

Celtic Sea Floating Offshore Wind Leasing Round 5

Summary Stakeholder Feedback Report



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Offshore Wind | THE CROWN ESTATE

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This report is provided for information purposes only and no party may rely on the accuracy, completeness or fitness of its content for any particular purpose. This document does not supersede the requirement for developers to undertake stakeholder engagement at the project level.

Introduction

Overview

The UK is a global leader in offshore wind deployment, with a flourishing sector that is delivering clean and reliable power, green jobs, and making a vital contribution to the UK's clean energy transition and energy security. Floating wind represents the next frontier in this green growth story.

As managers of the seabed around England, Wales and Northern Ireland, The Crown Estate supports the growth of these industries in a holistic, joined-up way, working with a wide range of industries, experts, data and digital mapping capabilities to ensure that the varied, growing and sometimes competing demands on an ever busier seabed are co-ordinated for the benefit of net zero, energy security and nature recovery. We work closely with Government, Statutory Nature Conservation Bodies, industry and wider stakeholders to understand the potential implications of activities we lease and licence to inform our decision-making. Furthermore, we seek to ensure that the sectors we work with are aware of the potential interactions of their projects with protected areas, helping to take account of these in project or activity planning.

Stakeholder engagement plays a key role in the planning and development process. It recognises the valuable contribution stakeholders can make in helping influence emerging proposals.

This Summary Stakeholder Feedback Report sets out how The Crown Estate has engaged with statutory and non-statutory stakeholders in the development of the spatial design of Offshore Wind Leasing Round 5. It provides details of the engagement activities carried out to inform the design of the spatial areas made available to the market for tender, summarises the feedback that was received, and sets out how The Crown Estate addressed and made regard to feedback from various stakeholder groups. An infographic showing an overview of the engagement journey for the Floating Offshore Wind Round 5 leasing is provided in [Appendix A](#).

Maps detailing the refinement of the spatial design of Offshore Wind Leasing Round 5 are available in [Appendix C](#).

Background

The UK is one of the world's largest offshore wind markets, offering an excellent development opportunity, given established market structures, a stable policy outlook and a clear route to seabed rights. This world-class natural resource has enabled the UK to play an early and crucial role in the development of the global offshore wind sector. The Celtic Sea provides an attractive market for Floating Offshore Wind based on strong wind resource, suitable seabed and water-depths, proximity to power demand and historic stability/favourability of UK policy and market context.

At The Crown Estate, we play a unique and active role in developing and helping sustain UK energy supply and infrastructure, seeking 'to create lasting and shared prosperity for the nation'. This means taking an active role in how the seabed is used and how we consider economic, social, and environmental value through the rights and activities for which we are responsible. We work together with industry, Government, regulators and our many stakeholders to help deliver growth in a manner that balances the wide range of interests in the marine environment, and in doing so, providing viable and attractive investment conditions necessary to secure private investment in the nation's essential infrastructure.

We are committed to helping the UK achieve its net zero ambitions. To support this, we are excited to deliver a new leasing opportunity in the Celtic Sea for the first generation of commercial-scale floating offshore windfarms - unlocking up to 4.5GW of new clean energy capacity by 2035, kick-starting industry in the region, and providing enough power for over four million homes.

Policy context for leasing

The UK Government made a significant commitment to the reduction of greenhouse gasses in June 2019, passing legislation which commits the UK to a 'net-zero' greenhouse gas emissions target by 2050 – a transition in which offshore wind will continue to have a crucial role to play.

The UK Government has set an ambition to deliver up to 50GW of offshore wind capacity in UK waters by 2030, including 5GW of Floating Wind. In addition, the Climate Change Committee (CCC) believe the UK will need to target up to 140GW of offshore wind to meet its legally binding target of net zero greenhouse gas emissions by 2050.

The Welsh Government, having been the first in the world to declare a climate emergency in 2019, has set an ambition to meet 70% of Wales's electricity demand from Welsh renewable electricity sources by 2030.

In support of this, we intend to lease seabed rights in the Celtic Sea region for the purpose of developing Floating Offshore Wind projects; this is known as Offshore Wind Leasing Round 5.

Objectives

Our broad aims for Offshore Wind Leasing Round 5 are:



Support the development of a new floating wind market in the UK



Unlock clean energy in new areas offshore, in support of the UK's net zero target



Support the creation of social, economic and environmental value



Balance the needs of the environment, other users of the sea, and local communities



Incentivise investment in crucial enabling infrastructure

Central to achieving our aims for Offshore Wind Leasing Round 5 is a robust engagement programme focussed on engaging with statutory, non-statutory and market stakeholders, and this has been at the heart of our approach to spatial modelling throughout this programme.



Approach to engagement

At The Crown Estate, we work in partnership to develop and validate our leasing and licensing activities through extensive engagement. Ongoing stakeholder engagement has been an important part of ensuring that we are protecting and supporting recovery of coastal and marine environmental habitats, which is at the heart of the leasing approach, and balancing this with a variety of human activities within the region. Findings from stakeholder engagement have been extremely important in helping meet the clear demand and potential for Floating Wind in the Celtic Sea, and have directly informed our work on the design, scale and shape of Celtic Sea Floating Offshore Wind activity.

The spatial design process is guided by a methodology¹ that incorporates stakeholder engagement at its core. We have engaged with stakeholders throughout our work to design and identify the spatial areas that are being made available to market for competitive tender. This engagement has supported our decision making at every stage of the spatial design process, allowing us to gain important insights into the best available data and evidence to support our work. Additionally, this approach ensures a broad variety of views representing a range of activities, users and sensitivities within the Celtic Sea region have been considered and incorporated into the spatial design, helping us ensure we achieve the right balance between the demand from market alongside the interests of other sea users, spatial considerations and the environment. A list of stakeholders engaged through this spatial design process can be found in [Appendix B](#).

Before awarding seabed rights for Offshore Wind Leasing Round 5, The Crown Estate has simultaneously undertaken a Plan-Level Habitats Regulations Assessment (HRA), in recognition of the importance of bringing floating wind on-stream as soon as possible and to reduce risk in the consenting process for developers. This process, as set out in the collectively termed "Habitats Regulations"^{2,3} requires us to assess the potential impacts of our leasing plans on the most valuable habitats in the UK and the UK offshore marine area.

The Offshore Wind Leasing Round 5 plan-level HRA process is a multi-stage process which identified the Likely Significant Effects of the Celtic Sea Floating Offshore Wind programme on protected sites. Where there are Likely Significant Effects, the process then determined whether there was a risk of an adverse effect on the integrity of the affected sites in relation to their conservation objectives. Engagement with the independently overseen HRA Expert Working Group (EWG) has been at the core of the development of this plan-level HRA, providing engagement with sector-specific technical experts, the relevant UK statutory marine planning authorities, statutory nature conservation bodies and relevant non-governmental organisations, including the Royal Society for the Protection of Birds (RSPB) and The Wildlife Trusts (see [Habitats Regulations Assessment Expert Working Group \(EWG\) Engagement](#) section below).

¹ Celtic Sea Floating Wind Programme: Site Selection Methodology 2023 <https://www.thecrownestate.co.uk/our-business/marine/round-5-document-library>

² Conservation of Habitats and Species Regulations 2017 <https://www.legislation.gov.uk/ukSI/2017/1012/contents/made>

³ Conservation of Offshore Marine Habitats and Species Regulations 2017 <https://www.legislation.gov.uk/ukSI/2017/1013/contents/made>

We undertook a modified approach to plan-level HRA for Offshore Wind Leasing Round 5, with integrated spatial design and the plan-level HRA process taking place ahead of the commencement of the tender. Upon conclusion of the tender process, further assessments will be conducted to check the conformity of the projects with the conclusions of the plan-level HRA prior to entry into Agreements for Lease (AfL). This strategic approach ensures stakeholders and potential bidders have detailed information on key environmental issues at the earliest opportunity, enables us to identify the most favourable areas for projects, minimises environmental risk, and works towards achieving environmental net gain. This approach also reduced the time between the conclusion of the tender process and the award of seabed rights for successful projects.

In addition to this work, The Crown Estate has invested in an extensive programme of marine surveys and worked closely to share information with and support the Electricity System Operator in their work on a coordinated approach to grid design. This work will further catalyse and accelerate the UK's energy transition and de-risk developments to speed up their deployment.

The Celtic Sea Floating Offshore Wind spatial design work has been established and delivered in partnership with UK Government and Welsh Government, regulators, statutory bodies, developers, operators, and non-governmental organisations, a list of stakeholders engaged through this programme can be found in [Appendix B](#). We engaged extensively with a variety of market, marine and statutory stakeholders to ensure our proposals are informed by a wide base of experience and expertise.

As part of our preparations, we have undertaken extensive spatial analysis and seabed characterisation, utilising stakeholder input to identify areas of seabed that offer the most favourable development resource. This evidence base has informed our refinement of the seabed being made available to the market.



Timeline of engagement undertaken

This section details a high-level overview of the engagement undertaken by The Crown Estate with regard to our Round 5 Celtic Sea Floating Offshore Wind leasing round. An infographic showing our engagement timeline can be found in [Appendix A](#).

