

# Appendix 4: SEA Stakeholder Workshops

## A4.1 Introduction

A key element of the SEA process is stakeholder consultation. In addition to ongoing consultation with the SEA Steering Group, several workshops were held to gain stakeholder input to inform the assessment and production of the Environmental Report. Three stakeholder workshops took place during the preparation of the Environmental Report, held in London, Aberdeen and Bristol on the 1<sup>st</sup> February, 2<sup>nd</sup> February and 5<sup>th</sup> February 2016 respectively. An open invitation was made to a wide variety of potential stakeholders to the workshops, and participants included UK regulators, government advisors, local authorities, other industry representatives, academics and non-governmental organisations. The stakeholder workshops aimed to gather industry perspectives and stakeholder input on the key issues to be addressed in the assessment for the Offshore Energy SEA, along with input to and comments on the information and analysis on which the SEA is being based.

All workshops were run under the Chatham House rule to allow free discussion, with issues and outputs captured without attribution. This Appendix compiles the outputs of the various workshops; full lists of attendee organisations for each workshop are provided in Table A4.10.

## A4.2 Stakeholder workshops

### A4.2.1 Aims and structure

All workshops followed the same aims, structure and agenda. The workshops had two key objectives:

- To provide stakeholders with an overview of the energy policy context and background to the Offshore Energy SEA 3.
- To gather stakeholder input to and comments on the information and analysis on which the Offshore Energy SEA 3 is being based.

The workshop was structured into three sessions:

#### Session 1

Session 1 comprised a series of introductory presentations covering:

- Offshore Energy SEA 3 context and scope
- Energy policy, supply and security; renewable energy strategy; climate change context

A question and answer session followed each presentation to allow delegates to clarify any issues. The output from this session is captured in the summary of the discussion below.

#### Session 2

Session 2 took the format of a poster session with the delegate feedback questionnaires providing a framework for stakeholders to capture feedback.

Posters were divided into the following themes:

- Offshore Energy SEA background, scope and purpose
- Offshore renewables, consents and controls
- Offshore oil and gas and gas storage, prospectivity, sources of effects, controls and mitigation

- Carbon capture and storage, prospectivity, controls and mitigation
- Information base – physical and chemical environment, ecology, conservation
- Information base – material assets, human users, seascape and heritage considerations
- Approach to assessment

Delegates were asked to capture feedback through the use of the following questions:

1. Are there emerging issues or additional sources of potentially significant environmental effects from the technologies covered in the current draft plan?
2. What do you view as key spatial constraints for the siting of major marine energy developments in the context of the multiple uses/designations of the seas around the UK, together with the need for security of energy supply and response to climate change?
3. Are there sources of potentially significant environmental effects from the technologies covered in the current draft plan which you feel are not fully covered by existing operational controls/permitting requirements?
4. Are there additional practical mitigation techniques for sources of potentially significant environmental effects from the technologies covered in the current draft plan which you would like to draw to our attention?
5. Are there recent (i.e. post scoping consultation) studies, reports, or other information which should be considered for the OE SEA 3 Environmental Report?

### Session 3

Session 3 was a facilitated discussion in plenary. Discussions were initiated by stakeholders wishing to raise any other issues for discussion.

#### A4.2.2 Outputs

Plenary discussions were captured and are summarised below for each individual workshop in Tables A4.1-A4.3. Written feedback in response to the above questions is tabulated below in Tables A4.4-A4.9, also separated for each individual workshop and with feedback listed in no particular order of importance. Where two or more stakeholders provided very similar feedback, these are displayed as one representative comment followed by information on the number of stakeholders making the comment e.g. “(x3)”.

**Table A4.1: London workshop discussion**

London workshop
<b>In the energy policy presentation there was an emphasis on the supply side of energy, is demand management of future energy exploitation, such as energy efficiency, part of the plan here?</b>
It was stated that efficiency was part of the energy policy mix through a number of initiatives such as the Energy Saving Opportunity Scheme, in addition to regulatory drivers, for instance involving efficiency audits.
<b>How is CCS going forward now the research and design funding has been cancelled?</b>
Discussions are still ongoing with the Office of Carbon Capture and Storage on two projects. The funding has been cancelled but the policy aspiration remains, for example the announcement of consultation on ending unabated coal for power generation by 2025, for such abatement CCS is anticipated to be part of the mix.
<b>Following the formal scoping exercise, what is the next step?</b>
The responses have been scrutinised and taken account of where possible; a compilation of the scoping responses has been published on the SEA webpages. The issues and new information has been factored in and so the workshops are the next stage in stakeholder engagement.

