

A BRIGHT FUTURE FOR LNG

Alexandre Tocatlian, Head of Product Lines at GTT, explains to David Hughes why the major French LNG engineering specialist is confident gas will play a major part in the decarbonisation of shipping

D: GTT has great experience in the LNG sector. Could you please outline what you see as the most important item on recent and current projects which include Jacques Saadé gas test, support for the first bunkering operation in Rotterdam of the Gas Agility, and the training programme provided by GTT.

AT: The most important thing for a ship owner starting his journey towards using LNG as fuel is to work with experienced and reliable partners. LNG propulsion, in particular the tank and fuel gas handling system (FGHS), is very different from conventional propulsion in terms of design, safety and operation. Working with reliable partners ensures that most interfaces will be covered; particularly interfaces between the LNG tank and FGHS and interfaces between the LNG fuelled ship and her LNG bunkering ship(s). For the Jacques Saadé, the first 23K TEU dual fuel ULCV (Ultra Large Container Vessel) ordered by CMA-CGM, the cooperation between HZ, GTT, WGS and WIN-GD is a guarantee for both owner and shipyard that the project remains on track, facing and solving problems together.

Training and support through the whole vessel lifetime are also critical aspects for the owners. This is why GTT delivers a dedicated LNG fuel training program to the crews of the CMA-CGM fleet and why the GTT operations department will assist both the Jacques Saadé and the Gas Agility at the same time during their first bunkering operations. GTT will also provide a 24/7 emergency response service. GTT also delivers a digital package that will help CMA-CGM optimise ship performance in the day-to-day operations.

DH: SEA-LNG has issued a report claiming LNG is currently the only viable pathway fuel towards decarbonisation. Do you agree?

AT: Yes, I agree. An LNG-fuelled vessel ordered now is already compliant with the 2030 objectives without any add-on. The same LNG-fuelled vessel will be compliant with 2040 and 2050 objectives when you add a percentage of bio-LNG or synthetic LNG and/or energy efficiency devices. As written in the report, there is a big difference between deep-sea and short-sea shipping. Deep-sea shipping requires dense and compact fuel solutions, otherwise the ships will end up carrying more fuel than their valuable cargo.

For shipping, I believe that ammonia will also be a part of the 2050 equation. It has a relatively poor energy density (ammonia needs twice the volume of LNG for a given range) but this should be solved with larger tanks. But this limits its application to vessels where it will not jeopardize the cargo capacity. However, the safety issues (high toxicity), the engine and FGHS development, and the non-existing infrastructure for synthetic NH₃ means ammonia will not be ready as a fuel for at least a decade. Global warming cannot wait for another decade when a solution such as LNG is already available.

DH: Critics of LNG argue that it is not worth investing in expensive LNG infrastructure which will soon be obsolete. What is GTT's response to that?

AT: Our response is quite simple. We are living incredible years in terms of LNG infrastructure development, which is the guarantee of LNG competitiveness in the long term.

LNG is progressively replacing more polluting fuels in the energy sector. LNG will also replace more polluting fuels in the shipping industry. Actually, the question was already answered some years ago, with massive investments in LNG bunkering infrastructure. As a result, there will be more than 20 'big' LNG bunkering vessels with bunker capacities from 5,000 to 20,000 m³ by the end of 2022!

DH: Do you believe the issue of methane slip is being adequately addressed with regard to the use of LNG in the shipping sector?

AT: The LNG fuel industry takes this issue extremely seriously. Shipowners have read the related environmental reports. As a result, they are very cautious and question us carefully when investigating the LNG fuel solution. There is a clear focus on the engine's methane emissions. Whatever the type and injection pressure, the engine makers have developed solutions to decrease the methane slip dramatically.



Alexandre Tocatlian



On GTT's side, our tank insulation design is so efficient that, during the ship's daily operations there is no waste of CH₄, neither through methane leak nor unnecessary burning. In addition, we optimise procedures to cut emissions during gas trials and commissioning/decommissioning of the LNG tanks. Similar efforts to curb methane slip have also taken place throughout the entire value chain from production to storage.

DH: How much of the marine fuel market does GTT expect LNG to take by the end of the current decade?

AT: This is a difficult question. Currently the main advantage of LNG for ship-owners and charterers is a lower OPEX (bunker price) and a better image,

which is still not always seen as being a priority. A substantial uptake of LNG as a marine fuel will require a stronger message and greater incentives/penalties from regulatory bodies. However, we see more and more proposals where LNG as fuel is the base case and not just an option. In a reasonable scenario, we expect LNG to be one of the top three fuels used in the marine sector with a clear lead in the large and very large deep-sea vessel sector. If you look at the projections, this is a general view shared by the professionals within the sector. For example, DNV-GL forecasts that LNG will power about 20% of the merchant fleet by 2030.

DH: Will synthetic LNG become a replacement for fossil LNG?

AT: All solutions that reduce the overall carbon content of LNG will be of interest, as long as they are cost effective and actually available as fuel. As with other fuels produced from hydrogen (synthetic fuel oil, ammonia), synthetic LNG can be considered carbon free only if produced from green hydrogen. So it will depend on the availability of green hydrogen in large quantities. Combined with bio-LNG, which has the advantage of being able to capture methane that would otherwise be emitted to the atmosphere, these two fuels blended with fossil LNG would enable the industry to attain 2050 compliance. Hence, the future will be most probably a mixture of these three solutions.



Construction of The Jacques Saadé, biggest LNG fuelled container vessel