ever, by the proposed BAI boundaries.

- The boundaries set for the draft BAIs may, inadvertently, thus rule out FLOW projects and will militate strongly against foreign investment and the Enduring Regime

The bulk of Enduring Regime development will be based on FLOW. But we are also concerned that possible future developments, in terms of viable foundation water depths, for BFW are not ruled out and neither are totally new technologies n.b., wave energy.

In short, the BAIs boundaries are inappropriate for what are termed as *Broad* Areas of Interest and artificially limit the scope for the identification of appropriate DMAPs to support the Enduring Regime as well, indeed, as Phases 2 and 3. One exception to this concern may be the BAI in the north west but, realistically, the likelihood of developments there at scale may be low for years to come in light of the limited local market and infrastructure.

We illustrate the points made above at Appendix 1 with maps which, based on publicly available information, show the position of:

- The BAIs v FLOW project aspirations
- The BAIs v all ORE project aspirations[1]

The BAIs need to be BROAD and take a long-term view of the Enduring Regime and the scale of the floating opportunity and also the further scope for deep water BFW and the opportunity of wave and tidal technologies. The BAIs should be based on the correct technical information and input about turbine sizes and water depths. Above all, the BAIs, as finally determined, should leverage the understanding of where the best sites are, as currently indicted by the preceding developer-led approach. This has already consumed millions of euros of investment, including a huge degree of stakeholder engagement to 'socialise' the proposed areas. This should not be wasted.

The BAIs' boundaries should be revisited. In particular, the boundaries in the southern BAI and the mid-west BAI should, at the very least, be generally extended further to the west/south/east and to the west/south/north respectively to extend the opportunity to identify viable DMAPs for modern FLOW and other technologies. In that way, the BAIs will start to provide a reasonable basis on which to identify DMAPs. While MRIA recognise that some updates are required to the associated SEA and possible AA, on review

[1] Based on data drawn from Foreshore Licences or applications for Licences, 4C Offshore etc

these look to be relatively minor and should not take considerable effort to amend.

The new policy, as briefed so far, has sent a negative signal to the market and is generating uncertainty among investors in ORE projects and in the supply chain. This is a real concern as almost all planned ORE projects involve overseas investors who have ample ORE opportunities open to them elsewhere and who see the Irish market, up to the Enduring Regime at least, as a relatively minor (and, therefore, marginal) one.

However, we are encouraged by the statement, at p13, that 'work will commence on assessing Broad Areas of Interest (by mid-2023)' and that (p17) 'In addition to the further analysis to spatially refine the Broad Areas of Interest, as part of the DMAP process, there will also be further statutory environmental assessment in the form (of) a SEA and Appropriate Assessment '

