



C-H2 SHIP SPECIFICATION COMPLETED & US PROVISIONAL PATENT FILED

Global Energy Ventures Ltd (ASX: **GEV**, the **Company**) is pleased to provide the following update on the development of a new compressed hydrogen ship (**C-H2 Ship**) to transport the zero-carbon fuel of the future.

HIGHLIGHTS:

- **GEV and Capilano Maritime Design have completed the C-H2 Ship Specification and General Arrangement drawings for the 2,000-tonne capacity compressed hydrogen ship.**
- **A US provisional patent application has been filed relating to the apparatus for the marine storage and transport of hydrogen.**
- **Consultation with the American Bureau of Shipping (ABS) to achieve Approval in Principle (AIP) for the C-H2 Ship is on schedule for 1H 2021.**
- **Once achieved, the AIP will demonstrate that there are no showstoppers that would prevent construction and operation of the ship.**
- **Work continues with GHD on a Scoping Study for the technical and economic analysis of the C-H2 supply chain which compares compression to alternative transport methods by liquefaction or ammonia.**



Figure 1: GEV's C-H2 Ship for the Transport of Compressed Hydrogen

Martin Carolan, Executive Director commented: "GEV is delighted to provide an update to shareholders and the growing hydrogen industry, that includes the details of our proprietary ship specification and general arrangement for the Company's new C-H2 ship. The C-H2 ship design is the culmination of significant engineering work by our team with the support of Capilano naval architects. Today's launch of the C-H2 ship specification will support our entry into the marine transport of hydrogen and play a role in the development of a global hydrogen economy.

The application of compression, an existing solution for the storage and transport of hydrogen, with the Company's proprietary C-H2 ship design, will have the advantages of simplicity in the development and implementation to compress/load, transport and unload. The C-H2 supply chain will also provide a green, energy efficient solution with respect to internal fuel use and zero emissions.

The Company has also filed a US Provisional Patent application to protect the significant intellectual property developed to date and the continuation of our global leadership in marine compressed gas vessels which includes CNG Optimum for natural gas."



C-H2 SHIP SPECIFICATION

GEV's unique C-H2 ship has a large hydrogen carrying capacity of 2,000 tonnes. This vessel will be key to establishing an economic and energy efficient sea-link between hydrogen producers and customers.

The application of a C-H2 supply chain will be applicable in multiple markets globally that are now establishing hydrogen economies.

Figure 2 is an illustration of GEV's C-H2 general arrangement.