2020

- In late 2020, we undertook initial bilateral engagement with statutory and non-statutory stakeholders through existing engagement mechanisms such as expert working groups and regular bilateral events and meetings.
- Part of this targeted bilateral engagement included engagement with the fisheries sector through the National Federation of Fishermen's Organisation (NFFO) and the Welsh Fisherman's Association (WFA). Feedback resulted in the fisheries sector being incorporated into a market engagement exercise conducted in Dec 2020.
- In December 2020, we issued an invitation to market for views on how best to accelerate the development of Floating Offshore Wind in the UK, which received input from over 30 interested market participants across industry. The engagement provided information on:
 - The scale of the opportunity for Floating Offshore Wind in the UK and the likely pipeline of projects until 2030.
 - How rights to develop Floating Offshore Wind could be made available in a way that accelerates deployment and helps build a strong UK supply chain.
 - The potential impact of Floating Offshore Wind development on spatial and environmental considerations given an increasingly busy marine environment.
- This engagement confirmed a strong capability and appetite for Celtic Sea Floating Offshore Wind, which led to a revision of capacity generation for the leasing round to rise from 1GW to up to 4GW.

2021

- From December 2020 to November 2021, we continued to informally engage with market and other marine and statutory stakeholders to continue to shape our plans and thinking.
- In November 2021, The Crown Estate released a position paper setting out our intention to unlock the potential of Floating Offshore Wind technology and support the development of the UK supply chain, conducting an integrated spatial design and plan-Level HRA process ahead of tender. This approach allowed us to select sites that minimise environmental risk and create socio-economic benefits for the UK.
- In late November 2021, we invited market and a range of marine and statutory stakeholders to respond to a spatial design and data questionnaire to inform our spatial design process. The questionnaire was issued to over 150 statutory and non-statutory marine stakeholders requesting input on aspects of the proposed spatial design and modelling work, alongside questions around datasets and evidence to support spatial modelling. The findings allowed us to identify at an early stage any risks to existing seabed users and interests.
- Engagement with the fisheries sector producer organisations in the South West highlighted the existence of best available spatial data to inform our broad Areas of Search, which was then tested at a marine stakeholder workshop in February 2022 and incorporated into our spatial design.

2022

- In February 2022, The Crown Estate brought together a wide range of marine and statutory stakeholders covering a range of interests in the Celtic Sea. The purpose of the workshop was to update and brief participants on proposals for Celtic Sea Floating Offshore Wind, and to seek views and feedback on data and information relating to our initial work on spatial design. After some initial presentations, the workshop conducted breakout sessions to allow for in-depth stakeholder participation and feedback⁴. This workshop was essential prior to the commencement of our spatial design modelling work to incorporate stakeholder feedback from the outset of our spatial modelling.
- This February workshop was attended by over 70 stakeholders including representatives from environmental, fishing, navigation, marine, and ports organisations, as well as Government.
- From February to July 2022, we initiated targeted bilateral engagement to identify additional constraints and opportunities within the region in relation to particular aspects of the spatial modelling work and the interests within the region. This included specific discussions with representatives of the environment, navigation, fisheries, aviation, telecoms and defence sectors.
- In July 2022, we announced the identification of five broad 'Areas of Search' (AoS) as the initial outputs of the spatial design modelling work. A map of our broad AoS are shown in Figure 2 in [Appendix C](#). The AoS set out the broad areas of seabed where smaller project development areas would be identified. Two online webinars were held, for a market audience, as well as for statutory and non-statutory marine stakeholders. These webinars were attended by 125 participants and 250 participants for the stakeholder and market webinars respectively.
- The AoS were taken forward into a plan-level HRA which commenced at this time. In July 2022, as a direct follow on from the webinars, we invited over 70 marine and statutory stakeholders to participate in a stakeholder questionnaire, seeking further input and feedback on our draft AoS, related constraints, and any additional data sources in these locations.
- At this time, we also invited over 60 organisations to participate in a market questionnaire to gather technical input and feedback on our AoS.
- The feedback received from the two questionnaires informed further technical and engagement work over the summer to reduce these AoS into smaller 'Refined' Areas of Search (Refined AoS) based on continued understanding of the constraints within the region. A map showing our Refined AoS are shown in Figure 3 in [Appendix C](#).
- In July 2022, we also hosted three fisheries engagement events with NFFO, WFA, The Cornish Fish Producers Organisation (CFPO), the South Western Fish Producer Organisation (SWFPO), the Western Fish Producers Organisation (WFPO) and individual fishers, to gather feedback from the fisheries sector on the AoS which fed into the spatial refinement of these areas. Additionally, we also engaged with EU fish producer organisations operating in the Celtic Sea at this time, resulting in the provision of data to further refine our AoS.
- From July 2022 to September 2022, we held targeted engagement with a wide range of specialist stakeholders on key topics including defence, navigation, fisheries, telecoms and biodiversity, to further understand project risks and constraints to support further refinement of the AoS.
- In October 2022, we published our Refined AoS, which can be found in Figure 3 in [Appendix C](#). The announcement of the Refined AoS was intended to enable potential developers to form consortia and prepare for the tender.
- The CFPO conducted a data collection exercise on our behalf to identify the best data to inform our spatial design process for the Refined AoS. CFPO collected data from the fishing community operating in the Celtic Sea and presented their analysis in December 2022. CFPO provided the data and analysis to The Crown Estate to feed into our spatial refinement.

⁴ Celtic Sea Floating Wind Programme: Site Selection Methodology 2023 <https://www.thecrownestate.co.uk/our-business/marine/round-5-document-library>

2023

- The Crown Estate conducted ongoing targeted engagement through early 2023 to further refine our spatial areas.
- In March, The Crown Estate provided support to the CFPO who led an offshore wind developer engagement event, in order to facilitate working relationships between the fishing industry and offshore wind developers in the Celtic Sea.
- In May, we announced that as part of spatial work to identify broad AoS and refine these into Project Development Areas (PDAs) to be made available to market via tender, our engagement had helped highlight that the Celtic Sea is subject to many competing demands and that there were a number of spatial considerations and policy drivers that the UK Government had to work to resolve, supported by The Crown Estate.
- In light of the ongoing UK Government review, The Crown Estate adapted its approach to focus on two of the Refined AoS previously identified in 2022. In early July 2023, The Crown Estate, joined by UK Government and National Grid ESO, updated developers on its intended process, setting out details about the anticipated structure of the leasing round and we announced four “minded to” PDAs. More details on our approach to the spatial design and modelling technical work undertaken to identify these areas can be found in the site selection methodology document⁵.
- Following the webinar, we invited views from the market to finalise the leasing round proposition. After seeking feedback from industry and other stakeholders, The Crown Estate updated its design to represent better optimisation of the seabed and give developers greater flexibility by providing more developable space, by offering of three equal-sized PDAs, each with a potential capacity of up to 1.5GW to be made available to bidders. As a result, the overall capacity available through Round 5 increased from 4GW to up to 4.5GW, enough to power over 4 million homes.



⁵ December 2023 Celtic Sea Floating Wind Programme: Site Selection Methodology 2023 <https://www.thecrownestate.co.uk/our-business/marine/round-5-document-library>

Habitats Regulations Assessment Expert Working Group (EWG) Engagement

- Recognising the importance of bringing Offshore Wind Leasing Round 5 on-stream as soon as possible, and with the aim to accelerate the leasing process and reduce environmental risk, the work of identifying PDAs was undertaken simultaneously with the plan-level HRA, to assess the potential impact to environmentally valuable habitats.
 - The Crown Estate's HRA EWG is an advisory group whose role is to facilitate discussions on matters of nature conservation. It is a forum to enable the sharing of relevant technical expertise and advice with respect to matters pertinent to all aspects of the HRA in the marine environment. It also provides a forum for statutory advisors and other competent authorities and stakeholders to discuss issues and concerns they may have relating to our responsibilities as a competent authority.
 - The HRA EWG consists of representatives from the following organisations:
 - The Crown Estate
 - Natural England
 - Marine Management Organisation (MMO)
 - Department for the Environment, Food and Rural Affairs (Defra)
 - Department for Energy Security and Net Zero (DESNZ)
 - Joint Nature Conservation Committee (JNCC)
 - Natural Resources Wales (NRW)
 - Welsh Government
 - Department for Agriculture, Environment and Rural Affairs, Northern Ireland (DAERA)
 - Scottish Government - Marine Directorate
 - Royal Society for the Protection of Birds (RSPB)
 - Nature Scot
 - The Wildlife Trusts
 - Whale and Dolphin Conservation
 - In February 2022 we approached the HRA EWG working group to introduce the Celtic Sea Floating Offshore Wind programme and provide an update on our approach to the HRA for Celtic Sea Floating Offshore Wind. The HRA EWG was informed of the approach to spatial analysis, relevant technologies and exclusions and a weighted analysis of related risks.
 - All EWG members had the opportunity to feed into the stakeholder questionnaire exercises and stakeholder engagement events.
 - We consulted with EWG members throughout the HRA process, providing opportunities for discussion and comment on the HRA Principles, Screening process and Report to Inform Appropriate Assessment (RIAA). Feedback was recorded and integrated into final documentation, and will be considered in the conclusions presented in the Appropriate Assessment (AA).
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Offshore Wind Leasing Round 5: Addressing comments through engagement

A summary of the feedback received through the engagement exercises identified above, and the actions taken as a result are provided in this section.

Spatial Design and Data questionnaire (November 21)

Overview

The stakeholder questionnaire in November 2021 was designed in partnership by The Crown Estate, and our expert advisors to Offshore Wind Leasing Round plan-level HRA process, the Centre for Environment, Fisheries and Aquaculture Science (Cefas) and NIRAS. Its purpose was to obtain detailed information from stakeholders on their initial views of the spatial constraints in the Celtic Sea in relation to Floating Offshore Wind, and to ascertain the most appropriate data and evidence sources to be used in the modelling of these spatial constraints.

