ECOWind Announcement of Opportunity: Stakeholder Interests Full Responses

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1 Introduction

This document provides the full text responses received from stakeholders engaged with the ECOWind Programme. It provides additional details of their interests within the ECOWind programme and the support they can offer to the call, including offers of Project Partnership roles, over and above the summary document included within the Announcement of Opportunity document. It should be noted that the partners are not obliged to be part of every project and will only partner those projects that align to their interests.

Stakeholders were asked the following questions:

- What would you want the impact of ECOWind to be?
- How could ECOWind help you deliver your objectives and how might you use the results?
- How could you support this call?

2 Project Partners

The following organisations have expressed an interest in Project Partnership:

- Carbon Trust on behalf of the Offshore Renewables Joint Industry Programme (ORJIP) Offshore Wind Partners
- Centre for Environment Fisheries and Aquaculture Science (Cefas)
- Department for Environment, Food and Rural Affairs (Defra) (including Offshore Wind Enabling Actions Programme (OWEAP))
- EDF Renewables UK
- Marine Management Organisation (MMO)
- Marine Scotland Science, Marine Directorate, Scottish Government
- Natural England
- Offshore Wind Developer (name to be supplied later in process)
- Orsted
- Royal Society for the Protection of Birds (RSPB)
- RWE
- Scottish Power Renewables
- SSE Renewables
- Vattenfall

Additional project partners from industry may be available and this should be discussed with the ECOWind Champion at full bid stage.

It should be noted that the organisations listed above are not obliged to become Project Partners and their level of involvement in projects is to be agreed during the full bid preparation stage of ECOWind.

3 Stakeholder Responses

This section presents the full responses from stakeholders regarding their interests in ECOWind and details the level of support that individual organisations could offer projects.

3.1 Carbon Trust on behalf of the ORJIP Offshore Wind Partners

What would you want the impact of ECOWind to be?

One of the largest barriers facing the future of offshore wind in the UK is the ability of projects to gain consent and with conditions that do not make projects unviable.

There is currently 10.4GW of offshore wind operating in the UK with a further 7.7GW under construction and another 7.7GW holding consent. Another 20GW is pre-consent including the recently awarded Round 4. Further tenders pre 2030 will contribute around 11GW to the development pipeline in the UK (Scotwind (10GW)/floating wind (1GW)). It's likely that 31GW of offshore wind will go through the consenting process from now until 2030. This aligns with the 'Sector Deals' target of installing 40GW by 2030 which requires at least another 14 GW to be approved consent before 2026 if the target is to be meet.

To meet the challenge an unprecedented level of investment is required to complete priority research that adds to the evidence base for offshore wind and reduces uncertainty around cumulative impacts, which can inform planning decisions. This is where ECOWind could play a vital part, supporting new and existing research initiatives to address the uncertainty through the further provision of empirical evidence that clarifies the cumulative impact of offshore wind.

How could ECOWind help you deliver your objectives and how might you use the results?

The Offshore Renewables Joint Industry Programme (ORJIP) Offshore Wind programme is a collaborative public/private programme of environmental research with the aim of reducing the consenting risk for offshore wind farm developments to better inform consenting authorities on the true environmental risk of offshore wind. The programme brings together industry, regulators, SNCBs and academia to work together on key environmental and consenting issues that the sector is facing.

Stage 2 of the programme was envisaged due to the need for such a research programme to address the consenting risk faced by the offshore wind industry in reaching increased capacity targets to 2030. This programme of research will run over a 4-year period (2019 – 2023) to further address the consenting risks during a key period where current and future projects will be seeking planning consent.

The programmes work to date has identified a priority research portfolio exceeding the funding commitment of the ORJIP Offshore Wind partners. A secondary objective of the programme is to identify alternative funding for this priority research to ensure its delivery thus securing alternative lines of funding for this priority research is something ECOWind could help the programme with.

How could you support this call?

The ORJIP Offshore Wind programme is managed by Carbon Trust who are also member led. The programmes Advisory Network heavily influences the identification and delivery of priority research

allowing for stakeholder buy in to the outputs of the research that filters down to offshore wind project level discussion to reduce consenting risk for these projects.

The programmes governance is built around flexibility to meet its objectives and has the ability of leading research through various avenues allowing 3rd party funding to support the delivery of this priority research.

In essence, Carbon Trust on behalf of ORJIP Offshore Wind can:

1. Guide ECOWind and/or ECOWind projects to ensure ECOWind aligns to what the offshore wind sector sees as the priority research required to address consenting risk,
2. Act as a project partner for ECOWind project(s), by in-kind contribution and/or financial contribution. For instance, we can: collaboratively generate project ideas and scope project(s) with universities/institutes applying to ECOWind funding; provide private funding to the project(s) (collective private funding from ORJIP Offshore Wind partners); provide onshore / offshore sites / assets for project(s); and/or provide industry review and input throughout the project(s) lifetime.

Additional comments

ORJIP Offshore Wind is a joint industry project led by 13 industry partners including Carbon Trust that has committed over £1m to identifying and completing priority research that reduces environmental and consenting risk for offshore wind. The collaborative model ensures stakeholders buy in to the outputs of the priority research by ensuring all relevant stakeholders are involved in the process. The programme has identified a priority research portfolio exceeding the funding commitment of the ORJIP Offshore Wind partners. A secondary objective of the programme is to identify alternative funding for this priority research to ensure its delivery.

