

Harbours review

Blue industry

EUROPEAN PORT SECTOR FORUM

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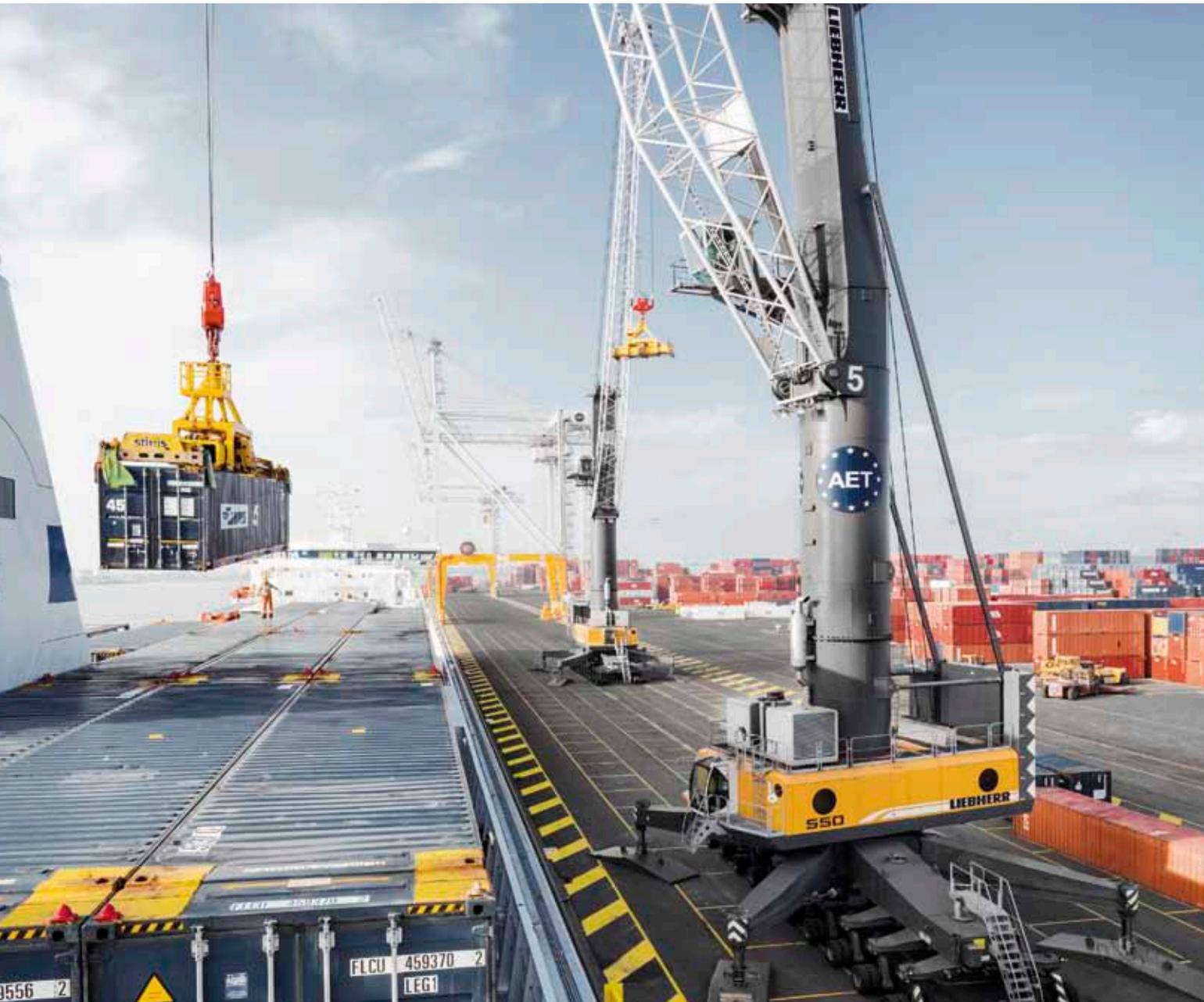
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red-hot port matters