One method of weighting soft constraints is through a process called Analytic Hierarchy Process (AHP). AHP is a method to analyse complex decisions through a series of structured comparisons of criteria or data (called pairwise comparisons). The stakeholder questionnaire included looking at the weighting of individual constraints which would feed into the pairwise comparison process, with the results used to inform the spatial modelling.

A parallel questionnaire seeking the views of the Market had the same objectives. Responses were compared from the different questionnaires to help identify similarities and differences in the spatial constraints identified by stakeholders and the Market.

The stakeholder questionnaire ran between 23rd of November and 14th of December 2021 and was issued to 238 statutory and non-statutory stakeholders.

In addition to the questionnaire, stakeholders were provided with additional supporting information to help collate their responses. This included a list of the hard constraints to development from Offshore Wind Leasing Round 4 (Round 4), the soft constraints of the spatial areas from Round 4 and links to specific sections of the Key Resource Areas (KRA) (Everoze) Report 2020⁶.

⁶ 2020, Everoze, Characterisation of Key Resources Areas for Offshore Wind, A Report for The Crown Estate: <https://www.marinedataexchange.co.uk/details/2117/2020-everoze-characterisation-of-key-resource-areas-for-offshore-wind-a-report-for-the-crown-estate/summary>

Feedback

The marine stakeholder and market questionnaires highlighted the following key messages:

- The results from both questionnaires showed broad agreement on the factors which were considered to pose the greatest spatial constraints in the Celtic Sea for Floating Offshore Wind.
 - Environmental concerns raised included potential entanglement risks for marine mammals, and Electromagnetic Fields (EMF).
 - Social and economic concerns raised included changes to seascape, impacts to commercial fisheries and concerns over implications of Celtic Sea Floating Offshore Wind for commercial navigation.
 - The majority of responses highlighted uncertainty as to whether the technical considerations described in the Key Resource Areas (KRA) report were sufficient for Offshore Wind Leasing Round 5. The types of uncertainties highlighted by stakeholders included how major national and international shipping routes would be affected, and the potential for interactions with onshore and offshore transmission infrastructure. However, stakeholders felt that the resolution of the data described in the KRA report (such as water depth, seabed geology/condition and sea state) was up to date.
 - Additional sources of spatial data were identified by stakeholders to provide supporting information for fisheries including Vessel Monitoring System (VMS) and Automatic Identification Systems (AIS) data sources, and UK heritage assets.
 - Stakeholders also recommended wide engagement with the fisheries sector and the International Maritime Organisation (IMO) regarding navigation routing.
 - Both stakeholders and Market representatives identified that the Round 4 considerations of spatial constraints were also relevant for the Celtic Sea spatial design.
- Stakeholders made suggestions in the following topic areas, and highlighted that they believe these should receive greater consideration as a development exclusion:
 - Shipping and navigation
 - Visibility/Seascape - (including visibility to World Heritage Sites)
 - Ministry of Defence (MoD) interests
 - Aviation and radar (in respect to the height of the turbines)
 - Fishing activity (considering risks of the different types of fishing gear and activity)
 - Cultural heritage considerations (including features of archaeological and historic interest)
 - Commercial anchoring areas
 - There were also additional topic areas identified by stakeholders which would inform determinations of spatial constraints, including a requirement for greater understanding of cumulative impacts and how these will be assessed, and a requirement to understand the capacity for specific fishing vessels to be able to pursue alternative grounds outside of any Floating Offshore Wind development.
 - Feedback from the questionnaire highlighted that stakeholders had found the weighting of criteria a complex process to understand and had therefore asked for a dedicated session to increase their understanding of the pairwise comparison process and how weightings were assigned.

Actions taken as result of feedback

- We incorporated the environmental, social and economic concerns raised into spatial modelling analyses and the HRA.
- We took the feedback received from the questionnaires forward to the February 2022 workshop to gather more information on the feedback related to buffer distances, hard constraints, and the weighting of soft constraints within the Celtic Sea region.

Workshop (February 2022)

Overview

A summary of the results of the November 2021 questionnaire was shared with stakeholders at a dedicated virtual workshop on the 10th of February 2022.

The objectives of the workshop were to update and brief participants on our proposals for Celtic Sea Floating Offshore Wind, provide an outline scope of the Celtic Sea Floating Offshore Wind Programme and plans for related stakeholder engagement, and to seek views and input on data and information relating to our understanding of constraints associated with the resource characterisation work.

The workshop was led by The Crown Estate, with technical support from NIRAS and Cefas and scribe support from Grayling.

A total of 70 participants accepted the invitation to the workshop including representatives from:

- Associated British Ports
- Department for Energy Security and Net Zero (DESNZ)
- Department of Agriculture, Environment and Rural Affairs Northern Ireland (DAERA)
- Department for Environment, Food & Rural Affairs (Defra)
- Historic England
- Association of Inshore Fisheries and Conservation Authorities (AIFCA)
- Joint Nature Conservation Committee (JNCC)
- Maritime and Coast Guard Agency (MCGA)
- Milford Haven Port Authority
- Marine Management Organisation (MMO)
- Ministry of Defence (MoD)
- National Grid
- National Trust
- Natural England
- National Federation of Fisherman's Organisations (NFFO)
- Natural Resources Wales (NRW)
- Oil and Gas Authority (OGA)
- Royal Society for the Protection of Birds (RSPB)
- Scottish Government
- Trinity House
- UK Chamber of Shipping (UKCoS)
- Welsh Government
- The Wildlife Trust

The November 2021 questionnaire responses informed the structure of the virtual workshop, which included plenary sessions and two break out sessions. A series of presentations were made in the plenary session, including:

- an introduction to the purpose of the workshop, the agenda and housekeeping.
- an overview of the role of The Crown Estate in offshore wind and the ambitions for Celtic Sea Floating Offshore Wind; an overview of the approach to integrated spatial and plan-level HRA for Celtic Sea Floating Offshore Wind; and an overview of Analytic Hierarchy Process (AHP), pairwise comparisons and how these are used in the spatial modelling.

The purposes of the Breakout sessions were as follows:

- Breakout Session 1- gathered views on the suitability of proposed buffers around development exclusions and identification of risks and opportunities associated with co-location and displacement.
- Breakout Session 2- considered the weighting of spatial constraints using pairwise comparisons⁷. Breakout session 2 consisted of six breakout rooms, based on the following categories: Environmental Features, Environmental Designations, Fisheries, Navigation, Social and Historic Environment, Subsurface, Infrastructure and Aviation.

⁷ December 2023 Celtic Sea Floating Wind Programme: Site Selection Methodology 2023 <https://www.thecrownestate.co.uk/our-business/marine/round-5-document-library>

Feedback

The webinar and breakout session feedback highlighted the following messages:

- The main issues identified by stakeholders were secondary displacement, cumulative effects, how environmental designations are assessed, protected species that occur outside of the protected areas, and navigation.
 - Participants recommended a number of additional datasets and considerations for the planning of Floating Offshore Wind in the Celtic Sea.
 - Fisheries stakeholders generally noted that fishing could be co-located with Floating Offshore Wind arrays, however this was dependant on the fishing gear (static over mobile), Floating Offshore Wind technology, array layout and weather conditions.
 - Secondary impacts of displacement of fishing were raised for consideration including: recovery of habitat and stocks, impacts on other areas if displacement resulted in fishing in new areas, impacts on International Council for the Exploration of the Sea (ICES) quotas if displaced, potential economical impact to sector as a result of displacement.
 - Navigation stakeholders raised concerns over the proposed buffer distance of 0m and on the cumulative impact of increased infrastructure increasing the risk of vessel collision and risk to navigational safety.
 - Environmental stakeholders raised concerns around uncertainty of potential impacts (and cumulative impacts) from Celtic Sea Floating Offshore Wind on feature condition, and the UK's ability to meet Good Environmental Status.
 - Environmental stakeholders also identified opportunities such as using Floating Offshore Wind arrays as a de facto 'Marine Protected Area' (MPA) to aid in restoration or enhancement innovations. However, it was also highlighted that this could impact other sectors such as fishing.
 - Cables stakeholders highlighted potential impacts to telecoms cables from dragged gear or fixed bases. Stakeholders suggested a strategic approach to the planning of cables and development of multi-use interconnectors/substations.
 - Other considerations raised included:
 - Difficulty in gaining full agreement on buffer or co-location/displacement option proposed by The Crown Estate, although some showed more agreement among stakeholders than others
 - A potential inability to co-locate with defence activities
 - Potential impacts to the performance of meteorological equipment
 - Economic feasibility of aquaculture co-location, and the need for trade-offs between different policies, ambitions and agreed targets if co-location or displacement is not feasible
 - Removal of archaeological sites from their context, the consideration of site-specific status in weighting exercises
 - Consideration of aviation and defence in the Celtic Sea area
 - Plugged and abandoned wells being seen as an exclusion
 - There was broad agreement from participants on the weightings for constraints relating to navigation, environmental designations, environmental features, fisheries, leisure crafts, bathing and diving, historic environment, subsurface, aviation and defence and infrastructure.
 - The main concerns identified were: secondary displacement, cumulative effects, how designations are weighted in relation to one another, protected species and features that occur outside of MPAs, climate change impacts and consideration of Highly Protected Marine Areas (HPMAs).
-

