

# Saving billions on bunkers

**EFFICIENCY** | Controlling and reducing the company's bunker cost will play a critical role in getting Maersk Line back in the black.

BY JOHN CHURCHILL AND BENJAMIN JOHNSON

> Fuel is the single largest annual cost for Maersk Line. And as the company aims return to profitability, slashing the fleet's fuel consumption comes with a multi-billion dollar incentive.

In 2011, with average bunker fuel prices rising more than 35% during the year, Maersk Line consumed 9.4 million tonnes of fuel for a final bill of USD 5.8 billion. At the same time, as bunker prices were rising, the prices Maersk Line customers were paying to ship a container from A to B were plummeting, creating a lethal combination for Maersk Line's year-end profit.

"Controlling and reducing our bunker cost will play a critical role in getting Maersk Line back to profitability," says Søren Andersen, Head of Vessel Management for Maersk Line.

"We've made some big leaps in our efficiency over the past five years, and we have to continue that progress. The initiatives we've planned for the next two years will enable us to reduce our consumption quite a bit further."

Specifically, Maersk Line is aiming at a 22% reduction by 2014. The reward, based on 2011 bunker prices, would be no less than

USD 1.3 billion in savings per year, or roughly twice the amount of money the business lost in 2011.

Through the use of technology, ship design and development of technical innovations such as slow steaming and waste heat recovery systems, Maersk Line has been steadily improving the fuel efficiency of its fleet for years.

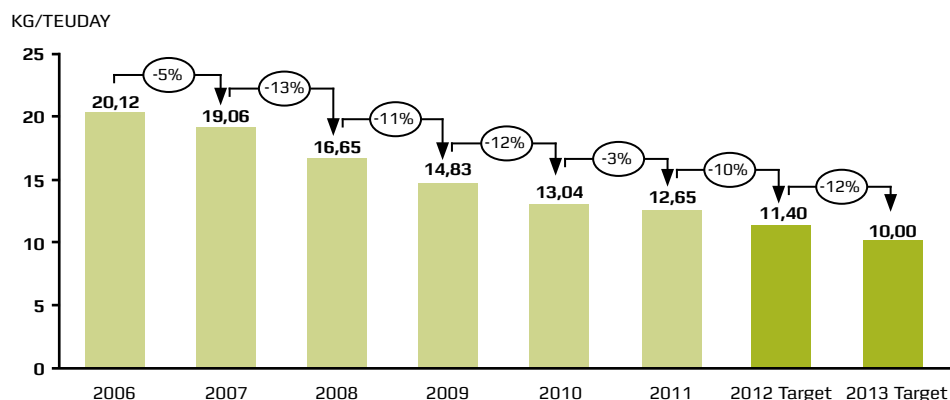
To reach the 22% target, Maersk Line is focusing on five areas: the design of the global vessel network; sailing efficiency; time charter partnerships; design- and technology-related retrofits and better vessel portfolio planning.

"With these initiatives we can reach the 22% before 2014. Unfortunately, efficiency improvements only get harder with each year, so we have to keep pushing operational and technical boundaries to get there, but we must move even further," says Niels Bruus, head of energy efficiency for Maersk Line.

"For Maersk Line, greater efficiency has to be a continuous pursuit."

## Maersk Line fuel efficiency (2006-2013)

**No more easy money:**  
In 2007 slow-steaming was introduced; in 2009, super slow-steaming. As efficiency improvements become harder to achieve, Maersk Line must continue to innovate both operationally and technically in order to reach its goals.



# Smarter Sailing

BY JOHN CHURCHILL AND  
BENJAMIN JOHNSON

► The sight of container ships waiting outside port means they could have arrived later by sailing slower and, in doing so, conserved more fuel.

About USD 425 million is wasted this way each year by Maersk Line alone, because of an inadequate status quo. Accordingly, the Voyage Optimisation initiative is targeting USD 175 million in bunker savings by minimising speed variance and waiting times.

It is nevertheless a tall order, not least because 48 hours is typically the longest notice many port authorities, especially those in growth markets, can give ships regarding their berth windows.

Stretching notice out to the time of departure is key and depends on streamlining communication between port planners and shippers.

"The project will shorten the interchange from port berth planners to vessel action and, in turn, minimise speed variance and waiting time on arrival," project lead Ahmed Bashir explains. "USD 175 million over two years is realistic because 80% of it is waiting time."

*Maersk Line has to dry-dock all of their vessels every five years for routine maintenance and repairs. While they're in for the check-up the company is also upgrading them with whatever technology or structural changes will reap the biggest gains in energy efficiency.*



Photo: Sam Zhang

# Network Slow Down

BY JOHN CHURCHILL AND BENJAMIN JOHNSON

➤ Just like driving a car, speed is the biggest determinant of a vessel's fuel consumption. The slower it can go, the less fuel it will use. However, slowing down more than 600 owned and chartered vessels isn't just a matter of setting speed limits.

The majority of the fleet is already 'slow steaming' at an average of 16.5 knots. The vessels sail slightly faster on the 'headhaul' and slightly slower on the 'backhaul,' when much of the cargo onboard is less time sensitive and more containers are empty.

By slowing vessels even further ('super slow-steaming') to an average of 15.5 knots and also more consistently on both headhaul and backhaul, Maersk Line plans to squeeze USD 350 million in fuel cost savings from the fleet this year and another USD 300 million in 2013.

"The challenge is delivering the lowest cost network design that is both operationally and commercially viable," says Jørgen Harling, head of Maersk Line's global network.

