Maersk to strike the balance

The world's leading container liner company is strictly focused on energy efficiency in its fleet of owned and chartered ships, but the royal road has not been found yet. Anyway, Paolo Tonon, Head of Maersk Maritime Technology, wants to make sure his vessels are compliant to all environmental rules

HANSA: What is the overall strategy of Maersk to reduce emissions?

Paolo Tonon: Air emissions can be divided into two groups: Pollutants like SO_x and NO_x, which are regulated relatively. SO_x is regulated by sulphur content in the fuel oil burned and NO_x is limited to output per kWh. Reduction basically comes down to a matter of complying with the regulations. CO_2 is a natural occurring GHG which is not really regulated yet, but it is considered by the total amount emitted. The total amount of air emissions is directly linked to the speed of the ship, which again is linked to a combination of fuel prices and freight rates. It is a delicate balance which can change from one month to the next. Even though you'd always try to save fuel, there is a lower limit for speed reductions; at some point a little higher speed will be commercially advantageous.

Which technologies have been proven to work so far?

Tonon: Maersk has been testing Scrubber technology on board some container vessel. We have been running for a number of years over which we have, in a joint effort with the equipment manufacturer, further optimized the system design and the solution. Other technologies we have been testing are related to the capabilities to burn compliant fuels (low-sulphur fuels or marine diesel oil) which requires some fine-tuning on the whole fuel system design. As a matter of fact the choice of which technology to choose depends primarily on the mission profile of the vessel and on the time spent in emission controlled areas. It's a fact that for a coastal vessel the decision is radically different from an oceangoing vessel – at least as long as the Global Sulphur Cap will not enter into force.

Paolo Tonon

Are there certain requirements for vessels to be chartered concerning efficiency or fuel consumption?

Tonon: Over the years Maersk Line has balanced the fleet between own vessels and time-chartered ones. In both cases there has been similar focus on energy-efficiency performances for the vessel. We need to secure that we are capable of delivering a competitive offering to our customers and energy efficiency is one of the elements that are ensuring that this target is reached. It's not uncommon that a retrofit programme focusing on improving the energy efficiency of the chartered vessel is agreed with the owner and executed as if the asset was Maersk property.

What matters more in order to save money and to increase efficiency – economies of scale or taking advantage of all technologies available on the market?

Tonon: It's not a black or white situation. If we look at the container vessels growth over the past 25 years we have seen an increase of 380 % in number of transported boxes – TEU. At the same time the specific consumption for the transported containers has been reduced enormously (>90 %). This is yes a scale factor but as well the utilization of more modern engines with electronically controlled injections, more efficient technologies and increased power density and as well a more accurate hull efficiency optimization which has been reached thanks to more accurate hydrodynamic simulations and testing.

Which technologies might turn out to become the next »state of the art« in the future?

Tonon: Difficult to predict. We need to secure that our vessels will be compliant to more stringent environmental rules like SO_x emissions (we will have a global sulphur cap in 2020 or 2025), NO_x emissions (IMO Tier III) and in general on the overall greenhouse gases. Another big trend approaching shipping is related to the digitalization. The capability to have connected assets and the possibility to utilize the generated data for remote decision making will generate new opportunities in optimizing operational costs and in finding new value propositions for all our different customers.

Considering the new ECA zones in China: Will you still rely on »fuel switch« or are scrubbers now a technology to think about in more detail? Do you expect additional regulations to come?

Tonon: The three new ECA zones in China are relatively small and far apart, so in themselves they will not justify scrubber installations. NSW in Australia has made local rules for passenger ships in the first place. There are also expectations that Mexico, assisted by the USA, may be an IMO approved ECA (both for SO_x and

NO_x Tier III). We would expect that other regions, like Japan, will await the IMO ruling of the entry into force of the global 0.50 % S cap. If IMO decides for 2020, then we expect that many regions will be able to live with that. If IMO postpones the global cap to 2025, then we know that all EU Waters outside the EU ECA will become 0.50 % S zones from 2020, and other regions may also introduce regional legislation. Finally, it is expected that the Baltic and North Sea ECAs will also include NO_x Tier III from around 2021. This will only apply to ships built after the IMO adoption of such an amendment.