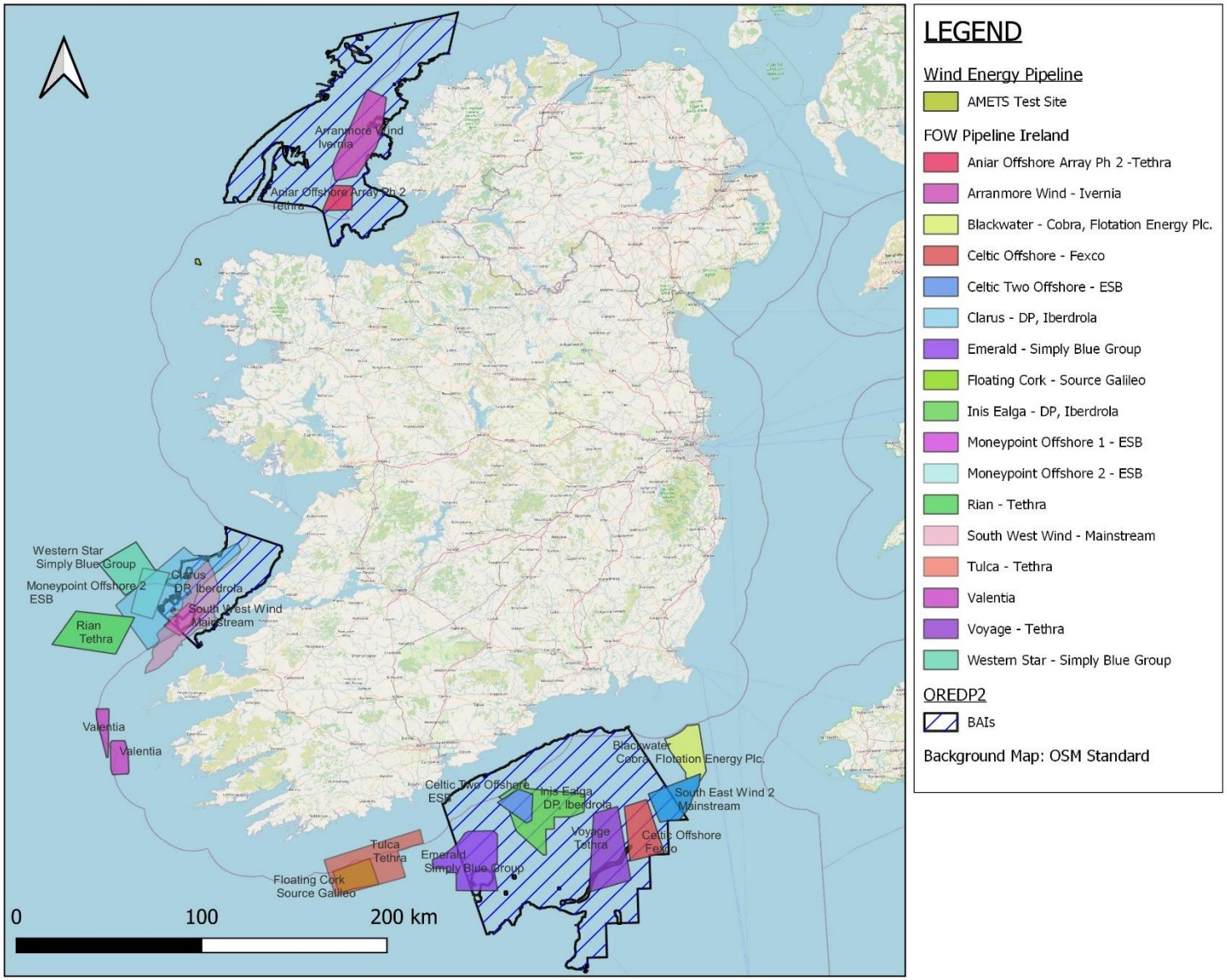
4.Support for Innovation

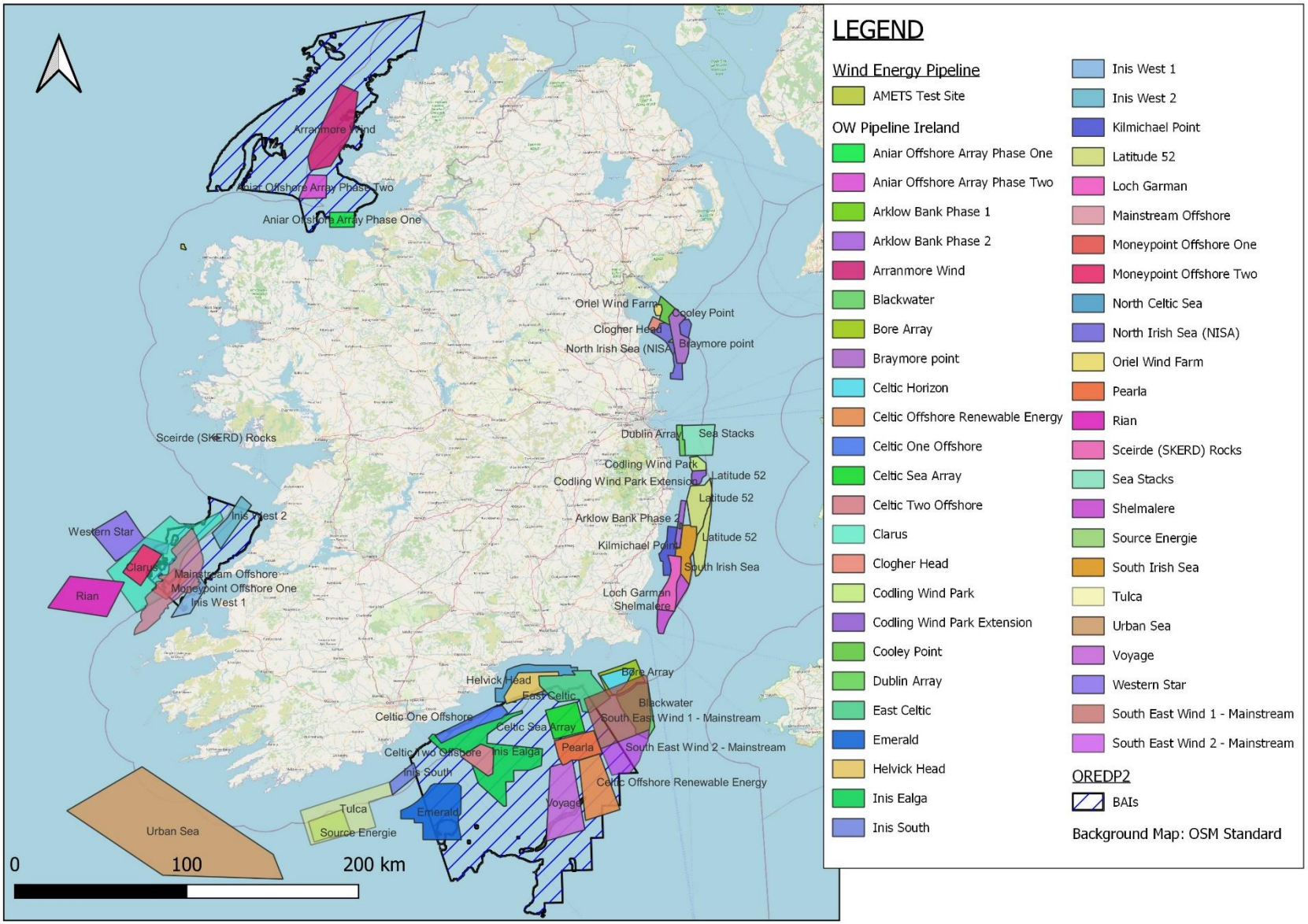
The Association appreciates that the Department will consider innovation matters – including a possible regime of support for wave and tidal energy – in the context of a future policy statement, perhaps as part of the planned Enduring Regime policy.

