

عنوان مقاله:

Technical Options for Cleaner and More Efficient Shipping

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خلاصه مقاله:

The paper outlines how ships and shipping need to evolve to meet market and legislative pressures from rising fuel prices and stricter emission regulations. Speed reduction, particularly design for lower speeds, is a highly effective option. But even for given speed, there are many technical and operational options to increase fuel efficiency. Modern computer application helps to unlock previously unused potential for saving, as illustrated in several examples. Formal optimisation of lines is an attractive option in design; formal optimisation of trim for least fuel consumption is the corresponding fleet-in-service option. Refits with propulsion-improving devices may improve fuel efficiency, but not in all cases. Here, modern simulation technology allows a detailed assessment before investment decisions are taken. Abatement technologies are only effective for SO_x, NO_x, and particulate matter. Alternative fuels, in particular gas, are seen as an important factor in meeting goals for emission reductions in shipping. A concept study for a hydrogen powered open-top container ship shows that zero-emission shipping is technically feasible with today's technologies.

کلمات کلیدی:

efficiency, emissions, fuel, gas, optimization

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