Action 1: Put in place a robust Governance Structure for the OREDP

1. Do you have any suggestions or additional measures to support and enhance the governance structures of the OREDP?

We would see the following as priorities for the further development of the industry in Ireland. A clear and concise regulatory process for offshore project in relation to both planning and grid connection, and clarification on licencing and environmental monitoring in relation to the proposed Maritime Area and Foreshore (Amendment Bill).

We would also recommend the inclusion of Enterprise Ireland in the list from whom the ORESG receives representation. Enterprise Ireland are at the forefront of helping SME's in the marine energy sector access national and international funding and are best placed to give representations on the state of the industry going forward.

One item that may be missing from the Job Creation Working Group area is what devices will be deploying at AMETS, when and from what countries? There is sufficient momentum within Ireland that indigenous technologies should deploy at AMETS, however, the results may be interesting, and somewhat surprising when how this would be funded is taken into account. At present the funding mechanism and revenue support required to make this a reality does not exist in Ireland, and there are no clear plans for when this may exist in the future.

Action 2: Increase Exchequer Support for Ocean Research, Development and Demonstration

2. Do you think that the Exchequer support for Ocean Energy RD&D has been sufficient?

While Exchequer support has been welcome, the mechanisms in place for its administration have been disappointing and frustrating for many SME's. It is understood that this is under review by SEAI, but it is felt that further consultation with those who apply for the funding is required.

In relation to the identified challenges in this action, while the perception may be that academic institutions receive excessive funding, that may be due to the manpower that is available to prepare funding applications. SME's do not have the resources required in most cases to put together a successful proposal and this is an area that needs investigating to identify the difficulties and address these with appropriate support mechanisms.

A careful approach is required in developing support for floating wind, and it is recommended that those technology developers are consulted in terms of what is required from a test site point of view. When discussing this type of technology, it is only the platform that supports the wind turbine is "new technology", while the wind turbine itself is a commercially proven item. This is also represented by the costs involved and the potential job creation. It is expected that the majority of the technology involved in floating wind will be imported into Ireland, and that the employment prospects for this technology will be primarily support related.

3. Has the distribution of the Exchequer support been appropriate and can you suggest alternative areas that require additional Exchequer support?

It would be recommended that support is given to SEAI in terms of staffing for the administration of the current funds that are available and those funds which will come online in the future. It is also recommended that funding is made available to support SME's in accessing consultancies which hold an incredible amount of information but which can be too costly for SME's to access. This would also allow relevant consultancies to become project partners, adding value to project proposals and creating stronger consortia and better projects overall.

Action 2.1: Atlantic Marine Energy Test Site

4. Do you think sufficient progress has been made on the development of the Atlantic Marine Energy Test Site in County Mayo?

In terms of its fit with the current position of the technology, it may be interpreted by some that it is ahead of its time, with a realistic installation date of 2025 for the first devices. However, this should be taken as an opportunity to gather a wealth of baseline data before the site becomes operational.

In relation to the identified challenges and stakeholder suggestions in this action, especially in terms of the incorporation of floating wind, as suggested previously, floating wind developers should be consulted, as the current grid connection options for AMETS may not be feasible for floating wind, which comprises as a minimum a 6MW wind turbine per platform.

Even though the purpose of the two sites – AMETS and WESTWAVE - are different; it may be worthwhile, to optimise the offshore infrastructure investment, to examine the option of adding extra testing berths into the layout of WESTWAVE site, thus replacing AMETS.

Action 2.2: Galway and Cork Test Sites

5. Do you agree that significant progress has been made on the Galway Bay Marine and Renewable Energy Test Site and that it is having a positive impact on the development of the offshore renewable energy sector in Ireland?

The loss of the lease for the Galway Bay Test site is an obvious problem for the industry and its rectification is an urgent matter to address by the Steering Group. The issue of significant progress might be more appropriately question with the following:

- why have there only been three devices tested in Galway Bay? – (We, Ocean Energy, have deployed our device there for over 3 years).
- What is preventing other developers testing at a ¼ scale test site,
- is it the technology, a supply chain issue, the type of investment required or the difficulty in getting a project funded?

The answer may be found in analysing the projects that have so far been funded through the Prototype Fund, in order to identify any potential funding gap.