3.2 Cefas

What would you want the impact of ECOWind to be?

Assuming that 'impact' refers to (ecological and anthropocentric) value of outcomes from the ECOWind programme, we would expect the outputs to be clearly set within a systems context and through this address ecosystem aspects to reduce uncertainty in the key data/knowledge, which will then provide data for parameterisation of more confident models.

- The projects should include considerations of scale, both spatial and temporal.
- The projects should use/develop evidence-based approaches to assist with cumulative assessment.
- Projects should promote innovative and adaptable approaches to generate new knowledge on abiotic and biotic responses demonstrably linked to ecosystem processes and functions.
- Fundamental should be determination of benthic responses, linkage effects and changes in productivity. There should be some relation to the key policy contexts of fisheries and biodiversity (species/taxa changes).

- Projects should include (as far as possible) the physical-chemical-biological-ecosystem processes and associated socio-ecological and socio-economic aspects.
- To assist with the main Offshore Wind Evidence and Change (OWEC) programme the research should be clearly objective and therefore assist with determining both positive and negative impacts (also neutral when taking account of change over different scales).
- Finally, the research should assist with the differentiation (or interaction) of offshore wind effects from other drivers of change in the marine environment (e.g. climate change).

How could ECOWind help you deliver your objectives and how might you use the results?

Cefas' key strategic objective is to make a difference by meeting society's need for applied science and impartial evidence in the UK and internationally. Cefas' primary role is applying science to policy objectives and supporting advice to the UK Government. Through our expertise we understand the need for offshore wind development in the overall context of Net Zero whilst at the same time having comprehension of the local and ecosystem scale effects and can impartially advise on how to progress environmental sustainability. ECOWind is targeted at ecologically integrated and fundamental systems-based research, which is a central tenet of how Cefas brings together scientific evidence to link up projects directly supported by Department of Environment, Food & Rural Affairs (Defra), Department for Business, Energy & Environmental Strategy (BEIS) and The Crown Estate (TCE), which are more suited to Government and Regulatory requirements. Ultimately, ECOWind should bring a strong evidence-based framework to translate outcomes, particularly around marine net gain and compensation, into statutory instruments. We would expect ECOWind to enhance scientific confidence in the application of best available science. We would look to bring outputs into our work on ecosystem modelling (both abiotic and biotic aspects) and feed into our cumulative effects assessment activities for UK Govt and internationally (e.g. OSPAR[1] and ICES[2]), thereby supporting regional level decision making.

How could you support this call?

Cefas can support this call in multiple ways:

- Data: We can provide access to a range of long-term fisheries, benthic and physio-chemical data sets, which are vital as baselines for the ECOWind topics areas. Water quality and Metocean conditions are available from SmartBuoy and WaveNet respectively. We can also provide a wide-variety of anthropogenic pressure data, and critically we can provide advice on how these data could be used. We also have newly developed online, open access geo-spatial data tools/apps and associated modelling capabilities.
- Infrastructure: We have relevant equipment and the RV Endeavour research vessel that could be accessible (subject to availability and research objectives).
- Alignment with existing work: ECOWind will align closely with Cefas activities in the topic of human impacts on the environment and fisheries. We use the system type approaches,

[1] https://www.ospar.org

[2] https://www.ices.dk/Pages/default.aspx

promoted by ECOWind, to integrate understanding of biological, chemical and physical environmental responses to OSW infrastructure (including subsea cabling) and the social and economic consequences. Several of these activities relate to collaborative participation in the main OWEC programme projects or advisory groups, projects delivering to Defra's OWEAP, and international Offshore Wind projects in the USA and Taiwan. With the ECOWind outputs applicable to ecological and environmental knowledge at different scales (local through to regional) we would look to apply and integrate them into our existing activities to improve confidence in the knowledge of changes to marine environment through Offshore Wind.

- Project partner/ advisor: Cefas has many experts in the field of offshore renewables. We would be very keen to apply that expertise and be involved in relevant proposals as a project partner. We can provide specialists in key areas for direct delivery within projects. We can also provide senior experts to provide advice individually or through membership of project advisory groups.
- Mentorship: Cefas senior scientists could provide PhD support and mentorship (subject to funding agreements) and facilitate placements of students for knowledge transfer.

3.3 Defra

What would you want the impact of ECOWind to be?

Defra is a partner to the ECOWind programme. We would like ECOWind to contribute to our understanding of the ecological consequences of the planned large-scale expansion of offshore wind in the context of increasing pressures on UK marine ecosystems and provide evidence to inform marine policy and management.

We would like to see projects that improve the understanding of the cumulative impacts the expansion of the offshore wind sector is likely to have in order to meet the government targets. This would identify priorities for compensations measures as well as net gain, and where both could deliver more benefit for the environment. Also, that the outcomes of the research will inform all different stakeholders so collectively we are better informed to make better decisions, so the use of the marine space is balanced and optimised.

How could ECOWind help you deliver your objectives and how might you use the results?

The Prime Minister announced in his 10-point plan for a green industrial revolution that the offshore wind sector will increase to 40GW by 2030, including 1GW of floating wind turbines.

