2026

Project Anemone – Colocation of Offshore Wind, CO2 Storage & Oil and Gas

SUMMARY OF OUTPUTS AND FINDINGS

PROJECT DELIVERY PARTNERS: DECARB SCOTLAND, OEUK AND OREC

Acknowledgement: This project would not have been possible without the generous time and contributions from several regulatory bodies, consenting bodies and many operating oil and gas, offshore wind and carbon capture and storage developer companies.

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Executive Summary

Project Anemone was sponsored by the Offshore Wind and Carbon Capture and Storage Colocation Forum[1] as part of the Forum's work on co-location. In parallel, members of Offshore Energies UK (OEUK) requested they facilitate activity to support colocation of offshore projects with oil and gas (O&G) activity on the UK Continental Shelf (UKCS) which resulted in OEUK sponsorship of the project. Originally conceived by Decarb Scotland (formerly NECCUS), Project Anemone was delivered by a partnership of OEUK, the Offshore Renewable Energy Catapult (OREC) and Decarb Scotland, and was expanded to cover carbon storage (CS), offshore wind (OSW) and O&G to explore the challenges and opportunities associated with offshore colocation of these sectors. The project responds to growing pressure on seabed space as the UK pursues Clean Power 2030 and longer-term net zero objectives, which can create circumstances where seabed licences and/or leases are colocated - in close proximity or overlapping.

There are several existing examples of colocation across the UKCS, and as such, Project Colocate[2] and Project Anemone were developed to explore the opportunities and challenges. Project Colocate set out to understand the risks, opportunities and practicalities of colocating OSW and CS infrastructure, including access, geological risks and monitoring. Project Anemone focussed on providing developers and wider marine stakeholders with clear insight into regulatory and leasing pathways, overlap risks and potential enabling actions for colocation and informed decision-making. The project was structured around three aims:

- To map regulatory and consenting processes
- Identify and prioritise operational opportunities and challenges
- Identify actions that could help realise opportunities or overcome barriers

The first stage of Project Anemone established the foundation for the project through desk-based research and interviews with regulators, governing/licensing/leasing/consenting bodies[3] and trade organisations. This work demonstrated that perceptions of colocation challenges by those interviewed are driven less by technology incompatibilities and more by the interaction between seabed agreements, i.e. leases from seabed owners, licences from regulators and consents from marine planners, temporal and spatial elements of project development, differing sectoral pathways and uncertainty over how overlapping interests are considered and managed in practice. It was highlighted that timing can be as important as location, that technical solutions are likely to be highly site-specific, that few international models are directly transferable to the UK context, and that stronger communication, earlier transparency and greater foresight are needed as offshore activity intensifies. Existing commitments, misaligned project timelines and gaps in coordination between bodies with overlapping responsibilities were identified as key sources of colocation risk. The Southern North Sea and East Irish Sea were highlighted as areas of particularly high activity for all three sectors.

[1] Offshore Wind and CCUS Colocation Forum

[2] Project Colocate Report

[3] Governing/licensing/coordinating bodies will be referenced as "relevant bodies" throughout the rest of the report

The second stage of Project Anemone built on this evidence base through pre-workshop surveys, three sector-specific workshops and a combined cross-sector workshop with representatives from developers in all three industries. These discussions confirmed that many of the most significant barriers to colocation arise at the interface between leasing, licensing, consenting, commercial decision-making and operational planning. Although each sector approached the issue from a different starting point, a high level of commonality emerged. Across the workshops, participants consistently pointed to the need for clearer governance and decision-making, earlier visibility of overlap risk, better alignment between leasing, licensing and consenting, more proportionate and timely engagement, improved data sharing and interoperability, and more consistent approaches to agreements and operational colocation. The combined workshop further reinforced that many colocation issues sit partly outside developer control and are shaped by the interaction of public bodies, seabed managers, strategic planning processes and sector-specific regulatory systems.

A key message from the project findings is that colocation is generally seen as achievable, but only where uncertainty is reduced early and where relevant parties have sufficient visibility, time and clarity to engage. Developers expressed a strong view that most colocation challenges can be overcome, particularly where there is sufficient forward planning and where technical and operational issues are identified before projects are locked into specific designs, consenting commitments or commercial positions. At the same time, the project found that some of the sector wide options rather than project specific ones may be harder to deliver in the short term, and that near-term progress is likely to depend on practical improvements in evidence, coordination, visibility and engagement. Project Anemone has provided constructive points for improving colocation across OSW, CS and O&G, while also highlighting where further work is needed to support future decisions.

The outputs presented in this report are grouped into three categories:
Solutions discussed – key details of ten solutions identified by industry to support colocation.

A. An overarching coordinating body
B. Make early cross-sector engagement a licence condition
C. Clear seabed priorities (i.e. is it strategy, planning or scale)
D. More collaborative regulatory body / licensing body involvement in pre-licensing, for example surveys / shared surveys
E. Ensure colocation risk is visible before bid submission
F. Alignment between Marine Data Exchange and National Data Repository
G. Show implications of colocation in case studies, including impact on project finances
H. Regional working groups
I. Implement similar process to drill rig schedule
J. Establish what colocation issues can be overcome and what can't, and feed back to responsible bodies to avoid these situations

Development of good practice guidelines – suggestions to evolve existing good practice and activities based on feedback from the sector workshops.

Complementary work – areas where additional evidence/analysis or further work may be required to enable implementation of the solutions discussed.

