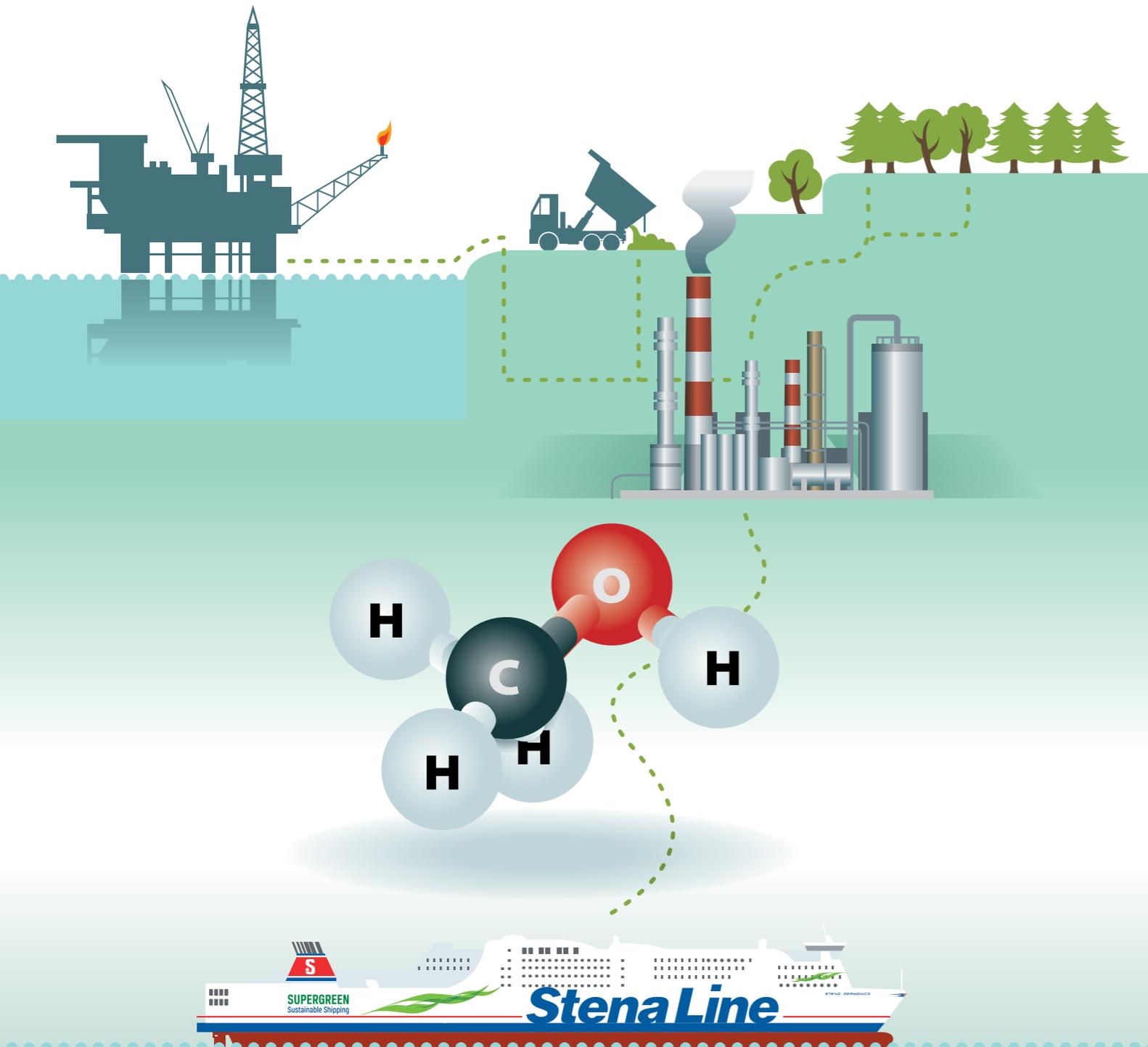




**WELCOME ONBOARD A GREENER JOURNEY!**  
- *Stena Germanica* - the world's first methanol ferry



# METHANOL – THE FUEL OF THE FUTURE

*The Stena Germanica is one of the world's largest ferries, 240 metres long, with a capacity for 300 cars and 1 300 passengers. That is however not the most remarkable thing about it. The unique and all new feature of the Stena Germanica is something that you probably even haven't noticed yet – it runs on methanol. That it is the first, and so far the only, vessel in the world doing so.*

## **NOTHING NEW...**

Methanol is not a new invention. You may recognize it more under the name wood spirit or methyl alcohol. It is mainly used as an industrial base chemical and solvent, but methanol is also an excellent fuel, clean or mixed – if you have ever played with model cars or remote controlled airplanes, you know what we are talking about. It is not as explosive as regular gasoline, and especially suitable for indoor car and motorcycle racing since the emissions are considerably cleaner.

## **...BUT NEW TO US**

Methanol is produced from natural gas, a fossil fuel extracted from the crust of the earth. But it can also be produced from wood pulp, biomass, garbage, or even carbon dioxide – basically anything that contains a coal atom.