Nonetheless, the draft OREDP has implications for wave and tidal energy development even at this stage. It makes no provision, for instance, for the deployment *of experimental and demonstration wave and tidal devices* – at scales from a few Kw to several MWs – either within the BAIs/DMAPs or at locations chosen by project promoters on *scientific grounds* outside of those locations (perhaps involving tailored DMAPs) but subject, of course, to MARA and An Bord Pleanála consents. Concerns specific to aspects of tidal and wave technology are set out at Appendix 2.

Appendix 1

On the following pages, Appendix 1 shows a map of FLOW projects only followed by a map of all known OW projects. Note that since the preparation of these maps that Floatation Energy have retitled 'Blackwater' as 'Blackwater 1' and have identified a further site – 'Blackwater 2', not shown on the maps – in the current draft southern BAI


Arranmore Wind
Ivernia
Aniar Offshore Array Ph 2
Tethra
Western Star
Simply Blue Group
Moneypoint Offshore 2
ESB
Clarus
DP, Iberdrola
South West Wind
Mainstream
Rian
Tethra
Valentia
Valentia
Blackwater
Cobra, Flotation Energy Plc.
Celtic Two Offshore
ESB
Inis Ealga
DP, Iberdrola
South East Wind 2
Mainstream
Voyage
Tethra
Celtic Offshore
Fexco
Tulca
Tethra
Emerald
Simply Blue Group
Floating Cork
Source Galileo
0
100
200 km
LEGEND
Wind Energy Pipeline
AMETS Test Site
FOW Pipeline Ireland
Aniar Offshore Array Ph 2 -Tethra
Arranmore Wind - Ivernia
Blackwater - Cobra, Flotation Energy Plc.
Celtic Offshore - Fexco
Celtic Two Offshore - ESB
Clarus - DP, Iberdrola
Emerald - Simply Blue Group
Floating Cork - Source Galileo
Inis Ealga - DP, Iberdrola
Moneypoint Offshore 1 - ESB
Moneypoint Offshore 2 - ESB
Rian - Tethra
South West Wind - Mainstream
Tulca - Tethra
Valentia
Voyage - Tethra
Western Star - Simply Blue Group
OREDP2
BAIs
Background Map: OSM Standard


