North Sea Research and Innovation

A strategic crossroads for energy, sustainability, culture, and security

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North Sea University Partnership

North Sea University Partnership (NSUP) is a consortium of eight UK and Norwegian universities aimed at facilitating collaboration, addressing challenges, and cultivating a conducive environment for academic and research partnerships.

NSUP institutions bring together world-class research strengths across energy, the green transition, marine science and environmental humanities, positioning them as central partners in advancing UK–Norway and EU priorities.

This partnership and our focus on the North Sea and energy transition is further strengthened by the new strategic partnership between UK and Norway, including an MoU on Green Industrial Partnership where research collaboration through Horizon Europe is mentioned explicitly.

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Key messages

- The **North Sea** is a **strategic crossroads for energy, sustainability, culture, and security in Europe**. It is not only an energy and resource hub but also a laboratory for sustainable innovation, ecosystem conservation and heritage preservation.

- Broad European collaboration, including in research and innovation, is vital for sustainable development in the North Sea. We recommend prioritising funding for research and innovation on **energy, green and just transition, marine science, the environmental humanities and legal and regulatory research**, to secure a sustainable and resilient North Sea.

- The **North Sea University Partnership (NSUP)** unites world-class universities to collaborate on research, innovation, and education. We stand ready to strengthen cooperation and deliver transformative research and innovation for Europe and the world on the path towards a safe and sustainable future.

Introduction

The North Sea is in transition. It is a critical hub for Europe's energy transition, offering abundant renewable resources, key offshore infrastructure, and a rich marine environment. At the same time, the North Sea region also faces important challenges: ensuring space for multiple activities and addressing ecological pressures, as the marine ecosystem is significantly affected by climate change and human activities.

The strategic importance of the North Sea for Europe is increasing, as is the urgency of providing security for all sectors operating in the region amid geopolitical instability. Broad European collaboration, including in research and innovation, is vital for sustainable development. It is necessary to enable North Sea countries and the EU to address climate change impacts on marine and coastal ecosystems while pursuing renewable energy, food security, strategic independence, and infrastructure and transport security.

The North Sea University Partnership (NSUP) is a consortium of eight UK and Norwegian universities with a long history of collaboration across Europe and participation in EU research and innovation programmes. In this paper, we highlight the importance of the North Sea for Europe and the need to fund research and innovation across a broad range of fields. We present recommendations for future Research and Innovation priorities as universities with leading research environments in relevant areas, based in UK and Norway; North Sea countries strongly committed to continued collaboration with the EU on advancing the energy and green transitions, the blue economy, and marine sustainability.

The North Sea - Shared Challenges and Priorities

For centuries, the North Sea has been of vital importance to Europe as a source of food, as well as for transport, trade, and cultural exchange, and later for energy from fossil fuels. Today, it offers the prospect of meeting future energy needs from renewable sources and is central to all aspects of the European Blue Economy.

The EU Blue Economy Report 2025 highlights the growing economic significance of ocean-based sectors, with the EU Blue Economy employing nearly 4.88 million people and contributing €263 billion in GVA in 2023. Strong growth is observed in maritime transport, renewable energy, and emerging sectors such as ocean energy and blue biotechnology. Offshore wind, in particular, is one of the fastest-growing sectors. The European Ocean Pact (June 2025) identifies offshore wind and ocean energy technologies as key assets for achieving climate goals, enhancing energy security, and providing affordable energy, underpinning industrial competitiveness. Both documents emphasise the importance of funding research and innovation, as well as regional cooperation and knowledge sharing, to develop the Blue Economy, protect and restore ecosystems, and strengthen security.

The shared waters of the North Sea make it a natural focus for cross-border collaboration, innovation, and sustainable development. However, it is also a precious resource with competing interests that must be carefully managed. The North Seas Energy Cooperation (NSEC) facilitates cooperation between the EU, its member states, Norway and the UK, aiming to advance offshore renewable energy development in the North Seas and focusing on ‘the vast potential the North Seas holds in delivering large amounts of offshore renewable energies…’ At the same time, our countries aim to increase sustainable seafood production, halt pollution, restore ocean health and protect marine biodiversity.

The North Sea is a geopolitical and cultural space of increasing importance. It is a critical corridor for subsea cables, pipelines, and offshore energy infrastructure, with strategic importance for European and NATO security. The sabotage of the Nord Stream pipelines in 2022 heightened awareness of the importance of keeping critical infrastructure in the North Sea secure. Following the war in Ukraine, Europe's diversification away from Russian fossil fuels has made the North Sea central to securing affordable and sustainable energy. Offshore wind, Carbon Capture and Storage (CCS), and hydrogen are now cornerstones of European resilience. However, the North Sea is also a cultural landscape rich in history and heritage, connecting communities across borders. From Viking trade routes to maritime industries – the North Sea holds an underwater archaeological archive, including thousands of shipwrecks and remnants of prehistoric human settlements, now threatened by increasing industrial activity on the seabed, such as offshore energy development and resource extraction. Furthermore, the shift from fossil fuels to renewable energy involves a significant workforce transition. Addressing the skills gap and ensuring that coastal communities traditionally reliant on sectors like oil and gas or fisheries benefit from the green transition is a major societal challenge.

At a critical time for Europe, we should recognize the importance and the resources of the North Sea and seize the opportunities the region represents. Multiple EU actors, together with the UK and Norway, share a stake in the region. Only through coordinated efforts can the North Sea region continue to promote innovation, sustainability, stability, and cultural exchange.

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Recommendations

NSUP brings together world-class research strengths across energy, the green transition, social sciences, marine science, legal research, and the environmental humanities. We are committed to advancing shared UK, Norwegian, and EU priorities and promoting innovative, sustainable development in the North Sea. We emphasise the value of basic research and multi- and cross-disciplinary approaches that integrate societal, cultural, and legal perspectives. We advocate for EU and national programmes to prioritise funding in the following areas:

- Clean energy innovation: offshore wind, CCS, low-carbon hydrogen.
- Energy systems & decarbonisation, including marine electrification and clean maritime solutions.
- Sustainable area management and multi-use of sea and coastal areas.
- Marine sustainability, including research on ecosystems.
- Infrastructure resilience & security: subsea and offshore systems.
- Climate change: mitigation, adaptation, and impact studies.
- Legal, policy, and governance research: to support robust regulatory frameworks.
- Just transition research: balancing climate goals, ecosystem restoration, and stakeholder interests.
- Transformative arts & humanities: promoting sustainable creativity, culture, and shared heritage.

Meeting Europe's pressing challenges, expanding clean energy supply chains, financing large projects, and safeguarding marine ecosystem, requires leadership from government and industry, supported by universities' research expertise. Universities also provide high-quality education, training the future workforce for a just and inclusive transition in the North Sea region, and fostering cross-border understanding and shared purpose.

Conclusion

The North Sea remains a critical hub for energy, sustainability, culture, and security, offering unparalleled opportunities for the energy transition, marine sustainability, and cultural exchange. Addressing its complex challenges, including climate impacts, competing uses, and infrastructure security, requires coordinated research, innovation, and governance across borders.

The North Sea University Partnership (NSUP) stands ready to strengthen cooperation, advance shared UK, Norwegian, and EU priorities, and deliver research-driven solutions that scale renewable energy, safeguard ecosystems, and strengthen infrastructure. We also educate the workforce of tomorrow, equipping students with the competences needed in the transitions that lie ahead. We invite stakeholders across government, industry, and academia to work with us in championing these priorities, ensuring the North Sea continues to serve as a global model for collaboration, innovation, sustainability, security, and cultural exchange.