

Prefeasibility Study identifies **low-cost green hydrogen** export from Norway to Europe

HIGHLIGHTS:

- Completion of Prefeasibility Study by Provaris Energy and Norwegian Hydrogen AS (the Partners) has identified a low-cost project for the export of green hydrogen from Norway to Europe using Provaris' compressed hydrogen floating storage and carriers.
- Project scale is 50,000 tonnes of green hydrogen, commencing in 2027, with a competitive delivered cost of hydrogen that includes a marine transport cost range of EUR 1.00-1.50/kg, based on the use of compression, Provaris' recently launched floating storage (H2Leo) and two H2Neo carriers.
- Partners will now develop a program to advance permitting, and key agreements for an export project in Norway to be used as a blue-print for multiple bulk-scale compressed hydrogen export sites in Europe.
- Flexibility of compression was found to take advantage in the variability in power prices and also provide balancing services to the local grid.
- Delivered in a compressed 'gaseous' form the Partners will use the outcomes to scale up to gigawatt-scale quantities of renewable hydrogen in response to REPowerEU's 10 million tonne import demand by 2030.

SYDNEY: Provaris Energy Ltd (ASX.PV1) (Provaris, or the Company) is pleased to announce it has completed a Prefeasibility Study (the Study) in partnership with **Norwegian Hydrogen AS**, demonstrating the potential for low-cost delivery of Green Hydrogen from Norway to Europe, commencing in 2027.

Collaboration between Provaris and Norwegian Hydrogen AS

In January 2023, Provaris and Norwegian Hydrogen entered a collaboration to bring together the skills, experience and ambitions of both companies to accelerate the development of a hydrogen value chain covering large scale production and export of hydrogen from the Nordics to the key ports of Europe.

A preferred site in Norway has been identified for the development of a production facility to deliver up to 50,000 tonnes of green hydrogen to Europe, commencing in 2027, with a competitive delivered cost of hydrogen that includes a marine transport cost of EUR 1.00-1.50/kg (Includes: compression, jetty, storage, shipping, scavenge and discharge).

The scope of the Study includes the selection of a preferred coastal site in Norway, renewable power supply, production of hydrogen, compression facilities, infrastructure requirements for jetty loading, Provaris' H2Leo storage solution and a fleet of two (2) H2Neo carriers, and import partners required at the identified import location connected to the planned EU H2 backbone and distribution system.

The benefits of simplicity and energy efficiency of Provaris' compressed hydrogen export supply chain provides a flexible, low-cost solution that aligns with growth to giga-watt scale generation capacity to be transported as gaseous green hydrogen for Europe. Compression has been found to take advantage in the variability in power prices with the view that 24/7 utilisation can have a negative impact on the local grid and does not always result in a lower cost of hydrogen.

The Partners are now advancing development activities for permitting, and key agreements to support the completion of detailed feasibility in 2023, and target first exports in 2027.



Martin Carolan, Provaris Managing Director and CEO commented: *"Provaris is delighted with the outcomes of the study which has continued to mature the technical or economic requirements of the project. Compression has been demonstrated to be a highly flexible solution for variable hydrogen production, storage, and transportation. The flexibility and added value that compression offers while providing balancing services to the local grid is complimented with a positive impact on the LCOH of hydrogen delivered to Europe."*

Jens Berge, Norwegian Hydrogen's CEO commented: *"We are very pleased that this pre-feasibility study demonstrates the attractiveness of our joint concept, and that this model will enable us to deliver green hydrogen to the European market at a most competitive price. Our innovative concept offers a highly scalable solution which can be applied on several of our sites across the Nordic region."*

Development of the hydrogen backbone HyPerLink

Germany and the Netherlands are considered key import locations for bulk-scale hydrogen and are well advanced in planning and development of the dedicated hydrogen backbone and HyPerLink project. HyPerLink is to develop an open access, cross-border hydrogen backbone in Northern Germany, and connection between large-scale intake of hydrogen and final consumers in industrial and urban centers in Northern Germany and future hydrogen storage facilities. The project will result in a large scale hydrogen network (up to 7.2 GW) with a total length of approx. 610 km.

An efficient grid system established from repurposing of existing gas storage and pipelines will allow for advantageous integration and operations with Provaris' compressed hydrogen solution for the ports in Netherlands and Germany. On the demand side the hydrogen backbone can reach various consumers in the Bremen, Hamburg, but also Brunsbüttel / Heide and Hanover regions. This will target direct connections to large industrial consumers (e.g. steel works, refineries).

