



SCOPING STUDY TO COMPARE HYDROGEN SUPPLY CHAINS

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

HIGHLIGHTS:

- **GEV commences Scoping Study for the full supply chain economics and internal energy requirements for the marine transport of hydrogen using its C-H2 Ship.**
- **GHD appointed to support the techno-economic evaluation of alternate hydrogen supply chains, including the export and shipping solutions using liquified hydrogen (LH2) and ammonia (NH3).**
- **Scoping Study outcomes will include a dynamic model that enables GEV to compare the delivered cost of hydrogen for each of the supply chains across a number of variables, including shipping distance and export volumes.**

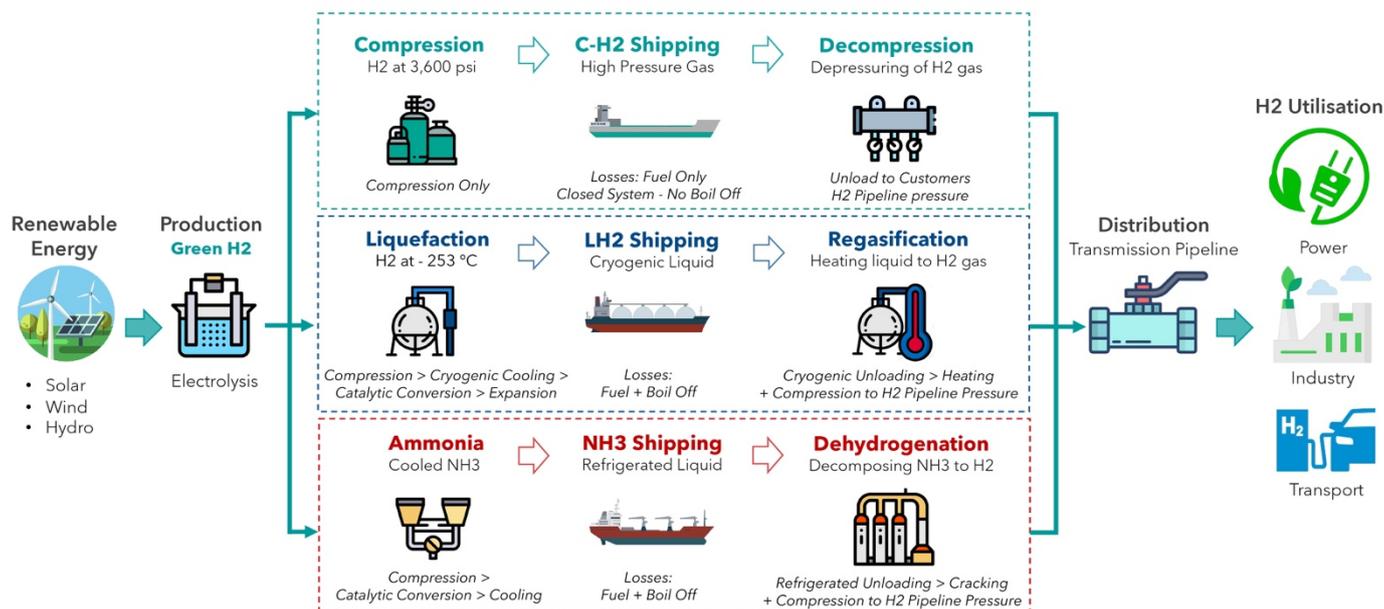
Martin Carolan, Executive Director commented: "The Scoping Study will analyse the supply chain economics and internal energy use of our compressed hydrogen transport solution and compare with liquified and chemically bound hydrogen as ammonia using range of annualised volume and distance to target markets. The results of the study will be used internally to further develop and market the C-H2 transport solution as an economic, simple and energy efficient supply chain for the future development of a hydrogen export market."

TECHNO-ECONOMIC EVALUATION OF THE COST & ENERGY EFFICIENCY OF HYDROGEN SUPPLY CHAINS

The Company has commenced a Scoping Study on the marine transport of hydrogen using the C-H2 Ship design and supply chain, and 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).

An overview of the simplicity of GEV's C-H2 supply chain as compared to LH2 and NH3 is illustrated in Figure 1 below.

Figure 1: Process Flow for C-H2, LH2 and NH3 Supply Chains





Compressed Hydrogen (C-H₂) Ship

Transporting the future of energy



The outcome of the analysis will include Class 4 / Class 5 equivalent estimates for capital and operating costs for each supply chain alternative, along with the internal energy requirements.

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 www.ghd.com/en-au/expertise/future-energy.aspx.

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

BENEFITS OF A C-H₂ SUPPLY CHAIN

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

- Simplicity of C-H₂ the supply chain
- Energy efficiency of the C-H₂ supply chain
- Low cost of compression and decompression
- Established technologies are available

APPROVAL IN PRINCIPLE ON SCHEDULE FOR 1H 2021

Further to the announcement by the Company on 4 November 2020, GEV is also pleased to confirm the project team has continued to progress engineering, process design and ship specification work required for the American Bureau of Shipping (ABS) Approval in Principle (AIP) expected in the 1H of 2021. The Company has engaged Capilano Maritime and ABS consultants to assist with the AIP application.

In parallel, the ABS approvals program will include a preliminary HAZID study and filing of US Patent Application associated with the C-H₂ ship design. The final ship specification and drawings for the containment system is expected to be incorporated into a US patent application.