Background

Project Process

Project Anemone was delivered through two stages of engagement. The first established a shared understanding of the regulatory landscape and the operational issues associated with colocation. The second moved into detailed, operator/developer-led discussion on how colocation can be better managed across OSW, CS and O&G. Together, the two stages produced the evidence base from which the solutions, good practice developments and complementary work presented in this report were drawn.

Regulator and Stakeholder Engagement

The first stage engaged regulators, public bodies, seabed managers and trade organisations through structured interviews, alongside desk-based research into the regulatory and consenting regimes for each sector. This work produced a detailed picture of the development pathways for OSW, CS and O&G, including the distinct roles, timelines and interactions of the bodies involved at each stage. Process charts setting out the regulatory and leasing regime for each sector are provided in Appendix 1.

Several cross-cutting themes emerged from this engagement. Colocation challenges were found to come from the interaction between project timelines and existing seabed agreements, rather than from a single technical issue in isolation. Stakeholders noted that timing can be as critical a factor as location, that solutions will often need to be site-specific, and that stronger communication between sectors, regulators and seabed owners is essential. The Southern North Sea and East Irish Sea were identified as areas where colocation pressure is greater, and few international models were found to be directly transferable to the UK context.

Developer and Operator Engagement

The second stage built on this evidence base through pre-workshop surveys, three sector-specific workshops and a combined cross-sector workshop with developers and operators from all three industries. The surveys were used to shape the agendas around the issues developers considered most important. The workshops then explored operational, regulatory, environmental, commercial and technical requirements in more detail, with a particular focus on regulatory clarity, the alignment of licensing and leasing processes, technical and operational interfaces, early engagement, and data sharing and agreement structures.

The work also highlighted that assumptions about roles and decision-making are not always well understood across sectors, and the allocation of seabed, for a specific use, is not always visible. This can create circumstances where seabed agreements are in proximity or overlapping, and developers are making investment and operational decisions unaware of this potential colocation. Clarifying the roles of these bodies was identified as important to effective colocation management as several of the issues raised reflected uncertainty not only about process, but about which body is responsible for which type of decision.

CS discussions highlighted opportunities around greater forward visibility of activity, clearer process guidance, stronger cross-regulator coordination, and greater confidence in alternative monitoring technologies. Monitoring requirements, particularly seismic monitoring, were identified as one of the most significant colocation issues, especially where these interact with OSW layouts or access requirements.

For OSW, the strongest opportunities related to reducing uncertainty much earlier in the project lifecycle. Participants noted that OSW often must make major design, consenting and financing commitments before colocation risks are fully understood, meaning that late-emerging constraints can affect a project's financial viability. The most important opportunities identified were clearer governance, better pre-lease visibility of overlap risks, more proactive marine spatial planning, structured early engagement, and mechanisms for identifying conflicts before project parameters become fixed.

O&G discussions focused on predictability, coordination and operational practicality. Participants highlighted that operators often must manage interfaces with multiple regulators and can carry a disproportionate burden in explaining access needs, safety requirements and timing pressures. The main opportunities identified were greater cross-regulator coordination, clearer ownership of decisions, use of standardised agreements, joined up operational guidance, stronger forward visibility of activity and schedules, and improved approaches to cumulative effects planning.

Although each sector approached colocation from a different starting point, the workshops showed strong commonality. Across all three sectors, participants pointed to the same broad opportunity areas: clearer governance and decision-making, earlier visibility of overlap risk, better alignment between leasing, licensing and consenting, more proportionate and timely engagement, improved data sharing and interoperability, and more consistent frameworks for agreements and operational coexistence between colocated sites.

The combined cross-sector workshop brought together a small group from all three industries to review these themes and test which issues and opportunities were shared. It recognised that some of the most challenging aspects of colocation sit in the interfaces between public bodies, seabed managers, leasing and licensing arrangements, consenting pathways and strategic planning processes, and therefore extended the discussion beyond matters within developer control. The key findings of these four sessions can be seen in the following sections.

Key findings

The information gathered during Project Anemone culminated in discussion of solutions that were seen to support effective colocation, reduce inefficiencies associated with colocation and address some key challenges. It also highlighted where there may be an opportunity to use existing procedures or activities and where complementary work may be required to enhance the ability to implement solutions. Therefore, the next section of the report is split into three groups:

1. Solutions discussed – key details of solutions identified by industry to support colocation.
2. Development of good practice guidelines – suggestions to evolve existing good practice and activities based on feedback from the sector workshops.
3. Complementary work – areas where additional or further work may be required to enable implementation of the solutions discussed.

Solutions discussed

The feedback from the individual sector workshops shaped discussion in the combined sector workshop where several possible solutions were discussed and evaluated. The ten potential solutions with details and industry commentary are provided in the subsequent section.

These ten solutions were assessed during the combined sector workshop against the following criteria:

- Ease of implementation/development
- Operational impact
- Commercial impact
- Regulatory impact / impact of regulations
- Time impact
- Repeatability
- Likelihood of organisational buy-in
- Technical feasibility

Coordinating body [A]

General view on solution discussed: Positive, high impact with potential for significant effects on operational aspects of projects and good repeatability but more difficult to implement.

Perceived Level of industry ability to implement: Low.

Perceived Level of regulator/governing body ability to implement: Medium.

Main issues addressed: Perceived lack of communication between regulators and governing bodies and ineffective marine spatial planning at a spatial and temporal level.

Main issues to implementation: Requires one body to act on behalf of other regulators' or bodies' strategic requirements.