The Port of Immingham to be flood-resistant

The British port, part of Associated British Ports (ABP), is to receive GBP 5.0 mln for increasing flood safety investment. The decision came after the east coast tidal surge of December 2013, which caused widespread disruption to port users, tenants, and key businesses. Since the last flood, the Associated British Ports (ABP) together with North East Lincolnshire Council (NELC), the Lead Local Flood Authority, and the Environment Agency (EA) have been working on a permanent long-term solution to reduce the risk of tidal flooding. It was decided that the port would need a set of higher outer lock gates which are capable of being braced in position against a tidal surge. Thanks to the EA's financial contribution, the new lock gates with flood resilience capability are currently under construction, due to be installed in summer 2017. "We are absolutely delighted that we have been able to successfully



Photo: Wikimedia Commons

apply for this funding towards the new lock gates at the port. Ensuring the port's resilience to tidal flooding will provide a real springboard for future investment at the port, as we seek to grow our business and invest in new infrastructure in to the future," Mark Frith, ABP's Port Manager for Grimsby and Immingham, said. NELC's Project Manager, Teresa James, added: "The port is a vital local employer and effectively underpins the local economy. The North East Lincolnshire Council are pleased to have worked so closely with ABP to achieve this brilliant result." Mark Adams, the EA's Senior Coastal Advisor, commented: "The EA is committed to improving flood resilience and preparedness across the nation, and this great result at Immingham serves to demonstrate that it is not just houses that need protection but that nationally significant infrastructure and industry have the same needs as well. We are delighted with the approved funding and look forward to continuing to work with ABP into the future."

Bergen to invest in digitization

The Norwegian Port of Bergen has received NOK 1.7 mln (EUR approx. 191 thou.) from the State Coastal Authority for a new time savings cargo data information system. The project, worth in total NOK 4.0 mln (EUR 450 thou.), aims at time rationalization thanks to a shift from manual incoming cargo registration, to a digital system, which will reduce the number of errors.



Photo: Wikimedia Commons

Liebherr grows in Italy



Photo: Liebherr

Last year, Liebherr Maritime Cranes delivered in total 17 various pieces of cargo handling equipment to Italian ports. In detail, Liebherr's Italian 2016 portfolio includes nine mobile harbour cranes, four reachstackers, three rail mounted gantry cranes, and one ship-to-shore container crane. In this respect, a LHM 550 was handed over to Compagnia Portuale based in Monfalcone. Two more cranes of the same type went to the Port of Brindisi, Peyrani could celebrate the handover for two machines at the Port of Taranto. The Bari-based terminal operator Istop Spamat S.r.l. opted for a new multipurpose mobile harbour crane LHM 550, LHM 400 from the secondary market, and two Liebherr Reachstackers LRS 545. "We are extremely satisfied with the quality and performance of our new Liebherr products. The on-time delivery and the very professional training for our staff again underlines that Liebherr is the right partner for us," Vito Totorizzo, Captain and Owner of Istop Spamat, commented. In addition, the Port of Ravenna modernised and expanded its container handling fleet. The customer – Terminal Container

Ravenna S.P.A. (TCR) received one new Liebherr Reachstacker LRS 545 and three rail mounted gantry cranes. Romano Magnani, Technical Safety & Security Manager at TCR said: "Like all new products, the specifications provide for the latest available technology, with many advanced features even compared to our 2014 model. Naturally, the new crane comes with the excellent environmentally-friendly enhancements, fit for a 21st century industry, something that was high up on the list of priorities during the selection process." Terminal Container Ravenna placed an additional order for a Liebherr ship-to-shore container crane. Having personally signed the contract, Milena Fico, Director and General Manager of TCR added: "The market is very positive about TCR's customized approach to personal service and flexibility and the new investment both in yard and ship-to-shore crane equipment can only enhance this further for the longer-term. We are really satisfied; as Liebherr has proven to be a reliable and cutting edge supplier able to give fast and efficient responses." Finally, TCR's operator Sapir Group S.p.A., which has been in the business since 1957, took delivery of an LHM 600. This new machine will support the already existing mobile harbour crane fleet of one LHM 550 and three LHM 400. Another reachstacker will start its operations in the Port of Salerno for the company Amoruso S.P.A. Pieter Vuylsteke, Sales Manager for the European market is delighted about the most recent entries into Liebherr's order book; "The recent boost in LHM crane orders is probably the most impressive testimonial of our continuous market penetration via our regional sales office in Ravenna. With this number of deliveries, 2016 definitely is a benchmark for our future sales ambitions in Italy."