### London workshop

#### **What were the most contentious issue(s) resulting from scoping?**

One of the key issues was reaching firm conclusions on tidal range developments in the absence of information to inform these.

#### **Given that there have been several rounds of this SEA process, what has changed since earlier SEAs? Has it led to anything being scoped out?**

The information base is a lot better, the legislative context has moved on considerably, as have the number and type of conservation sites, along with the policy implications of these. Other changes include the practicality of identifying effects, for example of noise on beaked whales – our understanding of their ecology might be limited but there is improved appreciation of their sensitivity and responses to noise. No aspect of the context of the SEA has remained static.

#### **There are a lot of maps showing up to date information, how is this used in the SEA process, such as identifying environmental constraints – how do data on resources match with these interests?**

We have been undertaking much spatial analysis as part of the SEA work with a varying focus, and trying to take constraints and add a sensible weighting to identify preferred areas. We are trying to strike a balance between varying interests. For instance if conservation sites were regarded as no-go areas for siting offshore wind, given the distribution of conservation sites little new offshore wind could be constructed in the southern North Sea, but we can flag such issues in the Environmental Report as a basis for consultation and to inform Government decisions.

#### **SCANS I and II showed different distributions of animals – do we know enough about the environmental baseline to make these decisions?**

Information has improved significantly for harbour and grey seals, but other marine mammals e.g. harbour porpoise have information gaps which we recognise, including that the pressure to designate sites for this common but poorly understood species. The SEA assessment will be made on the best information we have, but we appreciate more data is needed.

#### **The issue is similar for seabirds – information for one colony, but there are lots of species and variability.**

The DECC SEA programme has put in effort for particular species, and overall the information continues to improve. For example, the gannet tagging work was to be over one year, but extended to 3 years in response to the variability found; further work may be undertaken as tagging technology improves. We are now also more confident about bottlenose dolphin movements – the enhanced knowledge underpins conservation efforts and recommendations of effects mitigation.

#### **How much are onshore works (e.g. port capacity) considered?**

We have not commissioned specific work but build on that of others (e.g. that by The Crown Estate).

#### **Weightings were mentioned in relation to spatial constraints – it is difficult to come to conclusions about weights. With tidal range, the areas of opportunity are largely estuaries and so there will be certain conflicts there. On setting weightings, has there been input, for instance from the steering group or others?**

We tend to avoid setting numerical scores as the range of interactions is complex and single values do not inspire confidence in them. Several other studies have undertaken constraint exercises with an environmental or socio-economic focus; however, we are trying to reflect the range of sometimes competing interests.

#### **What interface is there between the NPS for offshore energy and onshore energy, and the various SEA processes for nuclear and onshore oil and gas?**

The nuclear and onshore oil and gas SEAs are prepared in isolation. They are linked in that they reflect the policy context they sit within.

#### **Graphs showing a decline in offshore investment were presented, but it was indicated that interest still exists. Could cross-border relations and collaboration help in investment?**

As far as attracting investment and business, whilst the SEA addresses the plan/programme and helps by undertaking an environmental assessment, responsibility for promoting industry and investment sits with the Oil and Gas Authority which is an executive agency of DECC established to maximise economic recovery. Similar falls in oil prices have occurred in the past and as in previous downturns the market may respond in time.

#### **The posters largely present baseline information rather than any of the risk associated with the technologies – is there a reason for this?**

The assessment is a work in progress; one poster does however, cover the issues which will be addressed in more detail in the Environmental Report. We did not include initial conclusions as we didn't want to potentially constrain the discussion and feedback at the stakeholder meetings.