What about Maersk's approach to LNG – could there be a rethinking?
Tonon: Maersk have been considering LNG over the past years but till today, for an ocean-going vessel, there are more commercially feasible options to cope with local emission controlled areas. We cannot neglect the beneficial part of CO_2 reduction when running with LNG compared to conventional marine fuels and obviously to cut to zero the SO_x emissions. It's important to secure the development of technologies and systems for handling LNG as a fuel. The recent technical agreement signed with Qatargas wants to look into those opportunities.

As the representative of Maersk at the International Council on Combustion Engines CIMAC, what do you think is the role of CIMAC in supporting a shipowner like Maersk on the described way?
Tonon: My role in CIMAC is Vice President Technical programme and thus to secure the 2016 congress will maintain and further improve the excellent technical level of all the congress' papers and presentation. I believe that this is an excellent platform combining the OEM's knowledge with the engine users' one like Maersk is. As per all product the development part need to listen to the experience made in the field and vice-versa. In CIMAC shipowners can be heard and have an open dialogue with the engine and component manufacturers.

Together with Dr. Marko Dekena from AVL you are responsible for the Technical Programme of the upcoming CIMAC World Congress in June (see report on this page). From a user's perspective, what is the most interesting part of this event in Helsinki?
Tonon: As I said before users will have the possibility to get directly from the different OEMs the input on what's going on and on what can be expected to land on their assets in the years to come. At the same time they will also have the opportunity to pitch on important users aspects like reliability, performance and operational costs for the different 4- or 2-stroke engines. It will be interesting to see how OEMs will address the challenge of the low oil price and if this is having an impact on changing the development focus.

Interview: Krischan Förster

CIMAC World Congress in Helsinki

»Users Day« to discuss on brewing issues

The CIMAC World Congress in the field of Large Diesel and Gas Engines is one of the biggest events of its kind worldwide and this year the comprehensive programme is bigger than ever before. In a first of its kind, the Congress will hold a stage for the users to present, discuss and deliberate on brewing issues related to user experiences in the industry.

»The Users Day is a new concept we're introducing at the Congress this time to bring the often differing engine users and engine developers together under one roof and discuss development, solutions and a future of co-operation and sustenance. It would be interesting to see the outcome,« says Paolo Tonon, Vice President – Technical Programme of the CIMAC Board and Head of Maersk Maritime Technology.

The ideal platform will be immensely helpful to shipowners, power station and rail operators and relevant customers to meet engine manufacturers, engineers, researchers and scientists to fill in the missing gaps that translate from the creators to the end-users. It will also be a great chance for the engine developers to hear the other side of the story from the users.

To this effect there are four technical sessions scheduled, focusing on presentations from the marine and land-based applications. The »Users Day« will also feature the »Collin Trust sponsored Keynote Speech« at the CIMAC Congress 2016 by Harry Robertsson, Technical Director at Stena Rederi AB, that will be centered around sustainable and realistic solutions for future shipping from the ship-owner's perspective. Last but not the least, the »Users Reception« will culminate the collaborative efforts of all the participants involved at the end of the day for an effervescent evening with food and drink and will hope to lighten the mood for a very relaxed networking time for everyone concerned.

The Congress will kick off with a highly anticipated technical session involving »High Speed Engines« with product development at the core focal point. »The Technical Programme« will elaborate on the scientific research that creates the foundation for the next generation of engines and address the needs of the markets.« says CIMAC President Christoph Teetz, Vice President at Rolls Royce Power Systems.

The product development sphere will also encompass various other topics related to medium and low speed diesel, gas and dual fuel engines with high-quality technical sessions involving some of the most prominent developers from the industry. Some of the notable topics include new high-speed and medium speed engine concepts, improved power generation efficiency and heat recovery concepts, methanol operated engine concepts, the 2-stroke dual-fuel technology and dual-fuel engines optimized for marine applications and many more thought provoking presentations to be delivered by some of the finest engineers and researchers from around the globe. ■

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For further information visit the CIMAC website at *www.cimac.com*

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