

At the annual ESPO conference, Dr Martin Stopford, President of Clarkson Research, discussed the ways in which the shipping and port industries can decarbonise to meet emissions reduction targets

# Decarbonising the port and shipping industries

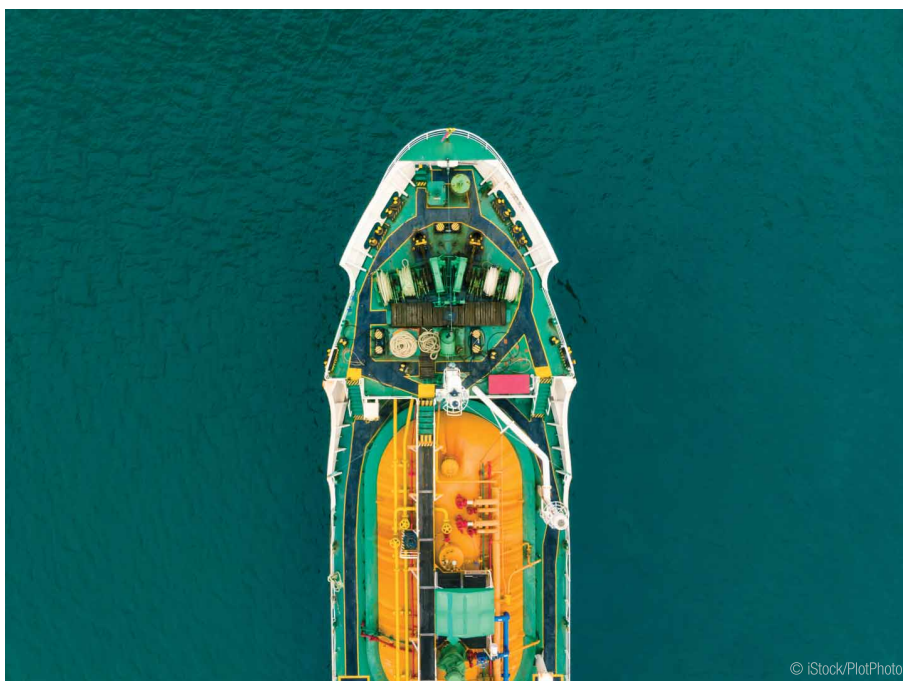
**I**nternational shipping is a huge source of carbon emissions. With millions of tonnes of carbon being produced by boats carrying cargo across our seas – reducing emissions in the shipping and port sectors is a major goal across Europe. A study<sup>1</sup> conducted revealed that maritime transport emits around 940 million tonnes of CO<sub>2</sub> every year – amounting to 2.5% of global greenhouse gas emissions and are set to increase by 250% by 2050.

The Paris Climate Agreement wants emissions to be reduced by 100% by 2050 – a total of net zero. If the ports and shipping industries want to meet this target, they must act now and take steps to ensure they are future ready – updating their fleets, bringing in new ships and finding alternative sources of fuel.

One focus of the European Sea Ports Organisation (ESPO) annual conference was on the decarbonisation of the port and shipping industries. At the event, Dr Martin Stopford, President of Clarkson Research, discussed the ways in which the shipping and port industries can decarbonise to meet these emissions reduction targets.

## Strategies for reducing carbon emission

Last year the goal was to cut emissions by 50% – however, one thing that was not considered when it came to this decision was the technology used for doing it. People were so desperate to get an agreement that somewhere in middle of how much we should cut is where we are at the moment. Last time we had a green industry was 1840 when there were 30,000 sailing ships that



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carried 20 million tonnes of cargo. Fast forward to 2018 we have 65,000 cargo ships which is six times as much. If we had people doing the work of the engine we use in our ships now – ships would need three million people working eight hour shifts, and would need a town the size of Athens to sleep in, three billion calories a day and a whole fleet of ships just to carry their food. This is the way we have managed to move 12 million tonnes of cargo on these enormous engines, and for every tonne of fuel this engine burns it produces 3.3 tonnes of carbon.

What we have to do is to figure out how to replace this enormous beast, given that marine engineering and naval architecture are very immature. If trade continues to grow at the rate it has been in growing at in the last 50 years this

takes us up to 3 billion tonnes of carbon. We need to cut back to 470 million tonnes – 20%.” There are big challenges to how we can do this.

## Four strategies

There are four things that can be done to reduce carbon emissions from these industries;

- Change trading patterns – we have gotten used to very cheap transport and don't think hard about how much carbon is involved. We need to reduce emissions without ruining people's standard of living
- Slow down ships – ships can save enormous amount of fuel if slow they down to 10 knots
- Develop zero carbon fuel cells, such as hydrogen fuel cells. The problem here is that



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we need to manufacture them without producing carbon and

- Reorganise the way businesses are run in order to achieve these things.

If we cut trade routes by 1% to 2.2% then we can cut the carbon footprint by over a billion tonnes of carbon by not moving things you don't really to move. We also really need to ensure all of our fleets have half a fleet that has zero carbon propulsion. This does mean however; you will need a lot more ships – which emphasises importance of cleaning up our existing ships.”

## Rethinking Europe's Sea Transport System

Europe is a very mature economic region. When I started work it was the big growth region, just like China is now. For the last 20 years, Europe's seaborne imports have not increased. A total of two billion tonnes of imports. If we look at Europe's container trade, then what we find is that container trade has been growing. It slowed down in the last four years to 2 or 3% and I think this is the implication of some of the geopolitical trends. Meanwhile, inland transport is changing

radically – changing the highstreet, departments that have been there for 100 years are disappearing. People like FedEx are running fleets of 40,000 vehicles. As we move forward it is a different world economy. We are going to see Europe and Asia developing as separate business to business (b2b) transport systems.

The 1967 McKinsey report on containerisation said that containerisation would do four things; reduce transport costs, that the relative economics of railroad and sea would all change, shipping organisations would change to bigger shipping companies, and that the focus would be on origins and destination transport. The first has happened, we have bigger ships and bigger companies, but focus on origins and destinations never happened. We have lost short sea distribution systems because in the early days of containerisation you could only afford one terminal in a region. Bigger ships have put bigger rigidity into our system. The containers on our roads have high carbon footprint and we cannot envisage anything else. We need to consider alternatives.

1 [www.imo.org/en/OurWork/Environment/PollutionPrevention/AirPollution/Documents/Third%20Greenhouse%20Gas%20Study/GHG3%20Executive%20Summary%20and%20Report.pdf](http://www.imo.org/en/OurWork/Environment/PollutionPrevention/AirPollution/Documents/Third%20Greenhouse%20Gas%20Study/GHG3%20Executive%20Summary%20and%20Report.pdf)



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