**Table A4.2: Aberdeen workshop discussion**

Aberdeen workshop
<b>It was noted that seabed sampling took place over certain areas of the North Sea, what did this involve?</b>
The intent was to characterise the fauna, sediment type, contaminant loads and also to use photographs to give a broader understanding of the habitats to augment grab sampling. Though not shown in the map presented, deep box cores were also taken in soft sediments. Grab samplers typically only penetrate 10-15 centimetres and so don't reach the deeper living fauna. The grab and corer samples are presently being analysed.
<b>How does the SEA fit in with the Scottish National Marine Plan and related studies?</b>
The Scottish Government and Marine Scotland sit on the DECC SEA steering group and so they have awareness of the SEA, for example the surveys [of the Fladen Ground and Mid North Sea High] were considered by the steering group, and care was taken so that the data would be compatible with CSEMP monitoring.
<b>Has there been effort to use ongoing research?</b>
We maintain an active awareness through publications, newsletters etc. and to collaborate and facilitate research. The baseline in the SEA reflects the latest position and the SEA as a whole is intended to also be a useful resource to developers and others.
<b>How will the depressed oil price affect the licensing position shown in the coming years? Will activity importance change.</b>
It is the remit of the Oil and Gas Authority to promote and support the industry, and a focus for the next licensing round is promoting interest in underexplored areas of the UKCS. The SEA process is aimed at informing future licensing decisions for these and wider areas of the UKCS.
<b>Will activity pick up a lot or less? What price is required for production to be viable in different areas?</b>
The oil price changes in cycles, it is uncertain how long the current price will remain, but it may well change in currency of this SEA. In terms of monitoring funding was provided for the Fladen survey (the area currently only has 4 CSEMP stations), and also for the Mid North Sea High area to provide an information base.
<b>Is the SEA considering the work undertaken for the Scottish Government plans?</b>
We are well aware of the series of SEAs previously undertaken and will use them for context but the OESEA3 draft plan does not cover renewables in Scottish waters.
<b>Who inputs to the design of studies and is there a decision point on what future research will take place?</b>
The DECCC SEA programme has been ongoing since 1999, and each has highlighted a number of unanswered questions. The importance of security of energy supply is widely recognised as well as of consenting developments in the right places, but there remain information gaps. Research builds on the SEA recommendations, and Government, adviser and developer standpoints in terms of improving decisions – the research is typically of generic application rather than being site specific. There have been a number of groups coordinating research in the past e.g. the pan-government Research Advisory Group, which morphed into the Offshore Renewables Research Steering Group. We try to prioritise knowledge gaps with the support of the SEA steering group. The intent is that these studies are independent.
<b>It is understood that designated and proposed SACs and SPAs will be considered, but what about draft sites?</b>
At the moment where information is available we can consider draft sites, but we definitely consider any site which is/has been subject to formal consultation.
<b>It should be borne in mind that the presence of a designation does not preclude development there.</b>
The point of the map showing all UK offshore designations or proposed sites was not to show areas which are off limits, but it emphasises a changed position from the last SEA, and that a policy steer would be helpful on which developments may be more of less acceptable in these sites
<b>There is a Defra working group on cumulative effects: what is it, how do we define them etc. – there are a lot of people on the steering group for this and it could be a useful resource which is due out soon.</b>
Thanks for the information.
<b>Through ORJIP there is a collective agreement on wave and tidal research priority areas. Is there a way of using funding from the SEA to identify UK priorities for research?</b>
We are aware of the Ocean Energy ORJIP and other facilitation mechanisms such as the SPORRAN group and we do communicate and collaborate with others on priority projects.
<b>Is there a formal way to propose that DECC would take forward certain projects?</b>
Many research proposals are received from a number of different routes. The next proposed steering group meeting is in March and we propose to link it to a research seminar as was undertaken for the last 2 years.

Aberdeen workshop
<b>Should [steering group members] come to the meeting with 1 or 2 project proposals?</b>
This would be useful, but we do need to prioritise them but also recognise the opportunities and benefits of synergies.
<b>Having undertaken the work, what is the most significant effect, and from what activity? Where should we be focussing our attention?</b>
In oil and gas terms, the vulnerability of beaked whales to noise is a specific example where current guidance would not help in mitigating effects due to the specific vulnerability of these animals. The majority of potential effects and siting have controls to prevent significant damage, including within conservation sites. Realise that information gaps exist and that some adaptive management may be required. There is a history of issues having been resolved and effectively regulated. Marine Spatial Planning is a new initiative, and if one thing is prioritised there is the chance of disadvantaging others, so a balance has to be struck. Part of the role of the SEA is to lay the information and choices before Government and the public for them to make input to decisions.