LEGEND
Wind Energy Pipeline
AMETS Test Site
OW Pipeline Ireland
Aniar Offshore Array Phase One
Aniar Offshore Array Phase Two
Arklow Bank Phase 1
Arklow Bank Phase 2
Arranmore Wind
Blackwater
Bore Array
Braymore point
Celtic Horizon
Celtic Offshore Renewable Energy
Celtic One Offshore
Celtic Sea Array
Celtic Two Offshore
Clarus
Clogher Head
Codling Wind Park
Codling Wind Park Extension
Cooley Point
Dublin Array
East Celtic
Emerald
Helvick Head
Inis Ealga
Inis South
Inis West 1
Inis West 2
Kilmichael Point
Latitude 52
Loch Garman
Mainstream Offshore
Moneypoint Offshore One
Moneypoint Offshore Two
North Celtic Sea
North Irish Sea (NISA)
Oriel Wind Farm
Pearla
Rian
Sceirde (SKERD) Rocks
Sea Stacks
Shelmalere
Source Energie
South Irish Sea
Tulca
Urban Sea
Voyage
Western Star
South East Wind 1 - Mainstream
South East Wind 2 - Mainstream
OREDP2
BAIs
Background Map: OSM Standard
Arranmore Wind
Aniar Offshore Array Phase Two
Aniar Offshore Array Phase One
Oriel Wind Farm
Cooley Point
Clogher Head
North Irish Sea (NISA)
Braymore point
Sceirde (SKERD) Rocks
Dublin Array
Sea Stacks
Codling Wind Park
Codling Wind Park Extension
Latitude 52
Latitude 52
Arklow Bank Phase 2
Latitude 52
Inis West 2
Western Star
Kilmichael Point
Clarus
Mainstream Offshore
Moneypoint Offshore One
Inis West 1
Rian
South Irish Sea
Loch Garman
Shelmalere
Helvick Head
Bore Array
East Celtic
Blackwater
Celtic One Offshore
South East Wind 1 - Mainstream
Celtic Sea Array
Celtic Two Offshore
Inis Ealga
Pearla
South East Wind 2 - Mainstream
Inis South
Celtic Offshore Renewable Energy
Tulca
Emerald
Voyage
Source Energie
Urban Sea
0
100
200 km

Appendix 2

Below are the views on the draft OREDP 2 which are specific to **TIDAL ENERGY**

It is welcome that the Draft OREDP II document references the opportunity available for tidal energy development in Ireland. There is a growing evidence base that the inherent predictability of tidal energy makes it an excellent complement to other forms of renewable energy [1] and there is growing policy support globally for the technology. For example, the UK has created a route to market for tidal energy with the granting of Contracts for Difference in 2022 alone to put 40 MW of projects in the water.

Given the growing maturity of tidal energy, and the presence of tidal energy technology and component developers in Ireland, there is near -term interest in developing tidal energy projects of a relatively small scale (10s-100s kWs) in Irish waters to address applications when the predictability of tidal energy has a particular value proposition (e.g., critical navigation infrastructure, ports, back-up power for large industry, improved energy resilience for coastal communities). These will need a route into the planning system so, as for wave energy, a mechanism should be built into the OREDP II to allow for specific test and demonstration-scale tidal energy technology and project proposals, to be made directly to the appropriate authority and for these to be assessed on an individual basis.

It must also be noted that the approach taken to quantify the available areas with suitable tidal energy resource has some limitations which may screen out some potentially viable sites. For example, the assessment of areas of tidal potential doesn't reflect the fact that tidal energy technology development is clustered around both *fixed-foundation, bottom-mounted systems* (Nova, Sabella, HydroQuest, Andritz, ORPC RivGen) and *floating/buoyant systems* (Orbital, Sustainable Marine, Magallanes, Minesto, ORPC TidGen). The resource model used for OREDP II assumes specific devices but a more general approach should be considered to reflect the state of the art in the industry.