Viking Grace to be fitted with a rotor sail

Viking Line and Norsepower have signed an agreement foreseeing the installation of the latter's Rotor Rail Solution of the former's dual-fuel (LNG) cruise ferry *Viking Grace*. One mid-sized rotor sail (24.0 m high, having 4.0 m in diameter) will be fitted onto the ship during 2018's Q2. According to the companies, thanks to the new equipment, *Viking Grace* will burn less fuel (approx. 300 tn of LNG/year), hence reduce its carbon emissions by some 900 tn/year. The Rotor Sail Solution (which according to Norsepower can be installed on new vessels or retrofitted on existing ships without off-hire costs) is a modernised version of the Flettner rotor, a spinning cylinder that uses the Magnus effect to harness wind power to propel a ship. The solution is fully automated and senses whenever the wind is strong enough to deliver fuel savings, at which point the rotors start automatically – optimising crew time and resource. "As an organisation that strives to ensure that our fleet operates in an environmentally-friendly and economical way, we are proud to be partnering with Norsepower. Our cruise vessel is the first to use a combination of alternative clean fuels, modern Rotor Sails, electric propulsion, and a hydrodynamically optimised hull. We believe in the Rotor Sail Solution technology's ability to enhance our ship's performance by enabling significant reductions in fuel burn and costs, as well as carbon emissions," Ulf Hagström, Senior Vice President, Marine Operations & Newbuildings, Viking Line, said. Tuomas Riski, Norsepower's CEO, added: "This project marks the first of its kind modern auxiliary wind propulsion technology installation on-board a cruise ferry. As a Finnish-based clean technology and engineering company, we are proud to be partnering with yet another prominent shipping company as we work towards a modern era of auxiliary wind propulsion for the global maritime fleet, while supporting shipping's transition to the low carbon economy." Last year, Norsepower Rotor Sail Solution won the 2016 Innovation of the Year award at the Electric and Hybrid Marine World Expo in Amsterdam. In 2015, *Viking Grace* was also equipped with Climeon's waste heat recovery system that converts hot water into electricity, giving in return 200 tn of fuel savings per year.



Photo: Norsepower

Amsterdam invests in wind farms

The Dutch Port of Amsterdam has announced a new partnership with the Rotterdam-headquartered energy company Eneco. According to the agreement, the Port of Amsterdam will acquire a 50% stake in Eneco's existing 27 MW Afrikahaven wind farm, located in the Western port area. Both companies intend to supply the green energy generated by this wind farm to local businesses and households. This is said to be the first time a Dutch port company acquires shares in the wind farm sector. The Afrikahaven plants include a total of nine wind turbines, generating enough energy to supply around 15,000 households. "This new partnership is consistent with the principles of our Vision2030 for improving the port's sustainability and our strategy of becoming a major energy hub at the regional, national, and international levels. Wind energy is one of the renewable sources in which our port is investing and for which we have ambitious plans. The Port of Amsterdam aims to increase its installed capacity in the port area to 100 MW by 2020. Through the smart use of this sustainable energy, we can create green energy for the price of brown energy – that is, traditional fossil fuels," Koen Overtoom, the Port of Amsterdam's CEO, said. Bram Poeth, Managing Director of Eneco Zakelijk, the energy company's corporate division, added: "In taking this step, the Port of Amsterdam is assuming a large share of the responsibility for the local energy transition. The next challenge for our two companies is to persuade the local community to join us in this sustainable revolution. Our ambitious objective is to get as many businesses in the port area and local households in the Amsterdam area as possible to run on locally-generated wind energy. It's all part of our strategy to tailor our renewable energy sources to specific customers."