Table A4.3: Bristol workshop discussion

Bristol workshop
<b>In terms of CCS what locations are being looked at?</b>
It is understood that there is one working example up and running in Canada from which lessons will be learned.
<b>Are there any targets for CCS?</b>
No, but it is expected that the concept will be proven first as the full chain is yet to be proven at a commercial scale, and that if the carbon price is sufficient then there will be industry interest in deploying CCS.
<b>What is DECC doing with wider Government to set the carbon price?</b>
There is a market price for carbon set through the EU ETS, one issue is that the price is not currently high enough for the CCS industry to survive on its own therefore requiring support.
<b>The presentation grouped renewables with a focus on wind. With The Crown Estate giving leases for wave and tidal energy, is there going to be more focus on these other sectors?</b>
It is anticipated that during the life of the SEA, projects for wave and tidal stream will be demonstration scale, but also building up and expanding in a similar way that wind has in the past. Technology maturity is such that commercial scale development is not yet expected.
<b>Historically the SEA has played a helpful role in addressing uncertainties, the industry is an early stage and therefore there is lots of uncertainty, so anything that the SEA can do to reduce this would be appreciated.</b>
We will be putting forward recommendations for research which will support both industry and future assessments including SEAs and EIAs.
<b>Will there be an HRA accompanying this SEA?</b>
An HRA will come later. This is sometimes undertaken at the same time as the SEA, but building on oil and gas experience, to do an HRA for such a large area and for the breadth of technologies available would be unwieldy and also so generic as to potentially be of limited value. For oil and gas licensing rounds HRA is undertaken once information on the blocks companies are interested in and the types of activities they may wish to undertake is available. Therefore, at that point a more detailed assessment can be made to inform licensing decisions.
<b>Alternatives have been mentioned which are a key part of the SEA process. Could these be talked about?</b>
The alternatives have been discussed in detail over a number of years through the steering group and other consultation. The alternatives are that: to proceed with the plan as drafted, do nothing, or spatially/temporally restrict activities. We are open to suggestions of others.
<b>Are overseas interactions being considered, and is there any transboundary consultation?</b>
Over the last 15 years there has been consultation with OSPAR and adjacent states. Feedback has not been extensive, but the Environmental Report does consider potential effects on other states and the features of their waters.
<b>What is the makeup of the steering group? Has membership been consistent or has it changed over time? Are NRW a member?</b>
Yes, NRW are a member. The group is made up of Government departments, SNCBs, trade bodies and NGOs. People representing organisations have changed and there have been changes to Government department names and remits, but the memberships have been relatively consistent. The group membership is given on the SEA pages of the gov.uk website.

### Bristol workshop

#### **In terms of tidal range, who have been engaged for information and perspectives?**

In addition to useful scoping feedback on this technology, the DECC renewables team, The Crown Estate and RenewableUK have provided perspectives.

#### **Given the complexity of what we are looking at, and targets we are committed to meet in terms of renewables deployment and emissions, are we on target? Is DECC trying to bring together the different management structures to deliver this as we don't have much time left.**

We are advised that we are on target to meet the 15%. There are changes occurring in the management of delivering this, and structures to drive the process (example given in the form of the Clean Electricity Directorate), but feedback from this session will be relayed to DECC renewables colleagues.

#### **We had a target of 32GW for some time and are now finding that only 10GW will be installed by 2020. Progress is very slow and this is frustrating for industry.**

It is worth mentioning that significant devolution has occurred since the last SEA and there is no one-stop-shop for applications/permitting etc. There is PINS for nationally significant projects in England and Wales, but not Scotland or Northern Ireland.

#### **In terms of having joined up Government, the MMO undertakes SEAs of its marine plans. OESEA presumably helps this, what is the connection?**

The MMO are on the steering group for the SEA. The marine plans were intended to be comprehensive but then are limited in some ways by remit and ability to control certain activities (e.g. international vessel traffic). There is certainly coordination in the use of each other's information.

#### **It was mentioned that there was no generation target, what are the implications of this for the SEA?**

We had 33GW for wind previously, and used spatial analysis to assess what the technical resource would be if a range of constraints were applied, largely related to other users of the sea, and whether the 33GW could be delivered. The conclusion was that it could be. We have no target for this SEA but the 33GW hasn't gone away. We are undertaking similar analysis this time but looking more at potential deployment areas.

#### **Have development scenarios been considered for wave and tidal?**

Our understanding is that these will be demonstrator scale within the currency of the SEA, but if there is a different view then please provide feedback.

#### **With regards to wave and tidal, it would seem that the best areas for these are in Scottish waters.**

Going to back to coordination, DECC is closely involved with devolved Governments with regards to research, for instance work in Strangford Lough using active sonar to detect marine mammals and interactions with operational turbines. Though this work wasn't able to be completed due to problems with the Strangford Lough turbine, we now have MeyGen which provides another opportunity to obtain the answers. We are collaborating with others to get answers to outstanding questions relevant at a national scale, and also so that effort is not duplicated.

#### **For offshore wind, one of the main challenges is the potential for cumulative effects. There are some good things coming from collaborative projects such as ORJIP on collision risks. How is this brought into the assessment? Is there more this SEA can do?**

DECC is part of ORJIP and the SEA research programme has provided funding for it so we have awareness and involvement in the group's work. The reality is, however, that it is not going to answer all of the questions, for instance the behaviour of gannets in relation to operating wind turbines farms as are no wind farms built in suitable proximity to gannet colonies and foraging areas. Continued research effort is going to be required.

Cumulatives are a common theme. Within the Environmental Report we look at them at different scales. We try to reflect certainty in the near field and uncertainty in the far field. There are such huge gaps in knowledge that to assess cumulatives projecting too far forward into the future may be misleading.