Actions taken as a result of feedback

- All feedback helped to shape the final AHP Soft Constraints model, Hard Constraints and associated buffer distances.
- Direct, targeted bilateral engagement with a number of relevant key stakeholders was incorporated into the next stages of our modelling and spatial design process, to ensure the above considerations raised at the February workshop were fully considered as part of the development of our work (see single issue topic engagement summary below).
- A range of additional datasets were explored and, where possible, included in our spatial modelling work following recommendation by stakeholders at the February workshop (and from previous engagements). For example, a tidal mixing dataset⁸ which was internally reviewed, and used in a qualitative manner when reviewing potential locations for the spatial areas.
- Further discussions were held with the Maritime and Coastguard Agency, Trinity House, and Permanent International Association of Navigation Congresses (PIANC) to identify buffers and routes that are internationally/legally defined and to understand the differences to ensure the planning of Celtic Sea Floating Offshore Wind applies appropriate and agreed buffer distances.
- Further engagement was conducted with the fishing industry representative organisations to better understand the ability of fishing activity to take place in or near a Floating Wind Array and inform the planning of Celtic Sea Floating Offshore Wind.
- Further engagement with the fishing sector was also undertaken to understand the environmental, social, and economic impacts of fisheries displacement as well as the potential scale and location of displacement in development scenarios.
- We explored opportunities to gain a better understanding of the risk from Celtic Sea Floating Offshore Wind to the ecology and environment during single issue topic refinement (within the plan-level HRA risk tool).
- Further engagement was undertaken with the MoD to further understand defence interests and data (see Single Issue Topic Engagement section below).
- Further engagement was undertaken with regulators and governments to understand transboundary issues of different licensing regimes and regulators (see [Single Issue Topic Engagement](#) section below). Feedback helped to confirm the hard constraints in the Celtic Sea region and finalise the data weightings within the spatial model.



⁸ Miller, P.I. & Christodoulou, S. (2014) Frequent locations of ocean fronts as an indicator of pelagic diversity: application to marine protected areas and renewables. *Marine Policy*, 45, 318-329.

Single Issue Topic Engagement (February - July 2022)

Overview

From February to July 2022, The Crown Estate undertook targeted bilateral engagement to explore constraints and opportunities within the region in more detail, to help further inform the spatial refinement process. This included specific targeted discussions with representatives of the environment, navigation, fisheries, aviation, telecoms and defence sectors.

Meetings were held with sector specific representatives to provide an update on our spatial design following the February workshop, and to share initial modelling outputs as well as further discuss constraints in relation to identified draft AoS.

Feedback

A summary of the feedback provided through these targeted bilateral engagements is provided below:

- Navigation stakeholders:
 - Highlighted areas within or adjacent to the proposed initial AoS that were of concern to shipping routes.
 - Provided recommendations on buffer distances to Traffic Separation Schemes (TSS).
 - Highlighted areas that could be of concern to fishing routes.
 - Highlighted areas where diversions for navigation and fisheries stakeholders are common due to weather conditions.
 - Environmental stakeholders:
 - Provided information on additional environmental datasets to be considered in the spatial design including species and migratory pattern data.
 - Raised the need for further consideration of Marine Conservation Zones (MCZ) in relation to the proposed initial AoS and potential HPMA designations.
 - Raised considerations around potential cable routes and landfall sites and National Grid's Holistic Network Design (HND).
 - Highlighted concerns on visual impact from the proposed initial AoS, but recognised that this would be dependent on turbine tip height, which is also an important factor in considering impacts on birds.
 - Provided further information on spawning areas and bird migratory routes.
 - Were pleased to see that The Crown Estate was seeking through its approach to avoid the most environmentally sensitive seabed areas.
 - Raised need for consideration of cumulative impact of development on Celtic Sea as a whole.
 - Aviation stakeholders:
 - Confirmed our understanding on radar interference data.
 - Provided information pertaining to safeguarding and mitigation options for radar interference.
 - Cables stakeholders:
 - Outlined the placement and number of cables passing through the Celtic Sea and its importance on connectivity.
 - Fishing stakeholders:
 - The Crown Estate engaged with fisheries representatives, who flagged the need for more targeted engagement with local fishers and local representatives as the spatial offering crystallised.
-

Actions taken as a result of feedback

The targeted bilateral engagement helped to identify constraint and opportunity that sat within the Areas of Search presented. The results of that engagement yielded the following actions:

- The Crown Estate set up a series of engagement events, hosted over Summer 2022 to engage on a local level with fisheries stakeholders (more information below in [Further Spatial Refinement Section](#)).
- The Crown Estate engaged with the Marine Accident Investigation Branch to obtain accident data within the Celtic Sea over a 30-year period. The data was then assessed to understand if there were trends of accidents taking place in potential areas of seabed.
- Space was added to Area of Search 2 following engagement with NATS - where it was outlined project level mitigation was available to manage Civil Aviation radar interference.
- Examples of the potential spatial footprints and densities were provided to the Defence Infrastructure Organisation.
- The Technical Design Envelope was shared with relevant Statutory Nature Conservation Bodies.
- The Crown Estate completed an assessment of subsea telecoms in the Celtic Sea region to understand the likely service time for those cables with the European Subsea Cables Association (ESCA).



Stakeholder and Market Webinars (July 2022)

In July 2022 we invited marine and statutory stakeholders and market stakeholders to two separate online webinars to update on our progress on the Offshore Wind Leasing Round 5 spatial design work. The webinars provided information on our engagement including how this has shaped our spatial design work, and presented the Areas of Search produced as a result of our modelling and engagement. A map of our AoS can be found in Figure 2 in [Appendix C](#). Further information was also provided on our next steps and the process by which we would be seeking to refine these areas, and ultimately release final Project Development Areas (PDAs) that would be made available to the market for competitive tender.

The marine stakeholder webinar received 133 registrations and was attended by 125 participants. The market webinar received 297 registrations and was attended by 250 participants.

The recordings of the [webinars](#), pdf versions of the content and the [Question and Answers](#) from the event can be found on The Crown Estate website.

Many questions were raised throughout the webinar and The Crown Estate provided answers that were reflective of our thinking at the time.

Queries were raised around:

- Why the Celtic Sea was identified as the preferred area
- The Crown Estate's approach to HRA
- Fisheries displacement
- How shipping navigation was assessed
- How The Crown Estate planned to support the Holistic Network Design process

The Crown Estate provided the following responses to the questions summarised above:

- The initial basis of our spatial analysis came from our Broad Horizons 2020 report⁹, which identified technically viable areas for offshore wind. The Celtic Sea has several advantages, including good quality wind resource, suitable seabed, and proximity to centres of demand

for both power and future hydrogen. The Crown Estate reaffirmed its commitment to work with market, marine and statutory stakeholders and highlighted that ahead of publishing the Areas of Search, we held several extensive engagements to help shape the intentions set out in the November 2021 Position Paper¹⁰.

- We spoke of our revised approach to HRA within this process and our plans to undertake the assessment upfront alongside the spatial design. Taking lessons from the design of Round 4 and recent project level examinations into the HRA and continuing to use the best available evidence to underpin our HRA.
- We highlighted that at the heart of any offshore wind development is the need to balance renewable energy requirements with the interests of other users of the sea and industries, such as fishing or subsea cable developers, communities who may experience impacts from construction, as well as the need to preserve marine habitats and biodiversity. Noting engagement already conducted at the time with the fisheries sector, we reaffirmed our commitment to continue to engage with the fishing sector and highlighting specific planned meetings to understand the degree of fishing undertaken within our AoS that would allow us to dig down to a level of detail that will inform our site selection through refinement.
- We emphasised that several bilateral engagements were held with multiple navigation stakeholders where we went through the early outputs of the model and the initial Areas of Search to ascertain feedback. Shipping intensity was weighted the joint highest alongside environmental designations and fishing intensity and had one of the highest influences within the model output. We also reaffirmed our plans for continued engagement with navigation stakeholders through the refinement process.
- We also highlighted our formal collaboration approach with National Grid ESO (NG ESO) and our commitment to supporting a more coordinated approach into the National Grid. Providing assurances that we would continue to work with NG ESO on the practicalities of delivering this vision, including supporting future iterations of the Holistic Design Network (HND).

⁹ 2020, Everoze, Characterisation of Key Resource Areas for Offshore Wind, A Report for The Crown Estate <https://www.marinedataexchange.co.uk/details/2117/2020-everoze-characterisation-of-key-resource-areas-for-offshore-wind-a-report-for-the-crown-estate/summary>

¹⁰ Celtic Sea Floating Wind Programme Position Paper 2021, <https://www.thecrownestate.co.uk/media/3982/celtic-sea-floating-wind-position-paper.pdf>

Stakeholder and Market Questionnaire (July 2022)

Overview

In July 2022, directly after the announcement of our initial Areas of Search, we sought to further engage with stakeholders to seek further feedback on the initial AoS and related constraints in these locations. The findings of this engagement were sought to further inform the spatial design and to support refinement of the AoS into smaller Refined AoS and subsequent PDAs.

The stakeholder questionnaire was sent to over 200 individuals representing over 70 organisations.

Concurrently The Crown Estate issued a questionnaire to market stakeholders seeking input and feedback on the AoS and related constraints in these locations as well as any technological considerations to take into account in our refinement process.

The stakeholder questionnaire received responses from over 24 organisations and the market questionnaire received responses from over 36 developers.

Feedback

A broad range of detailed and informative feedback was received. The key themes of responses may be summarised as: environmental sensitivities (consideration of MPAs, mobile species, visibility, and relevant data and evidence), cables considerations, impacts, and interaction with ESO and HND, navigation, shipping and ports, fisheries and cultural heritage.

- Regarding datasets, the majority of comments signified that the list of datasets used was comprehensive.
- Concerns were raised surrounding cables and connection distances and a request for clarification on buffer distances for the Test and Demonstration sites.
- Feedback indicated concern around environmental impacts, particularly around impacts to birds. And navigational safety concerns were raised around the proximity to the route feeding into "The Smalls" TSS.
- Additional concerns related to fishing effort within the area were raised, that were known to us through engagement with fisheries stakeholders (see Single Issue Topic section above).