So, what are the benefits of running this ship on methanol? For Stena Line, it is cost effective and relatively easy to transport and handle. We can modify our already existing engines and fuel systems and make them meet the new, lowered sulphur emission regulations but above all, the potential of methanol and the environmental gains in the future are enormous.



# FROM GREEN TO SUPERGREEN

*Since almost 90 per cent of the world's trade is seaborne, shipping and ferry companies like Stena have a huge responsibility to transport people and goods as clean and environmentally friendly as possible. Methanol as fuel is a step in the right direction.*

## **NEW RULES**

Since Jan 1st, 2015, the regulations of sulphur emissions have been made stricter, which has triggered Stena Line to be even more innovative than before. There are a number of ways for a ferry to become more environmentally friendly, to go from green to supergreen, like installing scrubbers or use natural gas.

**But what about introducing a new fuel altogether?**

**What about methanol?**

**Would that meet the requirements?**

**The answer is yes!**

By using methanol, the emissions of sulphur and particles disappear almost entirely, and the nitrogen oxide emissions become considerably lower. The emissions basically consist of water vapour and carbon dioxide, making methanol one of the most environmentally friendly fuels that exists. Methanol means cleaner air, and cleaner water. If methanol was spilt, it dissolves itself completely in contact with water, meaning that if all vessels were to run on methanol, there would be no more incidents with oil spills.

## **FOCUSING ON THE ENVIRONMENT**

Stena Line focuses on innovations that benefit our customers as well as the community and the environment. We have been reducing our environmental impact considerably just by concentrating on lowering our energy consumption. We are the first ferry company in the world to convert to methanol. By doing this, we are making sure that shipping can be the cleanest mode of transport. Also, we have taken a huge step towards fossil fuel free and sustainable shipping and climate neutral transports.



## THIS IS HOW IT WORKS

*The Stena Germanica has four Wärtsilä engines with a total of 32 000 horsepower for propulsion. Up until recently, it ran on MGO (Marine Gas Oil). But now, the vessel has spent a couple of months at a shipyard in Poland where it was converted into running on methanol instead.*

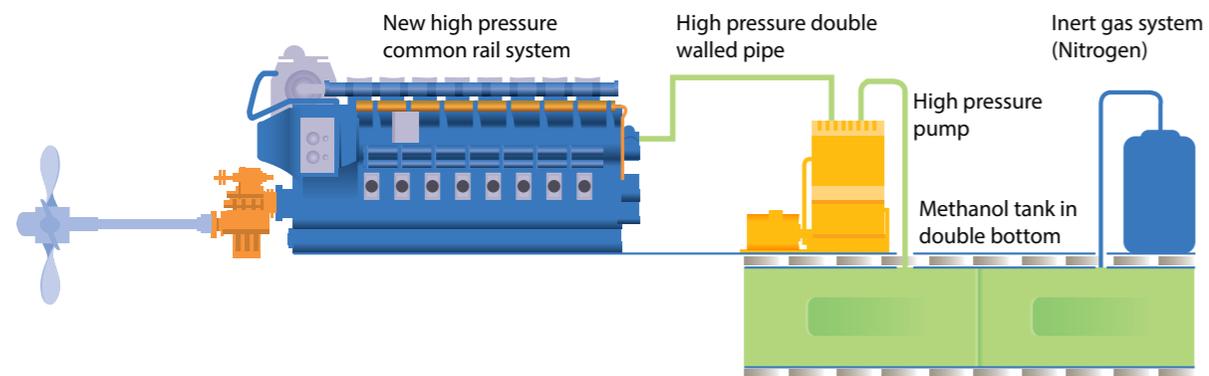
### A NEW FUEL SYSTEM

The converted engines are of dual fuel type, which means that methanol is the primary fuel, but they can still run on MGO as a backup. The methanol fuel system is a common rail system, which requires a high pressure pump and double walled high pressure fuel pipes as part of the system.

This also means that the Stena Germanica had to be fitted with double fuel tanks, which was easily achieved. It was possible to convert an already existing water ballast tank for that purpose and besides this being an effective way of solving a problem, it also adds additional safety to the vessel since other water tanks surround the methanol tank.

### SAFETY FIRST

Methanol is a flammable alcohol and therefore, the safety measures surrounding it are rigorous. Extensive work has been done to assure that the system corresponds to Stenas high safety standards.



# DESTINATION: THE FUTURE

*We are still too dependent on oil and coal, even though we know it is not a sustainable way of living. The environment suffers and the earth's resources will eventually end so we need to put new ideas into practice.*

The Stena Germanica methanol comes from natural gas. Even though it is more environmentally friendly than any petroleum product it is still a fossil fuel. The best thing

about methanol is that it actually can be made out of garbage or biomass or even produced from water and carbon dioxide, creating a totally climate neutral cycle.

It is our duty to be curious. We want to explore. Stena Germanica is the first ship on methanol, but if it turns out well we will continue to convert our vessels. We will continue the development for the future and our aim is to make all our vessels Supergreen. We are glad that you are on this journey with us.



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