

Celtic Sea Floating Wind Programme

THE CROWN
 ESTATE

Position Paper

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Introduction

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

Floating wind represents the next frontier in this green growth story, with the UK Government already committing to 1GW of floating wind by 2030. As managers of the seabed around England, Wales and Northern Ireland, we are committed to deliver a new leasing opportunity in the Celtic Sea, working with the market and stakeholders, to unlock the potential of floating wind technology in this important region.

The UK Government has set ambitious targets for all electricity to come from low carbon sources by 2035 and to deliver 40GW of offshore wind, including 1GW of floating offshore wind by 2030. 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' electricity demand from Welsh renewable electricity sources by 2030.

Realising this potential, in our increasingly complex and busy marine environment, will require an evolved approach, building on what we have learnt from Round 4 and earlier offshore wind leasing activity. Delivering economic opportunity from combatting climate change is key. The increased demand for seabed access also brings new challenges to navigate, including the need to mitigate pressures on coastal and marine habitats, tackling the impact of new infrastructure on local communities and improving coordination with other industries and activities at sea.

To deliver the opportunity, we are taking an evolved approach – building on valuable experience from previous leasing, acquiring marine spatial data to accelerate planning, and investing in enabling programmes to support infrastructure, data and evidence.

This approach is at the core of our thinking for how to design and deliver a new programme for both early-commercial and the first full-commercial scale floating wind projects in the Celtic Sea. Recognising the substantial wind energy resources in the Celtic Sea, as well as the need for our industries to develop the capability and scale to successfully participate, we intend to:

- **Unlock up to 4GW of new floating wind capacity in the Celtic Sea by 2035.** Working towards awarding Agreements for Lease (AfL) for early-commercial scale floating wind projects in the Celtic Sea as early as the end of 2023.

- **Conduct an integrated spatial design and Plan-Level Habitats Regulations Assessment process ahead of a market tender** to select sites, thereby reducing environmental risk and give developers more certainty.
- **Work with others to support a co-ordinated grid solution, and stimulate investment in port infrastructure**, thereby creating opportunities for economic development and mitigating impacts on communities onshore.

This represents an exciting opportunity to unlock the potential of floating wind technology, and support the development of the UK supply chain, alongside protecting the marine environment, delivering on net zero targets and creating socio-economic benefits for the UK.

This position paper sets out our current thinking. We will continue to engage with the market and stakeholders, over the coming months and into 2022, to refine the design of a programme that delivers for the environment, for society and for the economy.

The opportunity: Floating wind in the Celtic Sea

The Celtic Sea is defined as the waters in the region around the South Wales coast and the South West peninsula. This region will be the focus of our floating wind leasing process, offering a unique opportunity to unlock new clean energy capacity and help establish a new industrial sector.

We know from our initial engagement with the market and stakeholders that there is strong interest in project locations in the Celtic Sea.

To date, these waters have seen comparatively little offshore infrastructure deployment, with the majority of the UK's current fixed-foundation offshore wind projects focused on the east and south coasts of England and in Scotland. Our Broad Horizons report, published last year, mapped the technically feasible areas for fixed and floating offshore wind, illustrating the strength of the opportunity for floating wind technologies in the Celtic Sea.

Through our Test & Demonstration leasing opportunity, designed to support the development and commercialisation of innovative energy technologies, we have already helped to build the foundations for a floating wind sector in the region. As a consequence,