Details of solution discussed: Participants indicated that a single body with visibility across projects in feasibility, development and operational stages would be beneficial. This view reflected a perceived lack of coordination between regulators and relevant bodies[4] which, from the perspective of participants, can contribute to sub-optimal colocation outcomes. Participants noted that developers are often required to act as an intermediary when responsibilities sit across different regimes and are shaped by differing organisational strategies and aims. They suggested that this can lead to inconsistent expectations, incompatible project timelines and the need for ongoing and repeated engagement. Participants also highlighted uncertainty around decision-making protocols, particularly in colocation scenarios where timely clarity is critical.

Participants generally did not consider that this would require the creation of a new regulator; rather, they suggested a single unit with visibility across relevant projects and an understanding of each regulator or relevant bodies' planning and strategic requirements and considered DESNZ to be a suitable option. They advised that clearer oversight of projects and the associated drivers of regulators and relevant bodies could support more coherent spatial and temporal planning. Participants also suggested that such a body could help manage colocation challenges by considering the interaction between policy drivers, and regulatory and statutory requirements across the relevant parties.

Existing work: *The consenting lifecycle of marine geological carbon dioxide stores*[5] is an existing report that provides a single, shared reference framework outlining roles and responsibilities of organisations involved in the consenting lifecycle of marine geological CS in the UK. This work is a representation of the activity and responsibilities across a complex, multi-regulator consenting landscape and can therefore be used by stakeholders to navigate one sector involved in UKCS colocation.

Make early cross-sector engagement a lease/licence condition [B]

General view on solution discussed: Positive, high impact with potential for significant effects on operational aspects of projects alongside a perceived ease of implementation. There was a consensus that its impact on timescales would be less positive than other solutions.

Perceived Level of industry ability to implement: Low.

Perceived Level of regulator/governing body ability to implement: High.

[4] some regulators and governing bodies in the pre-workshop surveys of Project Anemone highlighted this as an issue from their perspective as well.

[5] The consenting lifecycle of marine geological carbon dioxide stores, DESNZ

Main issues addressed: Lack of early communication between developers in current system.

Main issues to implementation: This has started to be implemented in rounds of CS and more recent OSW leasing therefore limited issues to implementation; however, it is crucial to ensure that early engagement is effective and strategic.

Details of solution discussed: Stakeholders viewed this as a way to ensure timely engagement between relevant parties. Feedback from the workshops indicated that engagement between sectors may be limited unless an obligation is in place. It was therefore suggested that including early engagement requirements within lease or licence conditions across all sectors could increase engagement and support more timely discussions and information sharing. Early-stage information sharing was recognised as challenging, given potential commercial implications; however, early engagement could provide collocating organisations with more effective lead times.

It was also highlighted that the current lack of early engagement can lead to some of the potential challenges that are associated with colocation being discovered further down the development pathway with a large impact on the risk and financing involved with the project. There were examples provided in the sector workshop of projects discovering colocation issues late into their development timelines, with no clear route to resolution resulting in large cost being accrued by both parties to reach legal agreements and compromises.

Existing work: This solution has already begun to be implemented in some of the more recent leasing rounds with mirrored colocation clauses being used as a tool across sectors to enable consistent approaches to colocation and monitoring considerations. However, during the workshop it was clearly stated that greater clarity around when and how to engage would be beneficial to all.

The Crown Estate and Crown Estate Scotland also encourage engagement through:

- Agreements prior to execution include a process to ensure that any conflicts identified lead to discussion among the impacted stakeholders.
- Initiatives to engage parties with rights overlaps to discuss likely challenges and solutions with the Seabed Owner.

Clear seabed priorities [C]

General view on solution discussed: Seen as likely to have a large impact on the operational and commercial success of projects. It also received a high likelihood of organisational buy-in from the developers.

Perceived Level of industry ability to implement: Low.

Perceived Level of regulator/governing body ability to implement: Low.

Main issues addressed: Lack of understanding of current UK seabed priorities, which use cases take precedence and how use conflicts will be resolved.

Main issues to implementation: Agreement between multiple bodies with different priorities.

Details of solution discussed: Participants agreed that deeper industry understanding of seabed priorities from bodies that impact the strategic, planning and scale elements of seabed use could provide them with greater clarity to plan more effectively where they should be looking to develop projects. This would be useful to them on both a seabed wide and a site-by-site basis.

Developers highlighted that knowing where their sector was positioned regarding priority, would allow for more informed decision-making in future.

This was envisioned as a comprehensive marine planning exercise with published results showing the priority areas for all potential seabed users and a predefined hierarchy showing who has the priority in each area.

Existing work: Tools such as The Crown Estate's Marine Delivery Route Map[6] offer invaluable insight into the current state of marine spatial planning; however, participants noticed a lack of clarity regarding how decisions will be taken in the future.

More collaborative regulatory body / licensing body involvement in pre-licensing surveys / shared surveys [D]

General view on solution discussed: This was seen as a potentially repeatable solution that would likely have positive impacts on timescales when considering colocation. However, it was viewed to have minimal impact on project commercial and operational aspects if not fully endorsed.

Perceived Level of industry ability to implement: Low/medium.

Perceived Level of regulator/governing body ability to implement: Medium.

Main issues addressed: Duplication of effort on early-stage survey work and missed opportunities for shared services, data, resources and aligned planning.

Main issues to implementation: Issues around commercial sensitivity and lack of cross-sector applicable surveys being undertaken.

Details of solution discussed: The topic discussion was twofold: 1) more collaborative engagement with regulators / licensing bodies in pre-licensing survey activity to enable 2) shared surveys.

