Contributions Environment Operations

See which way the wind blows

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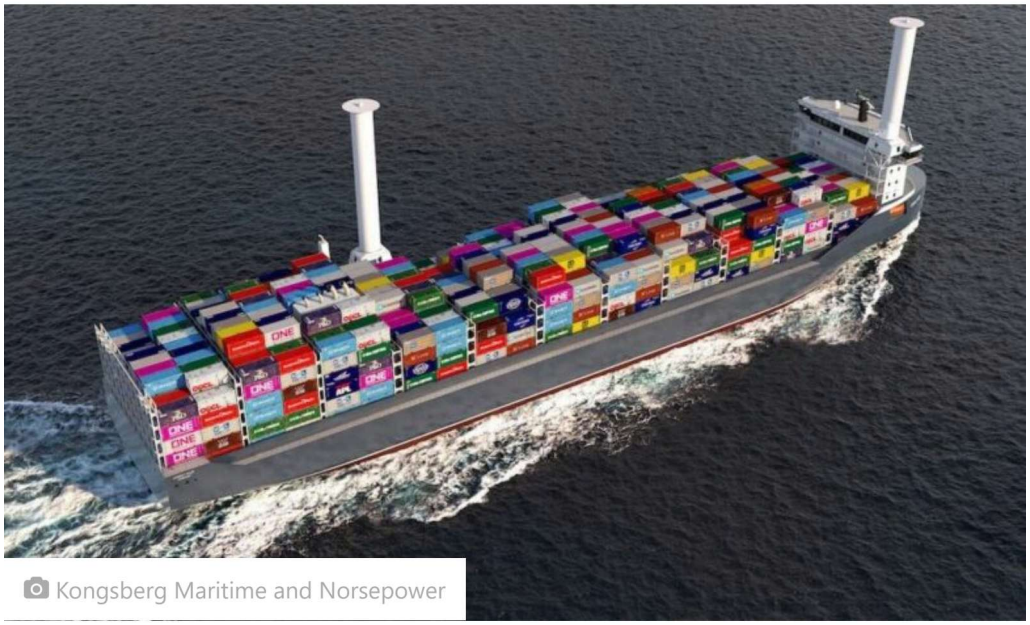

Kongsberg Maritime and Norsepower

In the first of a two-part contribution, Henrik Alpo Sjöblom from Kongsberg Maritime identifies the main wind-assisted propulsion systems.

At Kongsberg Maritime, we integrate various systems onboard ships, from the bridge to the propeller. For wind, we don't have this in our product range, but as an integrator and also a ship designer, the potential opportunities from wind, certainly feature in our forward thinking, and in a growing number of our vessel designs.

We're collaborating with many of the manufacturers of wind assist technology. For us, we need to understand what each wind technology offers, and in what conditions they perform best. Shipowners already have a range of choices when it comes to alternative fuels, and with wind, again the fact there are several options on the market, it doesn't make the decision process any easier.

The four primary types of wind-assisted propulsion technologies available to commercial shipowners today are: rotor sails (Flettner rotors), wing sails, suction wings, and soft sails.

We have carried out extensive research into the contribution each of these can make in the drive for more efficient, cleaner operations. We evaluated each technology based on its operational principles, advantages, and limitations, so here's our view on the pros and cons of each.

Rotor sails are cylindrical structures that rotate around their axis. As wind passes over the rotor, the Magnus effect generates a lift force that propels the vessel forward. This technology is characterised by its compact size, low maintenance requirements, and excellent performance in reaching conditions. However, rotor sails may experience reduced efficiency in headwinds.

Wind sails are rigid, airfoil-shaped structures that resemble airplane wings. They generate lift through aerodynamic principles, converting wind energy into propulsive force. Wind sails offer high efficiency, particularly in upwind conditions. As the largest structures, they take up a larger surface area than rotor sails and may be challenging to operate in strong winds.

Suction wings are similar to wing sails but incorporate suction technology to enhance their aerodynamic performance. By creating a low-pressure zone on the wing's surface, suction wings can generate increased lift and propulsion. This technology is relatively easy to install and can be folded down for clearance under bridges. However, suction wings may produce noise and may have limited efficiency in downwind conditions.

Soft sails represent a more traditional approach to wind-assisted propulsion. They consist of masts, rigging, and fabric sails that can be controlled and adjusted to capture wind energy. While soft sails offer flexibility and can be easily stowed, they require significant deck space, ongoing maintenance, and may have limited efficiency in certain wind conditions.

In conclusion, wind-assisted propulsion systems offer a viable and sustainable solution for reducing emissions in our industry. The choice of technology depends on various factors, including vessel type,

operating routes, and desired performance characteristics. As technological advancements continue, we anticipated that wind-assisted propulsion systems will become increasingly integrated into the commercial shipping sector, contributing to a more environmentally friendly and sustainable future.

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