An important aspect of the site that is currently missing is a viable grid connection for wave energy converter devices. At present, the energy generated by these devices has to be "dumped" in some way as the existing cable does not accept any export power and only supplies a maximum of 2kW for device house-keeping power. This is an important requirement that would be easily implemented, by laying a power export cable to the shore. As a result of this the devices being tested can incorporate realistic electrical systems in the power take-off systems. Due to the scaling laws, the power produced at the Galway Bay Test site is trivial in terms of local electrical distribution levels. If a grid connection is not an option for the site, then an alternative, would be to implement the solution already part funded by SFI for the provision of a PowerBuoy or by introducing some form of energy storage system.

Another issue with the Galway Bay site is the lack of suitable service facilities at the local pier in Spiddal due to the extreme tidal nature of the access. Currently, the site is mostly serviced from Galway Harbour, which can be a significant travel time in a small vessel especially in difficult wave conditions with prevailing westerly winds.

It is mentioned in the Identified Challenges that moving from Galway Bay to AMETS is too challenging. Ocean Energy would welcome an opportunity to deploy at AMETS, as this would be a mark of industrial excellence in the industry due to the nature of the resource there. However, in order to prove and de-risk the technology, an intermediate deployment plan for the technology is required, which involves deployment at the WETS site in Hawaii and a subsequent deployment at EMEC as stepping stones on the road to AMETS.

Action 2.3: Integrated Maritime Energy Resource Cluster

6. Do you think that there is a positive impact from the development of the MaREI Centre and Lir National Ocean Test Facility?

For a technology that is trying to make its way along the path of Technology Readiness Levels (TRL), collaboration with academia and having access to the type of facilities that exist in Ireland has been an important part of the development of both our technology and our company. To ensure that investment to date has added value, continued investment and support is required to get to the end of the TRL path and progress to commercialisation beyond the laboratory scale.

The existence of the world class facilities at Lir National Ocean Test Facility provides a high quality potential to support device development in Ireland at device scales up to 1:15. At present there is an opportunity for non-Irish developers to access these facilities free of charge under the EU funded MARINET2 project. It would be advantageous if a similar scheme were offered to Irish developers to have free access (funded by SEAI) with matching costs being provided by staffing and other own costs as per the EU Scheme.

The existence of the MaREI Research Centre gives access to the Industry Fellowship Schemes offered by SFI. Under this scheme the companies can give industrial experience to SFI Senior Researchers for up to two years (part-time). Ocean Energy has benefitted from this scheme with MaREI Senior Fellow – Wanan Sheng who has been applying his hydrodynamics and numerical modelling expertise to support the company activities.

7. Do you believe that the PDF is a suitable funding structure for the sector?

The PDF, in its current form, is a blunt and ineffective tool for the development of the offshore Renewable sector. It is, however, all that is currently available and despite its many limitations is the only option available for many developers seeking funding.

8. What, if any, improvements would you suggest?

In order to serve the sector in a meaningful and positive way the current Prototype Development Fund (PDF) must be made fit for purpose.

The following are the issues which require addressing immediately if the PDF is to be of benefit to the sector;

(i) Funding applications should have a minimum turn around period. Inordinate delays are frustrating both the developers and the investment community. Millions of Euros of potential investment has been lost to the industry as result of application processing delays.

(ii) Funded projects require flexibility in terms of timing and variations that naturally occur as part of a Research and Development project - the current PDF is relatively inflexible in this regard.

(iii) In general, payments are not processed in a timely fashion which had led to significant cashflow and liquidity issues for grantees.

(iv) Allowable Costs for projects are not realistic. The EU and Enterprise Ireland allow overheads whereas the PDF does not – this does not reflect commercial reality.

(v) The PDF funding seems to be governed by financial regulations imported from SEAI's grant schemes whereas it should be governed by appropriate rules for R & D activities.

(vi) SEAI should coordinate individual funding applications/grants with Enterprise Ireland to ensure that the grantee is best equipped to utilise the grant for business growth with a view to commercialisation and also to ensure, from a government perspective, that the funding has a reasonable expectation of delivering a future return.

(vii) The lack of third party funding/investment requires that PDF grants should be 100%. This would bring it in line with EU and other funding agencies who have recognised this reality (State Aid rules allow up to 100% R&D projects).