Photo: Wikimedia Commons

Gdańsk sea-connected to North America

A new monthly service, focused on break-bulk but also open to other general cargo such as containers or project, has been jointly introduced by Spliethoff and its subsidiary Transfennica. Starting at the Port of Gdańsk, the route includes Antwerp, Baltimore, Jacksonville, West Palm Beach, New Orleans, Houston, and optionally also East coast Mexican ports. The service in question kicked off on January 19th, when luxury yachts began to be loaded onto Spliethoff's crane-equipped side-loader *Spiegelgracht* for their journey to Florida's Port of West Palm Beach.

The Port of Sines' new crane

Liebherr's LHM420 of 124 tn lifting capacity has been deployed at the Multipurpose Terminal. The crane allows for handling cargo up to 44 m above and 14 m below the quay, respectively, offering a lifting range of 10.5-48.0 m. It can move 1,500 tn per hour.

Color Line-Ulstein hybrid ferry LOI



Photo: Color Line

This Letter of Intent covers the construction of a hybrid ro-pax, initially named *Color Hybrid*. The 160 m long ferry, designed by Fosen, will be able to take on-board up to 2,000 passengers, as well as offer space for approx. 500 cars or other cargo. Once deployed in summer 2019, *Color Hybrid* will replace across the Sandefjord-Strömstad route the 1,165 pax capacity and 462 lane metres *Bohus*. Color Line's newbuild will be a plug-in hybrid, with batteries filled via a power cable from the company's own shore facilities, or recharged on-board by the ship's generators. The Norwegian ferry company has already installed cold-ironing at the ports of Oslo, Larvik, and Kristiansand, and will do so in Sandefjord. As such, the ship will have full battery power into and out of the fjord to Sandefjord. According to Ulstein's press release, *Color Hybrid* will therefore not emit harmful greenhouse gases, or nitrogen and sulphur compounds in this area.

New-old France-Iran-Iraq container service

Since February, 2017, the Port of Le Havre is again sea-container-connected with Iranian and Iraqi ports. The new service, provided by HDASCO Line, also known as HDS Lines; the Iranian national shipping company, and a subsidiary of the IRISL Group (Islamic Republic of Iran Shipping Lines), links Le Havre with the ports of Bandar Abbas, Asaluyeh, Bandar Iman, Khomeini, Busher and Khorramshahr in Iran, and the Port of Um Qasr in Iraq. "This is a great opportunity offered to the French importers and exporters who wish to develop their trade with Iran. This country, which has around 80 million inhabitants, is a high-potential market, especially regarding the sectors of chemistry, agri-food (flour, milk, etc.) cosmetics, electrical appliances, retail, and of course automotive trade, as well as the oil & gas industry. While world trade with traditional Asian partners is slowing down, promising perspectives with the Iranian market are most welcome," Jean-Marc Peltier, Liner Department Manager at Worms Services Maritime Agency, said.