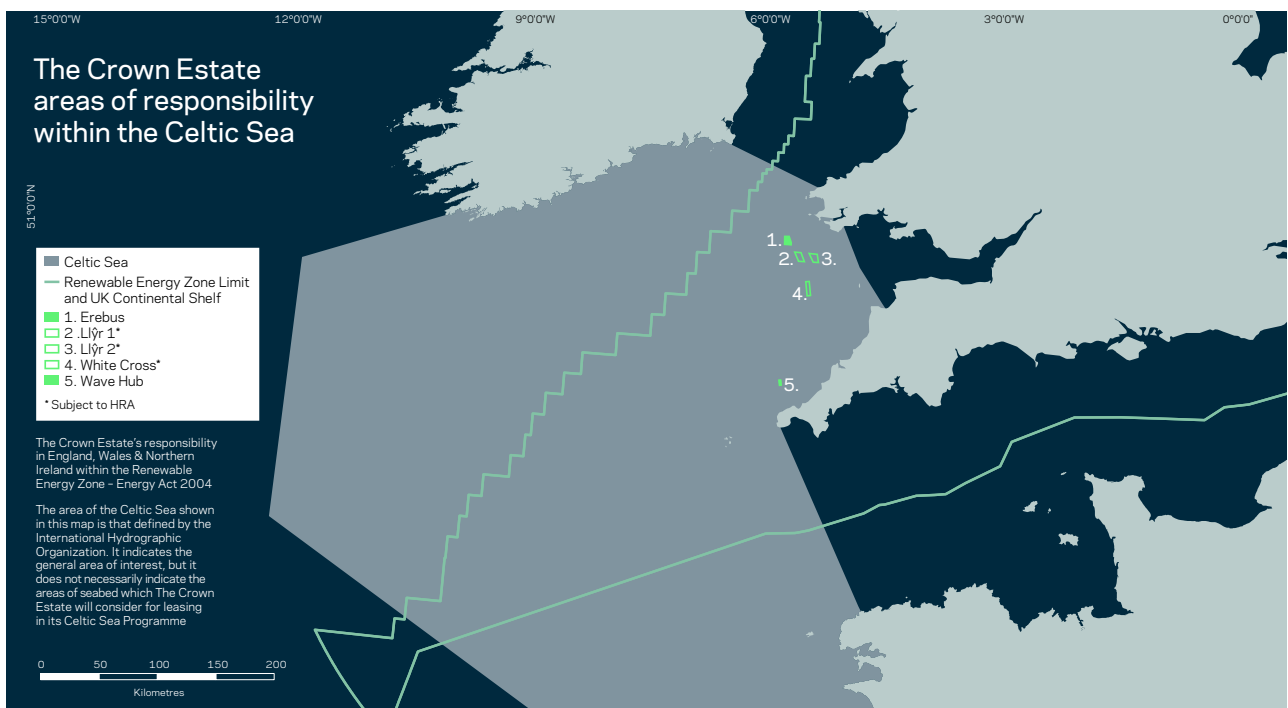
there is a potential pipeline of more than 400MW of test-scale floating wind projects in the Celtic Sea, including:

- The 96MW Erebus floating wind project, in the Welsh waters of the Celtic Sea
- The 100MW White Cross project, located off the coast of Devon and Cornwall ¹
- The Llŷr 1 and Llŷr 2 projects, comprising two separate 100MW sites, located to the south of Pembroke on the Welsh coast ²

We have also supported the change of use of the Wave Hub site off the coast of Cornwall to bring forward an additional 30MW floating wind project.

¹ Subject to Plan-Level HRA

² Subject to Plan-Level HRA



Each of these five projects would test new technologies, designs, materials and construction approaches, thereby helping drive down the costs of this new technology and build industrial capability. Together, they have the potential to support the Government's target to deliver 1GW of floating wind capacity in UK waters by 2030.

Our new floating wind programme provides clear signals for the need to develop supporting infrastructure and provides the industry and wider supply chain with the confidence it needs to invest and scale-up.

Our broad aims for this floating wind leasing opportunity in the Celtic Sea are to:

- Unlock clean energy in new areas offshore, in support of the UK's net zero target
- Help create economic and social value, including through new skills and jobs in the regional supply chain
- Support the development of a new floating wind market in the UK, including the cost-reduction of the technology
- Balance the needs of the environment, other users of the sea, and the communities onshore
- Help incentivise investment in critical enabling infrastructure, such as in UK ports and the electricity grid

The Celtic Sea is a new geography for offshore wind of any kind and is a culturally and commercially important area for a number of other industries, including fishing and subsea telecommunication cables. The marine environment contains sensitive habitats and species and the coastline is home to a number of national parks. Few of the areas that border the Celtic Sea are industrial in nature, and many are rural; where the natural beauty of the region sustains many livelihoods through tourism.

To ensure developments are delivered in a way that is sensitive to these myriad interests we will need solutions which enable long-term co-existence. The collaborative design of the leasing programme will be a central part of our ongoing stakeholder engagement.

Scale of the opportunity: 4GW

Our ambition is to unlock up to 4GW of new floating wind capacity in the Celtic Sea by 2035, enough to power almost four million homes.

This 4GW ambition, an increase on the scale we announced in March, reflects our engagement with the market and stakeholders and our developing understanding of the sector's needs. It acknowledges market appetite for increased scale, gives better visibility of a longer-term pipeline to support investment, and helps projects in the Celtic Sea reach a scale where they can become more cost-competitive.

To reflect this increased scale, we propose a longer-term horizon for project delivery, meaning that while the early projects leased through this process could be in place by 2030, the remainder would follow later into the 2030s.

Because of the proposed scale and timeframe, we intend focusing the opportunity on two project categories, defined as:

- Early-commercial scale projects (of circa 300-350MW in size) to provide learning opportunities for the supply chain;
- Full-commercial scale projects (of up to 1GW in size) to give stronger signals to the supply chain on future demand and help projects become more cost-competitive.

The number and sequencing of projects at each scale will be one of the key subjects of our next phase of engagement with the market and other stakeholders.

