

DEFENDING THE FAT LADIES

A recent environmental report attacking the shipping industry's ULCSSs, otherwise known as the 'fat ladies', has many in the industry coming to their defence



It is not in the nature of this magazine to inform you of what you already know, but the shipping sector is in an unenviable state at present. Over supply and slowing demand have combined to create an uncomfortable headwind for mainline operators that has seen freight rates pushed to record lows in recent years.

Against this backdrop, a report was recently released that got many in the industry talking – because it seemed to contradict the very foundations of the shipping business model, which aims to move boxes around the world at the lowest cost possible.

To do that, container ships have had to become increasingly efficient since the first container vessel was introduced in the 1960s. Not so, according to an environmental group that commissioned a report that found that container ships had actually decreased significantly in efficiency compared to airplanes, cars and trucks.

The ‘Historical trends in ship design efficiency’ report by research consultancy CE Delft on behalf of Seas At Risk, an association of non-governmental organisations, found that container ships built in 2013 were, on average, 8% less fuel-efficient than those delivered in 1990, while cars and aircraft had shown significant improvements in the same period.

For an industry as obsessed with the cost of moving cargo as ours, this seems odd indeed, so Maritime & Ports

Middle East endeavoured to find out if this is in fact the case, and if so, why?

It turns out that size actually is important (when it comes to container ships anyway), because the number of containers that a larger ship can carry increases exponentially compared to the cost of operating the ship, which lowers the per-teu cost of transporting cargo. A ULCS uses more fuel, but only moderately so, which makes a larger ship more efficient on that basis alone (because fuel is the largest operational cost for any shipping line).

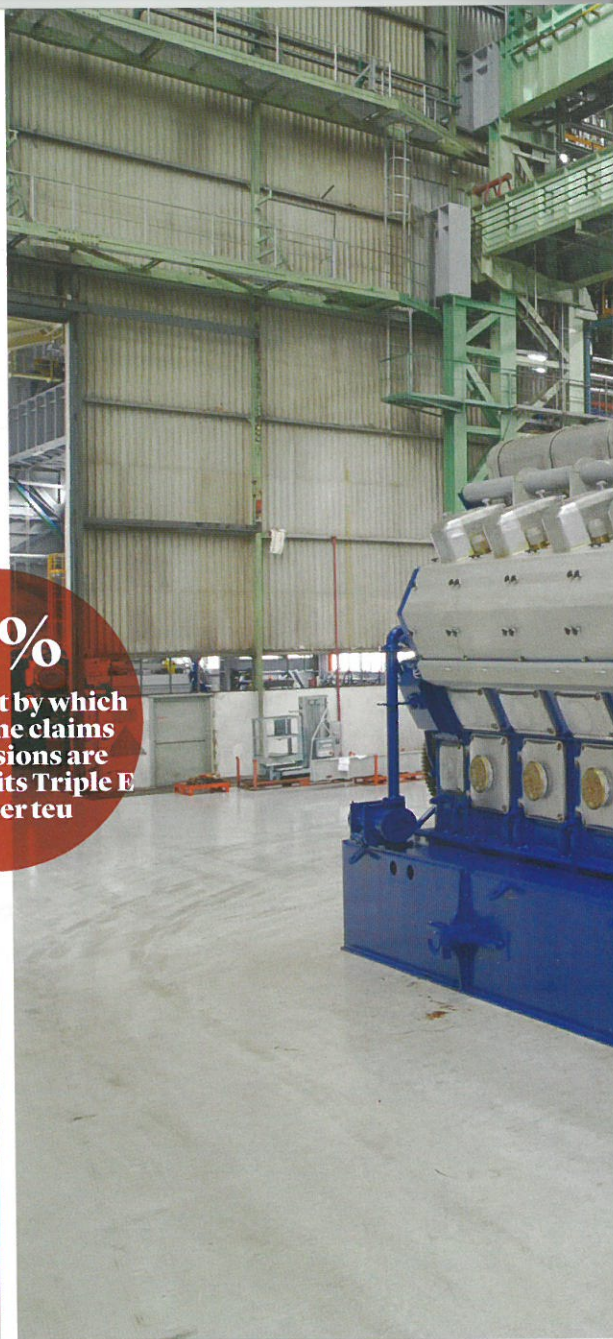
Ibrahim Behairy, sales director, Middle East, Wartsila, in a separate interview, told Maritime & Ports that shipping lines are requesting ever more efficient propulsion packages. “The bigger the vessel the larger the engine required. It isn’t just the engine providing propulsion through, there are the propellers, the rudder, the fuel system, you have to look at the whole solution and adapt it to the size of the vessel,” says Behairy. “Having all of this integrated together allows more power with less fuel used.”