Many of the problems relating to the administration of the PDF scheme would be resolved if the scheme was adequately resourced by appropriately qualified and experienced staff.

Action 2.5: Additional Exchequer Support Requirement

9. Do you have any suggestions for additional Exchequer support required for the development of the offshore renewable energy sector in Ireland?

It is suggested that once SEAI have concluded their review of appropriate funding mechanisms for the next stage of demonstration projects, the findings should be shared with the industry to gain an insight into where the gaps and bottlenecks are and how best to overcome them. Funding support for technologies is only part of the solution at the higher TRLs, commercialisation support is also required which could, for example, be provided by Enterprise Ireland. This is an important step in attracting private investment into the industry and the risk has to be shared in order for this to be achieved.

Action 3: Introduce Initial Market Support Tariff for Ocean Energy

10. Do you have any suggestions on how to enhance or further implement support tariffs for this sector?

This is the most important Action of the OREDP. In order to attract private investment in projects, a return on investment is required. This can be achieved with a guaranteed revenue for the production of power. It is important to state that this has to be a guaranteed tariff support for an amount of installed wave energy capacity and a total support package of 100MW installed with the following breakdown is proposed :-

1. first 30MW with €450 per MWh
2. Second 30MW with €350 per MWh
3. Final 40MW with €300 per MWh.

This should run for 15 years or until some other qualifying condition of successful commercialisation is achieved.

It is important that these supports are integrated into the current RESS review being undertaken by DCCAE.

Action 4: Develop Renewable Electricity Export Markets

11. Do you think that Ireland should develop offshore renewable energy resources to export electricity?

The available technically achievable ocean power potential off the west coast of Ireland far exceeds the power requirement of the island of Ireland, therefore Ireland is in a position to supply clean renewable power to the European Union. In this context, the employment and industry potential that exists vindicates the development of interconnectors not only to the UK but to France and the European mainland. The production of electricity would also positively impact on Irelands overall net carbon emissions.

12. Do you have any suggestions on further measures that can be taken to support the implementation of this action?

Ocean Energy agree with those issues identified by the Stakeholders. Additional measures that could be undertaken, with priority, would be to investigate the potential for alternate uses for the electrical output using conversion systems like electrogas or storage solutions to facilitate higher penetration of wave energy into the grid system.

Action 5: Develop the Supply Chain for the Offshore Renewable Energy Industry in Ireland.

13. Do you think that significant progress has been made, to develop the supply chain for the offshore renewable energy industry in Ireland?

More can be done in terms of identifying the supply chain that currently exists in Ireland. However, there should be feedback to the supply chain of what would be required in terms of developing an indigenous ocean energy industry. Although similar to shipbuilding, there are certain technical attributes of ocean energy development that may require investment in new infrastructure such as wider slipways, heavy-lift capability, specialised offshore vessels etc.

Another possible method of improving the supply chain in Ireland is to attract UK and especially Scottish companies that have experience of offshore activities from the North Sea but now find themselves with dwindling opportunities due to various factors, not least of which is Brexit.

Marine fit-out – the final assembly and fit-out for devices together with ongoing maintenance activities will need further infrastructure investments. See comments related to Question 24

14. Do you have any suggestions on how to further implement this action?

One of the identified challenges is the lack of ORE projects to develop the supply chain. This will continue to be the case until such time as there is a clear development and consenting pathway, as well as grid connection status, for commercial sized projects. These issues will need to be addressed before Ireland see its first commercial projects in ocean energy.

Action 6: Communicate that Ireland is Open for Business

15. Do you think that Ireland has been presented at home and abroad as open for business in offshore renewable energy?

It is hard to claim that Ireland is Open for Business in terms of Offshore Renewable Energy when the laws governing the consent of projects are in limbo and the quarter scale test site is without a lease. Until such time as these crucial aspects of the industry are rectified, there is little possibility of further in-water ocean energy projects being conducted in Ireland.

16. Do you have any suggestions on how to further implement this action?

Both the Galway Bay lease and the ratification of the new Marine Bill is and should be a top priority of the OREDP Steering Group. The steering group must ensure that the relevant Government Departments also see this as crucial for timely implementation.