#### **Perhaps it is about the SEA managing expectations, so you can set out what you think you can actually answer and which things will need to be tackled at a project level.**

Continuing on cumulative effects, for instance there is the PCoD model which was applied in the Dutch sector and gave concerning results, but given 40 years of offshore energy activity in the Dutch sector it was difficult to accept its conclusions. There are also other models which predict a different scale of effect, and so we have been funding comparative work to try and figure out what the outputs from these models really mean.

#### **Leading up to the Marine and Coastal Access Act 2009, we were promised a coherent network of MCZs, which has not happened. There is also the question of co-location, a concept whereby industry could offer environmental improvements along with their development. What is the view on co-location? We are working with industry on what they are doing for the environment. It is seven years on from the Act and what I see is just more of the same, that we don't know enough. Most MCZs being delivered are really for habitats directive features, it is not a coherent network.**

### Bristol workshop

The question is what is a coherent network? We have to factor in wider marine ecology, and recognise that understanding will continue to develop. Those sites [MCZs and MPAs] went through an extensive process of identification based on the best information available at the time.

#### **Is there a willingness to accept help from industry on co-location?**

Yes, but industry will want to weigh up what is economic and whether there is a realistic opportunity for this.

#### **Is DECC going to produce an NPS for tidal range?**

One is under consideration.

#### **Related to the noise register, is there somewhere that we can find out where and when seismic activity is taking place?**

The information in relation to seismic surveys is provided to JNCC for the marine noise register. A link can be provided which gives a live dataset on activities from application to consent.

*Post meeting note, link to site:*

<https://www.gov.uk/guidance/oil-and-gas-environmental-data#pets-applications>

<https://itportal.decc.gov.uk/eng/fox>

#### **NRW is of the view that if ORJIP Ocean Energy had further funding then there would be added value, would DECC consider investing more funding? Collecting once and using many times provides good value.**

This was also raised at the Aberdeen workshop and discussed there, and have we had an approach to further analyse monitoring data from Ramsey Sound.

#### **NRW and the Scottish Government have gone back to organisations to look for money for ORJIP. SEA research seems to have focussed on oil & gas and offshore wind, how much wave and tidal will feature in the future?**

We have looked at marine mammal interactions with tidal turbines at Strangford Lough, but unfortunately the device is no longer active. This was a RAG priority going back 10 years and we are not aware of this issue having gone away. If we can get generic information to inform renewables at a national scale we are open to this.

#### **How much will DECC take into account the population level effect on shad, a habitats directive species, from tidal lagoon energy? If there is an effect and so infraction, how much to DECC take this into account, including the cost of that infraction, and what is the awareness of politicians of this potential outcome?**

Such potential effects on shad and other migratory fish are considered in the SEA, in terms of how projects are decided, this needs input from the HRA process supporting the leasing decision and subsequent project specific EIA and HRA.

#### **Tidal lagoons interact with land – how much detail on the environmental and economic implications of this are included, and how much is deferred to SEAs of land based plans.**

We are attempting to address this as far as we can. There is a link to decisions on coastal defences and lagoons. Our perspectives on the steer we've been given on areas of potential deployment have been shown. We've not gone through a project level consideration, but consider interactions at a strategic level.

