

GTT reaches an important milestone in the field of liquid hydrogen transport with two approvals in principle from the classification society DNV

Paris – July 28th, 2022. GTT has been granted two Approvals in Principle (AiP¹) from the leading classification society DNV for the design of a membrane type containment system for liquefied hydrogen (LH₂) and for the preliminary concept design of a LH₂ carrier. These approvals are part of the agreement with Shell, [announced in February 2022](#), and pave the way for the next stages of the project.

As part of the energy transition to a carbon-free future, the ability to transport very large volumes of hydrogen in liquefied form at -253°C is one of the technological challenges to establishing a reliable, efficient and competitive hydrogen supply chain.

The approvals in principle issued by DNV validate GTT's technological advances in LH₂ containment and the preliminary design of a LH₂ carrier.

The GTT Group has designed a LH₂ containment system that meets current regulatory requirements and anticipates future developments, as requirements for the transport and cargo of hydrogen are being developed by the International Maritime Organisation.

Philippe Berterottière, Chairman and CEO of GTT, said: *“We are very proud to have received these approvals from DNV, with whom GTT has had a close partnership for many years. Our LH₂ carrier development project with Shell is very promising and this first step confirms the reliability and relevance of our solutions as well as our determination to make this technology viable and quickly available to maritime transport and energy players.”*

Johan Petter Tutturen, Vice President Business Development Manager CO₂ and H₂ Carriers of DNV Maritime, said: *“We are very pleased to have been asked by GTT to work on these AiP. Hydrogen, as an energy carrier and a fuel, is potentially one of the foundations of the energy transition. As such it is essential that industry is able to pursue the enabling technologies safely and with confidence. An AiP can help build this confidence by demonstrating that new solutions have been assessed based on long-standing, trusted and independent standards.”*

Carl Henrickson, General Manager Shipping & Maritime Technology, Innovation & Digitalisation of Shell International Trading and Shipping Company said: *“Shell is excited to be collaborating with GTT to deliver this ground breaking work. As we see it development of LH₂ cargo containment systems is a key enabler to accelerating the energy transition for hard to abate sectors. We have been working with GTT since the early days of the first LNG carrier development, and it is great to see how their*

^{1 1} An Approval in Principle (AiP) is an independent assessment of a concept within an agreed framework, confirming that the design is feasible, and no significant obstacles exist to prevent the concept from being realized.

expertise can be applied to enabling liquid hydrogen transport. The efforts made by all to get this new membrane containment system through this key development hurdle has been considerable and a testament to the great working relationship between all involved. This technology will support the safe and efficient scaling of bulk liquid hydrogen transport by sea, which in turn will help unlock hydrogen as a fuel source for the future.”

About GTT

GTT is a technological expert in containment systems with cryogenic membranes used to transport and store liquefied gases. For over 50 years, GTT has been designing and providing cutting-edge technologies for a better energy performance, which combine operational efficiency and safety, to equip LNG carriers, floating terminals, land storage, and multi-gas carriers. GTT also develops systems dedicated to the use of LNG as fuel, as well as a full range of services, including digital services in the field of Smart Shipping. The Group is also active in hydrogen through its subsidiary Elogen, which designs and assembles electrolyzers notably for the production of green hydrogen.

GTT is listed on Euronext Paris, Compartment A (ISIN FR0011726835 Euronext Paris: GTT) and is notably included in SBF 120 and MSCI Small Cap indices.

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About DNV

DNV in the maritime industry: DNV is the world's leading classification society and a recognized advisor for the maritime industry. We enhance safety, quality, energy efficiency and environmental performance of the global shipping industry – across all vessel types and offshore structures. We invest heavily in research and development to find solutions, together with the industry, that address strategic, operational, or regulatory challenges. For more information visit: www.dnv.com/maritime

About Shell

Shell is a global group of energy and petrochemical companies with operations in more than 70 countries. We have expertise in the exploration, production, refining, marketing and trading of oil and natural gas, and the manufacturing and marketing of chemicals. We use advanced technologies and take an innovative approach to help build a sustainable energy future. We also invest in power, including from renewable sources such as wind and solar, and new fuels for transport, such as advanced biofuels and hydrogen. We serve more than 30 million customers at almost 46,000 retail service stations every day. Our strategy is to accelerate the transition of our business to net-zero emissions, purposefully and profitably. Our strategy also includes extending leadership in liquefied natural gas (LNG) to enable decarbonisation of key markets and sectors.