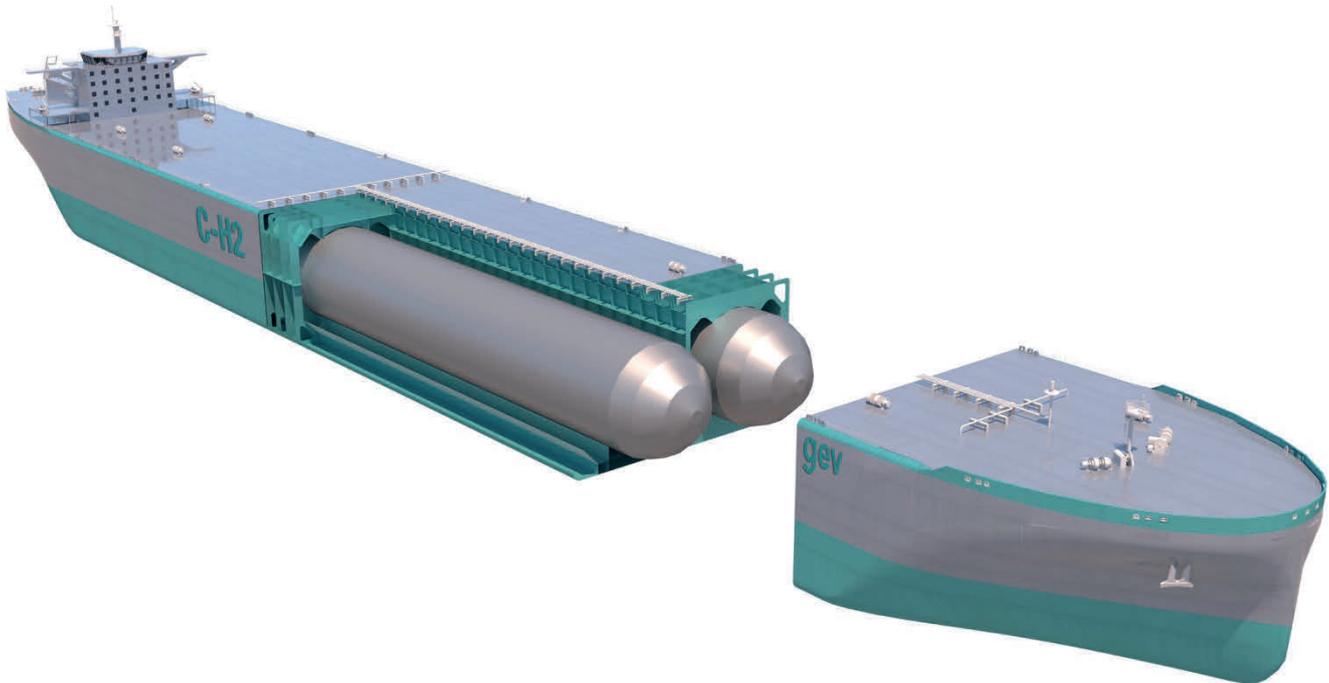


Figure 2: GEV's C-H2 General Arrangement

The key specifications of the C-H2 ship are as follows:

- The proprietary design for the containment system is made up of two large (20 metre diameter) tanks, contained within the hull of the ship, that will store ambient temperature hydrogen at an operating pressure of 3,600 psi (250 bar) and will have a combined storage capacity of 2,000 tonnes of hydrogen.
- The design of the C-H2 ship will also allow for the evaluation of smaller capacity ships for demonstration or pilot scale export projects.
- One of the key considerations in designing a steel tank for storing hydrogen, is that the hydrogen molecule is so small it can enter the steel's molecular structure and over time can cause the steel to suffer from embrittlement.
- A practical way to avoid hydrogen embrittlement is to provide a liner that prevents migration of hydrogen into the steel.
- Technical requirements for such a large tank mean that it needs to be constructed in layers. Stainless steel will be used as the innermost layer, being resistant to hydrogen embrittlement, with six surrounding layers of ductile high-strength alloy steel to meet strength and fatigue requirements.
- One significant advantage of a tank made from multiple discrete layers is that should a crack form in one layer it will not naturally proceed through to the adjacent layer. This greatly improves the safety of the tank.
- With the rapid advancements in both maritized fuel cells and hydrogen internal combustion engines, GEV intends to fuel the ship with hydrogen available from the containment systems, providing a 'zero-carbon' shipping solution.



US PROVISIONAL PATENT FILED FOR THE C-H2 SHIP

The Company has filed a provisional patent application in the USA relating to the apparatus for the marine storage and transport of hydrogen. The provisional application has been made to protect multiple ideas that arose during the design work undertaken in support of the American Bureau of Shipping (ABS) approval process. The inventor is GEV Canada's Chief Technical Officer, John Fitzpatrick. The Company will now work with its advisors on the detailed filing over the coming 12 months.

CLASS APPROVALS PROGRAM ON TRACK FOR 1H 2021 TO DEMONSTRATE NO SHOWSTOPPERS

With the completion of the C-H2 ship specification, the Company remains on track with the first stage of class approvals with ABS to achieve Approval in Principle (AIP) anticipated for the first half of 2021. The achievement of AIP will be a critical step to advancing the technical feasibility of the proposed C-H2 Ship, the first of its kind for the marine transport of large-scale volumes of hydrogen.

The successful outcome of the AIP will demonstrate that there are no identified showstoppers that would prevent construction and operation of the ship. The program will include a preliminary Hazard Identification (HAZID) analysis to identify any significant potential hazards and the future design work to mitigate these risks.

Following the successful achievement of AIP, the Company will commence discussions with suitable shipyards for estimates of capital cost and schedule for construction.

The next development phase for C-H2 will include further engineering and design work in parallel with prototype testing, with the target for ABS full design class approvals in the 1H 2022.