- The market questionnaire revealed that the majority of developers suggested the upper limit of the turbine capacity rating to be increased, to reflect innovation and technological advances. Minor changes were suggested to blade width (increase) and max rotational speed (decrease), and it was also suggested that mooring systems other than catenary mooring lines with drag-embedded anchors should be considered.
- Many market respondents indicated that they would like an opportunity to comment on a more detailed Levelised Cost of Energy (LCOE) Methodology. Some respondents also suggested inclusion of areas >200km from onshore grid locations to be included. Respondents also highlighted possible grid connections on the south coast of Cornwall.
- The majority of stakeholders responded positively to the identification of the wider cable/pipeline region shown in the questionnaire, with few responses indicating a preference to look elsewhere.

Actions taken as result of feedback

- As a result of feedback The Crown Estate revised the LCOE map, which was backed up by a check on technical feasibility/optionality by an independent consultant.
 - We engaged with UK Hydrographic Office, MoD, Defence Infrastructure Organisation and the Navy to better consider defence interests and integrated comments into the refinement of the AoS.
 - Further engagement was undertaken with NG ESO and National Grid Electricity Transmission (NGET) on the concerns raised around cables to feed into their Holistic Network Design Follow Up Exercise (HNDFUE).
 - Additional bilateral meetings were arranged with key stakeholders to find solutions to environmental and navigational safety concerns (see [Summer Refinement section below](#)).
 - The technical envelope, used to inform the HRA, was amended to increase the maximum capacity rating to 28MW to offer a broader range in turbine technology with subsequent changes to rotor radius and hub height.
 - We continued to engage and work with NG ESO to support their HNDFUE.
-

Further Spatial Refinement (Summer 2022)

Overview

During the Summer of 2022, The Crown Estate held targeted engagement with a wide range of specialist stakeholders on key topics relevant to the spatial design, including defence, navigation, fisheries, telecoms and biodiversity. This engagement allowed us to further understand project risks and constraints in the region to support further refinement of the AoS.



Feedback

- The Crown Estate hosted three fisheries engagement events with the NFFO, the WFA, the CFPO, the SWFPO, the WFPO and individual fishers, to gather feedback from the fisheries sector on the AoS. We shared the AoS with fisheries stakeholders utilising in-person engagement at locations and on dates to suit the fishing industry (e.g. identifying dates with large spring tides, where a number of vessels are more likely to be ashore). Stakeholders identified areas of high and low fishing effort within the AoS, types of fishing activity occurring in the areas, current restrictions on fisheries in these areas, as well as information on potential fishing activities occurring in these areas by both UK and EU vessels. Celtic Sea fisheries representatives also gathered further information on their specific membership's fishing activities in the Celtic Sea which was fed back to us in late 2022 to inform final refinement activities.
- Fisheries stakeholders provided concerns around future supply demands and subsequent pressure on fisheries and highlighted the need for further research on anodes and contamination of heavy species and umbilical cables considerations.
- Navigation stakeholders welcomed approach to site selection taking a holistic approach and were keen to understand what TCE ambition is for the Celtic Sea region in terms of a total GW capacity. They highlighted the usefulness of a cumulative picture to ensure they can respond within this wider context.
- Navigation stakeholders raised a question around the 1.77 nautical mile buffer between TSS and stated the need to amend to 2 nautical miles as stated by Marine Guidance Note 654¹².
- Navigation stakeholders recommended the removal of two Refined AoS, for fear of potentially pushing shipping traffic into unfavourable areas, developing too small a corridor between sites and increasing vessel collision risk.
- Navigation stakeholders reported they were happy with avoidance of Milford Haven shipping route.
- Environmental stakeholders provided useful environmental data sources such as JNCC data and discussed the tidal mixing data with a very positive response to seeing the data.
- Environmental stakeholders provided feedback to consider buffer zones between MPAs and Refined AoS to give confidence of any potential adjacent impacts, and also highlighted concerns about impact on the population of birds impacted by avian flu in relation to Refined AoS 2.
- Environmental stakeholders highlighted that cable routes and any pipelines associated with hydrogen will be a really important consideration, as well as the fact that Basking sharks won't be captured within the HRA process querying how they will be considered.
- The North Sea Transition Authority (NSTA) stated that no issues regarding locations were flagged when they overlaid the Carbon Capture Utilisation Storage (CCUS) potential storage data with Refined AoS. NSTA asked about sizing of Refined AoS in refinement and the process through the HRA along with likely timings.
- Defence stakeholders provided us feedback on interests in the Celtic Sea region that were taken into account during the spatial design process.
- Cable stakeholders provided further information on cables in the Celtic Sea region which was used to inform The Crown Estate's cables assessment.
- The Government of Ireland raised no transboundary issues and welcomed our approach to fisheries engagement. A discussion was held around the consideration of environmental factors.
- National Air Traffic Services (NATS) suggested a turbine height of up to 200m tip to align with their datasets as the bigger the turbine, the more airspace is blocked.
- NATS also highlighted that increasing the turbine tip height to 370m is likely to only be significant for Northern part of Refined AoS 2.
- NATS also proposed mitigation around designation of zones, highlighting that transponder management zones are usually utilised in planning consents.

¹² Safety of Navigation: Offshore Renewable Energy Installations (OREIs)- Guidance on UK Navigational Practice, Safety and Emergency Response: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1157005/MGN_654.pdf

Actions as a result of feedback

- The feedback from fisheries stakeholders was integrated into an internally facing resource that was used to refine the AoS ahead of detailed data being available (later provided by the fishing industry to The Crown Estate, validating the evidence collected in this engagement).
- Taking on board technical considerations and stakeholder feedback, Areas of Search 1 and 5 were removed from current consideration, while five smaller areas were identified within Areas 2, 3 and 4, after engagement with multiple stakeholders. A map of our Refined AoS can be found in Figure 3 in [Appendix C](#)
- Buffer distance increased to 2 nautical miles for navigational traffic between TSSs.
- A bufferzone of 500m was applied to the Refined AoS between sites and MPAs.
- Environmental data was passed on to external consultants and integrated into RIAA where appropriate.
- Concerns around impacts on bird populations already impacted by the Avian Flu was passed to the HRA EWG for consideration.



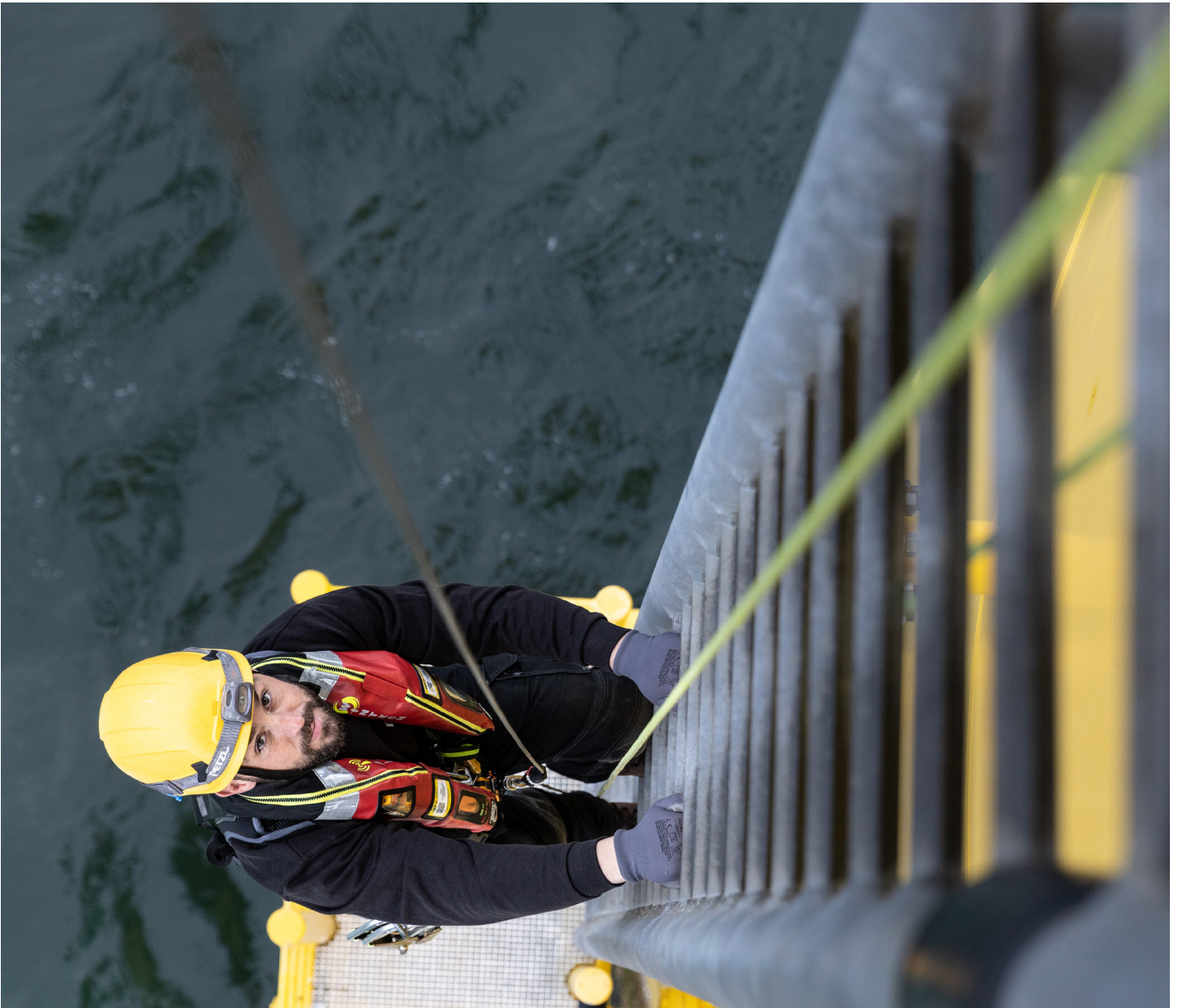
Credit: V. Joncheray

Refined Areas of Search Announcement (October 2022)

Following the refinement of the AoS, on the 10th of October 2022, The Crown Estate published the Refined AoS and provided the market with new information on our proposals for leasing for Celtic Sea Floating Offshore Wind.

