

MOET project in-person meeting, 23 November 2023

Summary of stakeholder feedback

A face-to-face meeting was held in London on 23 November 2023 to support ongoing stakeholder engagement with the MOET project. The primary aim of the meeting was to bring together the project's diverse range of stakeholders to discuss different aspects of the MOET project:

- how the MOET project might address key issues facing stakeholders;
- any current knowledge gaps;
- how MOET might fill these gaps; and
- how MOET research should be shared with this diverse set of stakeholders.

A record of that meeting was captured in a follow-up document which reflected, as closely as possible, the words used by participants. All points recorded were grouped into broad themes and shared with participants. At that stage no attempt was made to identify whether activities could be considered in or out of scope, or make recommendations on priority areas of work.

This document summarises the main points raised at the November meeting that could be considered 'in-scope'. Each of the following headings indicates a key theme identified at the meeting and includes suggested activities that could be undertaken by the MOET project team. Here we propose priority activities for MOET from our engagement with you, as stakeholders, in November 2023.

Policy and Regulation

There is a clear need by some stakeholders to understand the regulatory landscape; who the various regulators are, what all the different regulatory processes are e.g. permitting, and who could provide coordination across different regulations in support of issues such as co-location. In addition, an understanding of the policy landscape and priority areas for temporary storage of hydrogen, offshore wind farms, and permanent geological storage of carbon dioxide is needed.

In terms of availability of data, there is a suggestion that regulators may be able to facilitate access to data held by different actors. First, we need to understand what data is currently available and where the gaps are.

Role for MOET

- *Review the range of regulators and current processes**
- *Review policy landscape for all three MOET technologies**
- *Facilitate exploration of regulation for co-location/co-existence (through meetings, correspondence, review of literature).*
- *Explore the role regulators could play in increasing access to data and information.*
- *Assess what knowledge regulators need and how this knowledge should be made available/accessed.*

*Link with University of Oxford Agile Initiative

Coordination

Stakeholders suggested that MOET would provide a useful coordinating function to support/convene stakeholder interactions across different operators and sectors. This in turn would support the bringing together of knowledge and evidence from all the different actors.

Useful information would include, which actors are engaged in technical work and any restrictions on sharing this information.

A collaborative space for knowledge sharing between different actors was a strong emerging theme. To facilitate collaboration, information is needed on who the different actors are, who is missing from the current list of MOET stakeholders and their relevant activities, what knowledge is required and where the gaps are.

Role for MOET

- *Generate a list of all relevant actors and their roles/interests in order to identify gaps in the list of MOET stakeholders.*
- *Review knowledge and information held by different actors that can be made available and identify any gaps. If there are gaps, why and are there any restrictions on use and sharing).*
- *Review who is carrying out technical assessments and what these technical assessments are e.g. storage feasibility assessments.*
- *Make links with other related programmes such as Offshore Wind Evidence and Change (OWEC) programme.*

Technical aspects of decarbonising/low carbon technologies

For the offshore energy transition technologies to be pursued in the UK, it would be essential to understand any technical barriers to storage and what monitoring requirements there would be; to understand what should be monitored in the short and long term e.g. safety monitoring of H₂ storage, and what monitoring tools would be needed to meet these requirements.

Stakeholders requested more information on the following technical aspects:

- Variability of the subsurface and location of containment structures
- Other factors that constrain the suitability of storage locations e.g. topography, geology, grid connection, grid capacity
- Technical feasibility and complexity of storage of CO₂ and H₂. For example, what is the storage capacity, integrity, performance of a storage location?
- How transferable the storage methods/leakage detection are between H₂ and CO₂
- The amount of storage needed and the scalability of storage in response to varying demand. (Whilst this is not something the MOET project can determine; it is worth recording here)

The safety case for storage was considered important; what risks should be identified and where they might occur e.g. risk of leakage. Other risks considered important were microbial risks and geotechnical risks and how these risks might be mitigated. Also, how this information could be communicated and shared. Uncertainty was highlighted as an aspect that is poorly understood.