**Table A4.4: Question 1**

<b>Are there emerging issues or additional sources of potentially significant environmental effects from the technologies covered in the current draft plan?</b>
<b>London workshop</b>
Underwater noise: particle motion EIAs are carried out for noise-generating developments on the basis of sound pressure measurements and modelling, due to the historic focus on marine mammals, but fish and invertebrates primarily sense particle motion, which cannot generally be derived from sound pressure. Applies primarily to piling but also seismic airguns.
For all technologies there continues to be a weakness in understanding cumulative effects associated with plans. For example, underwater noise impacts on marine mammals and collision mortality and displacement of birds. We are still lacking adequate studies/knowledge of the distribution of marine mammals/bird receptors at appropriate spatial scales (which may often be Regional Seas scale). It is recognised that the costs of undertaking robust studies significantly exceeds the OESEA budget, but the inadequacy of information creates project level risks with potentially abortive costs and opportunity costs which greatly exceed the costs of adequate baseline monitoring. This can easily be demonstrated from previous examples (e.g. Docking Shoal) and cost-benefit analysis. In short, better baseline monitoring would contribute to greater understanding of environmental thresholds and limits, which is essential to robustly apply an ecosystems approach.
Have biofuels been scoped out? What are the links to the nuclear SEA, for example thermal plumes, shipping activity? For the renewables sector, have salinity gradient technologies been scoped out?
As highlighted in the Environment Agency response to the scoping report, the implications of Water Framework Directive requirements need to be addressed in more detail. In particular, effects on more than a single water body, which could be very significant for tidal lagoons. Also for lagoons, flood risk issues will be very significant (positive and negative).
Have the potential compensatory requirements of tidal range projects been considered in the SEA? i.e. spatial/locations suitable for developing management realignment projects.
Emerging data from FAME/STAR projects which are undergoing peer review. This work will identify important seabird areas and DECC should fully consider it as they themselves are involved.
<b>Aberdeen workshop</b>
The draft plan covers the main issues appropriately. It would be extremely useful if the SEA exercise also managed to “scope out” certain receptors that are considered normally in EIA but that are of “low impact” for the development in consideration.
Refer to Scottish Government/Marine Scotland work in SEAs undertaken for the sectoral plans for renewables, Blue Seas Green Energy amongst others
Offshore wind – operational: Collision impacts for birds, connectivity between species and sites, flight heights – how representative are current collision risk models? An important cumulative consideration. Offshore wind, wave and tidal: Underwater noise sensitivity of migratory fish. Seaward migration pathways of smolts and return migration pathways of adults. What potential interaction with offshore renewables?
<b>Bristol workshop</b>
Cumulatives Impact Assessment (CIA) for renewables – how do we assess, review and respond to CIA?
For wind farms built in proximity to reef structures and in areas of hard substrate coloniser species, what consideration has been given to decommissioning requirements to structures that have consequently been colonised by marine species, especially if this comprises Annex I species.
New International nature conservation designations. Results of ongoing collaborate research programmes, (e.g. ORJIP).
Tidal range: MCS is concerned that the direct and cumulative impacts of additional lagoons in Cardiff and/or Newport could lead to a possible adverse effect at a population level on Atlantic salmon, twaite and allis shad. These impacts include changes to tidal regime, tidal flow on migratory species as well as possible barrier effects. It is very important to be clear about these potential adverse effects in the SEA given the potential for infraction should UK politicians pursue these developments. Oil and gas, seismic: while necropsy results not yet reported on, and first indication may not be auditory damage, the strandings do recall the importance of location information on seismic and deep water oil and gas issues. MCS still want a moratorium in deep water.



**Table A4.5: Question 2**

**What do you view as key spatial constraints for the siting of major marine energy developments in the context of the multiple uses/designations of the seas around the UK, together with the need for security of energy supply and response to climate change?**

**London workshop**

Tidal range is only feasible in certain locations, but these are also those of high ecological interest/designated. Tidal range offers long-term security of supply of a low carbon nature. Other constraints for tidal range include: ecological designations/benthic habitats, navigation and migratory fish.

For tidal lagoons, key spatial constraints are associated with the environmental designations of, in particular, estuaries and associated rivers and protected species such as migratory fish. By definition, lagoons are likely to be in coastal waters, overlapping with terrestrial planning issues.

Transboundary effects.

Tidal range: impacts to habitats (due to effects on water levels and coastal processes), where these habitats are designated, potential costs of compensatory measures could be a significant part of project cost (Severn tidal SEA indicated 10%). Also there are significant issues in the delivery and adequacy of compensatory measures – need to avoid locating in SPA/SAC. There is the risk of extirpation of migratory fish (including SAC features) and need to avoid locating on migratory routes for these.

Offshore wind: uncertainty surrounding collision risk and bird displacement. Significant risks for development in SPAs. There is uncertainty surrounding noise impacts on harbour porpoise pSACs, and there is a risk to developments in these areas. Interaction with shipping routes.

**Aberdeen workshop**

The key spatial constraints are usually a combination of “environmentally sensitive areas” (e.g. SACs, SPAs) and constraints due to other users. Would highlight aviation as a key constraint in some areas for offshore wind development.

Showed use of marine space is important, although the range of marine users is likely to reduce as development moves away from shore. Fisheries will need to be a consideration across much of the area. Ensure that any future development does not undermine the conservation objective of MCZs/MPAs and Natura 2000 sites.

Offshore wind:

Water depth is a constraint until floating wind (technology) is proven as competitive. Cumulative effects on receptors (ornithology, marine mammals). Landscape/seascape in certain areas (can be quite subjective). Commercial fisheries interactions, also effects of displacement of activity (if any).

Nature conservation areas: cannot overlook impact of co-location and ability to develop and operate in these areas. In combination assessment can prevent development of offshore wind and as IROPI (Imperative Reasons of Overriding Public Interest) agreements yet untested for this industry – could be a significant barrier.

The financial support mechanisms/subsidies for OWFs has great impact on cumulative effects. Without consideration of this, any assessment is conservative and potentially another barrier.

Need to look at actual build/layout of consented projects – these can differ significantly.