Defra has a crucial role to play in managing and mitigating the environmental impacts of deployment to ensure that increased capacity is delivered in a sustainable way.

Supported by an investment through HM Treasury's Shared Outcomes Fund, Defra is leading on work to improve the understanding of adverse environmental impacts from construction and developing a cross-Government approach to compensating for them, as well as reducing the impacts of underwater noise, introducing marine net gain through offshore wind deployment and improving the accessibility and provision of data to improve consenting and monitoring. These projects will help bring greater

clarity and predictability to the consenting process, support economic recovery and help meet the Government's net zero commitments while protecting and enhancing the marine environment.

There are currently evidence gaps that will need to be resolved ahead of the expansion of offshore wind. Defra's Offshore Wind Compensation and Impacts team are particularly interested in those that would inform and enable deployment of suitable compensation measures not only for the projects currently on the pipeline but also for the Round 4 projects and beyond, aiming to deliver more strategic compensation going forward. The more urgent compensation needs would be regarding seabirds and benthic impacts. The Offshore wind Net Gain team would also be interested in the outcomes of the project since a better understanding of the ecological consequences of offshore wind will allow to develop better options for marine net gain.

The Offshore Wind Enabling Actions Programme (OWEAP) would seek to use ECOWind projects to help to increase understanding of the environmental impacts of offshore wind and help to find strategic solutions to manage and mitigate impacts to reduce barriers to deployment.

How could you support this call?

- Contribute staff time to discuss content of proposed submissions as advisors.
- Link bid writers to Defra staff and other partners who may be interested in being named partners on bids.
- Provide letters of support to those proposals which we consider to be best aligned with our evidence gaps.

3.4 EDF Renewables UK

What would you want the impact of ECOWind to be?

EDF Renewables UK would want ECOWind to have a positive and timely impact on the delivery of the UK offshore wind industry to meet UK Net Zero targets. To do this it needs to deliver research that meets Statutory Nature Conservation Body (SNCB) and regulatory body quality requirements, so they can be applied to inform decision making and reduce consenting risk associated with the UK offshore wind development. The research should add to the knowledge base and be directly applicable in improving our understanding of ecosystem response to offshore wind and other cumulative pressures.

ECOWind should aim to maximise and demonstrate the value of a strong collaboration between academia, developers, government and their advisors and non-governmental organisations (NGOs), to enhance the research methods and technologies.

For the offshore wind industry, and for the UK to meet its Net Zero targets, outputs from the ECOWind programme need to be delivered and reported in a timely and readily available manner. This would help ensure that the outputs can be directly applied to offshore wind consent decisions, policy and marine spatial management.

The overall impact of ECOWind would be best maximised through strong coordination and integration with the other existing UK strategic research initiatives.

How could ECOWind help you deliver your objectives and how might you use the results?

EDF Renewables CAP2030 strategy sets out our ambition for increasing our installed capacity of renewable energy to 50 GW worldwide by 2030. Offshore wind in the UK features strongly as part of this renewable energy generation ambition, with consenting risk seen as a key challenge for EDF Renewables to meet this ambition. However, ECOWind provides an opportunity for new expertise from academia to work collaboratively with government, policy makers, developers and NGOs to innovate and enhance the research already being delivered in other strategic research programmes, to address key areas of uncertainty in the marine ecosystem response to offshore wind developments. Outputs from ECOWind should be directly applicable for use in marine policy, management and consenting, which will allow government, policy makers and advisors to provide informed advice and make timely consent application decisions.

For the UK to meet its Net Zero targets there needs to be a strong evidence base to support informed and effective policy and management solutions, including delivery of marine environmental net gain and restoration.

How could you support this call?

EDF Renewables would look to support this call where feasible and appropriate on a Project specific basis. Such support could include:

- Provision of existing data from our UK offshore wind sites, such as data collected to support consent applications or post consent monitoring.
- Access to infrastructure to undertake measurements or sampling at offshore wind farms undergoing construction or operation. This would be subject to agreement on the specific details such as the sampling methods, proximities to infrastructure, and timings so that the any activities wouldn't interfere with the ongoing construction or operations of the wind farms.
- Where appropriate, look to support individual Project delivery through sitting on project advisory groups representing the interests of offshore wind developers and/or on broad stakeholder groups. EDF Renewables represent UK offshore wind developers on the majority of strategic research groups (e.g. ORJIP[3], ScotMER[4], OWSMRF[5], OWIC[6], SOWEC[7]) looking at improving the knowledge base around the environmental issues, and as such can help contribute to ensuring alignment and efficiencies with existing similar programmes.

[3] Offshore Renewables Joint Industry Programme: http://www.orjip.org.uk

[4] Scottish Marine Energy Research: https://www.gov.scot/policies/marine-renewable-energy/science-and-research/

[5] Offshore Wind Strategic Monitoring and Research Forum: https://jncc.gov.uk/our-work/owsmrf/

[6] Offshore Wind Industry Council: https://www.owic.org.uk

[7] Scottish Offshore Wind Energy Council: https://www.offshorewindscotland.org.uk/sowec/

3.5 Marine Management Organisation

What would you want the impact of ECOWind to be?

