GUINEA PIG: Wessels Marine's boxship Wes Amelie will be the first ship to trial synthetic LNG as bunkers
Photo: Wessels Marine

Can synthetic-LNG fuel greener shipping or is it a Shangri-La?

Owners and operators are being encouraged to opt for LNG fuelling then switch to cleaner SNG hassle-free

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Shipowners concerned over using LNG as a transition fuel to meet the IMO's 2050 emissions targets are being told to go ahead — as they will be able to switch to greener forms of gas power before the deadline without modifying their ships.

Synthetic LNG, known as SNG or syngas, is increasingly being touted as a cleaner alternative fuel.

It is produced by generating electricity from low-carbon or renewable sources to conduct electrolysis — effectively splitting water into hydrogen and oxygen. CO2 is added, creating methane and water.

This so-called synthetic methane can then be liquefied to produce SNG marine bunkers.

The hurdles to the take-up of SNG as a marine fuel are the capacity to produce it and the cost of manufacture.

This year, a world-first pilot project is being conducted by MAN Energy Solutions to use SNG onboard a working vessel.

MAN Energy, working with German shipping company Wessels Marine, will use SNG as a "drop-in" fuel on the 1,036-teu containership Wes Amelie (built 2011) when it is running on LNG.

Stefan Eefting, MAN PrimeServ Augsburg senior vice president, is excited about the pilot, explaining that just 20% of the bunkers will be SNG. The ship could operate 100% on SNG, he said, but it is a matter of availability and price.

The SNG will be produced by German carmaker Audi at its 6 MW power-to-gas facility in Werlte.

The plant — originally built by MAN Energy in 2013 — is the biggest SNG production site in Europe and its gas is currently being used to fuel cars.

For shipping, larger liquefied volumes are required, so a small liquefaction unit is being added to the Audi facility.

Eefting said the decision to initiate the pilot marine project was made only last summer after talks with Wessels Marine, with which it worked in 2017 to convert one of its ships to use LNG as bunkers.

INNOVATIVE IDEAS

He praised Wessels Marine — now working with LNG transportation outfit Nauticor and charterer Unifeeder on the project — for creating innovative ideas to move the industry forward.

"We said, 'guys ... why not go the next step to prove that SNG is also possible?'"

The Audi plant will be ready by the middle of this year and the drop-in SNG fuel volumes — produced from electricity generated from wind power — for the Wes Amelie have been contracted.

Eefting said that by July or August the boxship will be bunkered with the drop-in volumes and will make its first week-long, round-voyage in the Baltic Sea region.

He says said the ship normally bunkers about 120 tonnes of fuel for such a trip, of which 20% will be SNG.

He estimates that using SNG on the trial voyage will reduce CO2 emissions by 56 tonnes.

20% SAVING

LNG offers a 20% saving on CO2 emissions over heavy fuel oil. As a rule, using SNG as a 20% drop-in fuel will cut a further 20% in CO2 emissions, he explained, adding that figure would be 100% if SNG could be used to supply the full volume of bunkers.

Eefting believes that if SNG availability remains an issue, then it is maybe "a smart way forward" to use it as a drop-in fuel because it can be mixed with LNG without the need for any technical modifications.

"We really strongly believe that LNG is not only a bridge technology but later, if you have invested in engines that can burn LNG, you can easily switch to SNG," he said.

Today, the cost of SNG is eight to 10 times higher than LNG, but Eefting believes it could be just three times higher if correctly scaled up.

But he added: "It is clear that to really push it into the market we need regulations," he said, citing CO2 taxes as a possible driving force.

STEFAN EEFTING: MAN PrimeServ Augsburg senior vice president
Photo: MAN Energy Solutions

A self-confessed optimist, Eefting believes that in 10 years' time SNG will be as widely available as LNG bunkers today.

MAN Energy is already working with Swedish power company Vattenfall and German renewable energy outfit Arge Netz to scale up SNG production with a planned 50 MW plant at Brunsbuttel in northern Germany, where an LNG terminal is also planned.

The new facility would use electricity generated by local solar and windfarms to produce about 40 tonnes of SNG per day. This could be a tank stop for ships, Eefting said. The consortium is working on funding for the project and hopes to see it in operation by 2022.

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