Prospecting areas for new OWFs - need to consider supply chain in actually getting ships and equipment in and ability and timing for any such developments. Only one company with tethered foundations does not mean fully commercially viable for industry. Development of alternatives is slow and not necessarily in projected timescales.

**Bristol workshop**

MPAs, which were already covered in the scoping responses.

International nature conservation designations in relation to offshore wind.

Habitat Regulations Assessments, issues and impacts to species and habitats, particularly birds and marine mammals and sensitive habitats including reefs.

**Table A4.6: Question 3**

<b>Are there sources of potentially significant environmental effects from the technologies covered in the current draft plan which you feel are not fully covered by existing operational controls/permitting requirements?</b>
<b>London workshop</b>
To what extent can CEA methodology development fall under SEA? For impulsive noise (seismic surveys, piling, explosions), progress made in the UK and in OSPAR regions with Marine Noise Registers. Could form a basis of forward-looking CEA is suitable methodology in place. Could be that significant effects from multiple developments are being missed from lack of CEA.
Cumulative effects not well dealt with in marine licensing.
There may be issues for technologies which have cross-boundary effects in the waters of the UK and its devolved administrations. Particularly applies to tidal barrages (e.g. Severn and Solway Firth) but also to tidal stream and wave. Apart from accountability for environmental management, barrages with flood risk management functions would need to have clear operational capabilities
<b>Aberdeen workshop</b>
No responses.
<b>Bristol workshop</b>
Socio-economic benefits of renewable energy deployment.
Offshore wind bird collision risk.
Ongoing uncertainty relating to tidal lagoon environmental impacts. This may well be covered in the next OESEA since the technology associated with the projects remains distance (10+ years).
Offshore wind piling: mitigation not sufficient. Need alternatives (e.g. floating, tethered, gravity base). Tidal range: effects cannot be mitigated sufficiently to prevent adverse effects in SACs. As there are "alternatives", e.g. wind), IROPI cannot come into play. Tidal stream: when there are up to 15MW wind turbines as an alternative to tidal turbines, the latter cannot really pass the Habitat Directive tests in locations like Strangford Lough for 1.5MW turbines in an SAC. Oil & gas, seismic testing: "need" and "alternatives" such as data sharing not fully considered, and environmentally the cumulative effect on marine mammals, especially off Scotland. Are there temporal/spatial controls at least.

**Table A4.7: Question 4**

<b>Are there additional practical mitigation techniques for sources of potentially significant environmental effects from the technologies covered in the current draft plan which you would like to draw to our attention?</b>
<b>London workshop</b>
Adaptive environmental management plans useful in addressing uncertain impacts. Long-term monitoring to inform additional mitigation.
Offshore wind: mitigation of piling noise using sound dampers – cheap technologies with major reduction in noise have been demonstrated as effective in German OWFs.
Mitigation technologies for offshore wind turbines could encompass the use of alternative foundation types. Comparative assessment of environmental effects of different foundation (floating, suction bucket etc.) could inform regulatory process.
<b>Aberdeen workshop</b>
Would highlight the risk based approach for mitigation requirements. It is important to highlight mitigation measures when they are appropriate. In the Moray Firth for example, this is being discussed in the context of marine mammals and underwater noise where ADDs (acoustic deterrent device) and soft start along with detailed monitoring is being considered.
Noise reduction measures: has depth limitations. Alternative mitigation approaches to conventional JNCC guidelines for piling operations.
<b>Bristol workshop</b>
Acoustic deterrence devices for offshore wind – see ORJIP.

