



E.R. Schiffahrt Energy Efficiency

Jürgen Kudritzki

E.R. Schiffahrt

The shipping world is facing strong demands to reduce operational costs and fuel consumption. The dramatic increase of fuel-oil costs of more than 400% since 2004 is the main cause for this development. Fuel-oil costs are even expected to increase further in the future. In addition to that, new emission legislations are affecting this trend.

This dramatic increase of the fuel-oil costs has initiated a radical change regarding operating vessels. End of 2009 the shipping industry started a slow-steaming operation initiative, which changed the operation profile of the vessels down to about 40 % of the engine loads. In 2012 a further step of super slow-steaming, with engine loads down to 10% of the installed engine load, was introduced.

In 2013 the picture of operation profiles has changed completely compared to 2008. The new large low-speed profile and operational ranges of 10 knots compared to about 4 knots in 2008, requires special technical efficiency adjustments. The actual way of vessels' operation shows clearly, that all installed equipment and the design is operated far away from the previous new building design point.

Efficient fuel consumption is related to design and operational reasons, which can be further divided into:

- Machinery design
- Hull design
- Reasons related to charterers (e.g. scheduling, waiting-times at terminals)
- Reasons related to owner (e.g. voyage-execution, trim, maintenance)

Voyage planning and tracing of voyage execution leads to the lowest possible average speed and lowest constant engine power output required in order to keep a charter's schedule.

Facilities of vessels' efficiency improvements are directly linked to the operational profile, which also needs to be analyzed in order to make correct decisions for the most efficient measures. If payback times are calculated properly, the outcome is that vessels' size and related fuel consumption is a general indicator for payback time for different measures. It is assumed that the invested costs for modifications will be paid back by the fuel oil cost saving after installing fuel saving measures.

“The bigger the vessel, the shorter is the payback time for chosen efficiency measures.”

The most efficient result for converting a vessel will be obtained by considering the actual operational profiles and optimizing propeller, bulbous-bow and main engine de-rating.

Jürgen Kudritzki, 46 years old, acts as a technical director for the shipping company E.R. Schiffahrt, Hamburg. He started his career at MAN B&W, Hamburg, where he worked in various positions and stayed for about 17 years. After about 6 years as technical superintendent and fleet team manager with the BlueStar / Komrowski shipping companies he joined E.R. Schiffahrt.