In framing the scale and timing of this opportunity, we recognise that there is strong interest in new floating wind rights from a capable and motivated pool of potential market participants. But, we also know that the market and technology is comparatively new (compared with fixed foundation wind) and there is currently limited capacity in the UK supply chain to support deployment at scale.

This being so, we are seeking a careful balance – creating a leasing opportunity that will support, but not outpace, the development of the infrastructure and supply chain that will be required to make it a lasting success. While providing a clear path from early-commercial scale to first full-commercial scale projects.

We believe a floating wind leasing opportunity for up to 4GW of new capacity, delivered from 2030 into the early part of the following decade, will provide stronger certainty and forward visibility to incentivise market investment, while also supporting the rapid cost-reduction that will be required to underpin the sector's success over the long-term.

As part of our programme we will also assess the longer-term potential for further market growth, beyond 2035, in the Celtic Sea; and prepare for future leasing rounds to bring viable further capacity to market.

Alongside the commercial-scale opportunity outlined in this paper, we will also look at how we can support smaller-scale Test & Demonstration energy projects, which will continue to be an important part of developing new technologies for a range of seabed conditions and locations.

Spatial design and environmental assessment

Protecting, and where possible enhancing, coastal and marine environmental habitats is at the heart of our leasing approach. Getting this right is imperative, not only to the health of our natural world, but also to unlocking the full potential of the UK's offshore energy ambitions over the long-term.

Before awarding seabed rights for this opportunity, The Crown Estate will need to undertake a Plan-Level Habitats Regulations Assessment (HRA). This process requires us to assess the potential impact of leasing plans on the most valuable habitats in the UK and the UK offshore marine area.

We are proposing a modified approach to Plan-Level HRA for floating wind leasing, with an integrated spatial design and HRA process that will take place ahead of the tender. When the tender is concluded, we will carry out an assessment to check the conformity of projects which have been assessed within the Plan-Level HRA that has already been undertaken.

This strategic approach would ensure stakeholders and potential bidders have detailed information on key environmental issues at the earliest opportunity, enabling us to identify favourable areas for projects and, over time, minimise environmental risk and work towards achieving environmental net gain. This approach will also reduce the time between the conclusion of the tender process and the award of seabed rights for successful projects.

The process, including site selection, will be led by The Crown Estate, in consultation with the market and environmental stakeholders. To support delivery, we will work with our independently overseen HRA Expert Working Group. This would include engagement with sector-specific technical experts, the relevant UK statutory marine planning authorities, statutory nature conservation bodies and relevant non-governmental organisations.

As our marine environment becomes increasingly busy, this approach will be vital to safeguarding the environment, while delivering significant continued growth in renewable energy offshore.

Working together with the sector on the broader issues which underpin success for the Celtic Sea

For floating wind, where the market is still at an early stage, it is vital to ensure we design an approach which supports not only a near-term pipeline, but also a sustainable, long-term future for the sector in the UK.

To enable this, we will play an active role working with partners to support the development requirements for supply chain companies, support a co-ordinated grid solution, and unlock investment in port infrastructure, to help drive green jobs and mitigate impacts on communities onshore.

Supporting the supply chain

The UK floating wind supply chain has the potential to create new, skilled jobs and investment that provide a major boost to local, as well as national, economies and help the regions around the Celtic Sea become global leaders for floating wind technology.

We believe that the communities that are host to new floating wind projects should benefit economically from them, through employment, skills, and local economic growth.

We have already committed to work with the [Celtic Sea Cluster](#) on this topic, and we maintain a close working relationship with the [Offshore Renewable Energy Catapult](#) and their Floating Wind Centre of Excellence; recognising the quality of the insights they are developing on the supply chain opportunity.

We are committed to broadening and deepening our work with the sector to explore how we can help to most effectively maximise UK content and investment in the supply chain through our programme activities.

Supporting infrastructure: Ports

Delivering floating offshore wind at scale will place substantial demands on infrastructure and the supply chain across the UK. For the sector to reach its full potential, significant early investment in this supporting infrastructure will be required.

The UK's current port capacity represents a key challenge and opportunity in this context. Floating wind makes new demands of all our port infrastructure, particularly in terms of quayside water depths and strengthened laydown and working areas. In real terms, a 4GW floating wind pipeline, delivered in the window 2030-2035, could require the construction and launch of hundreds of floating substructures, each the size of ocean-going ships. A huge industrial enterprise, where success will be delivered by optimising the infrastructure across the whole of the UK.

Equally, the 'integration' of the turbine with the substructure, and its tow to site, represents a significant opportunity for regional ports. Full-commercial scale projects will likely drive this activity into regional ports that are close to the project locations. And the facilities that support this activity will likely be suitable for supporting long-term operation and maintenance services.

UK ports will need to develop additional capacity and capabilities to help capture these opportunities. This is a challenge recognised by the UK Government who recently announced £160 million in new funding to kick-start new large scale floating wind ports and factories in the UK; and highlighted the promising prospects for the sector in the Celtic Sea.