OVERVIEW OF GEV'S COMPRESSED HYDROGEN SHIP

GEV's C-H₂ Ship and containment system have been designed using three key principles:

- Optimise the volume of hydrogen that can be stored in the hull of a ship utilising compression;
- Optimise the cost, availability, and constructability of the ship; and
- Meet or exceed the design rules and safety standards established by the American Bureau of Shipping.

The advantage of compression for the regional transport of hydrogen is the simplicity and energy efficiency of the supply chain, particularly when compared with the complexity and energy intensity of alternative transport methods.

Figure 2 is an illustration of GEV's C-H₂ Ship. The containment system will store ambient temperature hydrogen at an operating pressure of 3,600 psi (or 250 bar). GEV's C-H₂ Ship will have a storage capacity of up to 2,000 tonnes (23 million m³) of compressed hydrogen. Smaller capacity ships will be evaluated by GEV for demonstration purposes based on specific pilot export projects. With the rapid advancements in both marinated

fuel cells and hydrogen internal combustion engines, GEV intends to fuel the vessel with hydrogen, providing a 'zero-carbon' shipping solution. The ship and its innovative cargo system are in the patent process and GEV expects to receive broad patent protection for this novel ship, further extending our intellectual property suite.

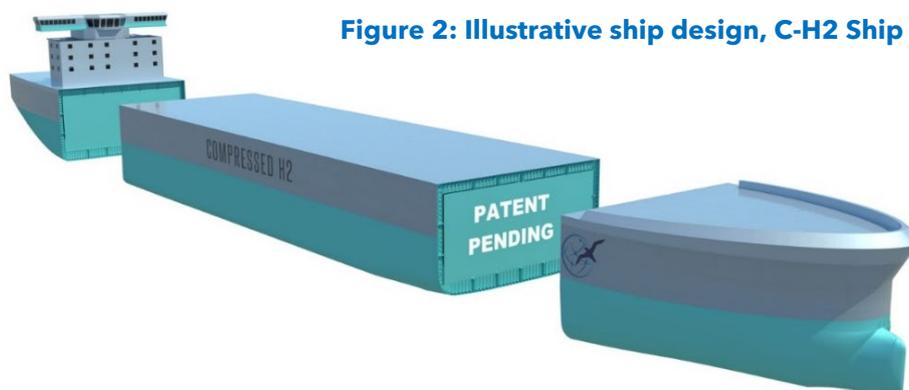
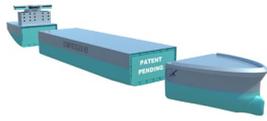


Figure 2: Illustrative ship design, C-H₂ Ship



Compressed Hydrogen (C-H₂) Ship *Transporting the future of energy*



- END -

This ASX announcement has been authorised by the Board.

FOR FURTHER INFORMATION PLEASE CONTACT:

Martin Carolan
Executive Director, Corporate & Finance
T: +61 404 809019
E: mcarolan@gev.com

FOR ALL MEDIA ENQUIRIES:

Craig Sainsbury
Market Eye
T: +61 428 550499
E: craig.sainsbury@marketeye.com.au

For more

information visit:

gev.com

 [@GEVmarineCNG](https://twitter.com/GEVmarineCNG)

 +61 8 9322 6955

 REGISTERED OFFICE: 5 Ord St, West
Perth, WA 6005, AUSTRALIA



Compressed Hydrogen (C-H₂) Ship Transporting the future of energy



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 hydrogen 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

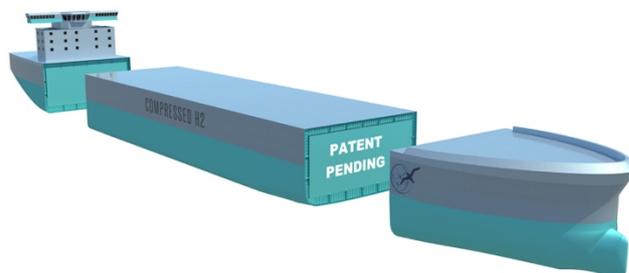
CNG Optimum Ship

Approved for Construction & Ready for Commercialisation



C-H₂ Ship

Under Development



DISCLAIMER: This announcement may contain forward looking statements concerning projected costs, approval timelines, construction timelines, earnings, revenue, growth, outlook or other matters ("Projections"). You should not place undue reliance on any Projections, which are based only on current expectations and the information available to GEV. The expectations reflected in such Projections are currently considered by GEV to be reasonable, but they may be affected by a range of variables that could cause actual results or trends to differ materially, including but not limited to: price and currency fluctuations, the ability to obtain reliable gas supply, gas reserve estimates, the ability to locate markets for CNG, fluctuations in gas and CNG prices, project site latent conditions, approvals and cost estimates, development progress, operating results, legislative, fiscal and regulatory developments, and economic and financial markets conditions, including availability of financing. GEV undertakes no obligation to update any Projections for events or circumstances that occur subsequent to the date of this announcement or to keep current any of the information provided, except to the extent required by law. You should consult your own advisors as to legal, tax, financial and related matters and conduct your own investigations, enquiries and analysis concerning any transaction or investment or other decision in relation to GEV.

\$ refers to Australian Dollars unless otherwise indicated.