Table A4.8: Question 5

Are there recent (i.e. post scoping consultation) studies, reports, or other information which should be considered for the OE SEA 3 Environmental Report?
<b>London workshop</b>
Noise: Farcas <i>et al.</i> (2015). Underwater noise modelling for environmental impact assessment. Environmental Impact Assessment Review 57: 114-122. Cefas (2015). Impacts of noise and use of propagation models to predict the recipient side of noise. Report to the European Commission.
Note Welsh Government consultation on 3 marine SPA extensions. Scottish Government may consult on SPAs, MPAs and SACs in later 2016 (probably in advance of finalisation of OESEA3). Could look at ecosystem services more to understand potential implications for ecosystem services as part of a wider cost benefit analysis. Marine Scotland has done this for offshore wind plans.
Ongoing survey work for Cardiff Bay. Publication timetable would determine whether this would be available in advance of publication.
<b>Aberdeen workshop</b>
ORJIP (Offshore Renewable Joint Industry Programme) bird collision/avoidance studies. Post consent studies undertaken for Scottish consented wind farm sites (see MFRAG (Moray Firth Regional Advisory Group) pages on Marine Scotland website)
The RLGs (Regional Locational Guidance) for Marine Scotland Sectoral Renewable plans are likely to be of use, alongside the associated SEA and HRA documents. Recommend use of data from Marine Scotland National Marine Plan Interactive (NMPI) in Scottish waters as data source. Note that Marine Scotland explored potential for wind, wave and tidal renewables in Solway Firth in the draft Sectoral Plans. May be potential licensing conflicts here if this is a proposal in the OESEA3 DECC plan.
<b>Bristol workshop</b>
Perpetuus tidal energy centre, EIA/ES.
Is there potential for DECC to promote industry sharing of foundation piling noise installation monitoring? This could facilitate the validation of noise propagation models.
ORJIP
On the co-location issue, there has been research out of the Plymouth Marine Laboratory on co-location of offshore wind farms with i) marine protected areas and ii) decapod fisheries. Ashley M (2014). PhD thesis, University of Plymouth/PML. Hooper & Austen (2014). Marine Policy. Hooper <i>et al.</i> (2015). Marine Policy. Work on co-location with recreational fishing is ongoing, through the NERC funded OBEX projects.
Project specific information coming from monitoring of built wind farms and information taken from examination documents at Planning Act 2008 decision and consenting stage.
There is a group of NGOs looking at the Severn tidal lagoons including a number of fish organisations – the Wye & Usk Group, Atlantic Salmon Trust, Angling Trust. It is possible they may have some more data for you. Attendee contact details provided.

Table A4.9: Other comments

<b>London workshop</b>
Need more on cross-sectoral impacts (and cumulative impacts) e.g. co-location of certain types of fisheries and wind farms.
Interested in weightings and socio-economic assessment.
<b>Aberdeen workshop</b>
Question the purpose and overarching objective of the SEA, and particularly meeting the objective on assessment of conservation designations (aside from HRA), having seen the OESEA2 and working through the residual issues we still have to work with and that are barriers, e.g. conservation objectives and noise at a local or regional level. What would be beneficial would be to have a SEA and report that demonstrates the “headroom” for cumulative impacts to enable comparison and support the individual projects when forced to undertake essentially regional EIA.

<b>London workshop</b>
Co-ordination of studies is important. Supporting studies are valuable but need to be in context of existing sites and issues.
Recommend consideration of draft environmental designations (particularly draft SPAs) in the SEA process – risk of the SEA being “out of date” very quickly as many of these are expected to be formally proposed in 2016.
<b>Bristol workshop</b>
It would be good to have copies of attendees details for networking.
Early consideration of HRA aspects should be carried out.
Thanks for providing an interesting platform for discussion.

A total of 55 organisations including statutory advisors and regulators, developers, consultants and NGOs, attended the three one day stakeholder workshops in London, Aberdeen and Bristol.

**Table A4.10: Attendee organisations and workshops attended**

Organisation	Workshops
Aberdeen University	A
ABP Mer Ltd	L
Apache North Sea Ltd	A
Aquatera	A
Atlantis Resources	B
BMT Cordah	A
CEFAS	L
CH2M	L
ConocoPhillips	A
Consonamus	B
DECC	L, A, B
Dong Energy	L
EDPR	A
Energy Acumen Ltd	A
eni Liverpool Bay Operating Company	L
eni UK	L
Environment Agency	L
ExxonMobil	L
Gardline Environmental	L
Gobe Consultants	B
Hartley Anderson Ltd <sup>1</sup>	L, A, B
Heriot-Watt University/MASTS	A
Historic England	L
JNCC	A
Marine and Fisheries Management Solutions	L
Marine Conservation Society	L, B
Marine Planning Consultants	L
Marine Scotland	A
Marine Space	B
Marinet Ltd	B
MeRSA	L
MMO	L
National Resources Wales	B

Organisation	Workshops
NERC	L, B
Offshore Renewables Institute	A
Planning Inspectorate	B
Plymouth Marine Laboratory	B
Poseidon Aquatic Resource Management	B
REEC	B
Renewable UK	L
Royal Haskoning	B
RPS Group	L
RSPB	L
Scottish Fishermen's Federation	A
Scottish Natural Heritage (SNH)	A
Scottish Power	A
Scottish Power Renewables	L
Seascope Consultants Ltd	B
Shell UK	A
Sir Alistair Hardy Foundation for Ocean Science (SAHFOS)	L
SSE Renewables	A
Statoil UK Ltd	A
The Crown Estate	L
The Scottish Government	A
Tidal Lagoon Power	L, B
Trinity House	L
WWF-UK	L

Notes: <sup>1</sup>SEA team. "Workshop" column indicates the workshop(s) attended; A = Aberdeen, B = Bristol, L = London.