H2sea® Track Record & Experience

H2sea has built a strong track record as a primary engineering partner in pioneering offshore hydrogen initiatives. Below are our **Top 10 projects**, representing the breadth of our expertise and innovation in offshore hydrogen.

1. H2PD - Offshore Hydrogen Production Platform Design

Feasibility study commissioned by the Carbon Trust on the conceptual design of a 500 MW offshore hydrogen platform, defining technical viability, layout, and key design drivers.

2. IPOSH - Innovative Process Design of Offshore Hydrogen

R&D study initiated by H2sea in collaboration with Bosch and TNO, developing innovative process configurations to reduce complexity and lower the cost of offshore hydrogen production.

3. H2opZee – Hydrogen at Sea

Feasibility study including hydrogen platform design and engineering, advise on different scopes including central hydrogen production platforms and decentralised hydrogen production WTG's and electrical studies and analyses.

4. Underground Hydrogen Storage

Joint research project with EBN exploring the potential for large-scale underground hydrogen storage, with H2sea providing topside facility strategies and design perspectives for integration into the wider value chain.

5. Demo 1

Concept and engineering study for 50 MW offshore midsize hydrogen platform in the Netherlands, as part of a Dutch Government demonstration programme to showcase large-scale offshore hydrogen production.

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6. H2Shore

Engineering study on the repurposing of offshore pipeline infrastructure for hydrogen transport to shore. H2sea defined pipeline strategies for operators NGT and NOGAT to enable existing assets to support the energy transition.

7. Off-Grid Grid Stability

Research study developing three technical scenarios for offshore hydrogen platforms powered solely by wind farms without shore connection, demonstrating how grid-forming converters and optimised storage can maintain system stability without reliance on BESS.

8. Hydrogen-Powered Solution near Natura 2000

Strategic advisory study evaluating hydrogen-based power generation to meet electricity demand near a sensitive natural reserve, ensuring compliance with strict environmental regulations.

9. Monopile-Based Structures for Hydrogen WTG

Feasibility study on adapting monopile foundations for decentralised hydrogen production at turbine level, defining structural geometry requirements and changes in offshore wind support design methodology.

10. Cost Reduction of Energy Storage Systems

Research study demonstrating that optimised ESS layouts on offshore hydrogen platforms can reduce system costs by up to 75 %, significantly improving the CAPEX case for offshore hydrogen.