FFPD co-funded by bremenports

Bremen's Senate has given its go-ahead for bremenports to become a member of the Finnafjord Port Development company (FFPD). Back in May 2016, the Icelandic government signed an agreement with the municipalities of Langanesbyggð and Vopnafjörður, the engineering company EFLA, and bremenports, aimed at constructing a multipurpose deep-sea (50+ m) port in North-East Iceland. As such, the two Icelandic municipalities will form the Finnafjord Port Authority (FFPA), responsible, among others, for granting licences to terminal operators. Bremenports, in turn, will aid the project with its expertise on port development. As a result, the business model behind the Finnafjord port, inclusive of franchise structure, will be developed by the FFPD for FFPA's approval. Investors will be invited to take part in the port's detailed planning process. The subsequent construction of the port facilities, as well as freight handling operations, will lie in the hands of the investors, too. The FFPD will be officially founded in the first half of 2017, comprising the four abovementioned parties. Since year 2004 an industrial site of 167 ha has been demarcated and outlined in the masterplan for the Finnafjord area. According to it, the Port of Finnafjord will offer 6.3 km of quays, partly with depths going beyond 50 m. The new Icelandic harbour will chiefly target transshipment-serving trade flows crossing the North Pole on their way between Asia and Europe. "Both the Icelandic Government and the general public regard the Finnafjord Port Project as the country's most important infrastructure project right now. Shipping and logistics will increase significantly in this part of the world in the future. Iceland consequently wants to profit from this trend and establish a new port on the central Arctic shipping route," Martin Günthner, Bremen's Senator for Economic Affairs and Ports, commented. The port authority bremenports manages the German harbours in Bremerhaven and Bremen.



Photo: Wikimedia Commons

GPH takes stakes in three Italian ports

Turkey-based Global Port Holding (GPH) has acquired shares in companies managing the cruise ports of Cagliari (Sardinia), Catania (Sicily) and Ravenna (Emilia-Romagna). The harbours were previously owned by Royal Caribbean Cruises (RCC), Aloschi&Bassani, and Bassani Ravenna. However, RCC will retain a minority stake in all three companies, and the ports of Cagliari, Catania, as well as Ravenna will remain part of the company's cruise itineraries. The 2004-founded GPH, advised during the purchasing process by the International law firm Watson Farley & Williams, is one of the world's largest cruise port operators, with a portfolio of the following ports—Lisbon, Malaga, Barcelona, Valetta, Bar, Kuşadası, Bodrum, Venice, Antalya, and Singapore. "I am delighted to have advised GPH for the second time on new cruise terminal acquisitions, following that of two significant stakes in Venice's cruise terminal in July 2016. That such a leading industry player as GPH opted for WFW to advise them on both matters demonstrates the firm's respected and expanding presence in the cruise sector both worldwide and in Italy specifically," Francesco Dialti, Asset Finance Partner at Watson Farley & Williams, said.

UECC's new PCTCs deployed

The company's brand-new LNG-run car carriers *Auto Eco* and *Auto Energy* have linked the Baltic and North Seas with the English Channel. The 181 m long and 30 m wide vessels – each able to take on-board up to 4,000 cars, including also 6,000 m² for high and heavy shipments (the ships' ramps can handle units up to 110 tn in weight and 5.2 m high on their main deck) – cover now on a regular basis the ports of St. Petersburg (Petrosport), Uusikaupunki, Hanko, Malmö, Bremerhaven, Zeebrugge, and Southampton. The two newbuilds of United European Car Carriers are the world's biggest Pure Car and Truck Carriers powered by Liquefied Natural Gas.

Gothenburg to have a new cruise terminal

Following the transformation of Frihamnen into an urban area, the Port of Gothenburg is restoring the Stigbergskajen into a cruise reception facility named the America Cruise Terminal. This year will be the final season when cruise ships can dock at Frihamnen. The area will then form part of a major urban home and office development scheme, forcing the present cruise terminal to find a new location. As such, Gothenburg's new central cruise terminal will move to Stigbergskajen in Masthugget. The quay and part



