

Offshore Wind and CCUS Co- Location Forum

Kick-off meeting

20th July 2021

Agenda

1/ Introductions: people & organisational aims from forum

2/ Scope of forum & terms of reference

3/ Work programme

4/ Communications & future meetings

5/ AOB

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- CCC CB6 netzero by 2050 using OW & CCUS, same regions around coast, co-location seems inevitable
- TCE/OGA/CES commissioned OREC/NZTC project Vulcan, resulting in recommendation for CLF to address recommendations
(Secretariat will summarise these in next agenda item)
- purpose to coordinate activities & advise how to maximise potential of the seabed for these two critical activities
- focus of 4 drivers to strategic deployment: delivery capability, market development, barriers to co-location, policy & regulation
- will limit itself to a series of clear deliverables relating to the co-location issues
- core forum membership should consider other organisations needed in forum
- need to procure other work agreed by majority of members

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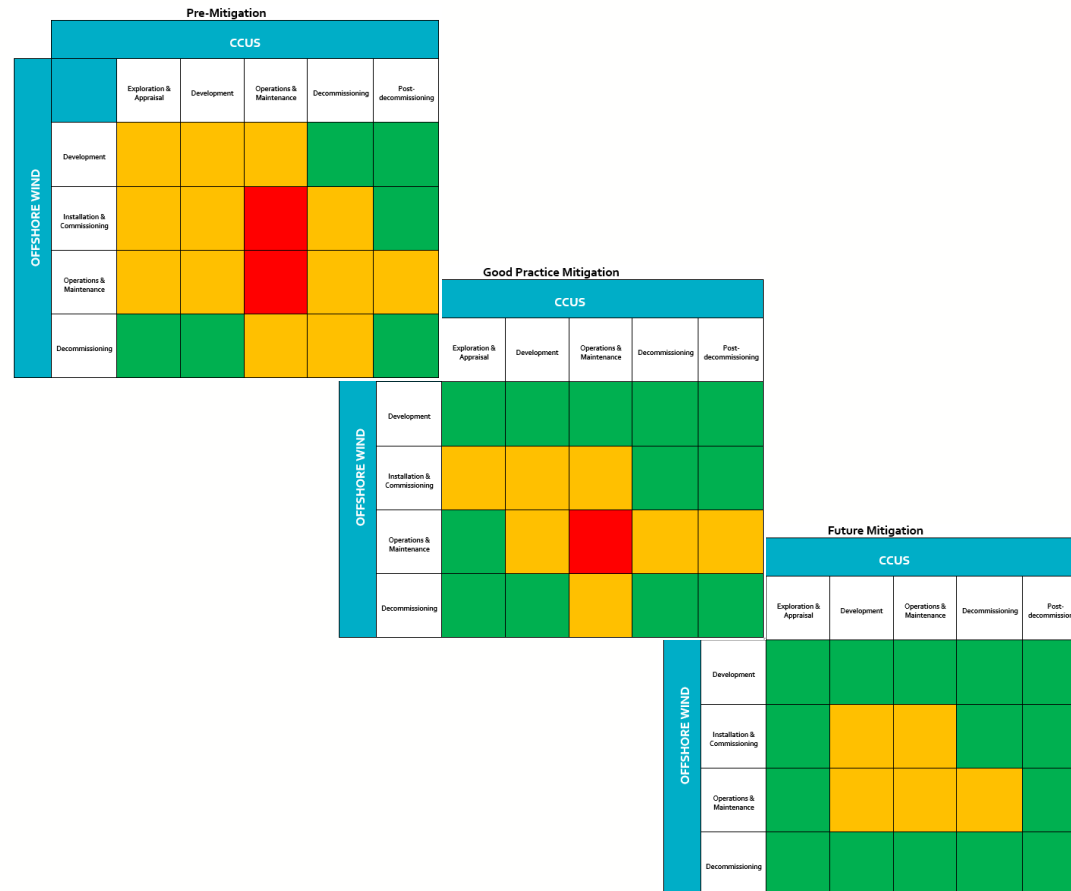
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5/ AOB