The report acknowledges that on a per-teu basis container ships have become more efficient, but finds that on a consumption per available tonne kilometre basis, container ships and tankers have become 8% less efficient, while newbuild bulker carrier were 10% less efficient than 25 years

50%

The amount by which Maersk Line claims CO2 emissions are reduced on its Triple E ships per teu

▲ Wartsila’s huge engines for ULCSs are designed for slow economic steaming.



ago. The report concludes by advising that shipping lines revert to 1990s ship designs, when all sector’s reached a peak in terms of fuel consumption per available tonne kilometre.

This is no coincidence, because it was in the 1990s that the shipping industry first decided to build ever larger container carriers that would need to bypass the Panama Canal and therefore carry enough containers to make it economically feasible. The container ships of today are much larger than the ships of the 1990s, and this is the primary fact that the report condemns, but also fails to acknowledge.

The International Chamber of Shipping (ICS) waded in and called the report’s findings “fanciful”, saying

International shipping reduced its total CO2 emissions by more than 10% between 2007 and 2012, at a time when demand continued to increase”

THE INTERNATIONAL CHAMBER OF SHIPPING



ENERGY EFFICIENCY DESIGN INDEX (EEDI)

that the report uses data selectively. "The Seas at Risk statement appears to confuse overall design efficiency with an approximate 'estimate of fuel efficiency' based on generic data," the ICS said in a statement. "Modern ships are designed for optimal efficiency, which requires far less fuel to be consumed than previously. Largely as a result of fuel efficient operations, the latest IMO Green House Gas Study, published in 2014, said that international shipping reduced its total CO2 emissions by more than 10% between 2007 and 2012, at a time when demand for maritime transport continued to increase."

Ultra-large container ships (ULCS) are designed differently to the container ships of the 1990s. They not only

In January 2013, amendments made to MARPOL Annex VI regulations saw the introduction by the IMO of the Energy Efficiency Design Index (EEDI) for new ships. The EEDI requires that as of 2020 new ships will be designed to be at least 20% more efficient when compared to the agreed IMO reference line (Tier 2), while ships built after 2030 are required to be 30% more efficient (Tier 2). Seas at Risk released a new report as Maritime & Ports went to print claiming that the rules should be made stricter, as many new-builds already meet the 2030 targets. Maritime professionals that Maritime & Ports spoke to pointed out that this is because ships are designed and built with their lifespan in mind. "We're always looking at how to make future builds compliant with Tier 3," says Behairy. "Wartsila has been very proactive by anticipating these changes well in advance." Shahrin Osman, regional manager, maritime advisory Middle East & India, DNV GL, says that one of their main activities is helping ship-owners make their newbuilds compliant with future emissions regulations. "We're discussing options with ship owners who are ordering vessels now, but need to look to the future," says Osman. "In five or ten years' time, the vessel may be required to meet emissions and fuel efficiency standards that it is not subject to today. This is especially relevant when you consider that a vessel's lifecycle is 25 years."

have a deeper draft and greater length, but also a much wider beam in relation to their length than the ships of the previous decades. This allows them to carry more containers, but has also led to many in the industry nicknaming them the 'fat ladies'. It is the fat ladies that the report doesn't like. In response to the ICS' statement, CE Delt released its own statement, standing by its findings and calling for ship designs to be based on those of the 1990s.