Photo: Port of Gothenburg

of the terminal building, the 1912-built Amerikaskjulet, are currently being restored, and will be ready to welcome vessels from spring 2018 (as of today, 17 ships are already scheduled to call at the new terminal). At Stigbergskajen, 10 m of quay will be demolished and rebuilt, followed by bollards reinforcement, as well as the construction of ramps and a bus parking space. Part of the Amerikaskjulet will be converted into a reception hall with a tourist information office, a souvenir shop, and other facilities. The maximum length of vessels calling at the America Cruise Terminal will be 225 m, 25 m more than currently at Frihamnen. However, the largest vessels will continue to dock at the terminal at Arendal. "The location is ideal as it is within walking distance of the inviting and vibrant districts of Majorna, Linné and Haga, and just a short journey by public transport or chartered bus into the city centre. Now that the beautiful and historically significant Amerikaskjulet is about to be revived as a passenger terminal, cruise guests can look forward to a warm and authentic reception," Jill Söderwall, Vice President Cruise at Gothenburg Port Authority, said. Jill also added: "It is an old quay – the first quay in Gothenburg for oceangoing traffic – and it is in considerable need of repair and renovation. We are working flat out to have the work completed before the first call in 2018. We believe that the America Cruise Terminal will lead to more cruise companies including Gothenburg on their itinerary. The extremely keen competition to attract cruise ships makes a good welcome extremely important."

Karlshamn to handle Nord Stream's 2 pipes



Photo: Port of Karlshamn

The Swedish port will soon cut a deal with Dutch Wasco Coatings Europe for storing pipes to be used for the set-up of the second underwater pipeline of Nord Stream. Pipes will be manufactured by the Mülheim an der Ruhr-based Europipe, from where they will be first transported to the German Baltic Mukran Port (where they will also receive an external concrete coating), and then to the Port of Karlshamn for storage and further shipment onto the construction site. According to initial plans, first pipes from Germany are to arrive in Karlshamn by this year's end. The Swiss company Allseas Group will take care of the transportation process. Karlshamn-Nord Stream 2 pipe storing deal will last two years, generating an income of approx. SEK 100 mln (approx. EUR 10.6 mln) for the Swedish harbour, which in turn will hire 50-60 new employees during this period to handle the project. "We are naturally glad to carry out this project, an important one for our port's development, both in the short- and long term," Mats Olsson,

the Port of Karlshamn's CEO, said. Mats also added: "We are a commercial seaport, and as such have no authority over national security policy. Nonetheless, we have taken into consideration the Swedish Government's standpoint, and have put forward facts on our port, as well as on the current logistics business environment as best as possible. It was in turn good to hear that these facts convinced the Cabinet to realize that this particular deal fits our port's logistics portfolio." Mats concluded: "Doing business in a commercial port is based on open borders, free trade, and cooperation with other countries. Doing so lies in a port's DNA."

New Baltic-Adriatic rail service



Photo: Port of Kiel

A new direct kombi train connection has been established between the Baltic German Port of Kiel and the Italian Port of Trieste. The first set of 16 double pocket wagons – able to take on-board 32 units, including swap bodies and containers – took off in Trieste on January 25th, and arrived at Kiel's Schwedenkai the next day, covering a distance of 1,360 km in 26 hours. After a trial phase of several weeks, the train will operate regularly once per week in both directions after Easter, leaving Trieste on Wednesdays, and arriving in Kiel on Thursdays. Provided the service grabs sufficient demand, it can be extended up to two weekly runs to and from both ports. The new service has been logistically arranged by the Turkish Istanbul-headquartered company EKOL, with the support of Stena Line. As such, there are ferry services connecting Trieste with Turkey, while the Scandinavian markets can be ferry-reached via Kiel. "Business partners from four European countries have been working with great commitment on the realization of this project for several months. In particular, I want to thank our Turkish partner for the good

and trustful cooperation," Dirk Claus, the Port of Kiel's Managing Director, said. He further added: "I am convinced that intermodal transport between the Baltic region and the Mediterranean will keep getting more and more important. The new direct train will relocate traffic from road to rail, and is a showcase project on the European TEN-T corridor between the Adriatic and Baltic Seas."

