

# An Integrated North Sea

## Tackling the decision making challenge

With many stakeholders and users of the sea, including oil and gas, fixed and floating offshore wind farms, commercial fisheries and logistics, there is a need to facilitate cross-sectoral decision making to ensure optimal outcomes and positive environmental stewardship.

The National Decommissioning Centre (NDC) is playing a pivotal role in a collaborative project with the Net Zero Technology Centre (NZTC) and the National Subsea Centre to develop a Smart Energy Basin for the UKCS. This concept will provide a suite of decision support tools to map out stakeholders' interactions, visualising their many challenges and prospects for better ways of working.

To demonstrate the concept the project is utilising the NDC's simulator to model two large areas that include the Gannet and Scott fields, as well as a subsea area East of Shetland. Chosen because of their complexity, they feature ongoing oil and gas production, oil and gas decommissioning activities, marine protected areas, potential carbon capture and storage as well as significant wind farm developments.

The project is assisting the energy sector in reducing greenhouse gas emissions through improved emissions modelling, deployment of new technologies, operation optimisation and basin wide decision making. It is also focused on collaborative action to reuse and/or repurpose assets as part of the energy transition.

***“As an industry, we’re starting to look at decommissioning as one of the many stepping stones towards the North Sea’s part in the energy transition. The simulator offers a safe space for discussion allowing stakeholders to engage in better decision making processes around the energy transition, and through to energy integration. It allows stakeholders to look at the mature basin as one ‘user’, helping facilitate the conversations that need to happen between the parties which need to be involved.”***

**Innes Jordan,**  
Decommissioning Project Manager,  
CNOOC International

## Modelling technology in different environments

One of the major facilities at the NDC, which is core to the project, is its state-of-the-art simulator, which offers a visually immersive environment to model technologies, processes and data driven scenarios. This facility allows for the virtual trialling of specific technologies and innovations in real time under different sea and weather conditions. It provides a space to optimise and analyse operations before deployment without the high risk or cost associated with trials in open water. Examples include modelling of offshore wind mooring systems, assessment of novel wind turbine substructure designs and construction and testing of decommissioning scenarios.

## Simulator – fast facts

- Dome with 9m screen system
- 4 control chairs
- Control room with 3 separate interaction stations
- Modelling
- Ideal for technologies
- Library of marine assets with the ability to develop new models
- Simultaneous subsea and surface modelling
- Flexible stakeholder planning and operations optimisation

## Working with the NDC

- World renowned academics and researchers
- Experts in modelling and simulation
- Wide stakeholder engagement and industry expertise
- Leading edge real time physical simulator
- Reduce and manage risks
- Reduce offshore cost and emissions



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The simulator is funded by the Aberdeen City Region Deal through the NZTC and the Scottish Government's Decommissioning Challenge Fund.