This engagement confirmed that, based on the feedback provided following the webinars and via the spatial design questionnaires, and from the detailed single issue topic

refinement discussions over the summer, the original AoS 1 and 5 were removed from the current consideration and five smaller areas were identified within AoS 2, 3 and 4. The recording of the webinar and a PDF version of the presentation can be found on The Crown Estate website [here](#). A map showing our Refined AoS can be viewed in Figure 3 in [Appendix C](#).



Further refinement and spatial considerations (October 2022 – July 2023)

From October 2022 through to July 2023, The Crown Estate continued to refine our spatial design through targeted engagement with stakeholders.

Fisheries stakeholders provided positive feedback on the Refined AoS and welcomed the level of engagement undertaken by The Crown Estate and the involvement of the fisheries in this. CFPO provided us with further data from the fishing industry, including spatial resolution of fishing effort in the Celtic Sea which was used in the further refinement of the Refined AoS.

In May 2023, we announced that our engagement had highlighted that the UK seabed is a complex ecosystem of natural habitats and vital industries, of which renewable energy is one part. This engagement had demonstrated that the Celtic Sea is subject to many competing demands, and that there were a number of spatial considerations and policy drivers that the UK Government had to work to resolve, supported by The Crown Estate.

In light of the ongoing UK Government review, we adapted our approach to focus on two of the Refined AoS previously identified in 2022.



PDA announcement (July 2023)

On the 4th of July 2023, The Crown Estate, joined by the UK Government and National Grid ESO, updated developers on our intended process, setting out details about the anticipated structure of the leasing round and announced our 'Minded to' position on the final Project Development Areas. A map showing our 'Minded to' PDAs can be found in [Appendix C](#) in Figure 4.

The four PDAs in this 'minded to' scenario were presented as the result of 18 months of engagement and spatial design refinement. Despite the spatial considerations taken into account in the selection of these areas, the PDAs were located on highly favourable seabed and balancing a range of other constraints that we believe will help support the development and commercialisation of the industry.

Prior to the announcement, bilateral meetings were held with representatives for fisheries, navigation, cables, defence, aviation and the environment to provide them with an update on our spatial design.

A recording of the webinar where we announced our 'minded to' PDA scenario can be found on The Crown Estate website [here](#).

Following the webinar, we conducted further market engagement to ensure there were no significant further considerations before proceeding to publish the [Information Memorandum](#) later in the year, in addition to keeping prospective developers informed about any other requirements arising from the ongoing work with UK Government.



Final PDA announcement (October 2023)

After reviewing the results of the market engagement exercise and discussions with stakeholders and on the basis of feedback received, on the 2nd of October 2023, The Crown Estate provided an update on the final spatial design of the PDAs.

The Crown Estate announced that:

- Three PDAs of roughly equal size were expected to be made available to bidders, as opposed to the previously proposed four PDAs of varying sizes. This decision was made on the basis of allowing greater flexibility for micro-siting and to alleviate any concerns about wake effects. A map of our PDAs can be found in Figure 6 in [Appendix C](#).
- No bidder would be able to secure an Agreement for Lease for more than one PDA.
- As a result of bringing forward three equal-sized PDAs – each with a potential capacity of up to 1.5GW – the overall capacity available through Round 5 increased from a possible 4GW to up to 4.5GW, enough to power more than 4 million homes.

Prior to the announcement, bilateral meetings were held with representatives for fisheries, navigation, cables, defence, aviation and the environment to provide them with an update on our final spatial design.

The announcement from The Crown Estate can be viewed [here](#).



Summary

The Crown Estate has undertaken extensive stakeholder engagement to inform and shape our spatial design approach to Offshore Wind Leasing Round 5.

Over the course of the spatial design for Round 5, we have engaged with over 400 stakeholders including government bodies, statutory organisations, non-statutory stakeholders and market stakeholders.

The extensive stakeholder engagement has been instrumental in the spatial design of Round 5. Engagement has enhanced our understanding of spatial interactions, co-location opportunities and risks to other seabed activities. It has provided spatial context to inform statutory marine planning and other policy development and enabled a stakeholder-validated evidence base to feed into the spatial modelling process.

As a result we believe we have selected three Project Development Areas to offer to the market that represent areas that are technically feasible and attractive, that contain large areas of available resources, and offer lower levels of consenting constraint.

Further information can be found in The Crown Estate's Information Memorandum, Site Selection Methodology, Market Feedback Report and Project Development Area Characterisation Reports. These reports can be accessed in our [Round 5 document library](#).