As the regulator for England's seas, the Marine Management Organisation (MMO) is charged with contributing to sustainable development in the marine environment. This requires us to consider the environmental, economic and social consequences of proposed projects, and to make decisions based on the best-available scientific evidence.

The MMO would like to see ECOWind projects demonstrate that successful collaboration between the academic community, government and industry can support research and evidence development which can be used to inform decision making. We would therefore welcome any research which can be used directly to inform decisions on the planning or management of activities related to offshore wind farms, including activities that take place in the inter-tidal region.

Specific areas of interest which could feed directly into decision-making at the MMO include:

- Improved understanding of the impacts of underwater noise.
- The ecosystem-scale consequences of subsea cable protection.
- Understanding how offshore wind affects ecosystem service provision.
- The impact of offshore wind on Marine Protected Areas.
- Understanding the implications of implementing Marine Net Gain.

How could ECOWind help you deliver your objectives and how might you use the results?

The MMO is responsible for developing Marine Plans for English waters, for delivering Marine Licensing, and for developing byelaws to achieve the conservation objectives of Marine Protected Areas. Results from ECOWind could help deliver these functions.

Marine Plans aim to deliver the high-level marine objectives set out in the UK Marine Policy Statement. Research which improves our understanding of the ecosystem-scale impacts of offshore wind could therefore be used to inform the development of marine plan policies in line with these objectives, potentially allowing for the development of more prescriptive policies.

Marine Licence conditions are used to mitigate the environmental impacts of offshore wind farms during construction and operation, as well as detailing how the developer should monitor these impacts. Research which focuses on management solutions or improved methods of marine observation could therefore be beneficial in developing marine licence conditions.

The Marine Conservation Team is responsible for developing management plans and byelaws for Marine Protected Areas (MPAs) to achieve their stated conservation objectives. Research on the effects of wind farms on MPA features and appropriate management solutions, could inform the development of such byelaws.

How could you support this call?

The MMO would be able to advise on the direction of research projects which align with our published Evidence Strategy, and which fulfil our Evidence Requirements, to ensure that projects are aligned with existing work and our priorities.

In addition, the MMO is responsible for a number of datasets associated with marine activity. The Explore Marine Plans service shows the range of available datasets, and the MMO would be able to provide access and support for any of the data where we are listed as the source.

We are also willing to sit on project advisory groups, to provide technical input, and lend written support to projects that align with the MMO evidence requirements set out above.

3.6 Marine Scotland Science, Marine Directorate, Scottish Government

What would you want the impact of ECOWind to be?

To address the gaps in evidence, models, and frameworks currently available for the assessment of direct and indirect effects of offshore wind farms upon key ecological receptors. The cumulative effects of multiple wind farms upon priority species and the habitats/ resources upon which they rely is an increasing priority. Similarly, cumulative effects of offshore wind farms upon prey and other resources relied upon by priority species are of significant interest. However, there also remains a limited evidence base on how animals interact with individual wind turbine generators or wind farms, and the population level impacts that these interactions may result in. To stimulate increased cooperation and collaboration between academia and government, industry and wider stakeholders that results in outcomes that have a direct bearing on the sustainable management of the marine environment.

How could ECOWind help you deliver your objectives and how might you use the results?

By early and effective engagement with end users and decision-makers to ensure that the focus of research is on the key knowledge and evidence gaps encountered in the delivery of sustainable offshore wind, and that outputs have direct real-world relevance and applicability. Projects should be outcome focused, and one of the primary outcomes of ECOWind projects should be delivery of products (models, tools, frameworks) that are in a form that allows them to be quickly and efficiently integrated into the offshore wind planning, assessment or licencing process. Being cognisant of the regulatory and policy frameworks under which offshore wind farms are delivered, and the resource limitations that exist. Maine Scotland would hope to be able to use the results or ECOWind project by incorporating project outputs (key findings, models, frameworks) directly into guidance, advice or the planning/ assessment process. This would require close collaboration throughout project proposal development and delivery.

How could you support this call?

Marine Scotland would consider supporting the call by providing access to data and research infrastructure (e.g., labs, sampling equipment, vessels), expertise and staff time in providing input,

advice or oversight of scientific, policy or regulatory components of the proposed work. This would help to ensure the outcomes have as great an impact for end users as possible. We are also engaged in a wide range of research and monitoring relating to offshore wind farms and the wider marine environment and anticipate significant opportunities for synergies across activities to add significant value and impact to the outcomes of ECOWind and related programmes of work.

3.7 Natural England

What would you want the impact of ECOWind to be?

Provide a strong evidence base to enable roll out of offshore wind to support net gain targets whilst simultaneously avoiding irreparable damage to natural environment and contributing to nature recovery, especially:

1. with emphasis on species and habitats of greatest sensitivity / consenting risk.
2. enabling a transformation in data gathering driven by trialling and testing new technologies that can be confidently incorporated into impact assessments and future monitoring plans at strategic scale.
3. generating a robust evidence that can be used to feed into nature recovery mechanisms and projects to support marine nature recovery at wide scale.

How could ECOWind help you deliver your objectives and how might you use the results?