This leads to a number of issues in the screening behind the tidal resource assessment, including:

- Screening for tidal resource: “The tidal assessment is based on areas that have depths of between 20m and 80m with peak spring tidal current speeds of 1.2m per second or greater” –there are bottom mounted-systems that can operate in lower depths (10m) so these locations should be included.
- The Selkie model resolution (1.5km x 1.5km) means it performs relatively poorly close to shore versus in the open ocean. The former case is much more important for tidal energy as coastal features accelerate flow velocity. Opportunities to deliver nearshore tidal energy projects should not be discarded as a result of the limitations of the modelling approach used.
- It is our understanding that while the wave models developed in the Selkie project were validated against measured data to confirm their accuracy, this could not be done for the tidal model. It should be noted that opportunities exist to the improve the understanding of the available tidal energy resource which could be enhanced by further research work, site investigation and the collation of tidal current data collected from past measurement campaigns for offshore wind, academic research for coastal and offshore infrastructure projects etc. to identify localized areas of high potential tidal resource.
- In particular, both the wave and current values obtained from coarse resolution models will not be fully reliable close to shore where the depths can change rapidly. Tidal currents can vary significantly over short distances so validating against measured data is of limited benefit. What is really needed is high resolution modelling of areas identified as having potential for tidal energy extraction

Additionally, in the summary of potential environmental effects (Table 9), it appears that only fixed-foundation tidal energy devices are being considered as the environmental impacts are similar to fixed offshore wind and, thus, not as favourable as floating wind/wave e.g., SEA2/SEA10/SEA14. Many tidal device types, particularly those best suited to conditions in Irish waters, will more closely resemble floating wind/wave devices.

Below are the views on the draft OREDP 2 which are specific to **WAVE ENERGY**

The criteria put forth in the Draft OREDP II document to assess technically suitable areas for ORE and the proposed BAIs are specific to Floating Offshore Wind (FLOW) only (and even then, are flawed). Wind and wave energy developments could complement each other in terms of site locations. Wave energy farms can be located much closer to shore than is likely to be acceptable for wind farms.

The restriction of ORE opportunities to only one specific technology (wind), displays a worrying lack of ambition, particularly given the stated vision of the draft OREDP II document itself. The opening sentence of the draft Plan notes that "Ireland's large maritime area offers significant potential to develop renewable energy from wind, wave and tidal sources." It goes on to assess the potential of these sources with wave energy identified as offering significant resource in Irish waters, particularly off the Atlantic Coasts. It is noted that "the best wave resources in Europe occur along the western coasts which lie at the end of a long fetch (the Atlantic Ocean)."

In acknowledging the opportunities for wave energy to diversify Ireland's energy mix, while offering a new indigenous renewable energy source (one that can produce energy when the wind is not blowing), it is vital that we maintain the ability for test and demonstration wave energy projects to have a pathway to a Maritime Area Consent (MAC), and hence, a route into the planning system. The wave energy industry, is less advanced along the TRL (Technology Readiness Level) scale than fixed bottom or floating offshore wind and needs regulatory and financial support to move from single device demonstration to array scale deployment. Array scale wave energy project development would allow Ireland to be leaders in the space and gain first mover advantage on a renewable energy resource that has long been recognised as unparalleled anywhere in the world.

There are a number of different design concepts for wave energy technology, ranging from devices fitted to quay walls, to nearshore bottom mounted oscillating water column designs, to offshore point absorber buoys

Figure 1: Images showing WaveSwell (nearshore bottom mounted oscillating water column device, top left), EcoWave (quay mounted lever arm floater, top right), and CorPower Ocean (offshore, point absorber device, bottom) technologies.

As wave energy technology currently covers a broad concept range and is at pre-commercial stage, designation of BAIs in line with those for FLOW would be extremely difficult and inappropriate at this stage. A mechanism should be built into the OREDP II to allow for specific test and demonstration scale wave energy technology and project proposals, particularly

pre-commercial arrays, not suited for test sites such as AMETS or the Galway Bay Test Site, to be made directly to the appropriate authority and for these to be assessed on an individual basis. This will give the flexibility for vital array scale demonstration projects to obtain a MAC and a route to Development Consent, which can then be used to inform future iterations of the OREDP and enable an informed and appropriate State-led plan for wave energy deployment. Given the relatively nascent nature of the wave industry, this will not lead to a massive influx of applications but will build in a vital element of adaptability to what is a rapidly changing space.

Additionally, The European Parliament and the European Council have provisionally agreed on amendments to the Renewable Energy Directive which sets an indicative target for innovative renewable energy technology of at least 5% of newly installed renewable energy capacity between now and 2030. A consenting route should be made for test and demonstration sites within OREDP II to allow for this. It is noteworthy that both bodies have also provisionally agreed that in areas with high renewables potential and low environmental risks, Member States will put in place dedicated acceleration areas for renewables, with particularly short and simple permitting processes so OREDP II should acknowledge that these changes are coming.