SCOPING STUDY TO COMPARE HYDROGEN SUPPLY CHAINS

The Company is progressing a Scoping Study on the marine transport of hydrogen using the C-H2 Ship design and supply chain and has appointed GHD to provide their analysis of the key supply chains available for the marine transport of hydrogen. The work will include a techno-economic evaluation including estimated energy requirements for compression (C-H2), liquefaction (LH2) and ammonia (NH3) to export an annualised volume of hydrogen (50,000 to 400,000 tpa) to various market distances (i.e. Australia to Singapore/Japan/South Korea).

GHD's team for the engagement will include technical, logistics and simulation modelling experience, having worked on Australian hydrogen project studies. For further information on GHD's expertise, please visit their website at <http://www.ghd.com/en-au/expertise/future-energy.aspx>.

The Scoping Study is targeted for completion in the first quarter of 2021.

The development of a compressed hydrogen supply chain for the marine transport of hydrogen will provide key benefits to the establishment of a scalable export industry.

- Simplicity of C-H2 the supply chain
- Energy efficiency of the C-H2 supply chain
- Low cost of compression and decompression
- Use of established technologies

- END -



This ASX announcement has been authorised by the Board.

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ABOUT GLOBAL ENERGY VENTURES LTD

Global Energy Ventures Ltd was founded in 2017, with the Company's mission to create shareholder value through the delivery of integrated compressed shipping solutions transporting energy to regional markets. The business model is to build, own and operate integrated energy transport projects for either natural gas or hydrogen.

The primary focus is the development of integrated Compressed Natural Gas (CNG) marine transport solutions with the Company's construction ready **CNG Optimum ship**. CNG is a well proven gas transport solution with design and commercial advantages along with being safe and a 'lower emission' solution for the transport of gas than in the form of liquified natural gas (LNG).

With the world's focus on Energy Transition to zero-carbon fuels, the Company has also introduced the world's first large-scale **Compressed H2 Ship** design that will support the transport of hydrogen as a green energy fuel of the future. Hydrogen's role in the future energy mix will greatly assist governments and corporations with their respective 'net-zero carbon' targets through the decarbonisation of heavy emitting industries.

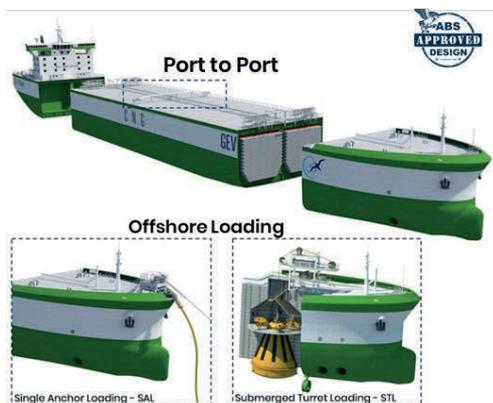
Value creation for shareholders will be achieved by:

- Continue to maintain global leadership in marine pressure vessel designs and intellectual property.
- Pursue a portfolio of CNG Optimum projects to improve and mitigate against binary outcomes and offer CNG project stakeholders' flexible commercial arrangements.
- Advance the future transport of green energy through the development of the compressed H2 Ship.
- Employ world class management and staff that are leaders in their chosen discipline.
- Maintain the highest standards of efficiency, safety and environmental responsibility.

For more details on the Company please visit www.gev.com

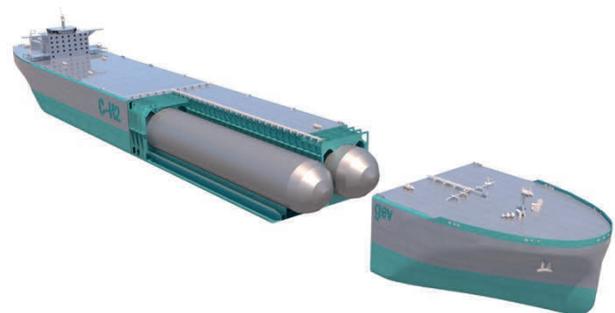
CNG Optimum Ship

Approved for Construction & Ready for Commercialisation



Compressed H2 Ship

Under Development



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\$ refers to Australian Dollars unless otherwise indicated.