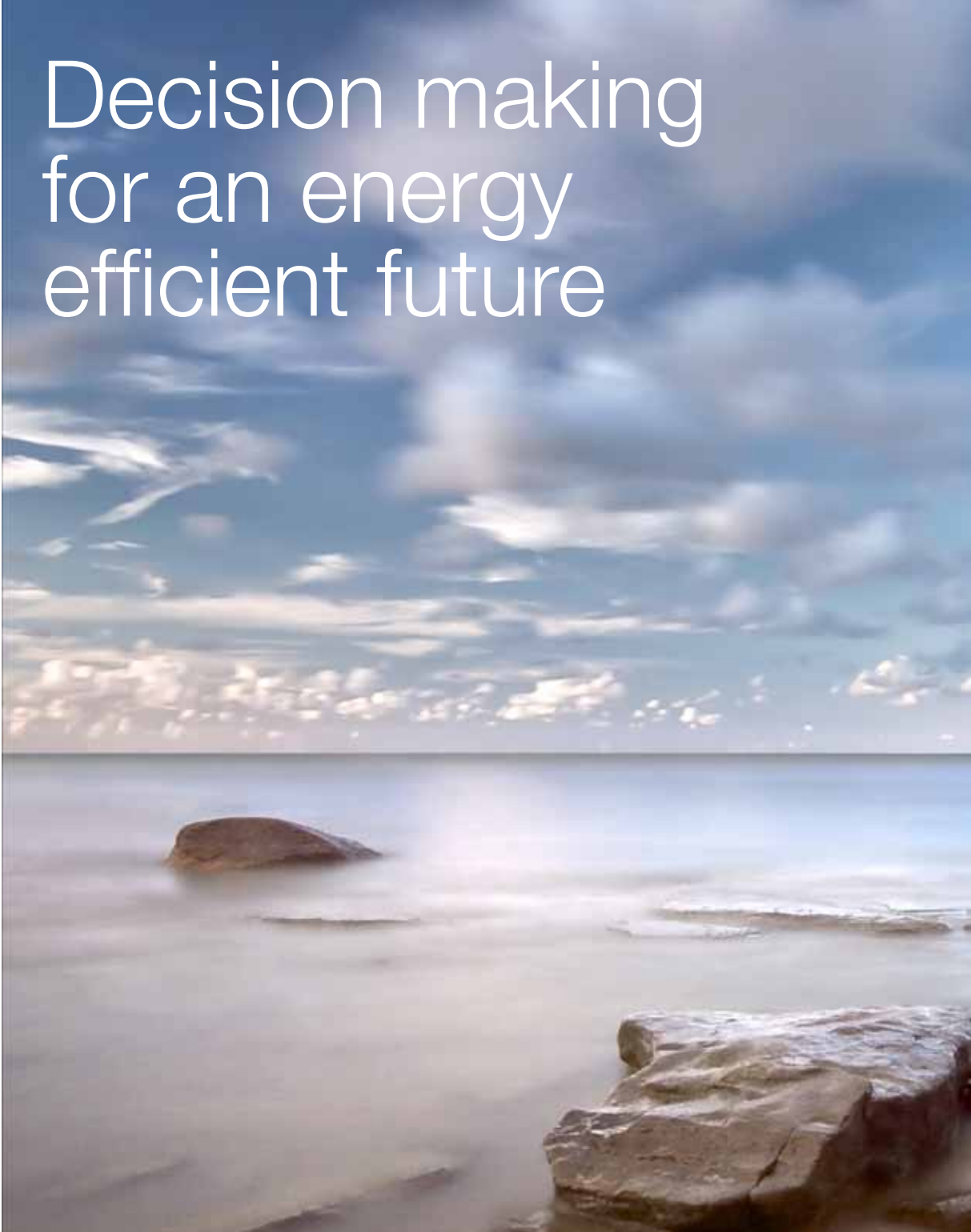


Decision making for an energy efficient future





“Slow steaming” will keep the fleet busy, so why struggle with innovative designs, unproven technology and new concepts for managing the fleet?