We could use results to:

- Improve the certainty of our advice on avoiding, mitigating and compensating for impact
- Feed into new ways of working across the sector, including more data-driven decision-making
- Inform wider efforts to restore marine nature, delivering net positive biodiversity gain from offshore wind expansion

How could you support this call?

- Access to MPA datasets
- potential project partner with in-kind contribution of advice/time
- Advisory group member

3.8 Offshore Wind Developer[8]

What would you want the impact of ECOWind to be?

[8] Company name redacted upon request. Name will be supplied to relevant applicants in order to explore potential collaborations. Applicants should contact the ECOWind champion to discuss this.

Over the next years, ECOWind could become a platform bringing together both research institutions and offshore project developers in the UK. ECOWind could undertake research into key ecological issues and impacts of concern to foster a collaborative approach between offshore wind developers and key stakeholders. We would therefore also highlight the importance of regulator(s) engagement in this programme. The outputs of ECOWind should also translate into establishing and refining standards and commonly recognised approaches towards offshore wind. On this basis, best practice can be discussed, demonstrated and shared throughout the UK offshore landscape when it comes to both methodologies and mitigation but also compensation with respect to ecological impacts of offshore wind installations. ECOWind could also make a major contribution to the global offshore wind industry by the transfer and application of latest research results, thus enabling a constant and productive dialogue along important questions, issues and considerations both from the academic but also from the other stakeholders' point of view.

How could ECOWind help you deliver your objectives and how might you use the results?

We are looking to understand the potential impact of offshore wind on ecological species. We would like the outputs of ECOWind to support this assessment. Specific areas of interest for us are net environmental gain and especially net marine gain which are becoming policy requirements in UK offshore wind. We are hoping that ECOWind can support a common understanding of what measures or programmes may support net environmental/marine gain. Where relevant and possible results could be directly considered during project development. Moreover, we would like the ECOWind programme to look at the potential of digitalisation when it comes to offshore wind development. As an example, we would be interested in machine learning algorithms and thus Artificial Intelligence supporting bird counting activities. More generally we are keen on seeing research projects also covering the Irish Sea e.g., regarding artificial reefs or when it comes to watching sublittoral mixed sediments. Moreover, we are interested in projects that look at how potential ecological impacts can be designed out during engineering especially around marine mammal and fish migration issues.

How could you support this call?

We have just started to develop our projects. As early-stage developers we do not have existing infrastructure or significant volumes of existing data. However, we will happily share data collected during the development phase with ECOWind where we are able to do so. We have long-term experience in developing and operating offshore installations and could therefore imagine making a contribution to ECOWind by nominating someone within our organisation to act as a project advisor, particularly an individual with experience of similar studies in other jurisdictions or industries. By sharing this knowledge and learnings potential double work on certain topics could be avoided. Resources could then rather be directed towards creating additional value by focusing on those areas of interest not yet studied to the extent required. If there was an ECOWind project interested in an early-stage developer, we would also consider being a project partner.

3.9 Orsted

What would you want the impact of ECOWind to be?

- All parties understand the likely ecosystem responses to the cumulative pressures of large-scale deployment of offshore wind, in combination with other stressors. An evidence base is created (and accessible) which informs decision making and results in consistent guidance on cumulative impact assessment for offshore wind, considering target deployment of offshore wind (2030, 2050).
- Regulator comfort around the effects associated with rapid build out and acceptance of reasonable levels of uncertainty.
- Understanding of spatial ecosystem risks to inform site selection (plan and project level).
- A streamlined approach to projects in the development pipeline which will have in-combination effects.
- A coherent feedback loop between evidence gathering and assessment methodologies.
- Long term constructive relationships between UKRI researchers, government, and industry, built around rigorous applied research and long-term data management and archiving.
- Recognition that the wind sector is leading on what is achievable in terms of marine net gain.
- A sound evidence base to inform policy and marine management responses for delivering net environmental gain whilst deploying fixed/floating offshore wind at target scale
- Demonstrate best practice for industry collaboration and set an example for other funding streams, within and beyond the offshore wind industry.

How could ECOWind help you deliver your objectives and how might you use the results?

- Provide agreed evidence and methodologies to inform cumulative and in-combination assessments within EIA, reducing developer and stakeholder required resource and reducing levels of precaution.
- Provide confidence to regulators on guidance and data requirements for project level EIA.
- Provide context to individual project discussions by clarifying the scale of development required to achieve net zero and the associated environmental effects.
- Provide options for net environmental gain which regulators are confident will benefit the marine environment, and therefore shape what future projects look like.

How could you support this call?

- Data
- Access to infrastructure, with a case specific assessment. Factors such as business case, logistics, Quality Health Safety Environment (QHSE), consenting and legal challenges would be considered prior to providing access.

3.10 OWIC Pathways to Growth

What would you want the impact of ECOWind to be?

- A clear understanding of how offshore wind contributes to any effect on species and habitats interactions alongside other stressors and how they individually and collectively contribute to that effect. It is important that any impact and subsequent requirement placed on those stressors is both proportionate and ideally will deliver a net environmental gain.
- Delivers an evidence base that meets SNCBs and regulatory body quality requirements and that can be applied broadly i.e., the outcomes/outputs are not confined to a certain location or set of circumstances.
- Demonstration of how stronger collaboration between the academic community, government and industry can support wider research and evidence gathering for offshore wind and possibly facilitate a discussion about how this type of collaboration can become the norm as part of existing funding streams on an ongoing basis.