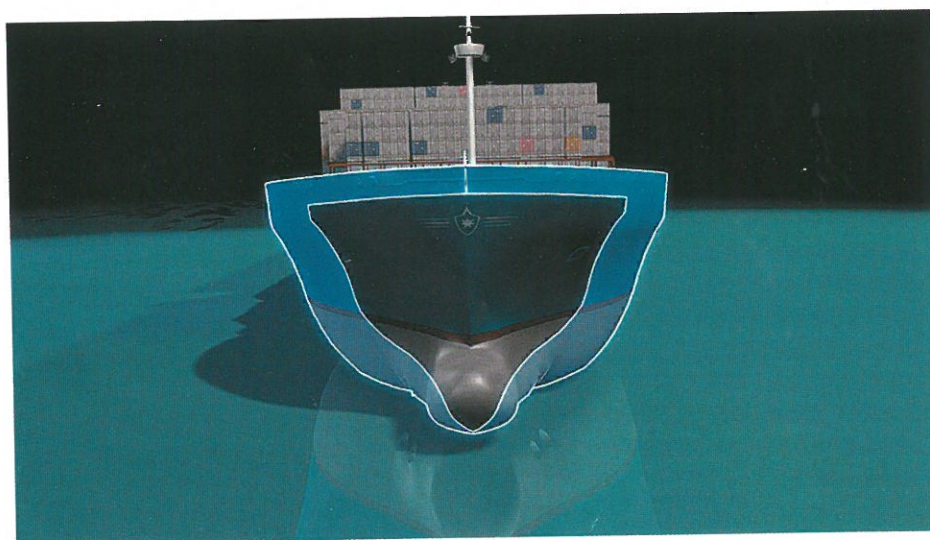
"One of the main reasons why modern ships have a design efficiency that is worse than ships built around 1990 is that modern ships are, on average, fuller (more block-like)," read one part of the statement, before adding that its methodology compared similar ships, not how the fleet average design efficiency has evolved, stressing that its conclusions relate to design efficiency and not operational fuel efficiency.

One need only look at the spate of container ship orders since the 2012 financial crash to see the contradictory nature of this assessment. Since 2009 freight rates have been depressed and unable to fully recover. In such circumstances a sector would usually see a collapse in newbuild activity and in-

vestment, but main line operators have instead invested in ULCSSs.

OOCL recently ordered six 21,000-teu vessels, Cosco has ordered ten 19,000-teu ships, and Maersk is reportedly about to order 11 20,000-teu vessels. That was just during May. Since 2011, when Maersk placed orders for its first 18,000-teu Triple E Class vessels,

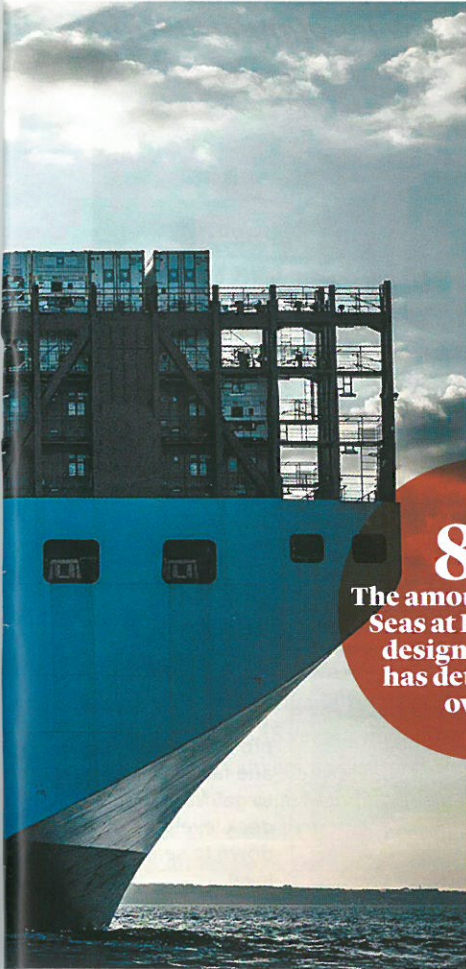
▼ The Triple E vessels are notably wider and more rounded than the E Class.



it has ordered an additional 20, while research firm Drewry reports that the total number of ships active or on order that are able to carry 18,000-teu or above has surpassed 55.

