

## Provaris join forces with Norwegian Hydrogen to rePower the EU

### HIGHLIGHTS:

- **Memorandum of Understanding (MOU) signed with Norwegian Hydrogen AS to collaborate on the identification and development of green hydrogen value chain projects in the Nordics.**
- **Norwegian Hydrogen is a developer of green hydrogen projects focussed on the Nordic region of Europe to supply a range of sectors that include transport, maritime, and industrial with an industrial ownership base (Flakk Group, Mitsui & Co., Ltd., Hexagon Purus, Hofseth International and Tafjord).**
- **Collaboration will accelerate the development of green hydrogen export supply chains, using Provaris' GH2 Carriers and storage solutions, and Norwegian Hydrogen's proposed hydrogen production and export sites across the Nordics, including Norway.**
- **Provaris' compressed H2 supply chain provides a flexible, cost-competitive solution that supports gigawatt scale generation capacity to be transported as gaseous hydrogen.**
- **Norway represents 50 per cent of the hydropower reservoir capacity of EU and is consequently key in reaching the REPowerEU ambition of 10mtpa hydrogen import by 2030. Furthermore, Norway is committed to be a long-term hydrogen supplier to Europe as confirmed in the [Joint Statement \(link\)](#) of the German and Norwegian governments on increasing maturity of the hydrogen value chain.**
- **A joint Design Concept Study will be completed in the March quarter of 2023 to identify a preferred production and export site and determine the technical and economic viability of a fast-track green hydrogen supply chain connected to the key ports in Germany and the Netherlands.**

**SYDNEY: Provaris Energy Ltd (ASX.PV1, Provaris, or the Company)** is pleased to announce it has executed a Memorandum of Understanding (MOU) with **Norwegian Hydrogen AS**, a Norwegian-based developer of hydrogen production hubs and value chains across the Nordic region, to collaborate on the development on green hydrogen value chain projects in the Nordics.

The collaboration brings 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 to the key ports of Europe.

The MOU provides a framework to jointly undertake a Concept Design Study to:

- > Review identified sites and select a preferred location suitable for domestic and export volumes of hydrogen.
- > Undertake a technical and economic review for the production and supply of compressed gaseous green hydrogen to nominated European ports.

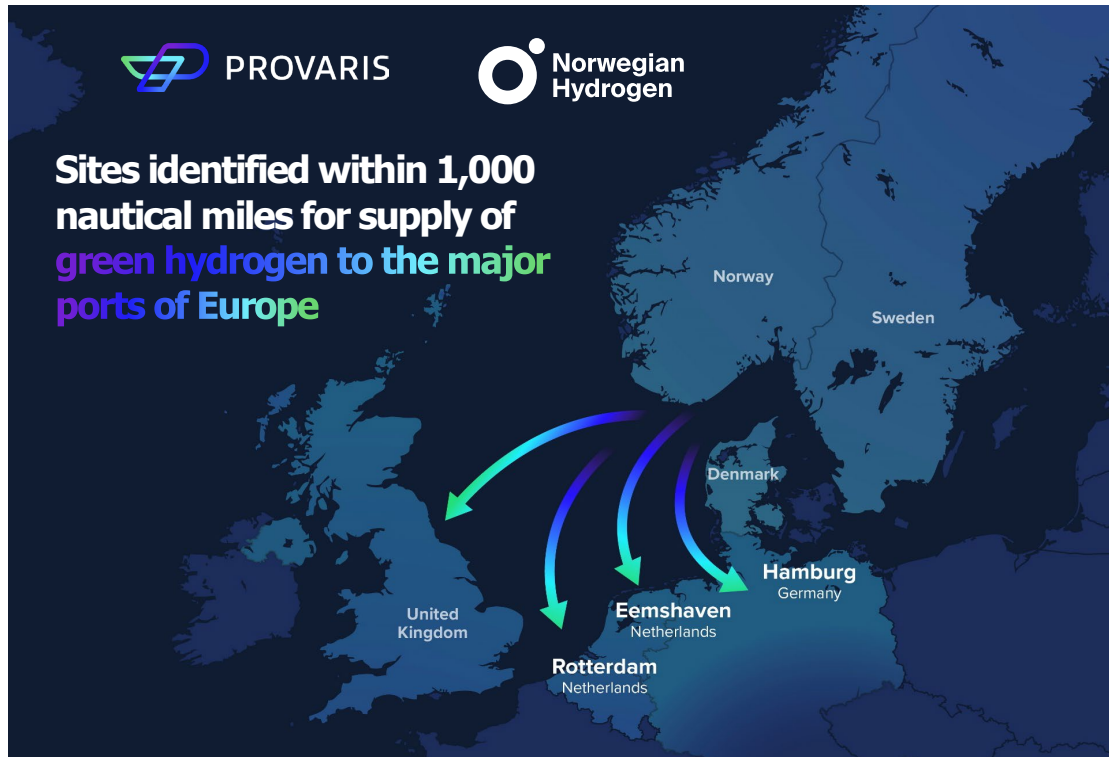
The scope of the study will include the renewable power supply, production of hydrogen, compression facilities, storage, infrastructure for jetty loading and unloading, Provaris' H2Neo carrier, and import infrastructure required at identified import locations. Application for suitable funding schemes available through national schemes and the European Union will also be made.