More collaborative engagement with regulators and licensing bodies in pre-licensing survey activity[7] was proposed on the basis that regulators, seabed managers and public bodies may have visibility of other survey and preparatory work being undertaken. Participants suggested that this could enable regulators and licensing bodies to encourage earlier cross-sector or cross-organisation engagement and, where appropriate, help facilitate dialogue to support information sharing by addressing commercial sensitivity constraints. This was discussed as a potential enabling factor for shared surveys.

Shared surveys discussions were supportive of combining survey resources (e.g. vessels, mobilisation, etc.) where applicable, given the potential for positive impacts on project finances and timeline considerations. While it was acknowledged that some sectors require different spatial extents in their data, effective communication (which may be facilitated by regulators, seabed managers and public bodies, as noted above) and appropriate data sharing could support more robust survey campaigns and efficiencies in similar geographies, thereby supporting colocation efforts.

[6] Marine Delivery Routemap

[7] Collaboration across regulators and bodies was also seen as a positive in relation to shared surveys; if regulators have a good understanding of pre-licence requirements of their counterparts, they may be in a position to identify efficiencies between survey and preparatory activity. However, this would likely require a level of regulatory alignment between sectors in order for the survey data to be considered compatible.

One international example provided during this discussion highlighted the approach taken in the Netherlands where regulators/bodies were part of a consortium that commissioned survey data and when areas were licensed the survey data was paid for by the chosen project developer.

In this discussion, it was also highlighted that some survey requirements are the same, for example wildlife surveys, however they may have purpose specific, or time-bound limitations and that collaborative engagement may allow for survey criteria and survey data alignment.

Existing work: No UK-based examples of existing work being carried out were identified in the workshop.

Ensure colocation risk is visible before bid submission [E]

General view on solution discussed: Was positive, particularly on the impact on project commercials and operation, however it was deemed to have a low impact on time and repeatability.

Perceived Level of industry ability to implement: Low.

Perceived Level of regulator/governing body ability to implement: Low.

Main issues addressed: Developers lacking information on potential colocation at time of bid submission.

Main issues to implementation: New technologies will change what areas of seabed are suitable for use by certain sectors.

Details of solution discussed: Developers would find having sight of potential colocation areas desirable at the time of submitting bids because colocation impacts project decision-making, as well as planning and financing.

Participants noted that full visibility of future projects and/or complete removal of colocation risk cannot be guaranteed. However, improved availability of information to support decision-making for projects that may be affected by colocation would enable earlier engagement and allow colocation considerations to be incorporated into project planning.

Existing work: There are a number of existing activities that aim to support early transparency of colocation potential, including:

The Crown Estate and Crown Estate Scotland:

- Proximity checking flags other agreements where there is overlap or proximity. Proximity checking allows the Crown Estate's sector managers to ensure that in situ assets or current legal agreements are administered correctly and that they don't conflict with new assets or new agreement areas.
- Map function to enable projects in planning with Appraisal / Option for Lease (initial development agreements) to be publicly available to view[8].

- Information notices, for example:
    - OSW developers interested in ScotWind plan areas with overlap with Acorn were issued a notice explaining how this would be dealt with.

[8] Crown Estate Scotland Map & The Crown Estate Open Data Portal

- CS interactions were included in the INTOG Offer Document[9].

Alignment between Marine Data Exchange and National Data Repository [F]

General view on solution discussed: Was deemed likely to have a positive impact on commercial and operational aspects of projects but the interface with regulatory requirements could be more complex to manage.

Perceived Level of industry ability to implement: Medium.

Perceived Level of regulator/governing body ability to implement: Medium.

Main issues addressed: Availability of data, lack of sharing between industries creating duplication of survey work.

Main issues to implementation: Additional work would be required by developers to meet the requirements for both databases; CS developers already submit data to both.

Details of solution discussed: Would enable projects to be more aware of other activities and survey work that had been completed in an area. Participants noted that OSW and O&G currently feed into two different central databases, of which the other sectors were largely unaware. It was also noted that CS uses both, depending on the information being submitted.

The developers highlighted that there is a substantial amount of information generated by the projects that is required to be uploaded into public databases; this could be of use to other industries operating in or interested in the same location. By having a level of interconnectedness between the two existing major databases, would allow for greater access to potentially useful information.

Existing work: There is existing work being carried out to align these databases with related discussions continuing. Together, the NSTA, TCE and CES, along with other relevant bodies, are mapping data reporting requirements from different regulators/consenting bodies and exploring opportunities for streamlining to reduce the burden on both operators and regulators.

Show implications of colocation in case studies including impact on project elements [G]

General view on solution discussed: Viewed to be repeatable and have some impact on timescales with likelihood of organisational buy-in but this solution would be unlikely to impact colocation activity directly.

Perceived Level of industry ability to implement: High.

Perceived Level of regulator/governing body ability to implement: High.

Main issues addressed: Lack of understanding of how colocation is currently managed in projects and the subsequent impacts.

Main issues to implementation: Current colocation examples may be unable to fully disclose lessons learned or articulate impacts on cost and timelines until after projects are operational (or at all if commercially sensitive).

[9] INTOG Offer Document

Details of solution discussed: Participants indicated that using existing project case studies could support the dissemination of lessons learned and clarify potential impacts on project development, finances and timescales. Collaboration across industry was seen as supporting effective learning and knowledge sharing, and colocation-specific case studies were viewed as a means of presenting lessons learned through tangible examples. Participants also noted that case studies could help illustrate the potential impacts of colocation and reinforce the importance of establishing well-timed and effective approaches to colocation.