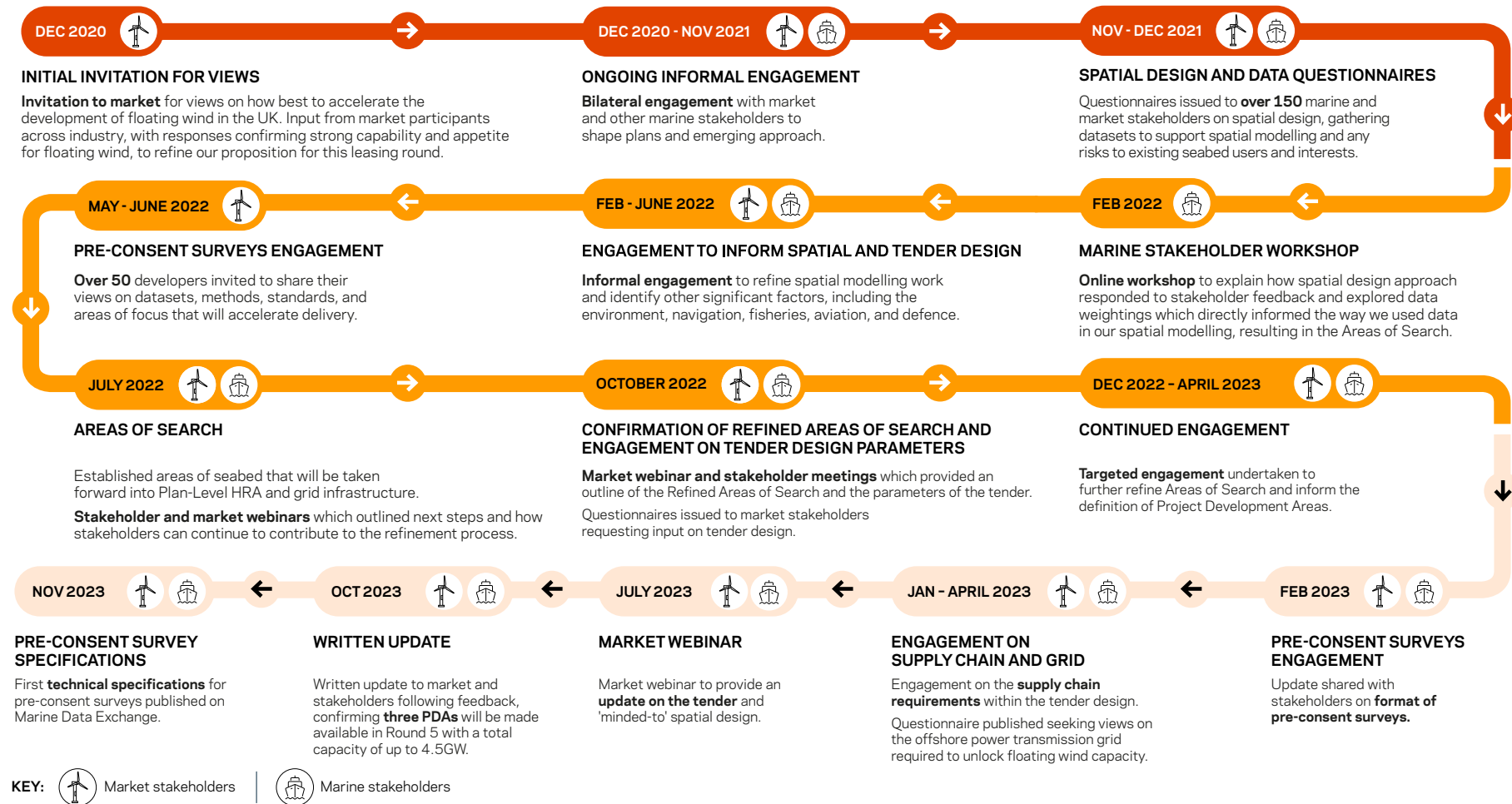


Glossary

AA	Appropriate Assessment. An assessment of the potential adverse effects of a plan or project (in combination with other plans or projects) on Special Areas of Conservation and Special Protection Areas.
AfL	Agreement For lease.
AHP	Analytic Hierarchy Process. A method of weighting soft constraints.
AIS	Automatic Identification System. Transmits a ship's position so that other ships are aware of its position.
AoS	Area of Search.
CCUS	Carbon Capture Utilisation Storage.
Cefas	Centre for Environment, Fisheries and Aquaculture Science.
EMF	Electromagnetic Fields.
EWG	Expert Working Group.
GW	Gigawatts.
HND	Holistic Network Design. An integrated approach for connecting 23GW of offshore wind to Great Britain by National Grid.
HPMA	Highly Protected Marine Area. Areas of the sea (including the shoreline) that allow the protection and full recovery of marine ecosystems.
HRA	Habitats Regulation Assessment. A process that determines whether or not development plans could negatively impact local plans on a recognised protected European site beyond reasonable scientific doubt.
ICES	International Council for the Exploration of the Sea. A regional fishery advisory body and the world's oldest intergovernmental science organization.
KRA	Key Resource Area.
LCOE	Levelised Cost of Energy. A measure of the average net present cost of electricity generation for a generator over its lifetime.
LSE	Likely Significant Effects.
MCZ	Marine Conservation Zone. Areas that protect a range of nationally important, rare or threatened habitats and species.
MPA	Marine Protected Area. Areas that protect a range of nationally important, rare or threatened habitats and species.
MW	Megawatts.
NG ESO	National Grid Electricity System Operator.
NGET	National Grid Electricity Transmission.
PDA	Project Development Area.
PIANC	Permanent International Association of Navigation Congresses.
Refined AoS	Refined Area of Search.
RIAA	Report to Inform Appropriate Assessment.
TSS	Traffic Separation Schemes. A maritime traffic-management route-system ruled by the International Maritime Organization.
VMS	Vessel Monitoring System. A general term to describe systems that are used in commercial fishing to allow environmental and fisheries regulatory organizations to track and monitor the activities of fishing vessels.

Appendices

Appendix A: Infographic of R5 engagement timeline



Appendix B: A non-exhaustive list of stakeholders that engaged with the spatial design of R5

- Associated British Ports
 - Association of Inshore Fisheries and Conservation Authorities (AIFCA)
 - Cefas
 - Cornwall Fish Producers Organisation
 - Department for Energy Security and Net Zero (DESNZ)
 - Department for Environment, Food & Rural Affairs (Defra)
 - Department of Agriculture, Environment and Rural Affairs Northern Ireland (DAERA)
 - Department for Energy Northern Ireland
 - ESCA
 - Historic England
 - Ireland Government
 - Joint Nature Conservation Committee (JNCC)
 - Marine Management Organisation (MMO)
 - Maritime and Coast Guard Agency (MCGA)
 - Milford Haven Port Authority
 - Ministry of Defence (MoD)
 - Defence Infrastructure Organisation (DIO)
 - National Air Traffic Services
 - National Federation of Fisherman's Organisations (NFFO)
 - National Grid
 - National Trust
 - Natural England
 - Natural Resources Wales (NRW)
 - Nature Scot
 - North Sea Transition Authority (NSTA)
 - Oil and Gas Authority (OGA)
 - Renewable Energy
 - Royal Society for the Protection of Birds (RSPB)
 - Scottish Government (incl. Marine Directorate)
 - TCE- Fisheries Liaison
 - Thanet Fisheries Association
 - The Wildlife Trust
 - Trinity House
 - UK Chamber of Shipping (UKCoS)
 - UK Hydrographic Office
 - Welsh Fisherman's Association
 - Welsh Government
 - Whale and Dolphin Conservation
-