Co-location/co-existence

Co-location/co-existence of different technologies requires further investigation and sharing of information between actors across different sectors. Stakeholders requested a greater understanding of the following:

- The extent of the Bunter aquifer in order to assess how different licence blocks might interact to support optimal use of the space.
- Whether gases need to co-exist and if interaction between gases might be an issue.
- Recommended distances between storage sites
- Pressure connection between licenced areas

Role for MOET

- *Review of existing monitoring tools and methods and identification of any gaps*
- *Recommendations for monitoring in the short and long term for both CO₂ and H₂ storage*
- *Review and assess uncertainties present in all three technologies e.g. uncertainty of storage capacity*
- *Map and/or model: extent of Bunter sandstone aquifer, location of containment structures, other factors constraining storage locations, storage capacity, integrity and performance*
- *Research transferability of storage methods and leakage detection between gases. (Whilst this may be out of scope, can be a recommendation for future work to support research into co-location/co-existence)*
- *Identify risks that may be associated with storage e.g. leakage, interaction between gases in the case of co-location, induced seismicity, microbial risk and geotechnical risks.*
- *Recommend distances between storage sites*
- *Assess likelihood of pressure connections within and across Bunter Sandstone Zone boundaries*

Impacts

The MOET project is focused on assessing the potential impacts of the three different offshore hydrogen storage, wind farm and CO₂ storage technologies. MOET will focus primarily on impact on cultural ecosystem services, however, impact on wider ecosystem services and receptors was highlighted as important by stakeholders. An understanding of longer-term impacts was also identified as important. Whilst out of scope, it may be worth considering how these longer-term impacts might be identified and considered as part of future research projects. Common themes identified included:

- Cumulative impacts of all three technologies
- The impact windfarms will have on mixing and sediment loads
- Impacts that will be important to understand as part of the ESIA process
- Potential impacts on navigation, marine zone congestion, shipping traffic
- Impact on marine restoration sites that overlap potential storage sites
- Physical and biological impacts of leakage of CO₂ and H₂

Role for MOET

- *List specific impacts being covered by the MOET project*
- *Explore impacts identified by stakeholders and whether they are, or can be, in scope*
- *Gain understanding of the specific requirements for assessing impact on the marine and coastal environment*
- *Identify all relevant ecosystem services and receptors and assess what is in scope and what could be considered as part of any future research*

Social impact and public perception

As well as gaining a greater understanding of the public understanding of net zero and the energy transition, stakeholders said they were interested in understanding community appetite for decarbonisation technologies, the geographic distribution of community views and comparisons between coastal and inland communities. This information would be particularly useful to inform government and stakeholders about regional nuances in views and attitudes to risk. There is an appetite to learn from previous studies about what works well to help gain acceptance; how to conduct good communication to avoid barriers to projects progressing due to poorly understood risks and how to communicate risk of issues such as leakage, induced seismicity.

Role for MOET

- *Literature review of previous studies*
- *Explore how information could be most effectively shared with stakeholders*
- *Explore the possibilities, within scope of MOET project, to address issues of community appetite, regional nuance, risk etc. Could these questions be answered through planned work programme?*

Information and knowledge sharing

In exploring how data and information could be shared, it was clear that availability of spatial data via GIS and maps, as well sharing of common datasets to support co-location/co-existence, would be priorities. However, this aspect of the MOET programme was not explored fully and will require a dedicated session to take an in-depth look at how information can be made available through MOET.

The following data was requested by stakeholders:

- Location of current infrastructure, stored in one place
- Chance of success maps with assigned thresholds (this will require exploring how thresholds might be displayed e.g. RAG rating)
- Storage capacity
- Safety aspects/risks (see above section)
- Multi-client seismic data
- Legacy data e.g. wells
- Foundation datasets e.g. bathymetry
- Baseline environment data to enable measurement of change/impact

Role for MOET

- *Assess data/information requirements and what the data/information would be used for.*
- *Explore what are common requirements and what are specific to certain stakeholders*
- *Identify where the data gaps are*
- *Assess and collate what data is already available, including legacy data*
- *Explore what environmental baseline data is available, what is needed and identify any gaps.*
- *List data owners e.g. operators, and describe the data they hold*
- *Assess who can facilitate access to data (e.g. for regulators)*
- *Scope out some form of common information system/platform*
- *Investigate methods for information dissemination*