When looking at high bunker costs, soft freight rates and the hefty price tag attached to upcoming environmental regulations, a familiar feeling creeps into the decision-making process: the feeling of being “damned if you do, doomed if you do not.” That is, until we remind ourselves of the fundamentals:

- Every day the world’s population is growing by 57 million people
- The shipping industry is the cardiovascular system of international trade
- A good circulatory system is what the world needs now more than ever

The number of highly uncertain variables can be nerve-racking, resulting in a lot of homework for those who have the guts to become the next generation of leaders in shipping.

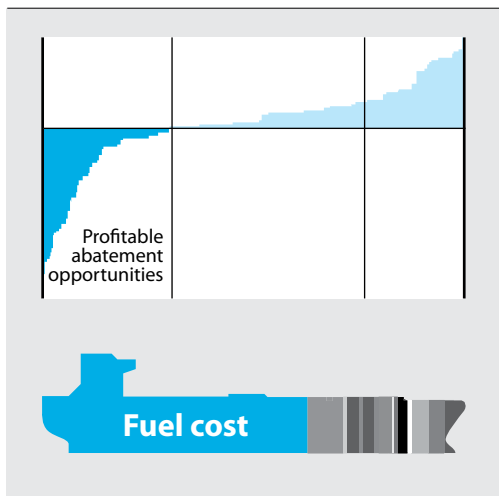
It starts with recognizing the fact that there is indeed a new factor to take into account in addition to high and uncertain fuel prices: global warming. No excuse will suffice when our children and grandchildren ask:

What took you so long?

Maybe they will point us to a 2009 presentation on the Web (see page 7) where Per-Anders Enkvist, associate partner of McKinsey & Company, tells us “For every year you wait, you do not only lose that year, but you lock yourself into a high-carbon world for the next 14 years to come.” In other words, he explains, the expectation is that, across sectors, the average concentration of greenhouse gas emissions will peak at 5 ppm (parts per million) higher for every year we wait, not at 2 or 3 ppm, which is the current annual increase.

Because ships are built for a much longer lifetime than 14 years, Enkvist’s example is easy to put into the context of the maritime sector. Every ship being built today will be operating during what we hope will be the peak year of greenhouse gas emissions.

CAPEX decisions and shipping OPEX simplified



Profitable greenhouse gas abatement opportunities relate directly to fuel cost

Energy efficiency turns out to be one of the most profitable opportunities for reducing global greenhouse gas emissions.

Enkvist and co-authors Tomas Nauclér and Jerker Rosander are well-known for providing businesses and policymakers with insight by introducing the cost curve for greenhouse gas reduction, also known as the marginal abatement cost curve or global cost curve for greenhouse gas abatement opportunities. This diagram has become a household slide in presentations on energy efficiency. That is because energy efficiency turns out to be one of the most profitable opportunities for reducing global greenhouse gas emissions.

Another question we might have to answer in the future is: **Why did you accept a gap between technology adaptation on land and at sea?**