Case studies were seen to be possible for most projects and therefore repeatable, but some participants highlighted that some elements of colocation will be site-specific so lessons learned may not always be transferable between sites.

In some projects where colocation had occurred, developers felt that the overall impact of colocation could have made the project unviable at the outset, and by highlighting the issues they had been required to navigate and showing what "good" looked like, they could contribute to minimising ineffective colocation occurring or encourage effective colocation practices.

Existing work: While there are no specific in depth case studies, the Colocation Forum is aware of several instances where colocation has already arisen between CCS/OSW/O&G projects. These include a range of different spatial overlaps, phasing of operations and developer/operator obligations to regulations. Situations range from geological monitoring being incompatible with wind infrastructure to those where geological conditions may enable monitoring to be compatible. Phasing of operations has also been shown as a factor in operator/developer accommodation of colocation. Further details will require additional stakeholder engagement.

Regional working groups [H]

General view on solution discussed: Positive, high impact, considered easy to implement, repeatable, and would have a high likelihood of organisational buy-in. Viewed to have more limited impact on commercial and timescales.

Perceived Level of industry ability to implement: High.

Perceived Level of regulator/governing body ability to implement: High.

Main issues addressed: Lack of communication between sectors and differing stakeholders.

Main issues to implementation: Initial set up and buy-in from key parties.

Details of solution discussed: A number of working groups focussing on sea use, operations and maintenance within specific regions to better understand the variety of stakeholder activity and how this could impact projects and colocation. Participants stated representatives from project developers, as well as other key stakeholders (interconnectors, fisheries, shipping, etc.) would be needed to make this solution effective. By having a regional focus, it allows stakeholders to more directly communicate regionally-relevant specifics where needed. This regional delineation could reflect those regions used across the UKCS, e.g. Southern North Sea, East Irish Sea etc.

The creation of local cross-sector working groups was seen as a way to enable engagement between the sectors in a structured and regular manner. These working groups could also provide a forum for information sharing where colocation instances between multiple stakeholders would be identified in good time and allow any issues to be addressed.

This would require buy-in for participation and the terms and conditions of the working group/forum.

Existing work: While not specific to colocation, similar groups focussing on key topics were raised as examples, like the Underwater Noise Coordination Forum, initially established through OSW led coordination and later expanded to include O&G and CS and chaired by DESNZ, was raised as a good example of how these types of working groups/forums can be useful and aid timely resolution of issues.

Implement a similar process to that of a drill rig schedule [I]

General view on solution discussed: Potential to have impact on operational and technical aspects, with some limited impact on timescales and commercial aspects.

Perceived Level of industry ability to implement: Medium.

Perceived Level of regulator/governing body ability to implement: Low.

Main issues addressed: Missed opportunities for shared services and shared resources, reduces competition on in-demand services and could minimise environmental impact of ancillary activities.

Main issues to implementation: Communication of potentially commercially sensitive information; some level of compromise for timelines may be needed to maximise shared resource activity.

Details of solution discussed: This suggestion drew on established practice in O&G, where organisations can access information on offshore activity and vessel presence in a given area using a drill rig schedule, which is a time sequenced plan that allocates a rig across multiple wells, defining the order in which wells are drilled and the duration of each stage, from mobilisation through to completion. It enables efficient coordination of resources, minimises downtime between wells, and ensures the rig is used continuously across a drilling campaign. Participants suggested that improved visibility of activity could support more effective planning and alignment of similar work, reduce hire costs of vessels and equipment, and create opportunities for vessel sharing across organisations, thereby reducing the risk of unavailability of in-demand resources.

Existing work: No specific examples for colocation purposes were highlighted.

Establish which colocation issues can and can't be overcome, and feedback to responsible bodies to avoid these situations occurring [J]

General view on solution discussed: Positive across the range of criteria assessed with commercial impact and likelihood of organisational buy in highlighted as the areas where this could make the most difference.

Perceived Level of industry ability to implement: High.

Perceived Level of regulator/governing body ability to implement: High.

Main issues addressed: Ineffective colocation (relating to insurmountable temporal and spatial elements of projects collocating).

Main issues to implementation: Navigating the variety of outcomes of spatial and temporal colocation to understand if colocation will result in an insurmountable colocation challenge.

Details of solution discussed: Participants agreed that most challenges associated with colocation can be resolved, drawing on sectoral experience across O&G, CS and OSW alongside effective collaboration with regulators and **relevant** bodies (noting that there may be impacts on costs, timelines and project scope). Participants also noted that some colocation challenges may be

insurmountable where regulatory, planning or project-specific requirements cannot be met within the spatial and/or temporal constraints of a given scenario. In such cases, one or both colocated projects could be paused or halted. Participants therefore emphasised the value of working with regulators, seabed managers and public bodies to define and document the circumstances in which challenges are considered insurmountable, to inform spatial planning and leasing and/or licensing activity and reduce the likelihood of avoidable project development effort being committed to unviable colocation locations. Participants also noted that this consideration applies both to future projects and to later phases of existing projects that may be affected by colocation over time.

Existing work: Project Colocate[10] investigated some of these potential technical constraints of collocated OSW and CS, highlighting where current technology may limit the ability for some types of colocation.

[10] Project Colocate

Development of good practice guidelines

The following subset of points highlights opportunities where existing processes and guidelines could be evolved to improve confidence, reduce uncertainty and support more informed decision-making across OSW, CS and O&G sectors in colocation matters. These examples were raised by project developers in the sector workshops and were largely viewed as existing activities or documents that can be repurposed and expanded to support colocation.

