

Wind power

James Rhodes of Magnuss presents the case for using 'eco-efficient' technologies

With bunker fuel costs peaking at 80% of operating costs in 2012, many shipping industry leaders have cast a keen eye on cost savings resulting from reduced fuel use. Adding to the economic demands of maritime shipping, legislation which came into force this year will undoubtedly make fuel efficiency a key priority in 2013. Even in small bites, fuel savings can mean the difference between profit and loss in the current market.

The new Chapter 4 that was added to MARPOL Annex VI in July 2011 entered into force this year. Applicable to all vessels of 400 gross tonnage and above, Chapter 4 mandates the Energy Efficiency Design Index (EEDI) for new vessels and the Ship Energy Efficiency Management Plan (SEEMP) for existing ships, while stricter legislation pertaining to Emission Control Areas (ECAs), expected in 2015, looms large.

Must have

In no small way, the EEDI and SEEMP serve to position fuel efficiency not as a 'nice to have' but a 'must have' for many companies to remain competitive. The EEDI applies to all ships where the building contract was signed on or after 1 January 2013. Notwithstanding regulatory short-term waivers for developing countries, the EEDI aims to have ships delivered from the start of 2015 close to 10% more fuel efficient than the EEDI baseline. SEEMP, an efficiency management plan, requires ship operators complete a series of charts outlining their vessels emissions, establishing a mechanism for improved energy efficiency.

Raising the bar

Regulations have raised the bar for environmental quality in shipping: shipping companies know they have to meet a higher standard or suffer the consequences. Eco-efficiency is expected. The highly optimised shipping industry is stepping up to the challenge. This is most evident in approved plans to invest in and demonstrate innovative technologies that provide sustained 'double digit' percentage fuel savings. The task before many shipping industry leaders is how best to steer a course that ensures one's fleet is both competitive and compliant?

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Spanning a sample of clean technologies available in the market, much has been done to improve the baseline including hull trim optimisation and propeller boss cap fins. For new builds, sleek designs and waste heat recovery systems can also achieve measurable savings, but few technologies in the market can deliver 'double digit' savings. Even in optimum conditions, emission reductions of between 1% and 2% are reported, well below the 10% reduction required by the EEDI.

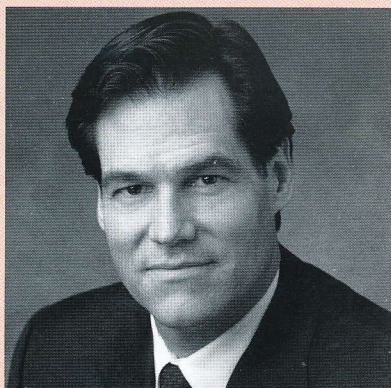
The **Magnuss Vertically-Variable Ocean Sail System (VOSS)** is an example of a modern technology that offers remarkable fuel savings at a time when minimising costs, increasing efficiency and 'future-proofing' against current and impending legislation is vital.

Tested and proven

Founded in early 2010, Magnuss designed the VOSS based on German engineering first applied, tested and proven for shipping in the 1920s by Anton Flettner. The standard Flettner rotor is a spinning, hollow, metal column installed on a ship's deck that converts wind into forward thrust, roughly perpendicular to the direction of the wind, by the physical principle called the Magnus effect.

The Magnuss VOSS is a vastly improved version of the Flettner rotor design, serving today's shipping industry with a number of patent-pending innovations. The chief difference and advantage of the VOSS is that it can be retracted and stowed out of the way when in port, during loading/unloading, navigating restricted areas and operating in adverse weather conditions.

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The Magnuss VOSS packs a powerful punch – 10 times more efficient than conventional sails and capable of providing as much thrust as a *Boeing 737* at take-off. The VOSS saves fuel and reduces emissions by enabling the ship's main engine to be throttled back while still maintaining voyage speed.

Viable option

The advantages of the Magnuss VOSS and its patent pending design have been recognised by maritime engineers and shipping industry experts alike. Unsurprisingly, the Magnuss VOSS has great appeal for many shipowners and operators. The technology can be fitted to both newbuilds and retrofits, making it a viable option for most of today's shipping fleet. The bottom line is that the VOSS can deliver fuel savings of between 20% and 30%, depending upon route and vessel type. These cost savings are meaningful, offering a quick

payback period in as few as two to three years. Regulation and higher ECA-stimulated bunker fuel prices over the coming years will only serve to make innovative solutions like the Magnuss VOSS, coupled with its performance management software, a 'must-have' system onboard the biggest ships of today's and tomorrow's global fleet.

Shipping has seen significant challenges over the past few years. With the introduction of EEDI, SEEMP and ECAs, the importance and focus on fuel efficiency shows no signs of abating. Industry leaders are keenly interested in the latest innovations in clean technology especially where they bring double-digit fuel savings, as few would argue that a sustainable shipping industry can exist otherwise. Look to 2013 for industry collaboration such as the Sustainable Shipping Initiative (SSI) and game changing solutions such as the Magnuss VOSS to ensure that the global fleet's future is both economically and environmentally stable for years to come.

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