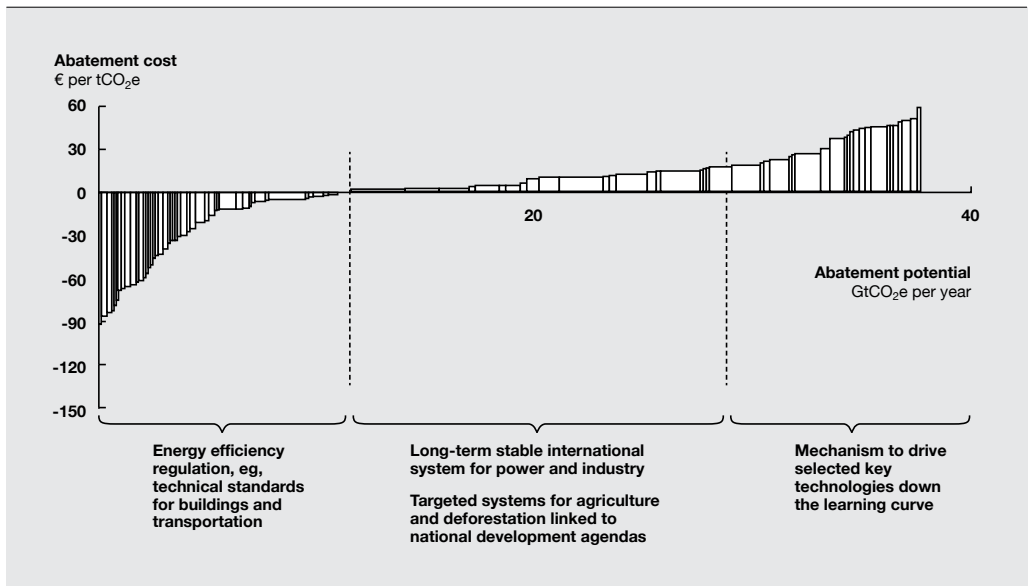
Traditionally, maritime applications of new technology at sea have come years, if not decades, after successful implementation on land. One commonly stated reason is the equipment that is being moved around the world by sea is exposed to vibrations, wind and harsh weather and therefore is subject to stricter requirements for safety and reliability.

As Eirik Nyhus, director for environment at Det Norske Veritas, points out in his article on environmental regulations towards 2020 (see page 85), shipping is becoming a dominant source of emissions, potentially exceeding land-based sources. The fact that the maritime industry is lagging behind in technology adoption is bound to attract public attention and could result in a faster implementation of regulations.

“We have the technology to slash global emissions,” stated the UK’s Institution of Mechanical Engineers in a joint statement issued by 11 of the world’s largest engineering organizations ahead of COP17 climate change talks in Durban, South Africa, in 2011. The technology needed to cut the world’s greenhouse gas emissions by 85 percent by 2050 already exists, according to the groups that explicitly called for a peak in global emissions by 2020 and an intensive effort to train workers for green technology jobs.

A third question to expect from our children or grandchildren, as lifelong users of the Internet, smart phones and 24-7 social networking, is: **Why were 60,000 ships being run as if they were separate kingdoms?**

The ship at sea is no longer offline. The new Ship Energy Efficiency Management Plan (SEEMP) by the



International Maritime Organization, required for all existing vessels by 2013, aims primarily at improving energy efficiency of a ship's operations, preferably linked to a broader corporate energy management policy.

In fact, SEEMP guidelines state that onboard monitoring should involve the crew as little as possible. By monitoring the entire fleet and sharing some of the data with the entire industry, a step change in logistics efficiency could be in the making. IT networks and real-time data sharing, combined with statistical analysis and intelligent control systems will identify "the best practice" and implement it in a way that even the best captain could not imagine.

How to read the cost curve

The above cost curve can be understood as the cost beyond the business-as-usual scenario of feasible measures to reduce greenhouse gas emissions. The horizontal axis shows the amount of emissions that can be avoided in billion metric tons per year; in other words, how much each measure can contribute to reducing emissions. The vertical axis shows what this would cost, or the price per metric ton of emissions reduced.

Columns on the graph therefore represent opportunities that are sorted by cost, with the least costly

ones to the left and the most costly ones to the right. Opportunities with cost below zero would increase the net profit while reducing emissions.

CAPEX and OPEX

To the left we chose to match two familiar charts as a dashboard for decision making on capital expenditure (CAPEX) and operational expenditure (OPEX) in a situation with high fuel costs.

Decision makers at any level need to navigate through a flood of information, looking for the best business cases. Evaluating performance benefits and lifetime costs against alternative investment opportunities is a multi-level, multi-discipline exercise.

However, one thing seems clear: choosing the right energy efficiency improvements could be key to financing investments that have no direct payback, but will become mandatory through international regulations.

Text: Johs Ensby, Vibeke Larøi
Photo: Shutterstock



Watch Per-Anders Enkvist, Associate Partner McKinsey & Company, speaking about GHG abatement at CC9
<http://www.cc9.no/index.asp?artikkelid=1947>