Effective cross-sector engagement

As previously mentioned, early cross-sector engagement has already been mandated in recent CS and OSW leasing rounds, helping to address perceived ineffective communication and inefficiencies between sectors. While this may be addressed to some extent by solutions B and D, a useful resource, whether as guidelines or good practice, would document:

- what information has been shown to support effective early cross-sector communication;
- which type of job functions support an effective conversation, and;
- how to ensure that communication channels are established and maintained.

Participants highlighted that cross-sector engagement at the earliest opportunity supports decision-making and reduces the impact on colocated projects rather than engaging only when a problem may arise.

Project developer and regulator / coordinating body process flow charts

Information gathered during the pre-workshop surveys showed the complex nature of the landscape in which project developers, regulators and relevant bodies must participate to progress a project from concept to commission. Participants felt that a document in the form of a flow chart for all three sectors that highlights key decision gates, decision options and outcomes and subsequent activities or processes would increase awareness of all key stakeholders.

This document would include one flowchart for industry and one for regulators/relevant bodies. If, and when, a colocation interface arises, all participants can understand the next steps and decisions that will be carried out and therefore support effective dialogue, information sharing and engage in a timely manner.

DESNZ have recently published (post the start of Project Anemone) a document which outlines the roles and responsibilities of organisations involved in the consenting lifecycle of carbon dioxide storage in the UK[5]. As part of Project Anemone, a mapping of regulatory roles was undertaken and shown in Appendix 1. Both documents provide the foundation for this solution, with further clarity required on regulator decision processes, remediation protocol and stakeholder interfaces.

This type of document would support discussed solutions A, B and to some extent C, D and J.

Working group / forum details and agreements

Cross-sectoral working groups, including regional working groups explored in discussed solution H, showed how participants thought that structured, regular and sometimes target driven engagement in a forum would support progress. Therefore, details (terms of reference, communication agreements, participation strategies etc.) for existing groups, forums and councils could be reviewed and used to highlight what has been effective to support the delivery of such groups.

This discussion stemmed from drawing on the example of a pre-existing working group focussed on marine noise and noise thresholds (Underwater Noise Coordination Forum). Developers considered this example to be working well in alleviating issues and that a similar approach could be applied to other challenges.

This would support delivery of discussed solutions A, C, E and H.

Colocated operations guidance

Participants were keen to see a document that articulated principles (or regulatory requirements where relevant) to access requirements, safety zones, operational interfaces and environmental mitigation for O&G, CS and OSW activity. This was to ensure that the similarities or differences in requirements for operational aspects of each sector are well understood by other sectors and hence decisions relating to spatial or temporal elements of colocation can more readily factor in operational interdependences/interfaces.

It was envisaged that industry and regulators could develop this guidance together, relying on their knowledge of regulations, stewardship expectations, operational requirements and HSE measures required to safely and effectively operate projects.

Throughout the project recurring uncertainty was identified, therefore guidance around helicopter access, vessel movements, safety zones, well intervention, decommissioning and simultaneous operations in congested areas would be helpful. Guidance, alongside timely engagement between relevant parties, would support clear, site-specific arrangements for access, safety and coordination before activities become constrained by design, consenting or construction commitments. This was particularly relevant in relation to aviation requirements, vessel coordination, access corridors and how these interact with planned, existing or late-life infrastructure, as these were consistently highlighted as areas where unmanaged overlap could create avoidable risk, delay and commercial impact. While solutions will often need to be tailored to individual sites, a proactive and structured understanding and articulation of factors shaping operational aspects of projects could help reduce uncertainty and improve the ability of sectors to work alongside one another effectively.

This would support delivery of discussed solutions B, D, E and I.

Complementary work

The following points highlight where complementary work or further research could improve confidence, reduce uncertainty and support more informed decision-making in colocation activities. The solutions discussed were viewed positively in principle but could be recognised as challenging to implement without a stronger evidence base or clearer understanding of site-specific constraints.

Technical conditions to define feasible colocation

The pre-workshop surveys found that colocation issues are often site-specific and hence individual technical solutions may be required rather than universal fixes. This was reinforced throughout the sector workshops, particularly in relation to CS monitoring, seismic requirements, operational access and wind farm array design. Further work would therefore be valuable in identifying typical operational scenarios, the main constraints associated with them, and the extent to which those constraints can be mitigated through design, timing, monitoring changes or operational agreements. Such work would be especially useful in moving the discussion beyond general principles and towards a more practical understanding of where colocation is realistically achievable.

A clear evidence base on the technical conditions under which colocation is likely to be feasible would potentially enable effective colocation interfaces to be commonplace, helping to support discussed solutions A and J.

Readiness and acceptability of critical technologies

CS monitoring challenges, particularly where colocated with OSW, was a key topic of discussion in the sector workshops, as it is one of the most important technical challenges regarding operation. Investigation of alternative monitoring approaches is underway, including passive seismic and fixed monitoring systems, but participants indicated that confidence in these approaches currently remains low and may require long verification periods. Future work could therefore usefully assess the practical readiness, acceleration of regulatory acceptability and likely deployment conditions for alternative monitoring technologies, as well as their implications for underwater noise, cost and colocation with OSW infrastructure. This would help provide a basis for future regulatory and commercial discussions in areas where monitoring requirements are a key constraint.

Practicalities and governance of shared data

Further understanding the practical value, limitations and governance of shared data and survey information would address key constraints identified in the sector workshops, including commercial sensitivity, compatibility/relevance and the period of validity for data.