Appendix C: Maps of Offshore Wind Leasing Round 5 Spatial Refinement

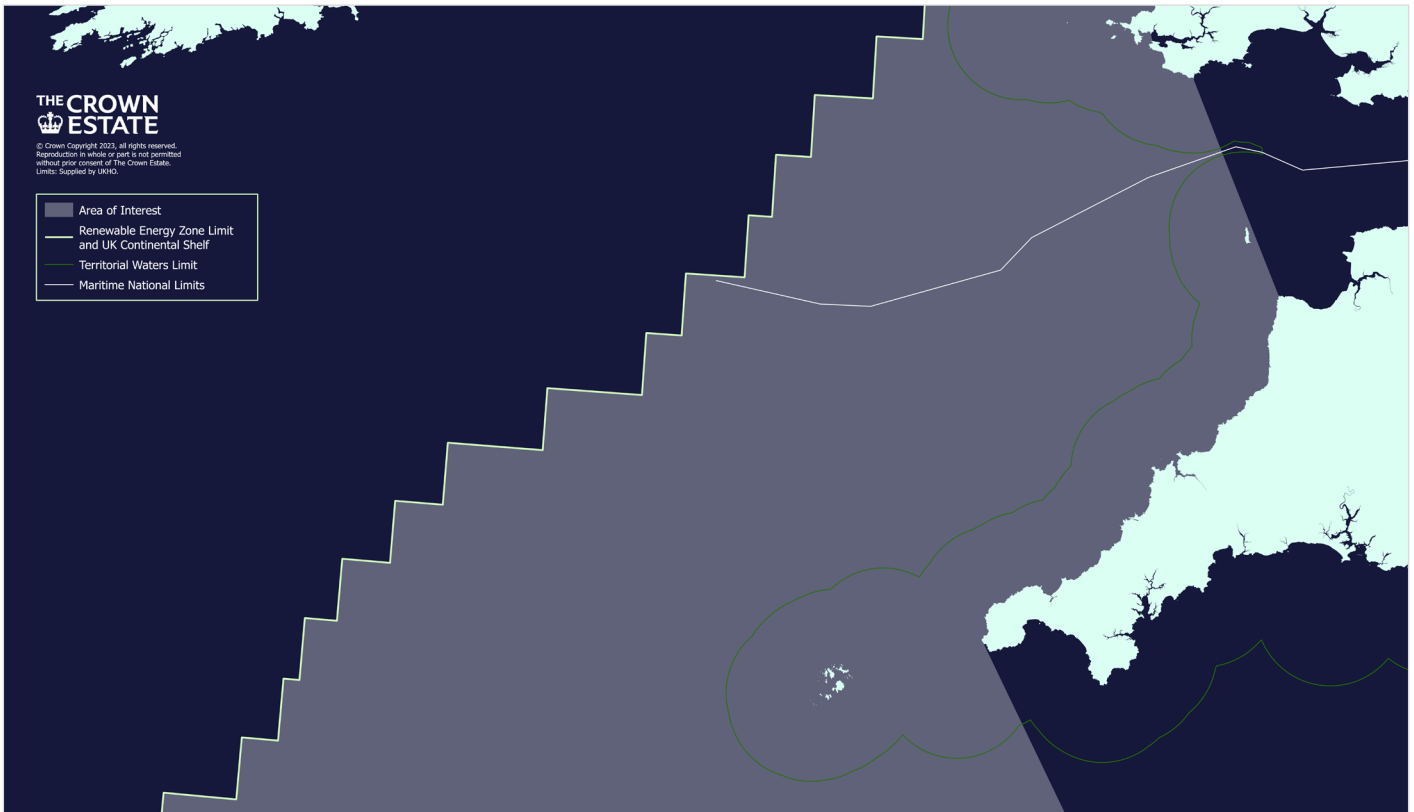


Figure 1: IM Plans - Aol

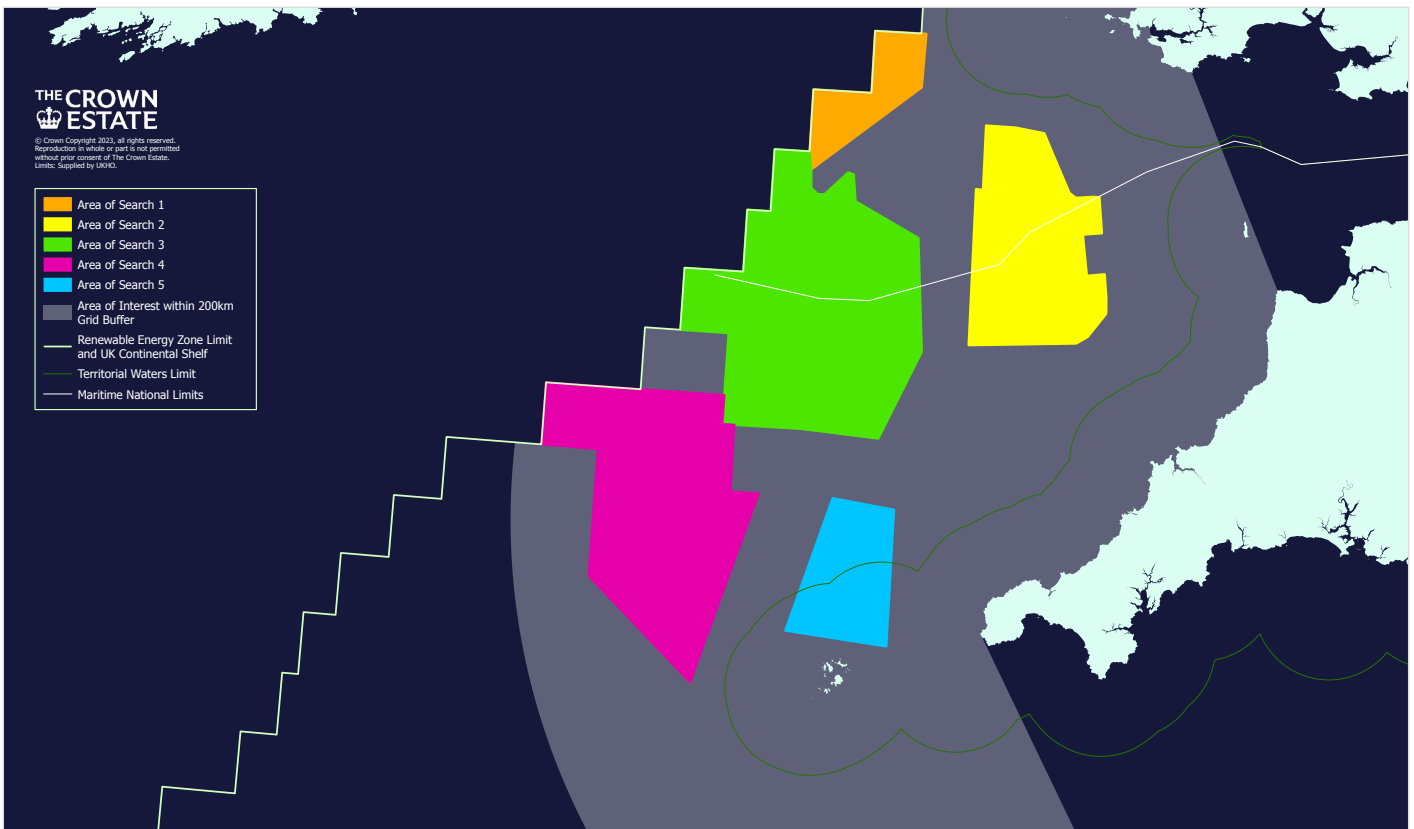


Figure 2: IM Plans - AoS

Appendix C: Maps of Offshore Wind Leasing Round 5 Spatial Refinement

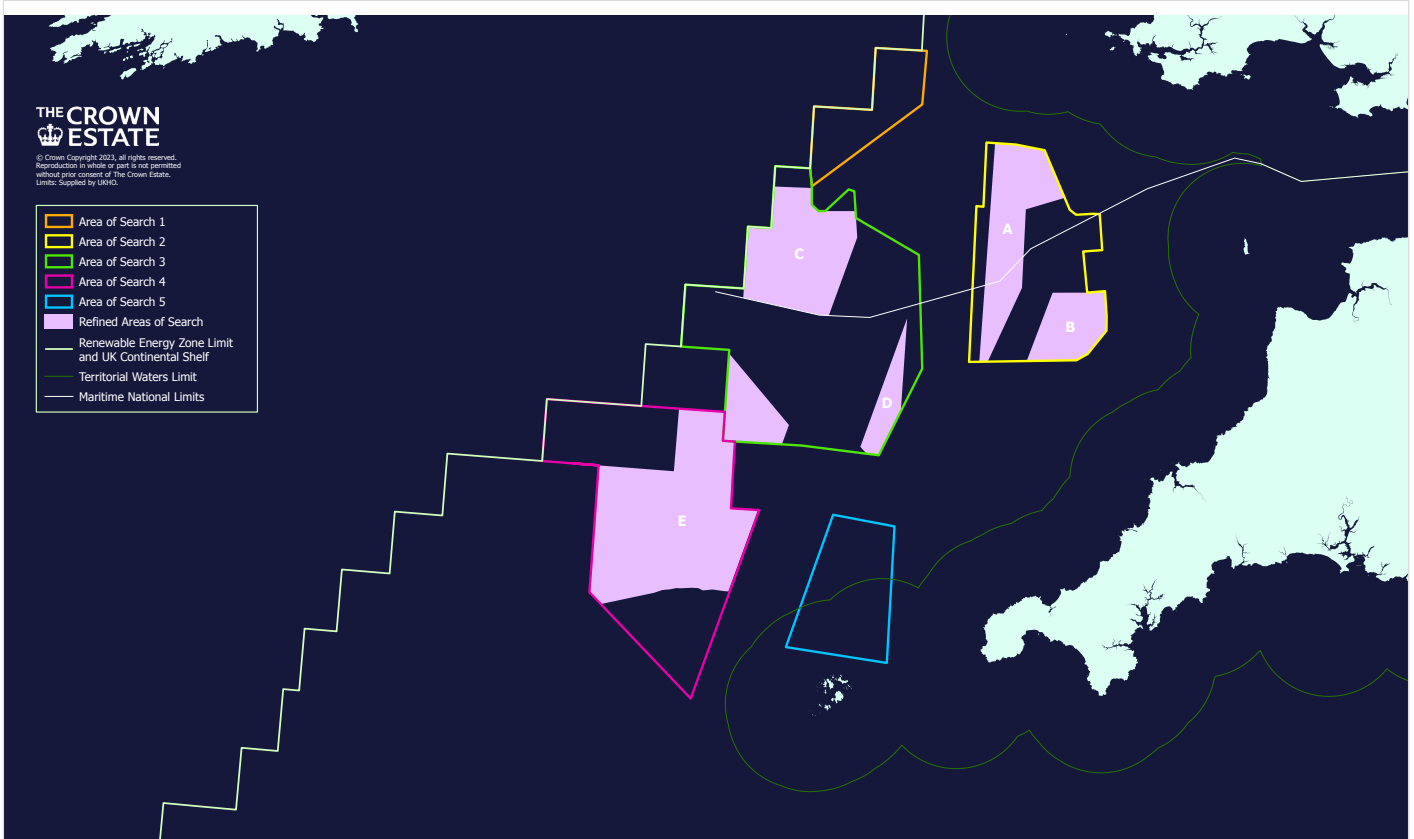


Figure 3: IM Plans - RAoS



Figure 4: IM Plans - Minded to scenario

Appendix C: Maps of Offshore Wind Leasing Round 5 Spatial Refinement



Figure 5: IM Plans - Minded to scenario in AoS 2



Figure 6: IM Plans - PDAs

Appendix C: Maps of Offshore Wind Leasing Round 5 Spatial Refinement

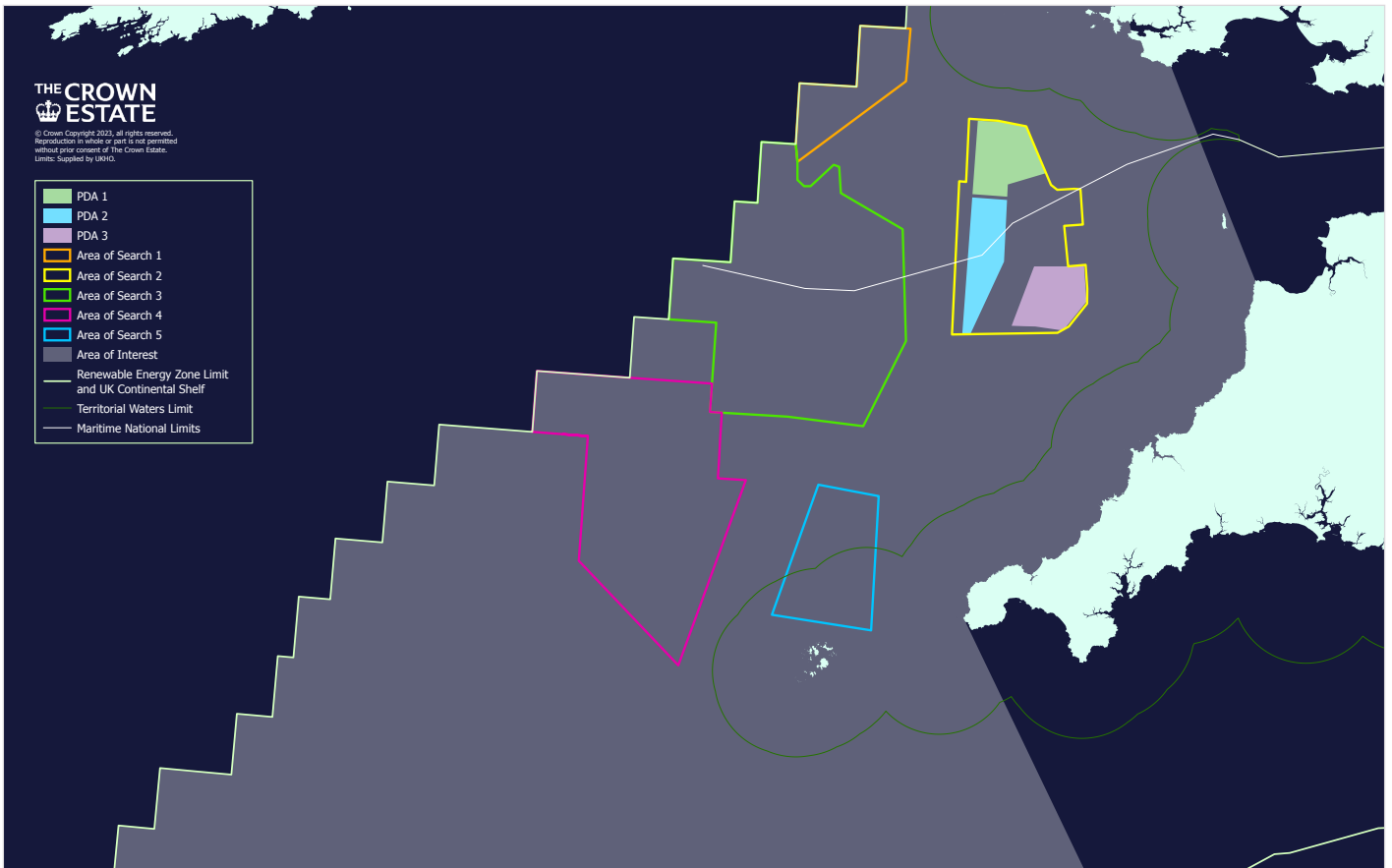


Figure 7: IM Plans - All steps