We will work closely and collaboratively with the UK Government, Welsh Government, regional authorities, the Celtic Sea Cluster, port operators, investors and the sector to help build a clear view of the challenges and opportunities for ports that support floating wind, and to explore how this can be done most effectively.

Supporting infrastructure: Electricity grid

Given the long lead times for developing high voltage transmission lines, a co-ordinated approach to connecting new projects to the national electricity grid is vital. We are particularly mindful of the need for the sector to build and sustain the support of communities who are host to the infrastructure that is needed to support the UK's path to net zero.

For these reasons, we actively participate in the Government's Offshore Transmission Network Review (OTNR) in partnership with Ofgem, National Grid Electricity System Operator (ESO), the Welsh Government, marine planning organisations and others. The review is looking into the existing offshore transmission regime to address the barriers it presents to delivering net zero ambitions. And aims to achieve a better balance between economic costs of new transmission infrastructure, and its social and environmental cost.

In October this year, we also announced a formal collaboration between ourselves, National Grid ESO and Crown Estate Scotland to work closely together to develop a more co-ordinated approach to the grid for offshore wind.

The Celtic Sea programme presents an opportunity to accelerate the delivery of grid connections by taking a co-ordinated approach – one of the key focuses of the OTNR review – and move away from point-to-point grid connections for each project. We are therefore minded to develop our spatial and commercial design for leasing in a way which supports a co-ordinated grid solution, and will work with the authorities, the ESO, the market, environmental stakeholders and others to define and design this.

We have started already by ensuring that the assumptions we set out in this paper, on the scale and timing of projects, are being considered within National Grid ESO's Holistic Network Design process.

Investing in data and evidence

As part of our approach, we will continue our work to develop and invest in evidence and data. We will work closely with the market, specialist advisors and stakeholders to deliver pre-consenting works and surveys to help streamline the development process; and to help accelerate and de-risk deployment and to build a more strategic understanding of the Celtic Sea.

Additionally, we will continue to leverage investment and activity from our established programmes like the Offshore Wind Evidence and Change programme to support our Celtic Sea programme and its objectives. We have committed a £25 million kick-starter investment to fund and deliver this programme, which brings together key stakeholders to gather and share evidence, and then use this enhanced evidence base to facilitate the growth of the offshore wind sector in a way that best protects and enhances the environment.

Next steps: Engaging, identifying areas for development, and tendering

Engaging with the market, statutory stakeholders and environmental stakeholders to develop an approach that balances the wider range of interests and supports the long-term future of the technology is crucial to the success of this programme.

We began engagement in December 2020, with an invitation to the market to come forward with views on how best to accelerate the development of floating wind in the UK. We received and reviewed input from over 30 interested market participants across industry and other key stakeholder groups – which confirmed both strong capability and appetite to develop a market for floating wind in the Celtic Sea.

Since then, we have continued informal engagement with the market, technology suppliers, port operators, supply chain representatives, policy makers, statutory stakeholders and more. This has led us to the revised position we set out here.

Working towards awarding Agreements for Lease in 2023, we will now commence the next stage of our engagement to inform the design of our programme for floating wind

in the Celtic Sea. The engagement will come in two phases over the coming months and into 2022, as follows:

- **First phase: Focussing on spatial design**

This phase of engagement will help us to establish the seabed areas that we will take forward into the HRA and spatial refinement process. It will include a detailed exercise to gather information and data-sets required to support our spatial design work, as well as engagement to help us define the parameters that inform the location of projects. It will identify hard and soft constraints to project development. And will take in market views on other issues that drive spatial design like preferred technology types, project sizes, and port and gird infrastructure.

- **Second phase: Focussing on design of the tender in the context of the wider aims of the programme**

This phase of engagement will be market oriented, addressing the structure of our tender process, and how we can best act across the wider programme to support positive outcomes for communities, the regional supply chain, ports and grid.

The following table represents an initial high-level timeline for the next stages of the floating wind programme. This timeline is provisional and subject to change.



Late 2021 - Mid 2022

Engagement with market and stakeholders to inform spatial and tender design



Mid 2022

Draft project areas published

Commence detailed spatial design / refinement and integrate HRA



Mid 2023

Tender Process



Late 2023

Conformity check to ensure compliance with HRA, prior to award of rights



End 2023

Agreements for Lease awarded

Our engagement with the market, statutory stakeholders and others, to seek views on design and development of our floating wind leasing round as set out in this paper, will commence shortly.

If you would like to form part of this process, please register to be kept updated at offshorestakeholder@thecrownestate.co.uk

For information about floating wind in the Celtic Sea, please visit www.thecrownestate.co.uk/en-gb/what-we-do/on-the-seabed/energy/offshore-wind-innovation-and-demonstration/

