

## Development activities progressing for green hydrogen supply chains in Europe.

### Highlights:

- Design milestone complete for the compressed hydrogen prototype tank, with construction and testing in Norway on schedule for Q1 2024.
- Techno-economic qualification continues with major European utilities, ports and pipeline companies to include compression as a carrier for the import of gaseous green hydrogen.
- Extension of tank IP with the design of new small-scale hydrogen storage tanks for onshore and maritime solutions (1 to 10 tonne capacity) providing commercialisation opportunities in 2024.
- Development activities continue across two collaboration projects for export of green hydrogen using Provaris' compressed hydrogen storage barge and carriers. Reviewing regional opportunities outside of Norway suitable for a compressed hydrogen supply chain.

**SYDNEY: Provaris Energy Ltd (ASX.PV1, Provaris, or the Company)** is pleased to update shareholders on development activity progress in Norway and commercialisation activities for compressed hydrogen supply chains in Europe using Provaris' proprietary storage and carrier solutions.

**Provaris' Managing Director and CEO, Martin Carolan, commented:** *"Provaris' focus on development and R&D activity out of Norway continues to advance across the full value chain for Europe. Our dialogue with stakeholders from the supply of hydrogen through to import continues to increase the awareness of compression. Techno-economic qualification of the benefits when it comes to flexibility and delivered cost for hydrogen import is now resulting in increasing focus on compression's inclusion in a portfolio of import alternatives. German government policy continues to roll-out legislation, funding initiatives and infrastructure to meet an increasing reliance on hydrogen to cut emissions and achieve the latest target of 3-4 Mtpa required in 2030, of which 70% is stated to come from imports."*

**Provaris' CTO, Per Roed, added:** *"Provaris' R&D activity in Norway for the construction and testing of a prototype tank remains on schedule for our final Class Approval milestone. Our program has also developed a new and potentially significant opportunity to extend our unique containment tank design to meet a requirement for small scale storage tanks with capacity of 1 to 10 tonnes. Discussions with industry reinforce the demand for a low-capex alternative to high-pressure composite storage solutions which are suitable for onshore buffer storage and maritime applications. The proposal to manufacture these tanks in Norway also delivers a new industry that supports regional economic activity."*

### Prototype Tank Program – Basis of Design complete for the Prototype Tank

A key milestone has been achieved for the Prototype Tank program underway in Norway, with Prodtex completing the design for a multi-layered carbon-steel prototype tank to be constructed and tested in the first quarter of 2024. The successful completion of the testing program is the final requirement for Class Approval of the H2Neo carrier to be provided by the American Bureau of Shipping (ABS) and Det Norske Veritas (DNV), who will survey the construction and participate in the testing of the prototype tank. The prototype testing will be performed by SINTEF, a recognized research facility in Norway.

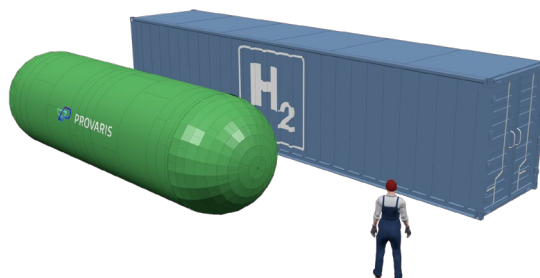
Upon successful completion of prototype testing, Provaris will achieve a Final Class Approval stage for the ship designs, which will be a significant milestone for the Company and completes a 4-year development program to have a construction ready hydrogen carrier for maritime transportation.



Planning for the prototype construction activity is now underway, including the digital twin and the ordering of carbon-steel and stainless steel materials for the tank. The construction and testing remain on schedule for the first quarter of 2024 at Prodtex’s production facility in Fiskå, Norway.

**Figure 1: Illustration of Compressed Hydrogen Prototype Tank (to scale vs 40 ft container)**

Prototype Tank Specifications:	
Diameter:	2.5 meters
Length:	10 meters
Capacity:	740 kg hydrogen at 250 barg
Weight:	~33 tonnes.



### Advancing technical acceptance with Ports, Pipelines, and Utility users of Hydrogen

Provaris continues to advance meaningful discussions with major European port operators, energy utilities, and potential hydrogen end-buyers which have a growing interest in Provaris hydrogen delivery value chain; based on Provaris proprietary technology for the storage and marine transportation of hydrogen in compressed form.

To this end, Provaris this month signed a non-binding Memorandum of Understanding (MoU) with a major European energy utility to jointly evaluate Provaris’ full hydrogen delivery chain, including Provaris’ H2Leo for storage and H2Neo carriers, for delivery of gaseous hydrogen to regional Europe and potentially assist the utility’s planned hydrogen importation portfolio. The commercial terms of the MoU are non-binding, non-exclusive, and impose no obligation on either party to enter into any future transaction or agreement.

Dialogue with multiple stakeholders continues to achieve positive engagement and progress towards further co-operation on developing energy efficient hydrogen import supply chains, demonstrating the relevance of compression to a support Europe’s ambitious import targets of 10 Mtpa by 2030, and the requirement for this to be 42% from green hydrogen supply sources.

### Extension of Provaris IP into small-scale storage tanks for onshore and maritime solutions

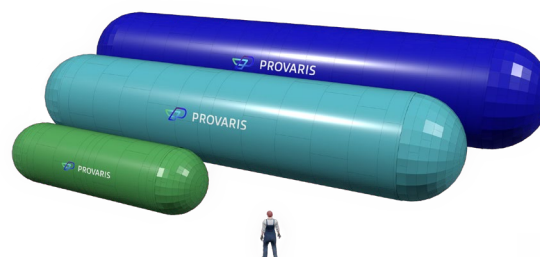
One of the goals of recent R&D activity related to the technical collaboration with Prodtex is to address a gap in the market for safe and affordable static storage solutions required for renewable hydrogen projects (for buffer storage) or industry applications that have a requirement for alternative long-duration storage solutions with a capacity greater than 1 tonne of hydrogen (volume).

Through an extension of our prototype tank design, Provaris has developed initial concepts that will have relevance to a range of hydrogen applications. The tank structure will be based on the use of multi-layered carbon-steel which has a design pressure of 250 barg. The initial design concepts will have a capacity of 1, 5 and 10 tonnes of gaseous hydrogen. Being made of carbon-steel, the tanks will not target the mobility market for transport, however it can have applications in areas such as, but not limited to, maritime (hydrogen as fuel), mobility (storage at refuelling station), and as buffer storage at the battery limits of industry and power generation (to complement pipeline connections) as an alternative to containerized composite solutions available in the market today.

A summary of the specifications is provided in the table below, along with illustrations of scale in Figure 2. Further updates will be made during the first quarter of 2024 regarding future production schedule and capacity in Norway.

**Figure 2: Illustration of Small-Scale Tank Designs for 1, 5 and 10 tonne hydrogen capacity**

H2 Capacity	1-tonne	5-tonne	10-tonne
Diameter (m):	2.5	4	5
Length (m):	10	20	26
Weight (t):	33	260	470



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

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## About Provaris Energy

For more information: [www.provaris.energy](http://www.provaris.energy)

Provaris Energy Ltd (ASX: PV1) is an Australian public company developing a portfolio of integrated green hydrogen projects for the regional trade of Asia and Europe, leveraging our innovative compressed hydrogen bulk storage and carrier. Our focus on value creation through innovative development that aligns with our business model of simple and efficiency hydrogen production and transport can establish an early-mover advantage for regional maritime trade of hydrogen and unlock a world of potential. In August 2022 Provaris Norway AS was established to advance the development of hydrogen export projects from Norway and other European locations.

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