Figure 1: Project HyPerLink – an open access, cross-border hydrogen backbone

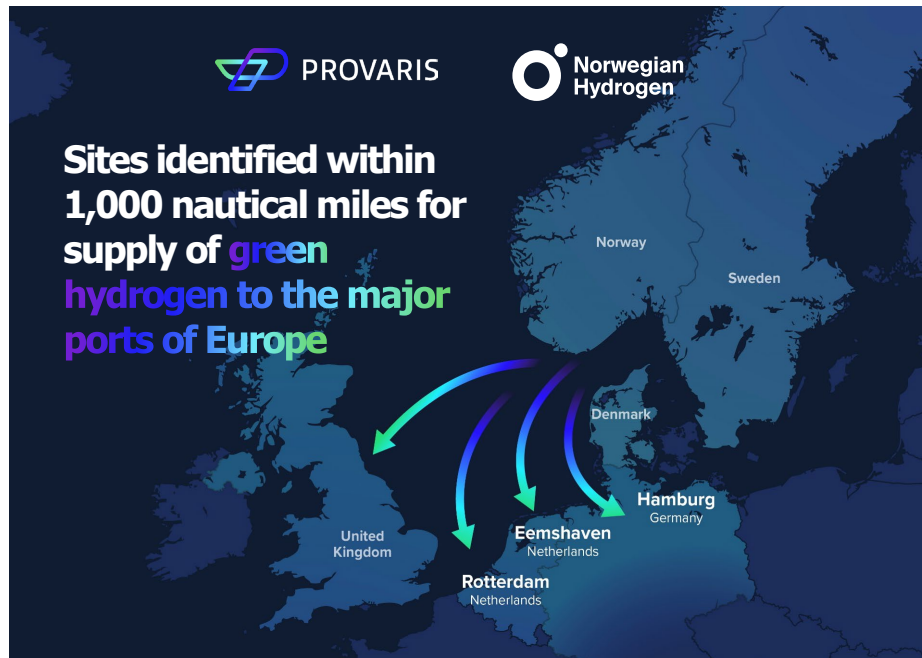


Source: Gasunie www.gasunie.de/en/the-company/gasunie-deutschland/project-hyperlink

Additional sites identified for export of green hydrogen to Europe

The Partners will continue focus on identified sites for green hydrogen export, with a relatively short sailing distance to some of the major planned hydrogen import hubs in Netherlands and Germany, along with potential hub locations in Norway, Sweden and Denmark where Norwegian Hydrogen is developing a network of HDV stations through its subsidiary Vireon.

Figure 1: Nordic region provides strategic advantage to key H2 markets in Europe



Norwegian Hydrogen are taking a leading role in the North European zero emission hydrogen market by offering green hydrogen to a wide range of mobility and industrial users with a focus on production and demand in the Nordics. Norwegian Hydrogen has established additional offices in Norway and has established itself as a developer of green hydrogen supply in Norway with its foundation project, the 3MW Hellesylt Hydrogen Hub Pilot-E project to be operational in 2023. The collaboration with Provaris allows Norwegian Hydrogen to accelerate its ambitions for scaling-up volumes of compressed hydrogen from multiple sites across the entire Nordic region.

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This announcement has been authorised for release by the Managing Director of Provaris Energy Ltd.

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About Provaris Energy

Provaris Energy Ltd (ASX: PV1) | www.provaris.energy

Provaris Energy Ltd (ASX: PV1) is developing a portfolio of integrated green hydrogen projects in the regional trade of Asia and Europe, leveraging our innovative compressed hydrogen bulk carrier. Our focus on value creation through innovative development that aligns with our business model of simplicity and efficiency. The choice to support all development phases of a project is in line with Provaris' strategic desire to develop and invest in profitable hydrogen projects across the value chain, establish an early-mover advantage for regional maritime trade of hydrogen, and to retain an equity position of these assets over the long term. With offices in Sydney, Perth and Oslo, the company's integrated approach to producing and transporting hydrogen can unlock a world of potential.

About Norwegian Hydrogen

Norwegian Hydrogen AS will produce and deliver green hydrogen to the entire Nordic region. The company will build and operate an effective network of production sites and distribution systems tailored to meet the future requirements for zero-emission fuels in a wide range of mobility sectors and industrial segments. Norwegian Hydrogen AS' infrastructure will be developed in a systematic manner, and the company will play an active role in the establishment of the new zero-emission hydrogen market. The company is supported by a group of strong industrial owners, such as Flakk Group, Hexagon Purus, Hofseth International, Tafjord Kraftproduksjon, and Mitsui & Co., Ltd. Norwegian Hydrogen's head office is in Ålesund, Norway.

For more information visit www.nh2.no

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