

ONE secures approval for design of ammonia-fueled container ship



ONE has received design approval in principle for a dual-fuel 3,500-TEU ship capable of being powered by ammonia, a colorless chemical that emits no CO2 when burned. Photo credit: ONE.

Peter Tirschwell | Jan 29, 2024, 10:02 AM EST

SINGAPORE — Ocean Network Express (ONE) on Monday signaled its initial intent to build ships powered by ammonia, a toxic zero-carbon fuel but one seen by many as needing to be part of a likely multi-fuel zero-carbon future.

ONE said in a statement it received design approval in principle for a dual-fuel 3,500-TEU ship capable of being powered by ammonia, a colorless chemical that emits no CO2 when burned. The approval from classification society DSV is not for an actual ship but rather the design; whether and when ONE proceeds with construction was not disclosed.

“Ammonia is one of the promising future marine fuels with great potential to decarbonize shipping,” Cristina Saenz de Santa Maria, DNV’s regional manager of Southeast Asia, Pacific & India/Maritime, said in the statement. “We are confident that DNV’s rules for ammonia will help our customers to safely adopt this new fuel type once the infrastructure is in place.”

For now, it shows that ONE, which earlier this month announced orders for 12 dual-fuel methanol ships and has pledged to fully decarbonize by 2050, envisions a multi-fuel future, including ammonia, as the maritime industry progresses toward its goal of full decarbonization “by or around” 2050. That was the ambitious goal committed to last year by the 175 member states of the International Maritime Organization (IMO) in an updated greenhouse gas (GHG) policy that replaced a prior goal of getting to only a 50% reduction by that date compared with 2008 levels.

Ammonia is in its very early stages as a potential marine fuel, with regulations pertaining to complex safety and operational issues still being developed at the IMO. The container shipping industry is moving hesitantly toward the chemical. Currently, 58 container ships on order can be converted to ammonia power post-delivery, while no ammonia-fueled ships are in operation currently, according to S&P Global Market Intelligence. That compares with current orders for 184 methanol-fueled ships, with one such vessel in operation.

ONE said it was still studying the feasibility of ammonia, saying in the statement it is “one of the primary focuses of our research” into zero-carbon fuels, adding it will “continue our study on ammonia.”

Ammonia demand seen rising

A 2023 study by the Global Center for Maritime Decarbonization (GCMD) concluded there will be significant future demand for ammonia as a bunker fuel. The study envisioned a “realistic” scenario whereby ammonia would comprise 10% of all marine fuels bunkered in Singapore, the world’s largest bunkering port, by 2035, a figure that would rise to 37% by 2050. Ammonia will represent 36% of low- and zero-carbon marine fuels by 2050, DNV separately predicted.

That level of demand in Singapore alone “corresponds to a total ammonia marine fuel demand of approximately 50 million tonnes (MT) by 2050 in Singapore and a significant corresponding increase in that same period for ammonia bunkering related assets, i.e., bunker vessels, port infrastructure and storage capacity,” the GCMD said in its report.

The lack of a regulatory framework for ammonia was called out by the GCMD, which urged that regulations needed to be developed “without delay, considering the time required for infrastructure buildout, competency development and operational readiness of the bunkering ecosystem given the safety concerns around handling ammonia as a bunker fuel.”

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