**Martin Carolan, Provaris Managing Director and CEO commented:** *"Provaris is delighted to collaborate with Norwegian Hydrogen to accelerate our development ambitions of an integrated export hydrogen project from the Nordic region that will benefit from the simplicity and efficiency of compressed hydrogen as a marine carrier."*



*The Nordic region offers several advantages that can include low-cost hydro power, proximity to offtake markets and supportive governments committed to supplying hydrogen to Europe. This collaboration also has strategic alignment with the development timeline of our H2Neo carrier and validation of the increasing interest for our compressed H2 transport solution for hydrogen supply into Europe."*

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



**Norwegian Hydrogen was founded in 2020 by a group of Norwegian industrial investors targeting opportunities to develop hydrogen production and supply chains to meet the growing demand for zero emission solutions in the Nordics and beyond.** The original investors bring complementary expertise to Norwegian Hydrogen, ranging from technology development (including compressed hydrogen), electrical utilities, through to H2 and O2 offtake.

**Jens Berge, Norwegian Hydrogen's CEO commented:** *"We are excited to work with Provaris on a solution which will bring green hydrogen to the EU market in a flexible, cost effective and timely manner. The vast experience and diverse capabilities within the combined Provaris and Norwegian Hydrogen team, along with a huge demand for green hydrogen in the EU, makes this a great opportunity for both parties."*

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 offtakers with an initial focus on production and demand in the Nordics. Norwegian Hydrogen has recently established additional offices in Scandinavia and it has brought in Mitsui & Co., Ltd. as its second largest shareholder. Through its accessible production and infrastructure opportunities in the Nordics, Norwegian Hydrogen can develop large scale hydrogen and export facilities leveraging low-cost renewable energy sources.

Norwegian Hydrogen advanced development status is evidenced through the company's Hellesylt Hydrogen Hub Pilot-E project, which will develop and demonstrate a complete green hydrogen supply chain in the Northwestern region of Norway. The project that will commence production later this year (2023) is paving way for the company's pipeline of significantly larger projects all over the Nordics.

## Collaboration to target the export of green H2 by 2027

Norwegian Hydrogen has established itself as a developer of green hydrogen supply in Norway with its foundation project, the Hellesylt Hydrogen Hub Pilot-E project to be operational in 2023. The collaboration with Provaris allows Norwegian Hydrogen to accelerate their ambitions for scaling-up volumes of compressed hydrogen from multiple sites across the entire Nordic region for export to the major import hubs in Europe, with Provaris to contribute its experience in the development of compressed green hydrogen export projects, that include the 2.8GW Tiwi H2 development project in Australia. This collaboration can deliver over time giga-scale quantities of green hydrogen commencing in 2027 and addressing REPowerEU's ambition to import 10 million tonnes of renewable hydrogen in the EU by 2030.

**Per Roed, Provaris Chief Technical Officer added:** *"In August 2022, Provaris Norway AS was established strategically as our European hub to establish partnerships that can leverage the availability of low-cost, stable green energy in close proximity to major European import hubs. Our collaboration with Norwegian Hydrogen is an example of our strategy to position the Nordics a first-mover and leader in export projects. We are very excited to join forces with Norwegian Hydrogen who share our ambition to target fast-track opportunities to commence hydrogen exports."*

With the goal of an export supply chain to be in operation by 2027, the first step will be the completion of a Design Concept Study by the end of 1H2023, at which time the parties will agree on the location and scale of the first fast-track production and export project, responsibilities and timing for a detailed feasibility, along with the identification of additional collaboration partners to establish a green hydrogen value chain and export facility in the Nordics.

