**Offshore Trial Area Research Proposal**

A desk based study to determine the potential to establish an offshore demonstration site within England’s territorial waters with the specific aim of being a testing ground for new and novel technologies and approaches which could potentially be used by the Offshore Renewables and other (Oil and Gas, Hydrocarbon, CCSU, Aggregates) sectors.

**Background to the project**

There are currently several evidence gaps associated with the construction, operation and maintenance and decommissioning of offshore wind farm infrastructure in the marine environment. It may be useful for Government, SNCBs, Regulators and Industry to have a recognised national ‘testing area’ where new and novel technologies could be trialled and monitored to establish potential impact pathways, by a number of developers and monitored by developers and academics.

Currently any new technologies must be trialled by individual developers within their DCO limits, at the time of construction, or decommissioning. Where innovation can be trialled and tested within a demonstrator area on a small scale, before moving to full scale development, this may provide SNCBs, Regulators and Industry with improved confidence in environmental outcomes and commercial investments. This could potentially lead to streamlining the consenting process associated with Plans and Projects.

There are several offshore wind test sites in European[[1]](#endnote-1) and American[[2]](#endnote-2) waters of various designs, scales and locations. Within the UK demonstration sites have historically included Blyth offshore wind, Hywind II Scotland Pilot Park, Dounreay Floating Offshore Wind Development Centre, Wave Hub and FabTest, with a licensed area near Isle of Wight specifically for wave and tidal. Of particular interest is the North Sea Farmers [Offshore Test Site](https://www.northseafarmers.org/offshore-test-site) in the Netherlands, which licences 1 km 2 areas to trial novel techniques, whilst other pressures are restricted[[3]](#endnote-3) .

Natural England’s approach to offshore wind[[4]](#endnote-4) includes an aim to focus on accurate, evidenced, environmental sensitivity information, that informs spatial mapping. In relation to evidence based mitigation we will focus on feedback cycles joining evidence gaps, research and impact assessment; strategic monitoring to better understand impact and response, and exploring effective mitigation solutions with industry, for design, construction and operation. Our proposed approach promotes a strategic shift enabling environmental and associated consenting risk to be managed earlier, at a bigger, spatially joined, scale, in a more comprehensively co-ordinated manner. It should lead to greater certainty about progressing developments and better, more rapid decisions, in line with Project Speed, as well as driving enhancement for nature aligned to the UK Marine Strategy and 25 Year Environment Plan.

Aim:

Identify the market demand for, feasibility of, and practicalities inherent in establishing an offshore demonstration site within English territorial waters to test new and novel approaches to offshore development and assess the environmental effects.

Objective 1: Lesson learnt

Identify successful international demonstrator sites for offshore wind. Through a literature review provide a background on the process for their establishment, governance, financing, and management, identify key stakeholders, and design considerations. Present positives and negatives of differing models in an international lessons learnt exercise.

Objective 2: Market demand in England

Identify, and engage relevant representatives of offshore industry sectors, SNCBs, Regulators, and Crown Estate. Devise and disseminate a questionnaire to establish if there is a market demand and support for a demonstrator site in English waters. Establish what industry may like to test, what industries main requirements for a test site would be, for example proximity to ports, grid connections etc. Identify perceived barriers to development of a demonstrator site or potential development pathways.

Objective 3: Process of establishment

Identify the appropriate process for the establishment of a demonstration area in English waters. Contact Crown Estate to discuss the concept, potential opportunities, and support for providing an area for lease from Crown Estate specifically for this purpose. Canvas stakeholders to establish if any have an area within their gift to offer up as a demonstration site.

Objective 4: Governance

Identify likely costs associated with the establishment, management and monitoring of an area and identify possible funding streams (e.g. Offshore wind enabling fund). Considerations to include responsibility for establishment, monitoring programmes, managing access and availability to various industries, prioritisation of research and projects, data availability and transparency.

**Estimated cost**

Less than £24999 including VAT

**Estimated timeline/duration**

Awarded October 2022. Completion March 2023.

**Output**

Report

Questionaries to determine market demand

Report

**Possible contractors –**

**Next Steps**

Present and assess potential design considerations, for example advantages and disadvantages of different approaches:

* Large scale offshore
* Small scale near shore
* Dedicated demonstration area
* Co-location within an operational windfarm
* Off grid testing
* Potential to share grid connections
* Proximity to mobilisation ports
* Cable routes
* Hard constraints such as established infrastructure, shipping lanes, designated sites etc.

Informed from the lessons learnt exercise, assess the ideal characterises of the seabed within the trial area. For example, should this include a broad range of habitat types, (Sand, Mud, Mixed sediment, Reef, Coarse sediment) or be homogenous. Provide recommendations on whether the demonstration site include some examples of Habitats and species of principal Importance as defined under Section 41 in England of the Natural Environment and Rural Communities (NERC) Act 2006, to allow direct comparison with Annex I Habitats within designated sites. Section 40 of the NERC Act 2006 places a general duty on all public authorities, including local planning authorities, to conserve and enhance biodiversity[[5]](#endnote-5). Identify any potential barriers to use, in accordance with the NERC Act. Identify criteria for bathymetry, what depth should the water column be to be most useful and representative of UK waters (shallow/deep/ an average) to test new and emerging designs. Identify important coastal processes, sediment movement, tidal ranges and identify characteristics that would make the area representative of wider marine conditions. Consider how the impact of other variables could be reduced over the trial area, for example size and edge effects, reducing other use impacts within the area.

**References**

1. BLIX consultancy 2016 Inventory offshore wind test sites Demand & supply in the Netherlands [Microsoft Word - 20160829\_RAP\_inventory.offshore.windtest.sites\_LBA\_F.DOCX (blixconsultancy.com)](https://blixconsultancy.com/wp-content/uploads/2021/06/20160829_RAP_inventory.offshore.windtest.sites_LBA_F.pdf) [↑](#endnote-ref-1)
2. [Offshore Wind Advanced Technology Demonstration Projects | Department of Energy](https://www.energy.gov/eere/wind/offshore-wind-advanced-technology-demonstration-projects) [↑](#endnote-ref-2)
3. [Offshore Test Site - North Sea Farmers](https://www.northseafarmers.org/offshore-test-site) [↑](#endnote-ref-3)
4. [Natural England’s Approach to Offshore Wind: Our ambitions, aims and objectives - TIN181](http://publications.naturalengland.org.uk/publication/5400620875120640) [↑](#endnote-ref-4)
5. [Natural Environment and Rural Communities Act 2006 (legislation.gov.uk)](https://www.legislation.gov.uk/ukpga/2006/16/section/40/2011-04-22?timeline=true#:~:text=40Duty%20to%20conserve%20biodiversity&text=(1)Every%20public%20authority%20must,the%20purpose%20of%20conserving%20biodiversity.) [↑](#endnote-ref-5)