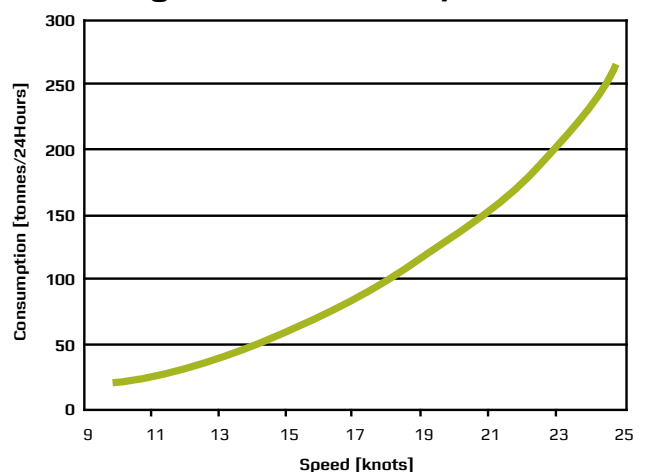
"We've made a lot of progress on the global network design governance which will enable this, and we're already seeing encouraging reductions in fuel consumption and cost. An improved design and a steady network with fewer unplanned expenditures will have a significant impact on our ability to reach our fuel reduction targets."

## The speed depends on operating profile

As 15.5 knots is an average, some vessels will go slower, some faster. The speed will depend on the ship's optimal operating profile, which is determined by its size, design, engine type, technology on board and other factors such as weather along its route.

At the end of every week, teams from commercial and operational departments all over the world evaluate and discuss each vessel's performance against expectations. This way, Maersk Line is able to keep a running tally of the fleet's progress toward its goals of greater efficiency and reduced consumption.

## Going slow saves money



*Slow down: the fuel consumption curve for the 16 S-Class vessels (8,160 TEU, 12m draught). Figures vary depending on the size of the ship, but the shape of the curve will be the same.*

# Time Charter Partners

BY JOHN CHURCHILL AND BENJAMIN JOHNSON

➤ Owners of 300-plus ships which Maersk Line charters are also being recruited to lower bunkers in a more inclusive and transparent partnership to put the entire fleet on the same energy-saving page.

By replicating the efficiencies achieved among the owned fleet in the chartered half, the Charter Optimisation Drive is also targeting USD 175 million in fuel savings by year-end 2013. Extending the energy efficiency score-

cards introduced in-house by Maersk Line in 2009 is at the core of the project.

## How is fuel being burned?

"This is about hardcore data," says Flemming Larsen, General Manager of Maersk Line's Operations Centre. "What we want is to achieve the best possible performance from the vessels we charter and look at our fleet as one without any demarcation with regard to energy performance."

"In short, it's in our interest to verify how our fuel is being burned and ensure that it's optimal, and there are benefits for the vessel owners too – they will be able to position themselves stronger against competition."

Savings will ultimately come from optimising engine performance across the entire fleet and instituting the best possible hull and propeller upkeep.



(...) Saving billions on bunkers – **focus areas**

# Upgrading the fleet

BY JOHN CHURCHILL AND BENJAMIN JOHNSON

► Maersk Line will be outfitting the majority of its 200-plus owned vessels with the latest energy efficient technology and design over the next five years in a project the company refers to as Eco-Retrofit.

"We have to dry-dock all of our vessels every five years for routine maintenance and repairs. While they're in for the check-up we're also upgrading them with whatever technology or structural changes will reap the biggest gains in energy efficiency," says Niels Bruus, head of energy efficiency for Maersk Line.

Using an 'energy efficiency analyser', a program developed by Maersk Maritime Technology which processes reams of data about a ship from its physical characteristics to its schedule and operating conditions (smooth or rough seas, etc), Maersk Line is able to determine precisely which technology will bring the greatest savings potential for every vessel class in the fleet.

"Some vessel classes are too old to warrant any retrofittings, and some are already quite efficient but will still benefit from more efficient pump or ventilation systems," says Steffen Hartvig Nielsen, project manager in Maersk Maritime Technology.

## NO MORE TURBO

Maersk Line has already installed equipment for turbo charger cut-out on a number of vessels. By cutting out one of the turbo chargers at low speeds, the efficiency of the main engine increases. This initiative saved more than USD 3 million in 2011.



Photo: Anders Rosendahl

*The captain Marius Í Garðastovu at Emma Maersk is very experienced in slow steaming: "Bad weather has never prevented me from entering a port, but slow steaming actually gives us some flexibility at sea. We can adjust when necessary and taking precautions goes a long way."*

# Vessel portfolio **optimisation**

BY JOHN CHURCHILL AND BENJAMIN JOHNSON

► Where the time charter partnerships are targeting bunker savings in existing contracts, Maersk Line is redoubling efforts to optimise its vessel portfolio and make cost reductions in upcoming deals.

This will be achieved by better aligning the fleet with the needs of slow steaming and specific service requirements. And with about 30% of chartered capacity (roughly 100 ships) up for renewal or replacement this year, exorbitant bunkers also make vessel selection integral to climbing out of the red.

About USD 60 million in savings will be targeted from USD 4.2 billion in charter expenses by Maersk Line's portfolio management personnel before the end of next year.

"It's really just down to making sure the ships that we have on charter are still the most optimal from an overall cost perspective," Head of Vessel Portfolio Management Ulrik Lethenborg explains.