Megastar set sails

On January 29th, Tallink's brand-new dual-fuel (LNG) ferry *Megastar* departed for her first commercial sailing, leaving Tallinn for Helsinki at 13:30 local time. The EUR 230 mln worth GT 49,000, 212 m long, and 27 knots fast ro-pax – whose Grandmother is Finland's President, Tarja Halonen – replaced the ferry *Superstar* on the Hel-Tal route, offering space for 2,800 passengers, as well as around 2,000 lane metres for pax cars and cargo units (featuring two-level loading, enabling passenger vehicles and large freight units to enter and exit from different levels). There are four different travel classes on-board *Megastar* – the standard *Star* Class, upgraded *Comfort* Class, an exclusive *Business Lounge*, and a new area called the *Sitting Lounge*. Additionally, there's a two-deck 2,800 m² big *Traveller Superstore* shopping area, as well as seven restaurants, cafés and bars. A special area with a kids' playroom is available, too, while there's also a pet kennel on the garage level. "The ship is really shaped by our passengers, crew members, the Baltic Sea with its fragile environmental matters and sailing conditions, and our own experience as operators. We are excited to introduce her to the wider public and are also glad to apply several equal upgrades also to her companion on the route – *Star*," Janek Stalmeister, Tallink Grupp's CEO, commented. *Megastar* was constructed with the help of EU funds from the Connecting Europe Facility's Motorways of the Sea programme within the EUR 97.6 mln TWIN-PORT 2 project, carried out jointly with the ports of Tallinn and Helsinki. Tallink's contribution to this project amounted to EUR 16.0 mln, out of which EUR 4.8 mln came from the EU.



Photo: Tallink

The Ports of Normandy Authority joins ECG

The European Finished Vehicle Logistics Association (ECG) has welcomed the French port managing company as its new member. The Ports of Normandy Authority was founded in 2007, and runs the ports of Cherbourg and Caen-Ouistreham. The Port of Cherbourg offers daily ro-ro services to the Irish Rosslare and Dublin, as well as to Poole in the UK, whereas Ouistreham – three daily ro-ro sailings to and from English Portsmouth.



Photo: Wikimedia Commons

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THE PORT OF TALLINN:

10,173.3 thou. passengers served in 2016 (+3.9% yoy)

Out of over 10.17 mln travellers going through Tallinn's quays in 2016, as many as 509.7 thou. came/left on-board cruise ships (+1.1% year-on-year). On the other hand, Tallinn's total freight turnover contracted last year by 10.3% yoy, chiefly because of a falling (-26.4% yoy) throughput of liquids (9.44 mln tn). Conversely, dry bulk volumes jumped up by 27.3% yoy to over 3.74 mln tn.

The Port of Tallinn's volumes

	2016	Yoy
Liquids	9,442.8 thou. tn	-26.4%
Ro-ro	4,563.2 thou. tn	+5.4%
Dry bulk	3,745.4 thou. tn	+27.3%
Containerised	1,777.9 thou. tn	+2.1%
Other general cargo	580.9 thou. tn	+2.9%
Non-marine	8.2 thou. tn	-53.2%
Total	20,118.5 thou. tn	-10.3%

Cargo traffic by destination

Outbound, of which	12,095.7 thou. tn	-17.0%
Transit	7,561.4 thou. tn	-28.3%
Exports	4,534.3 thou. tn	+12.5%
Domestic	0.0 thou. tn	-100%
Inbound, of which	8,014.5 thou. tn	+2.9%
Transit	4,207.2 thou. tn	+4.6%
Imports	3,807.3 thou. tn	+1.2%

Container traffic

TEU	202,327	-3.1%
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Passenger traffic

Tallinn-Helsinki	8,515.8 thou.	+3.7%
Tallinn-Stockholm	963.6 thou.	+3.5%
Cruise	509.7 thou.	+1.1%
Stockholm-Tallinn-St. Petersburg	163.5 thou.	+31.2%
Paldiski-Kapellskär	18.8 thou.	+6.5%
Other	0.5 thou.	*
Total	10,173.3 thou.	+3.9%

* No traffic in 2015

CONTSHIP ITALIA GROUP:

6.39 mln TEU handled in 2016 (+1.7% yoy)

The Italian operator noted the biggest terminal box handling increase in Salerno – by 10% year-on-year to 375 thou. 20-foot boxes.

