

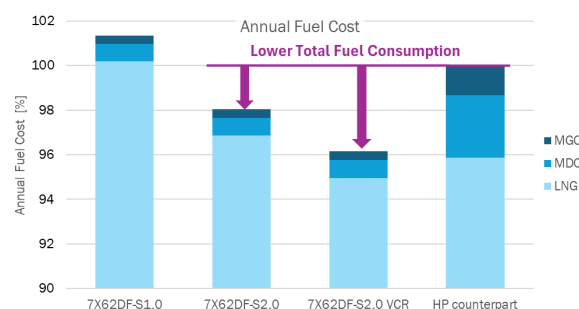
WinGD X-DF cuts methane slip in final VCR technology shop tests

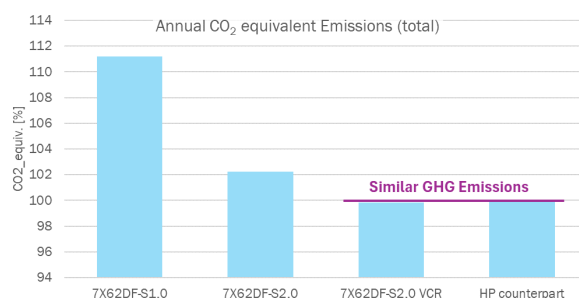
Swiss marine power company WinGD has completed shop tests of its groundbreaking variable compression ratio (VCR) technology. The results confirm that methane reductions from new X-DF engines with VCR technology deliver similar ship greenhouse gas (GHG) emissions to high-pressure dual-fuel technologies, while delivering a total system cost and fuel cost advantage for several vessel applications.

The VCR shop test was completed at Mitsui E&S DU (MESDU) facilities in Japan, where the first X-DF2.0 engines with VCR are being built for bulk carriers owned by NYK Lines. The six-cylinder, 62-bore engine achieved around 30% fewer methane emissions than the same engine without VCR, taking total slip to around 0.83% of gas consumption. This is less than half the EU (and provisional IMO) default slip attributed to low-pressure, low-speed dual-fuel engines in maritime regulations. The reduction is expected to be even greater for engines with a larger bore.

WinGD Vice President Product Centre, Peter Krähenbühl, said: “Over the past decade we’ve worked to ensure that the unmatched reliability and low capital expenditure of X-DF engines are supported by the lowest possible overall GHG emissions. The fuel consumption and methane slip reductions achieved by VCR bring us to that point. Low GHG emissions will be fundamental for shipowners as carbon pricing measures take effect, which is why we have already seen strong uptake, with well over 100 new X-DF engines ordered with VCR so far.”

The significant reduction in methane slip was achieved alongside a fuel reduction of up to 5.8% in gas mode and up to 6.9% in diesel mode. The charts below show how those improvements affect the fuel cost and CO₂ equivalent emissions compared to previous X-DF engine technologies and a high-pressure engine counterpart, for a typical car carrier operating profile.





VCR technology allows engine compression ratio to be adjusted automatically to optimise combustion based on engine load, fuel type and ambient conditions. The solution can be applied to all new X-DF engines and a retrofit package has already been designed and installed on a pilot case vessel, yielding promising early results.

Both European and IMO regulations will include mechanisms to update default methane slip factors and to allow shipping companies to supply their actual methane slip measurements - meaning that ship operators can reduce carbon costs based on any improvement in methane slip. WinGD is supporting the development of these mechanisms through various associations that contribute to the regulatory process.

X-DF engines bring added certainty on fuel consumption and emissions thanks to their inherently low-NO_x design and the long-established use of rational emission control strategies, as explicitly required in recent updates to IMO's NO_x Technical Code. This means that WinGD does not need to adjust brake specific fuel consumption figures or tolerances to meet the new requirements.

As previously stated, WinGD envisions a transitional pathway for LNG as a marine fuel, with fossil LNG steadily being replaced by zero or near-zero emissions variants from biomass and ultimately synthetic sources. Reducing methane emissions supports reduced GHG impact regardless of the source of LNG. WinGD's efforts to further improve its LNG engine platform come alongside its ammonia- and methanol-fuelled engines, ensuring that ship operators are able to choose the most cost-effective fuel to support their selected decarbonisation pathway.

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WinGD in brief

WinGD advances the decarbonisation of marine transportation through sustainable energy systems using the most advanced technologies in emissions reduction, fuel efficiency, hybridisation and digital optimisation. With their two-stroke low-speed engines at the heart of the power equation, WinGD sets the industry standard for reliability, safety, efficiency and environmental design, backed by a global network of service and support. Headquartered in Winterthur, Switzerland since its origin as the Sulzer Diesel Engine business in 1893, today it is powering the transformation to a sustainable future.

For more information visit: www.wingd.com