



Rotterdam, 24th April 2023

Three million Euro grant for Dutch industrial scale floating green hydrogen and ammonia project

BW Offshore, Switch2, MARIN, TU Delft, and Strohm have received a EUR 3million grant from the Dutch government for project OFFSET - an industrial scale floating green hydrogen and ammonia project, based on the proven concept of a floating production and offloading vessel (FPSO).

The project was selected by the RVO (the execution arm of the Ministry of Economic Affairs & Climate Policy in the Netherlands) as the recipient of a EUR 3 million grant under the MOOI scheme (Missiegedreven Onderzoek en Ontwikkeling – Mission driven Research and Development). The proposal by the consortium partners responds to the wish of the Dutch government to play a leading role in the production of clean energy systems, ensuring greater certainty of supply and a diversification of renewable energy sources.

The objective of the OFFSET project will be to demonstrate a decrease in the cost of green fuel production and thereby increase its accessibility. The initiative aims to secure energy supply, increase the competitiveness of hydrogen and ammonia as green fuels, and facilitate the road to zero emissions, while taking away the pressure on (seabed use in) the North Sea. The consortium will actively involve stakeholders from different sectors, such as energy companies, wind farm operators and developers, as well as energy-intensive industry sectors as potential future off-takers.

Green hydrogen and green ammonia are forecasted to enable significant emissions reductions in power, transportation and heating sectors.

As part of the project scope, the partners aim to develop a floating hydrogen and/or ammonia production and storage facility which will be connected to an adjacent wind farm by 2027. The produced hydrogen can be transported to shore through existing oil and gas pipelines or newly installed TCP, whereas the produced ammonia can be transported to end-users by shuttle tankers.

Switch2 is the project developer and will coordinate the overall program, enhancing the basis for a technically and commercially viable concept. BW Offshore is focused on the topside arrangement, hull, and mooring system design; whilst TU Delft will lead the research into the direct use of seawater in the electrolysis process and develop a robust seawater electrolysis process via implementation of improved electrocatalysts. Strohm will provide its proprietary non-corrosive Thermoplastic Composite Pipe (TCP) technology for hydrogen storage and offloading. A scale model of the final design will be built to test its hydrodynamic performance in MARIN's wave basins.

Fredrik Savio, SVP project development at BW Offshore: "With our longstanding experience in the offshore energy production industry, BW Offshore is committed to exploring

opportunities which will support the transition to low carbon energy solutions. The OFFSET collaboration brings together established partners and principles with innovative elements that may unlock pathways to zero carbon fuel production and distribution.”

Caroline Justet, VP for Europe at Strohm added: “We are proud to be a part of project OFFSET, supporting Europe’s energy security and decarbonization ambitions with our TCP solutions. Flexible and delivered in long lengths on reels in a fast-track operation, TCP can transfer up to nine times the amount of energy compared to a cable, and can be used to store hydrogen, increasing the uptime of offshore wind farms.”

Jaap de Wilde, senior project manager at MARIN explains: “MARIN recognises the need for drastic technical solutions, enabling cost-efficient production of green molecules at large scale from renewable energy sources at sea. Large, centralised solutions seem very promising in this respect if the cost of energy from deepwater floating solutions drops sufficiently in the future. State-of-the-art technologies, such as those proposed in the RVO OFFSET project, are a good pathway to accelerate development towards the global ambition of net-zero greenhouse gas emissions in 2050.”

The large-scale production of green hydrogen faces challenges in intermittent energy supply, transmission of electricity and high-quality water supply for the electrolysis process. A floating facility, using seawater as feed for the electrolysis process, would support the production of electricity at the right moment and right location, and produce offshore green hydrogen or ammonia.

ENDS

Issued on behalf of BW Offshore, Switch2, MARIN, TU Delft, and Strohm by BIG Partnership. For more information, please contact Diana Bengea on diana.bengea@bigpartnership.co.uk or 07923 252 679.

NOTES FOR EDITORS:

Supporting Image: ***Render of Switcch2 vessel and wind turbine***

About SwitchH2

SwitchH2 is a project development company, building the entire value chain for green hydrogen and green ammonia projects offshore, including project management and project funding. The senior management team represents 60 years of relevant offshore, EPCI and corporate finance experience. www.switch2offshore.com

About BW Offshore

BW Offshore engineers innovative floating production solutions and is publicly listed on the Oslo Stock Exchange. Today the company has a fleet of 10 FPSOs, while investing in renewable energy solutions to progress the future of energy. By leveraging four decades of offshore operations and project execution, BW Offshore creates tailored offshore energy solutions for evolving markets world-wide. For more information visit: <https://bwoffshore.com/>

About MARIN

MARIN is a globally recognised top institute for maritime research. Our mission is 'Better Ships, Blue Oceans': we stand for clean, smart and safe shipping and sustainable use of the sea. We do this as an independent knowledge partner for the maritime sector, government and society. We offer integrated solutions, from concept development and design to operation, making optimal use of our test facilities, computer simulations, simulators and full-

scale measurements. In developing, applying and sharing our knowledge, we stimulate innovation and global collaboration. The knowledge and involvement of our people are our strength. www.marin.nl

About TU Delft:

The TU Delft is a public legal entity in accordance with the Higher Education and Research Act (WHW). The main tasks include providing scientific education, conducting scientific research, transferring knowledge to society and promoting social responsibility. The TU Delft is largest Technical University of the Netherlands and has a population of almost 28k students, a PhD population larger than 3k and more than 6k (technical) staff. In Europe, TU Delft is in the top 20 and in the Netherlands in the top 3. The faculties of Applied Sciences and Mechanical, Maritime and Materials Engineering are included in the project consortium.

About Strohm:

Leading composite pipe technology company Strohm has the world's largest track-record for Thermoplastic Composite Pipe (TCP) after being the first to bring the technology to the oil and gas industry in 2007. TCP reduces total installed and life cycle cost for subsea flowlines, jumpers and risers and has proven to reduce the CO2 footprint of pipeline infrastructures by more than 50%.

The company is committed to driving sustainability with its range of TCP solutions which enable clients towards their net-zero carbon emissions targets and supports the renewables sector.

TCP is a strong, non-corrosive, spoolable, lightweight technology which is delivered in long lengths, resulting in a significant reduction of transportation and installation costs. TCP is installed using small vessels or subsea pallets, significantly reducing CO2 emissions. It is also 100% recyclable.

Strohm's shareholders are Aker Solutions, Chevron Technology Ventures, Evonik Venture Capital, Saudi Aramco Energy Ventures, Shell Ventures, Subsea 7, Sumitomo Corporation, HPE Growth, HydrogenOne Capital Growth, and ING Corporate Investments (a 100% subsidiary of ING Bank N.V.).

The firm's manufacturing facility is located at its headquarters in IJmuiden in the Netherlands. Strohm also has offices in Houston (US), Rio de Janeiro (Brazil), and Kuala Lumpur (Malaysia).

Visit the Strohm website here - <https://strohm.eu/>