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Closing the debate?

Sarah Zitouni of Lean Marine offers a solution to the dilemma of whether to use speed or power limits as a way to help reduce ships' emissions

Recently, while sat in a lounge at the airport, I overheard two women talking. One professed her shame of flying so often to the other. The other tried to mitigate that feeling with the response that she does not own a car and that buying products from Amazon is so much worse for the environment since they are carried by large ships who spit out dark smoke.

Earlier that day, when in the check-in hall of that same airport, I saw an advert from CMA CGM featuring polar bears and melting ice informing passers-by of its choice not to exploit the Northern Sea Route. The CMA CGM advert preceded a video from the South administrative region of France describing the large investments it is currently making to support shore power infrastructure for ferries and cruises vessels.

It quickly became obvious to me, on this particular day and within the confines of one airport building, that we cannot escape the concern for our planet anymore. It is everywhere, in every person's mind, and the focus is on all industries, including shipping.

Moreover, the discussions around the impact that ships have on the environment has taken a very public turn. It is not in any way limited to discussions between industry stakeholders in closed forums

at the International Maritime Organization (IMO) and by associations representing the voice of the shipowner, such as BIMCO, INTERCARGO or INTERTANKO. It pours out into the traditional global press: the BBC, *le monde* and others write about it for the general public worldwide to consume.

Ship emissions have also become a political topic, being brought to the very public fore by French president Emmanuel Macron at the G7 conference held in France this summer. Before that, in 2016, the IMO had already agreed to the target of reducing ship emissions by 50% by 2050 compared to 2008 levels. Therefore, it is becoming evident that the time of brainstorming and coming up with individual solutions is coming to an end: the industry is entering a time of scrutiny and regulation in the public eye, just like the automotive industry went through before us.

Some in the industry believe that a speed limit regulation is the silver bullet for dramatically reducing our industry's emissions. After all, it is an obvious solution that everybody can grasp even without knowing anything about hydrodynamics: if you go slower, you will burn less fuel. If you burn less fuel, you will emit less gaseous pollutants.

A new report published by Seas at Risk and Transport and Environment confirms

that fact: dropping average ship speed by 20% would reduce greenhouse gas (GHG) emissions by 24% and act to reduce particulate emissions. On top of this, there would be the additional benefits of reducing whale ship strikes and underwater noise. However, other industry members, including shipowner association BIMCO, support the idea that power limits would be a smarter option.

In October, BIMCO submitted a proposal to the IMO that called for the regulation of ship propulsion power in order to sustain the GHG savings already achieved through slower steaming. Since measuring a ship's speed is not an accurate exercise, it has explored other avenues and concluded that limiting ships' propulsion power can be controlled accurately and, at the same time, it has a close correlation to speed. BIMCO recommends the power limit should be derived for each shipping sector from an assumed performance of an average ship sailing at current average trading speed within each sector.

Setting a limit for ships' power had also already been suggested by Japan.

At Lean Marine, we support BIMCO's proposal to the IMO. The emission reduction potential that could be achieved through speed limits does not account for the longer time at sea due to reduced speed. Also, the

engine will be run at a lower efficiency point making the direct translation from speed reduction to emission reduction not so direct. Instead, advocating for constant power means accounting for the changing nature of the ocean and taking advantage of it. When the current is favourable to you, there is no problem with going faster. In adverse conditions, when the current is not favourable, it is better to wait the storm out – a navigation principle as old as the first sailing ships.

However, speed limit supporters will tell you that it is nearly impossible to run an engine at constant power under variable ocean current conditions. There is no standard equipment that would currently allow you to do this in a simple manner: you would have to establish baseline speed to power curves for each vessel and weather conditions, then adjust the parameters manually at all times. Speed on the other hand is a parameter that crews are very familiar with adjusting and have under control, within the limits of the human ability on board at any time. With more and more tasks added to the captain's duty, it becomes challenging to have a permanent eye on the speed and small variations can still penalise you very harshly.

As you can imagine, people who are pro-speed limits and those who are pro-propulsive power limits are currently engaged in debate. On a nation-to-nation level, this debate is driving a wedge between France and Japan, and among small and large ship-owning companies, bulk carriers and cruises vessels are divided in opinion.

In the moment when we need to use all energy to tackle 'the biggest challenge faced by humanity', according to Al Gore, the industry stands divided. But there is no real reason for that: we all care for our

children, which means we all care that they get food today via a financially sustainable ocean freight transportation industry but also that they inherit a healthy planet. A double sustainability challenge that seems to turn into a daily ethical dilemma for every member of the shipping community.

But does it have to be so? At Lean Marine, we decided to ease the sustainability challenge dilemma with a pragmatic green solution that does not require shipowners to choose between speed or power limit.

'The potential fuel savings at stake range between 3%-10%, depending on the type of propulsion and the degree of optimisation the vessel is already under'

Our technology FuelOpt is an advanced control system that uses powerful algorithms to process data collected from sensors on board and, in real-time, directly optimises every aspect of the propulsion line. This enables the bridge crew to minimise the fuel consumption of a vessel via a user-friendly panel on the bridge, for a given power or speed. For example, on vessels equipped with a controllable pitch propeller, such as cruise ships, FuelOpt works to optimise the complete propulsion line for the known adverse effect that slow steaming has on propulsion when propellers are pitched at low values.


Furthermore, the performance of a vessel can be monitored through Lean Marine's Fleet Analytics software tool. This allows onshore personnel to gain insight into the


current health of a vessel, empowering them to take complementary actions for improving the vessel condition, which in turn allows FuelOpt to achieve yet more reductions in fuel consumption. These combined efforts trigger a virtuous circle of continuous improvement of vessel performance as well as reductions in GHG emissions.

FuelOpt has no hidden costs: 'lean' is the key word here. The solution can be installed on any existing vessel, during operation, without requiring a costly dock-

ing of the ship. The potential fuel savings at stake range between 3%-10%, depending on the type of propulsion and the degree of optimisation the vessel is already under.

FuelOpt offers the industry a solution that, that no matter if you choose to support slow steaming or you believe that power limits are the answer, can ensure that new targets that may be enforced can actually be maintained without large variation.

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