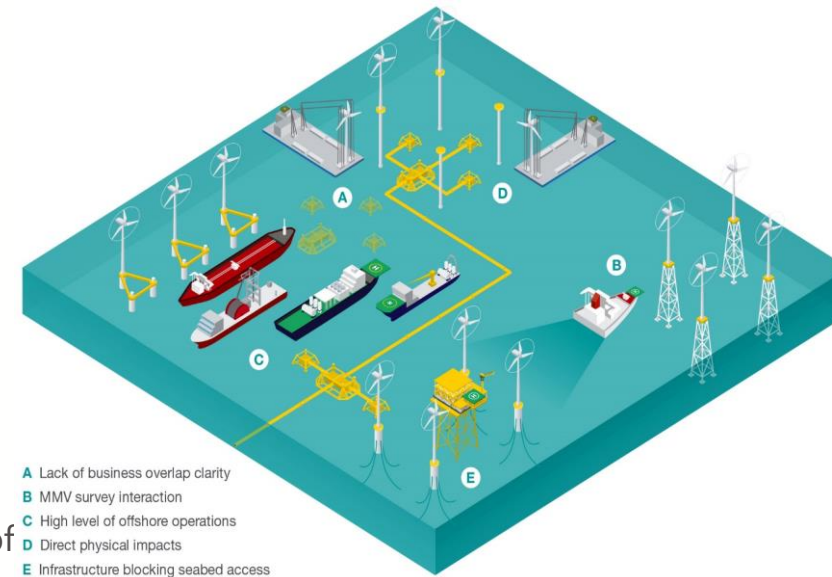
High Level Project Outcomes

- Pre Mitigation – 16 High Impact, 26 Medium Impact and 4 Low Impact Risks
- Good Practice Mitigation – 10 High Impact, 25 Medium Impact and 11 Low Impact Risks
- Future Mitigation – 2 High Impact, 23 Medium Impact, 20 Low Impact and 1 Very Low Risk



High Level Conclusions

- A lack of clarity over how issues associated with overlapping Offshore Wind and CCUS projects such as development planning / precedence, promotion of collaboration, alignment of standards, cross-industry liabilities and dispute mediation would be handled.
- The requirement to perform monitoring, measurement and verification (MMV) surveys (particularly seismic surveys) for CCUS projects across their lifecycle and the interaction with Offshore Wind infrastructure.
- A higher level of offshore operations that result from locating two projects in the same area.
- Direct physical impacts to infrastructure or personnel due to incidents occurring as a result of overlapping projects.
- The physical infrastructure of a pre-existing project blocking access to the seabed or modifying the requirements for new projects.



Recommendations Relating to MMV

The interaction of seismic surveys required for CCUS MMV operations with Offshore Wind infrastructure was highlighted as a key risk to overcome. The key recommendations for areas of future work to resolve this major risk area include:

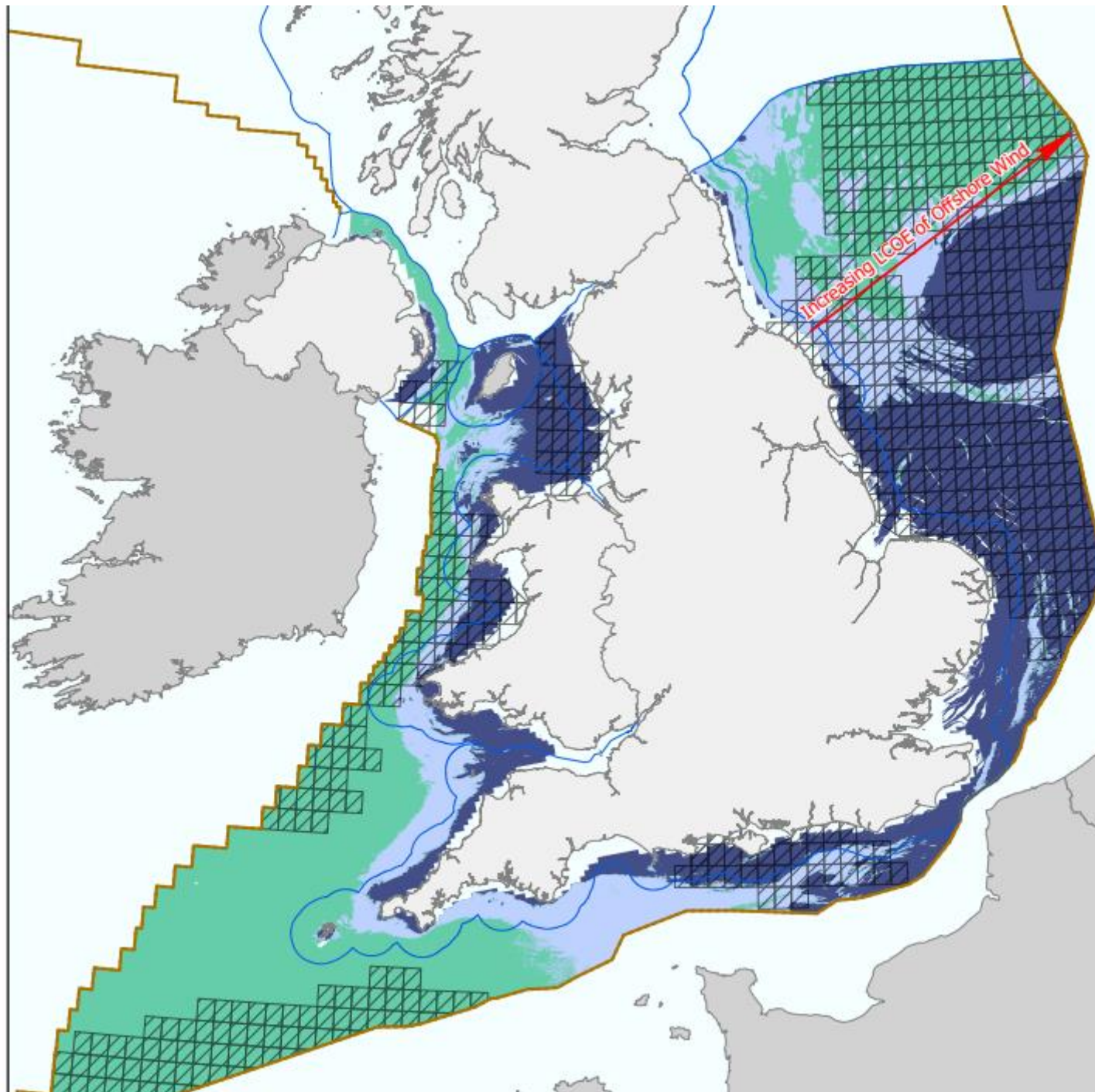
- Pro-actively review where Offshore Wind and CCUS projects could potentially overlap and consider performing site characterisation activities in these areas prior to any Offshore Wind or CCUS project development.
- Clearly define the best practice and minimum acceptable practice in terms of CCUS MMV schemes, through the regulator performing a review of current MMV requirements to minimise the need for seismic surveys in particular, and ensure that these are taken into account when planning overlapping CCUS and Offshore Wind projects on a case-by-case basis.
- Provide government/regulator support for a future technology development campaign in reservoir characterisation and MMV to remove the dependency on new seismic acquisition (e.g. forward modelling of response of different reservoir types' rock physics response to CO₂ flood; what constitutes appropriate monitoring post-injection).

Recommendations for Future Development.