## Sites identified for export of green hydrogen to Europe

Provaris and Norwegian Hydrogen will focus on identified sites for green hydrogen export, with a short sailing distance to some of the major planned hydrogen import hubs in Netherlands and Germany. This includes sites in Norway, where the government recently announced its agreement with German counterparts for the export of hydrogen. Potential import hubs in the United Kingdom could have equivalent, and advantageous proximity to source location(s). At these short distances, Provaris' proprietary compressed hydrogen H2Neo carrier has demonstrated to be very cost competitive compared to alternative transportation, storage and conversion vectors of hydrogen. The scope of the MOU will focus on the development of the full value chain, including production, maritime transportation, and distribution to off-takers.

Germany and the Netherlands are considered key import locations in the European Union, and both countries are well advanced in planning and developing hydrogen backbones / pipelines that allows for advantageous integration and operations with Provaris' compressed hydrogen solution.

## Provaris to leverage membership with Norwegian Energy Partners (NORWEP)



To assist with increasing market awareness of compressed H2 marine transport and the identification of collaboration partners and off-take markets, Provaris has recently joined Norwegian Energy Partners (NORWEP), an organization aiming to support and assist organizations in the internationalization of their collective technology and industry. NORWEP has more than 300 partners / company members from the Norwegian offshore, energy and maritime industries; representing more than 90% of the export from Norwegian industries.

Provaris is already working with a number of these partners, and we look forward to the opportunity to find additional partners from this large pool of leading energy companies. Moreover, NORWEP's local energy advisors in the EU will support Provaris with options for landing compressed hydrogen into EU's developing hydrogen infrastructure.

For more information on NORWEP [www.norwep.com](http://www.norwep.com)

## **Background on Norway's hydrogen ambitions support first move advantage of export to Europe**

Norway launched its first hydrogen strategy back in 2005 by the Ministries of Petroleum & Energy and Transport & Communications. This was followed up with a new Hydrogen Strategy and Roadmap in 2020 and 2021, respectively, where the Government confirms ambitions to further develop Norway's position as an energy nation through various initiatives (including hydrogen, offshore wind, etc.).

Norway has committed to contribute towards building a comprehensive value chain for hydrogen where production, distribution and offtake / utilization is developed in parallel. The Government is now facilitating the establishment of smaller scale hydrogen hubs for maritime transport, the establishment of industrial projects with associated production facilities, as well as pilot projects for the development and demonstration of new and more cost-effective hydrogen solutions and -technologies.

Medium term, towards 2030, the Government has the ambition that hydrogen is scaled-up according to market-based opportunities and development.

Norway's share of Europe's hydropower reservoir capacity is close to 50 per cent which creates a unique ability to support the REPowerEU ambition of 10mtpa H2 production and 10mtpa H2 import by 2030. The Government is also adding renewable capacity through new concession rounds of wind parks to be awarded in March 2023.

With many pilot projects well under way, availability of low-cost renewable energy (largely from wind and hydro-power), and a Government highly supportive of initiatives to develop technologies, projects and to scale up hydrogen production and exports, Norway has numerous project sites that can be developed for large scale exports commencing in 2027 to off-takers in the EU.

**Figure 2: Illustration of a Provaris' H2Neo Carrier and conceptual Compressed H2 Floating Storage solution suitable for export and import use cases.**



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

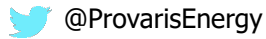


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### About Provaris Energy

Provaris Energy Ltd (ASX: PV1) is the leading developer of integrated compressed hydrogen projects for export to regional markets. Our purpose is to develop green hydrogen supply chains that are simple and efficient to enable the global transport of hydrogen.

Provaris is developing a portfolio of integrated green hydrogen projects, leveraging our innovative compressed hydrogen GH2 Carrier with a 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, with a measured risk profile, and to retain an equity position of these assets over the long term.

### 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](http://www.nh2.no)**

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