The separate treatment of OSW and O&G data systems, and uncertainty over what can appropriately be shared before lease award or bid submission due to commercial sensitivities, suggests that additional work is needed not only for the data platform alignment, but on the types of information that are genuinely useful to exchange at different stages of project maturity. Further, an understanding of what governance arrangements would be needed to support sharing would be crucial to avoid undermining competition or commercial confidentiality issues.

Engagement / decision process and triggers

Initial findings identified communication between industries as a key enabler of colocation, while later work highlighted uncertainty around the right time to engage, the right level of detail to provide, and the appropriate route for escalating unresolved issues. Future work could therefore focus on

developing and testing practical tools such as decision route maps, engagement triggers, issue-escalation pathways and project maturity thresholds, for when projects should move from high-level discussion to agreements around infrastructure placement, design and operational alignment. Learning from prior incidences of colocation would aid this work. This would complement broader calls for improved engagement by providing an operational framework for how and when that engagement should take place.

Conclusion

Project Anemone shows that the UK's accelerating offshore energy ambitions will increasingly bring OSW, CS and O&G activities into close proximity, creating opportunities and practical challenges in shared use of marine space. Evidence across the project indicates colocation is achievable where uncertainty is reduced early and decision-making is transparent, timely and supported by a shared, proportionate evidence base. The most significant barriers arise less from technical incompatibility than from overlapping leases and licences, misaligned timelines, fragmented governance (including devolved decision-making), limited early visibility of overlap risks, and uncertainty over when and how sectors should engage.

Stakeholders emphasised that early transparency, proportionate engagement, better alignment of leasing, licensing and consenting, and site-specific technical solutions are more effective than a one-size-fits-all approach. Workshops highlighted risks from late constraint identification, inconsistent data sharing and pre-lease information, and practical operational challenges including access, monitoring and safety. They also underlined that delivery risk is driven mainly by implementation practicality and technical feasibility rather than regulation alone, supporting a staged approach that prioritises feasible actions while building evidence and mitigation for higher-risk options.

The work also revealed substantial common ground across all three sectors. Despite differing regulatory pathways and constraints (including across devolved regions and administrations), developers and regulators identified the same core needs: clearer roles and expectations, better coordination between relevant bodies, improved use and sharing of existing information, earlier engagement, and more practical support for managing operational interfaces.

Overall, the outputs suggest more effective colocation will depend on clearer roles, expectations and constraints, and earlier, more structured discussion between regulators, relevant bodies and developers. Developers noted most issues can be addressed where parties have time, visibility and confidence in the evidence to assess options, understand trade-offs and implement proportionate solutions. This reinforces the value of reducing uncertainty at bid, early design and pre-consent stages, before projects are locked into technical designs, consenting assumptions or commercial positions.

Project Anemone also recognises that not all colocation scenarios will be deliverable, particularly where spatial, temporal or regulatory constraints are insurmountable. In these cases, early clarity is essential to support prioritisation and avoid effort being committed to unviable pathways. Improving transparency on where colocation is feasible, where further evidence or mitigation is needed, and where alternative approaches are more appropriate would help create a more predictable and proportionate development environment.

The project captures a system in transition, with developers, regulators and relevant bodies actively working through many of the challenges as experience grows and coordination improves. Project Anemone provides a practical basis for near-term improvement and a reference point for ongoing learning, helping OSW, CS and O&G to colocate more effectively as offshore energy activity evolves.

Appendix 1

		Appraisal Term			Operation Term			Post-Closure Period
		Appraise phase	Assess Phase	Define Phase	Execute Phase (3-4 years)	Operate Phase (25+ years)	Post-closure monitoring Phase	Post-transfer monitoring phase
CCS	The Crown Estate	Storage Exploration & Appraisal Agreement (SEAA)		Carbon Transport & Storage Agreement for Lease	Carbon Transport & Storage Lease			
	Crown Estate Scotland	Develpment Phase Agreement						
	NSTA	Carbon Storage Licence (CSL)						Termination of CSL
		Appraisal Term			Storage permit			Post-transfer period
					Operation term		Post-closure period	
	Ofgem				Carbon Storage Economic Licence			
	MMO / Marine Directorate				Marine Licence (if required for supporting systems)			
	OPRED			Review EIA	Environmental compliance monitoring			
	HSE	Statuarory consultee for all nationally important infratructure projects			Health and safety at work regulations			

Figure 1: Process chart for CS projects (correct as of November 2025)