Two areas of further development:

- Conduct further study to determine the potential allowable minimum separation distance between a CCUS storage complex and an Offshore Wind site to:
 - Minimise degradation of seismic survey results from Offshore Wind ambient noise or foundation signal reflection issues.
 - Examine the challenges presented by limiting access for wells and relief wells, including their exclusion zones for vessel and helicopter access.
 - Enable safe and efficient rig helicopter operations support (crew change, emergency response, search and rescue) within the wind farm.
 - Minimise impact to reduction of conventional weather window for rig mobilisation within wind farms.
- Assess the level of risk of corrosion damage to offshore wind infrastructure caused by saline brine displacement from CO₂ injection into saline aquifers at depth so that any mitigating measures such as separation distances between brine release wells and wind turbine substructures can be quantified and put into practice.

CO₂ Storage -Offshore Wind Potential Future Overlaps



- ▨ Relatively High Potential Carbon Storage
 - Floating Wind Key Resource Area
 - Fixed Wind Key Resource Area
 - Both Fixed and Floating Key Resource Areas
- Base Mapping
- United Kingdom
 - Territorial Waters Limit
 - - Renewable Energy Zone Limit
 - UK Continental Shelf
 - Europe

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Communications and Engagement Protocol

Objectives:

1. To facilitate clear and consistent messaging across all audiences to promote the activities of the Co-Location Forum.
2. To set out clear ways of working between all members.
3. To uphold and enhance the reputations of all organisations involved in the Co-Location Forum.

At a Glance: CCUS and Wider Policy

CCUS Policy

Cluster Sequencing:

- The two-phase process remains – and decisions about track one clusters will be made in October.
- Phase 2 negotiations will begin from November 2021 to give Government some flexibility so to respond to the Phase-1 cluster decision and the Phase-2 capture information it receives. Decisions on Phase 2 allocations will be made in Q1 2022.
- BEIS has increased its scale of ambition and allowed for the potential to accelerate timelines on CCUS clusters. It has changed language on the phasing of clusters to “at least 2 clusters by mid-2020s and 4 by 2030 at the latest”.

Business Models (Updated May 2021):

- Industrial Carbon Capture Business Model (Intended to support Phase 1 projects).
- T&S Regulatory Investment (TRI) Model (In development and intended for 2022).
- Dispatchable Power Agreement (DPA)

Design of the Carbon Capture and Storage Infrastructure Fund (Announced March & November 2020):

- The £1bn CCS Infrastructure Fund (CIF) will primarily support capital expenditure on T&S networks and early ICC projects, through capital contributions or grants to projects. Government prefers grant over equity as a default support mechanism, but is open to using CIF for equity, loans and loan guarantees dependent on need.
- BEIS will develop the final design of the CIF alongside the cluster sequencing process, business models update and finalising funding streams.

UK CCUS Supply Chain Roadmap (Announced May 2021):

- The UK CCUS Supply Chain Roadmap includes mapping the CCUS supply chain and identifying skills and capability gaps.
- The roadmap also makes clear that Government expects industry, potential clusters and project developers to be closely involved in creating and developing the UK CCUS supply chain and that the approach of clusters to UK supply chains should be set out in their bids.
- The approach is still one of supporting supply chain capability rather than trying to use harder content requirements to drive up demand. However government does say “We intend to provide a further update on our approach to UK CCUS supply chains by the end of 2021. Building upon the lessons of offshore wind and noting the sector’s commitment to increase UK content to 60% by 2030, and also noting the voluntary target of 50% UK content within the North Sea Transition Deal, that update may consider what further steps industry may wish to take to boost the UK CCUS supply chain.”

OSW & Wider Policy

- Net Zero Review
- Hydrogen Strategy
- Draft Energy NPS
- Offshore Transmission Network Review
- Party Conference Season
- HMG Net Zero Strategy
- Budget 2021
- COP 26
- NI Energy Strategy Review
- Environmental Bill

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