How could ECOWind help you deliver your objectives and how might you use the results?

The Sector Deal Pathways to Growth (P2G) workstream is a joint Government and industry workstream addressing a prioritised set of consenting barriers to meeting the Government's 2030 and net zero offshore wind deployment targets as part of the Offshore Wind Sector Deal. The work is guided by the P2G Coordination Group which comprises Government, SNCB, regulatory bodies and industry representatives across all UK Devolved Administrations. The group has identified 11 key consenting barriers and one of these is: "To consider the advantage of offshore wind and biodiversity i.e., where they are mutually supportive". For all 11 barriers, the P2G Coordination Group are developing a series of roadmaps that identify the key questions that the group have advised need to be answered and existing or planned initiatives that will either partially or fully answer those questions.

For the offshore wind and biodiversity barrier, our current position is to wait for existing work being taken forward by all UK administrations to deliver this year before checking which of the identified questions have been, or will be, answered by ongoing work. The outputs of ECOWind could be steered to deliver answers to these questions should they not be answered by existing work, or we could work together to ensure that the ECOWind projects are aligned early, and objectives support the answers to P2G questions. It is possible that there are also other questions identified for the other barrier roadmaps that are relevant to ECOWind.

How could you support this call?

Support would be to seek alignment with the questions that the P2G Coordination Group have identified for the P2G barriers covering biodiversity and net gain but also to explore opportunities on some of the other 11 barriers including assimilating evidence into decision-making and improving the evidence base through strategic studies. The P2G work, and in particular the roadmaps, are looking to identify existing work that will either partially or totally provide answers to the questions that the Coordination Group have raised. It would be beneficial to work with ECOWind to steer the research

to provide answers to relevant questions in the P2G roadmaps and to continue to have an involvement with the work on a broad, programme level scale to ensure ongoing alignment (and importantly no duplication of effort) between the P2G roadmaps and projects funded through the ECOWind programme.

The P2G Coordination Group Manager doesn't hold data or have any infrastructure nor have the capacity to be a project partner.

3.11 RSPB

What would you want the impact of ECOWind to be?

We would like ECOWind to fill some of the evidence gaps that limit the robust planning of offshore wind farms with minimal impacts on nature, and to provide robust evidence to support efforts to avoid, mitigate, compensate and offset predicted impacts on nature, particularly declining seabird species.

This could include:

1. understanding the most important areas for seabirds throughout the year (not just in the breeding season) to enable planning offshore wind that avoids these areas,
2. understanding the three-dimensional movements of birds around turbines in relation to behaviour and environmental conditions, and how this affects collision risk,
3. understanding the energetic and demographic consequences of displacement and barrier effects for both seabirds and migratory land birds,
4. understanding the connectivity between Special Protection Area breeding colonies and the offshore areas used by the same birds throughout the year (not just in the breeding season),
5. understanding metapopulation dynamics to better understand the impacts of wind farms and inform the development of compensatory measures,
6. provide evidence of the wider (metapopulation) demographic consequences of measures designed to positively affect seabirds, so that there is robust, quantitative evidence of the benefits of measures to compensate or offset impacts on seabirds.

How could ECOWind help you deliver your objectives and how might you use the results?

The RSPB supports the deployment of offshore wind technology as part of the UK's effort to reduce greenhouse gas emissions and tackle climate change – itself a major threat to wildlife. However, the current approach to upscaling this technology jeopardises both nature and net zero. Given there is both a climate and ecological emergency, it is urgent that we improve understanding to ensure we get the right renewables in the right place.

Offshore wind can impact seabirds in a variety of ways during construction and operation. This includes through collision, disturbance, direct habitat loss, blocking important flight pathways and loss of access to preferred foraging areas. These impacts can result from one windfarm and cumulatively from the presence of multiple windfarms. The cumulative impacts of the 2030 pipeline alone are predicted to have significant adverse impacts on our seabirds. In order to prevent irreversible wildlife losses from the unprecedented and necessary upscaling of offshore wind, we need to transform how we plan this technology. Better planning needs a robust evidence base.

Increasing certainty around where seabirds are, how they use our seas and interact with offshore wind is incredibly important in increasing confidence, unlocking new areas for deployment and ensuring increased deployment in harmony with nature. Addressing these gaps would have benefits for industry, nature and net zero – if new research is mobilised in time. We are very supportive of ECOWind contributing resource to tackle these evidence gaps and facilitate truly green and sustainable offshore wind.

There are three ways ECOWind outputs could help us to deliver our objectives:

1. The outputs could help us to inform and develop the details of our policy, advocacy and casework positions, where we advocate for offshore wind development in harmony with nature, to ensure that our position is evidence-based. Furthermore, by reducing the uncertainty inherent in the evidence base, there will be a consequent reduction in the amount of precaution necessary in the development of these positions.
2. ECOWind could help us to develop and build on our existing and ongoing research aiming to understand the impacts of, and interactions between, offshore wind farms and seabirds. RSPB is a potential applicant for funding as an Independent Research Organisation (IRO).
3. The outputs could enhance the evidence base available to inform the deployment of sustainable offshore wind.