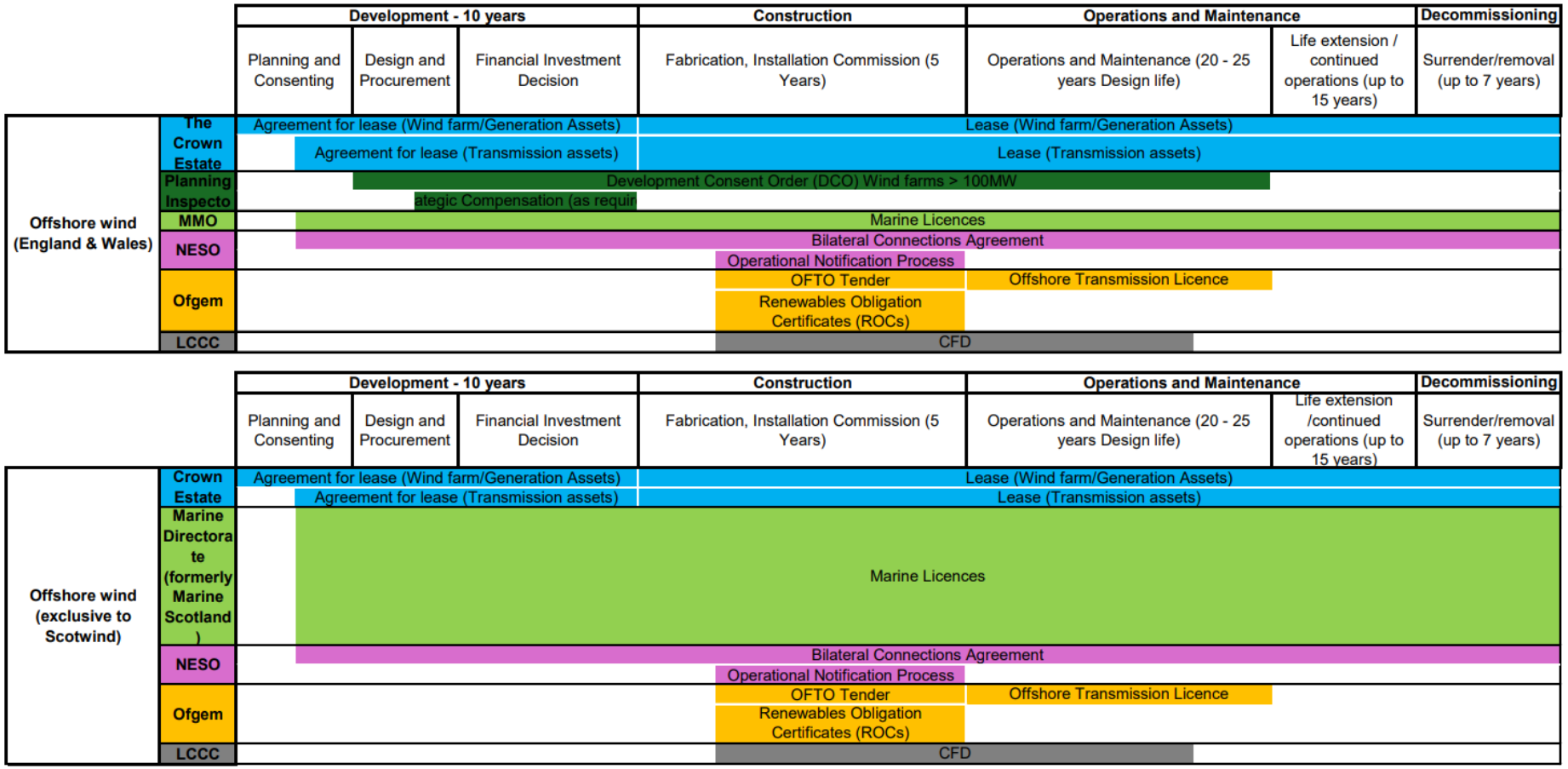

Figure 2: Process charts for OSW projects (correct as of November 2025)

		Pre-Licence			Exploration		Appraisal & Field Development			Production operations (Ongoing compliance with FDP terms) - Life of field	Decommissioning		
Oil & Gas	NSTA	Data acquisition and evaluation (Access to seismic / geological data under data licence) - **6-18 months**	Application for exploration blocks during licensing round (Technical, financial, and environmental capability assessment) - **4-9 months**	Licence Award (Seaward Production Licence (P Licence) or Onshore PEDL issued under Petroleum Act 1998) - **several months after applications close**	Exploration programme planning - **3-6 months**	Drilling consent (per well) (Well consent under Petroleum Act 1998) - **1-3 months**	Appraisal Drilling (Additional well consent and environmental approvals) - **4-8 months**	Field Development Plan (FDP) submission (FDP approval dependant on approval of EIA and required before production starts via Production Consent) - **6-12 months**	Flaring and venting consent (Annual or project-specific) - **2-4 months**	Measurement and reporting (Hydrocarbon allocation and metering approvals) - periodic	Cessation of Production (CoP) notification (CoP notified to NSTA and addressed through asset stewardship arrangements)	Financial assurance (Proof of financial security to fund decommissioning) - **6-12 months**	
							Pipeline Works Authorisation (PWA) (Required for hydrocarbon transport pipelines)			Flaring / venting renewals (Annual review and consent) - **1-3 months (assuming no complications)**			
	OPRED				Environmental approval (Offshore Oil Pollution Emergency Plan (OPEP) (*required for all stages*), EIA screening / consent) - **28 days**		Environmental Statement (ES) required for Schedule 1, Screening Direction (supported by EAJ) required for Schedule 2. 9-12 months.			Safety and environmental management (Ongoing HSE inspections, OPRED environmental compliance)	Decommissioning Programme (Formal plan under Petroleum Act 1998) - **12-24 months before major works**		Post-decommissioning monitoring (Site condition reporting)
											Environmental appraisal (Environmental decommissioning assessment) - **6-12 months**	Once DP is approved, resubmit decom permits before execution	
										Environmental permits (ETS, PPC, OCR, OPPC)	Financial assurance (Proof of financial security to fund decommissioning) - ongoing		
	MMO / Marine Directorate				Seismic or geophysical surveys (Marine licence if required) - **3-4 months**								
	HSE				Well notification (WONS) and accepted safety case required -**1-2 months**			Safety case update		Safety and environmental management (Ongoing HSE inspections, OPRED environmental compliance)	Safety verification (Safety case maintained through decommissioning)		

Figure 3: Process chart for O&G projects (correct as of November 2025)