Why are shipping companies doing this? Because these larger ships are more efficient when carrying out the service they're designed to perform, using less fuel and therefore discharging fewer emissions than the slender container ships of the 1990s on a pound for pound or teu per teu basis. In a recent conversation with Ralph Becker, vice president, business development, Middle East & India, DNV GL, he explained one of the ways in which the world's largest classification society is working to improve the design efficiency of all merchant vessels, including the fat ladies, or ULCSSs, through its Maritime Advisory.

"If a client is thinking about buying a ship, we sit down with them and go through the specifications, the design and look at how it can be made more fuel efficient, that's just one example,



but fuel efficiency is the most important factor," says Becker. "We have a unique capability to optimise a ship's hull lines to increase efficiency. Our team in Hamburg can put all the data into the computer and can generate 10,000 calculations based on the hydrodynamics of the hull, from which thousands of different hull designs are created."

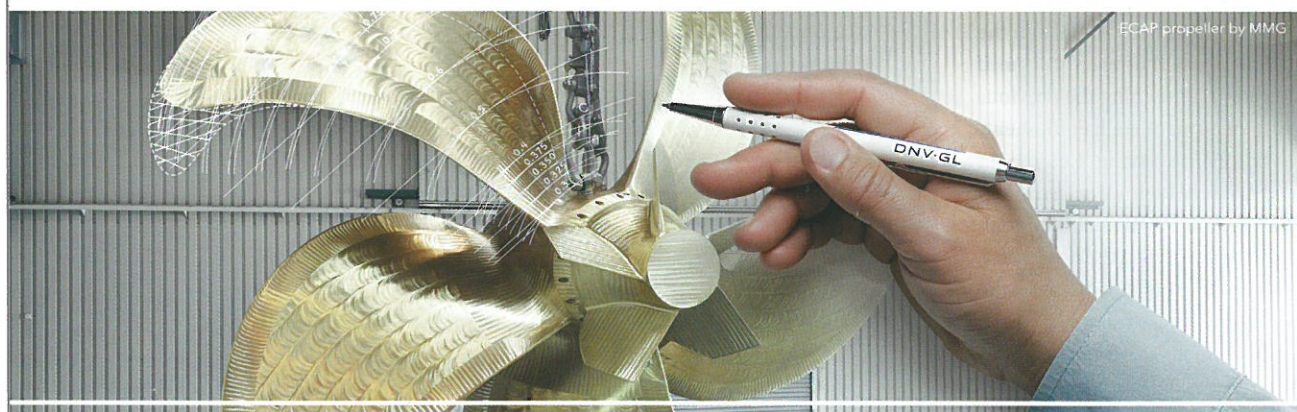
8%
The amount by which
Seas at Risk claims
design efficiency
has deteriorated
overall

The most efficient design for the work required is then selected. The benefit of being able to test 10,000 different hull designs against five, which was the industry standard for model tank testing in the 1990s, is clear. Similarly, Behairy points out that over the last ten years, the propulsion packages

Maersk Line's current flagship carries up to 18,000-tue.

offered by Wartsila have evolved to the point that an engine produced ten years ago is fundamentally different in terms of its fuel efficiency and emissions, than one produced today, due to a number of tweaks and redesigns over the years that, when added up, create a totally different product.

By ignoring the progress made in operational and fuel efficiency and asking the industry to return to these designs, Seas at Risk is essentially requiring that shipping companies regress. All the technological advances achieved in ship design in the past 25 years would be eliminated and several dozen times as many smaller ships would need to be operated. Seas at Risk seems to forget what the ships are built for in the first place: to carry cargo as cost effectively as possible. ●



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