How could you support this call?

RSPB is a potential applicant for funding but could also input at a stakeholder level as a project advisor (our scientists and policy specialists already sit on expert advisory panels for many offshore wind research projects). The call has close alignment with our existing funded research so there is the potential for collaboration and data sharing.

We are interested in being a project partner subject to further understanding the level of resource required from us.

3.12 RWE

What would you want the impact of ECOWind to be?

- To swiftly deliver tangible improvements to the body of environmental and ecological evidence required to support the rapid decision making needed to achieve timely delivery of new and future offshore wind projects.

- To establish with precision how developers can meaningfully address the imperatives of net environmental gain in the offshore environment in the necessary timescales to ensure new projects are not delayed as a consequence of policy ambiguity or unrealistic measures.
- To engender a collaborative, solution-focused relationship between developers, statutory authorities and environmental stakeholders, with the objective of securing accord to deliver sustainable offshore wind growth.
- To augment and not duplicate other collaborative research projects taking place in the same timescale.

How could ECOWind help you deliver your objectives and how might you use the results?

RWE Renewables has a significant interest in the successful implementation of ECOWind projects since it has ambitious plans to deliver up to 3GW of new capacity through the two Dogger Bank South sites it secured preferred bidder status on in the Crown Estate's Leasing Round 4. Following our call, I understand that the project timeline does not align with the delivery of Round 4, and therefore these projects may better align with future floating wind opportunities or further rounds as may be initiated by the Crown Estate or Crown Estate Scotland.

We anticipate the need to take account of and support the emerging inclusion of net environmental gain imperatives in the delivery of these, and future projects in the development pipeline, which may include future floating wind interests.

How could you support this call?

Potentially in terms of access to data, project steering and advisory support.

RWE may be interested in being a project partner. However, at this early stage we would need to better understand the candidate projects which may come forward as these would need to align with the development objectives of our business.

3.13 ScottishPower Renewables

What would you want the impact of ECOWind to be?

ScottishPower Renewables (SPR) hope that the impact of ECOWind programme will be to enable offshore wind to be deployed at the scale required to meet our net zero ambitions. We hope the deliverables of this programme will build confidence that the growth of offshore wind, in combination with other pressures to the marine environment, will not cause any legacy of impact and biodiversity loss.

SPR would like to see the ECOWind programme to deliver projects which significantly advance our understanding of how marine ecosystems, as a whole, respond to offshore wind, climate change and other anthropogenic pressures. ECOWind projects should identify innovation opportunities to monitor how ecosystems respond to pressures outlined above to reduce uncertainty in planning and consenting regimes. We would like projects to develop methodologies and demonstrate how a biodiversity and a nature positive legacy can be realised through establishing a robust evidence-base and piloting nature-inclusive design in harmony with offshore wind developments. As with other

programmes, such as OWEC, it is important that the findings from these projects are accepted by stakeholders and can be utilised to inform policy and decision-making processes in the future.

How could ECOWind help you deliver your objectives and how might you use the results?

Iberdrola has biodiversity objectives of achieving "No Net Loss" of biodiversity by 2030, whilst working to ensure that new facilitates deliver a net positive impact on biodiversity, where possible.

With our experience of addressing environmental impacts from offshore wind development, and our biodiversity net gain ambitions in mind, we have scoped research opportunities which are aligned with the objectives of the ECOWind programme and will work to secure a better future, quicker. We would welcome the opportunity to work with NERC registered organisations to share and develop ideas we have for projects to deliver the impacts outlined above.

We would hope that the results arising from the ECOWind programme would help guide current and future offshore wind developments to ensure they can successfully demonstrate net positive impact on biodiversity; both domestically in the UK and globally.

How could you support this call?

- Project Advisor.
- Open to working with projects to provide access to Data & Infrastructure where appropriate.
- Alignment to existing workstream – No current suitable workstreams at present however if any workstreams did become available we would be happy to share with ECOWind projects.
- Project Partner – SPR are interested in being a project partner however any financial contribution will be subject to specific budget request and approval.

3.14 SSE Renewables

What would you want the impact of ECOWind to be?

SSE Renewables would want the ECOWind programme to:

- increase understanding of ecosystem responses to the cumulative pressures of large-scale deployment of offshore wind, in both fixed and floating wind structures.
- provide a sound evidence base to address risks and reduce uncertainty to inform our decision making and the consenting process that can be applied without being constrained locationally or by specific criteria.
- provide actionable solutions for implementing net environmental gain and marine environmental restoration and enhancement.

How could ECOWind help you deliver your objectives and how might you use the results?

SSE Renewables (SSER) is a leading developer and operator of renewable energy across the UK and Ireland, with a portfolio of around 4GW of onshore wind, offshore wind and hydro.

We're aiming to deliver enough new renewable projects to generate 30TWh by 2030, trebling our renewable energy output from 2019 levels. This will make a significant contribution to decarbonising the power sector and be on track to achieving net zero emissions by 2050.

