

Offshore Wind and CCUS Co-location Forum

Myth-buster Event - 13 June 2023

Overview

On 13 June 2023, the Offshore Wind (OW) and Carbon Capture, Usage and Storage (CCUS) Co-location Forum held its second developer event, bringing together leaders from both industries to 'myth-bust' common misconceptions surrounding the co-location of OW and CCUS.

The audience heard from Bronagh Byrne, Senior Development Manager at Maple Power (OW) and Dr Fiona Sutherland, Senior Geophysicist at Storegga (CCUS), who addressed some of the myths circulating about the compatibilities of the two technologies and the work that is required from both sectors to make co-location a possibility on the UK Continental Shelf.

11 developers from both industries engaged in a detailed Q&A session about the nuances involved in the delivery of OW and CCUS, including the cross-industry action required to inform, support, and progress the development of the two technologies to establish the UK as a world-leading clean energy destination.

OW: Key discussion points

*Please see slides 2-8 in the accompanying presentation.

The Offshore Wind presentation explained the development lifecycle of a project, particularly emphasising the significant activity performed early in development, the design undertaken before bidding for a CfD and a reaching FID and the reasonable chance of having to repeat one or more steps. Once completed a windfarm is expected to have a lifetime of around 25 years before options to extend its life or replace turbines are considered.

The presentation went on to highlight the range of activities in Offshore Wind, referencing the online materials from a guide to an offshore wind farm, and how these might interact or complement CCUS. It was explained that the scale of developments can easily be underestimated and a considerable amount of factors go into optimising the layout of turbines. It was also recognised that this still resulted in difficulty of enabling monitoring activities of CCUS.

The section finished by stressing the growing interest from OSW in learning about CCUS and the hope that the forum was the start of a further dialogue on how to work together effectively in the future.

CCUS: Key discussion points

*Please see slides 9-17 in the accompanying presentation.

The CCUS sector addressed some common misunderstandings associated with CCUS and explained some differences between the reuse of depleted oil and gas fields and the use of hitherto unused saline aquifers. Some positive and negative interactions between CO₂ storage and offshore wind were outlined, indicating a mix of both technical-operational and commercial aspects.

The key differences between the nascent CCUS sector and now mature OW sector were discussed, including the state of the commercial business case and the much greater uncertainty in the resource due to the subterranean nature of the storage resource. The uniqueness of the subsurface uncertainty was also emphasised by reference to the sparsity of data acquired by remote sensing methods to build a model of the CO₂ containment store.

The time leading to initial operation of a CO₂ storage system was identified as another key difference which was shown to be longer than for a windfarm due to the lengthy period dominated by subsurface appraisal.

One common method for remote sensing large areas of the subterranean environment is seismic surveying and the benefits and drawbacks of the two current methods of deployment were discussed, noting that this is only one form for monitoring CO₂ in the subsurface.

Finally, a flexible approach to project schedules and financial instruments was suggested as a possible way for coexistence to be achieved.



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Key challenges and opportunities for co-location

During the event, developers were asked about their key concerns around the co-location of OW and CCUS activities.

Over fifty points were made, with the most frequent concerns around the co-location of OW and CCUS activities being the role of monitoring for offshore carbon sites, cross-industry liabilities, simultaneous operations, commercial impact on project viability, safety and survey access.

Developers also identified a range of positive opportunities surrounding the co-location of OW and CCUS, including:

- Shared trenching and possible shoreside infrastructure
- Wind power purchase agreements for carbon storage operations and utilising OW to power CCS facilities;
- Joint asset maintenance and supply chain collaboration, such as joint offshore vessels and use of offshore cables
- The overlapping of geoscience skills, such as multi-physics monitoring and mapping techniques
- The utilisation of fibre optic cables between turbines as distributed acoustic sensors to record seismic to monitor CCS if the store is beneath the wind farm
- Sequencing of activities, such as operations, maintenance and survey data sharing, particularly Geographic Information System (GIS)
- Improved spatial planning for pre-leasing and licensing stages

Aligned with the Forum's key objectives to facilitate cross-sector collaborative working, the myth-buster event provided an important opportunity for developers to grasp a greater understanding of the differences and intricacies involved in the development of OW and CCUS technologies, raise any concerns about the co-location of the two technologies and propose solutions on how the two sectors can work together to make co-location a reality.

Many of the key issues raised during the event are addressed in the Forum's recent and upcoming workstreams found [here](#) and will be used to inform the focus of future events.

The Forum recently published a report on Spatial Characterisation, which sought to pro-actively review where OW and CCUS projects could potentially overlap. The report concluded that considerably more carbon stores needed to be appraised on the UK Continental Shelf to enable CO2 storage targets to be met. You can read the report [here](#).

Useful Links

Offshore Wind

[Guide to Floating Offshore Wind](#)

[A Guide to Offshore Wind Farms](#)

CCUS

[CCUS Explained: Storage - Global CCS Institute](#)

[Explore CCUS - CCSA Association](#)