Action 7: Explore Potential for International Collaboration

17. Does the progress section capture all the relevant information and activities that have taken place for this action since publication in 2014?

The Ocean-ERANET and the follow up Co-Fund action provide for international collaboration on joint projects. One of the barriers to full engagement by Irish developers in this scheme is that there is an imbalance in the levels of support provided. Each participant gets the support relevant to their home country and in many cases the offerings are more generous to other compared with those provided in Ireland – primarily due to the ineligibility of actual costs due the modus operandi of SEAI.

18. Do you have any suggestions on how to further implement this action?

It is imperative that wave energy development is supported at all levels within EU funding (FP9) as the Work Programmes for Horizon 2020 have removed any ring fencing for marine energy.

Working more closely with countries that have MOUs with Ireland specifically to develop joint marine energy projects .

Action 8: Introduce a new planning and consent architecture for development in the marine area

19. Do you think sufficient progress has been made on the action to introduce a new planning and consent architecture for development in the marine sector?

The absence of a time frame for the introduction of the new Maritime Amendment Bill is of serious concern to the ocean energy industry and only serves to increase the risk associated with ocean energy projects to be carried out in Ireland. Until such time as the status of the Bill is clarified, there will be no activity in the industry in Ireland, having a knock on effect on all of the actions within the OREDP.

There is also a perception within the industry that until such time that the new Bill is passed, there has been a stay on applications which have already been submitted. This situation should be clarified, to give certainty to the industry that Ireland is a place that is “Open for Business” in terms of processing ocean energy projects. The use of the existing Guidelines published by the Department as a Guide for the Development of Offshore Generating Stations sets out the framework. This could be reactivated as an interim measure until the Maritime Amendment Bill is enacted.

20. Do you have any suggestions on how to further implement this action?

In reference to a number of the Stakeholder Suggestions, we would further like to recommend that if ORE Zones were to be identified, then those zones should be surveyed as part of the INFOMAR project, and that survey data be made available to successful applicants.

In reference to the role of local government, we would recommend their inclusion as stakeholders in any potential projects but that the consenting rights remain with An Bord Pleanála, as outlined in the MAFA Bill.

Action 9: Environmental Monitoring

21. Does the progress section capture all the relevant information and activities that have taken place for this action (Environmental Monitoring) since publication in 2014?

Until such time as the obstacles to ocean energy project development, which have been outlined in previous questions, have been tackled, we have nothing to add in terms of this action. However, a further expectation would be that in the future, real sea experience, data collection and impact should be taken into account.

22. Do you have any suggestions on how to further implement this action (Environmental Monitoring)?

Coordination with European wide monitoring projects and the US based Marine Hydrokinetic database, Tethys. There is a wealth of knowledge currently available on this topic which should be utilised more effectively.

In addition it would be advantageous to limit the extent of the requirements for Environmental Monitoring prior to deployment that a “Deploy and Monitor” policy , like that adopted by Marine Scotland, would expedite the development process.

Action 10: Ensure Appropriate Infrastructure Development

23. Does the progress section capture all the relevant information and activities that have taken place for this action (Infrastructure Development) since publication in 2014?

There are a number of activities that should be under taken to ensure that the appropriate infrastructure is in place for projects that will come online once the various development and consenting issues mentioned previously have been rectified. One of these is the requirement for an export power cable at Galway Bay test site.

24. Do you have any suggestions on how to further implement this action (Infrastructure Development)?

There is a danger that a flagship project would be shoe-horned into the AMETS site. Everyone involved should be conscious that this may be a step to far for some technologies and lead to a damaging outcome for the industry as a whole if a failure occurs. It would be suggested that installation at AMETS is prequalified with at least a 12 month grid connected deployment at another full-scale exposed test site, such as EMEC. In the absence of a less severe full scale site and ensuring the project stays within Ireland, the appropriation of one of the berths at WESTWAVE as a pre-qualifier site for AMETS may be a more tangible option. Successful deployments at the pre-qualifier site and AMETS would ensure be equivalent to a mark of quality of the technology and its capability at any ocean site worldwide.

It is important that suitable locations for fit-out for large numbers of device deployments be investigated in Ireland. The provision of suitable maintenance berths where routine operations such as anti-fouling or painting can be undertaken.