Beyond our consented flagship projects SSER has a healthy pipeline of growth opportunities and is focused on achieving consents for planned projects. The results from the ECOWind research would primarily be used to reduce consenting risks and improve the consenting timeline. Detailed research results would help to answer questions in the consenting process and allow us to make decisions using the best available information on the likely environmental impacts. Reducing risks in the consenting process would help SSER to deliver on our 2030 organisational goals and achieve our vision of being a leading energy company in a low-carbon world.

How could you support this call?

Our support on this call would include:

- a contribution of staff time to support at both the bid development stage and with the progress of the successful research project,
- potential access to data, and
- potential access to infrastructure, depending on the site location and the research requests.

Additional comments

SSER does not have a dedicated research team, so although we are supportive of this programme we may not be able to provide specific expertise.

3.15 The Wildlife Trusts

How could ECOWind help you deliver your objectives and how might you use the results?

The Wildlife Trusts supports actions to tackle climate change. We recognise that climate change poses one of the biggest threats to wildlife and will push species to their ecological limits. However, action to tackle climate change should not be at the expense of wildlife. To avoid damage to wildlife and delay in the delivery of low carbon energy to meet net zero by 2050, future development at sea must use the right technology in the right location.

Future low carbon energy production activity, such as offshore wind, can only take place within ecological and environmental limits. The cumulative impact from multiple offshore wind farm development, along with other activities, poses one of the biggest risks to our seas. We are interested in how ECOWind can:

- help to fill the evidence base to reduce risk and improve certainty, especially on cumulative impact and ecological limits.
- Inform decision making and policy.
- Inform the development of mechanisms which ensure both net zero and environmental recovery can be achieved.
- Add value to existing workstreams and avoid duplication.

How could you support this call?

The Wildlife Trust would be happy to participate in an advisory role.

3.16 Vattenfall

What would you want the impact of ECOWind to be?

Agree with the idea of bringing in academia to improve understanding of ecosystem impacts, developing evidence and tools to assist Marine Spatial Planning. We recommend that the project has a broader perspective, i.e., either including all other activities, or focussing on the relative impacts of offshore wind compared to other industries, with consideration of impacts of climate change. The impact of ECOWind should be to enable offshore wind in alignment with biodiversity protection and in the wider context of climate change. It should inform a management approach "that considers the entire ecosystem, including humans" in order to "maintain an ecosystem in a healthy, productive and resilient condition so that it can provide the services humans want and need".

How could ECOWind help you deliver your objectives and how might you use the results?

The ultimate aim of the work should be to enable decision makers to understand and appropriately balance the impacts of offshore wind, and factor this into the decision-making process - both at a Marine Spatial Planning (MSP) and project level.

Any projects should have clear aims and objectives that can be shown to enable offshore wind development. With reference to Net Gain, we would support the principle of Net Gain, but again this should be relative to impacts and requires a level playing field such that all users contribute, and offshore wind does not disproportionately bear the cost for enhancing marine ecosystems.

How could you support this call?

Vattenfall already provide data through the Marine Data Exchange and support access to data; we have experience of providing access to infrastructure through the ORJIP project (Thanet OWF) and so would look to enable this again under the right conditions; there may be opportunities to align with our work on the EOWDC (Aberdeen OWF); we would also be interested in being a project partner / advisor. We would stress the importance of early involvement of industry in defining the questions

that should be answered and developing proposals to ensure that academic research delivers within scope and provides value for money.

Additional comments

The initiative should focus on helping our holistic understanding of the 'ecosystem approach' to MSP. The project should aim to enable offshore wind, specifically through the understanding of the relative impacts of offshore wind compared to other users / activities, alongside the overall impacts of climate change. By informing MSP, the project should seek to reduce risk / barriers to consent by providing a sound ecological basis for decision making. An overall understanding of the pressures on the marine environment should allow better strategic management of offshore wind. See 'Symphony' tool developed by the Swedish authorities.

3.17 Welsh Government

Additional comments

The following reports from Natural Resources Wales and Welsh Government have arisen in the consideration of tidal turbine operations in Welsh waters, either from commercial deployments, in the licensing of a demonstration area off Anglesey and in consideration of tidal lagoon impacts (Swansea Bay in particular). Whilst they tend to be related to 'water' rather than 'air'/'wind' Marine Renewable Energy, there may be some useful cross-over with the ECOWind projects:

- Clarke, D.R.K.; Bertelli, C.M.; Cole, E.L.; Jones, R.E.; Mendzil, A.F.; Lowe, C.D.; Griffin, R.A.; Robinson, M.T., 2021. Review of monitoring methodologies and technologies, suitable for deployment in high energy environments in Wales, to monitor animal interactions with tidal energy devices. A report produced by Swansea University and Ocean Ecology for Welsh Government. January 2021.
- Clarke, D.R.K, Allen, C.J., Artero, C., Wilkie, L., Whelan, K., Roberts, D.E. Acoustic tracking in Wales – designing a programme to evaluate Marine Renewable Energy impacts on diadromous fish. NRW Evidence Reports No: 553, 64 pp, National Resources Wales, Bangor
- Clarke, D.R.K, Allen, C.J., Artero, C., Wilkie, L., Whelan, K., Roberts, D.E. 2021. Feasibility Study of Methods to Collect Data on the Spatial and Temporal Distribution of Diadromous Fish in Welsh Waters. NRW Evidence Report No: 552, 103 pp, National Resources Wales, Bangor.