Contship Italia Group's volumes

	2016	Yoy
Contship's terminals [thou. TEU]		
Italy		
Medcenter Container Terminal (MCT)	2,797	+9.8%
La Spezia Container Terminal (LSCT)	1,172	-2.0%
Cagliari International Container Terminal (CICT)	671	-2.2%
Salerno Container Terminal (SCT)	375	+10.0%
Terminal Container Ravenna (TCR)	204	-3.8%
Total Italy	5,219	+4.8%
Morocco		
Eurogate Tánger	1,167	-9.9%
GRAND TOTAL	6,386	+1.7%

Contship Italia Group Intermodal Logistics

Hannibal – transported TEU	271 thou.	+9.7%
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Photo: Contship Italia

THE PORT OF KLAIPĖDA:

40.14 mln tn handled in 2016 (+4.2% yoy)

The Lithuanian seaport set a new historic record in freight turnover last year, beating its up-to-date all-time high from 2015, standing at 38.51 mln tn. While handlings of dry bulk contracted by 3.6% yoy to 16.62 mln tn, general cargo and liquids (incl. LNG) rose by double-digits – the former by 10.7% yoy to 12.35 mln tn, while the latter by 10.4% yoy to 11.17 mln tn. Klaipėda's 2016 container traffic totalled 443,312 TEU (+12.9% yoy).

THE PORT OF GOTHENBURG:

538.0 thou. ro-ro cargo units handled in 2016 (+2.1% yoy)

In addition, the Swedish port took care of 246.0 thou. new cars last year, an increase by 15% year-on-year, and the highest figure since the 2008 financial crisis. With 23.7 mln tn (+12.3% yoy), the turnover of liquids hit a new all-time high in Gothenburg in 2016.

The Port of Gothenburg's volumes

	2016	Yoy
Freight traffic		
General cargo	17.2 mln tn	+0.6%
Liquids	23.7 mln tn	+12.3%
Total	40.9 mln tn	+7.1%
Detailed unitized cargo traffic		
New cars	246.0 thou.	+15.0%
Ro-ro cargo units	538.0 thou.	+2.1%
TEU	798.0 thou.	-2.7%
Pax traffic		
Ferry and cruise passengers	1,708.0 thou.	-2.2%

VALENCIAPORT:

4,722,273 TEU handled in 2016 (+2.3% yoy)

Both containerized imports and exports increased by 5.0% year-on-year, to a total of 1,105,978 TEU and 1,105,438 TEU, respectively. Transit box traffic rose as well, by 0.1% yoy to 2,510,857 TEU. Overall, total 2016 freight turnover at the three ports managed by Valenciaport – Valencia, Sagunto, and Gandia – amounted to 71.28 mln tn (+2.0% yoy). Out of the total figure, containerised cargo rose by 3.0% yoy to nearly 53.79 mln tn. Combined volumes of ro-ro traffic and break-bulk decreased by 0.8% yoy to 10.75 mln tn. However, the former advanced by 4.3% yoy to 8.91 mln tn. In addition, Valencia and Sagunto handled 774,708 vehicles, more by 12.4% yoy. Handlings of liquids closed last year with a decrease of 0.3% yoy, totalling 3.80 mln tn. Dry bulk also contracted – by 7.7% yoy to 2.48 mln tn. As for Valenciaport's main cargo flows directions, trade with other Spanish ports came first last year with 8.48 mln tn (+5.0% yoy), followed by China (+17.0% yoy to 6.76 mln tn), Algeria (-2.8% yoy to 5.63 mln tn), Italy (-3.1% yoy to 4.88 mln tn) and the US (-0.5% yoy to 4.37 mln tn). On the passenger side, a total of 908,145 travellers went through Valencia's quays (+21.4% yoy), out of which 504,881 came on-board ferries (+35.2% yoy), while the remaining 403,264 on cruise ships (+7.7% yoy).

THE PORT OF DUBLIN:

26.0 mln tn handled in I-IX 2016 (+6.8% yoy)

Out of the total number, imports accounted for 15.4 mln tn (+6.7% year-on-year), while exports added the remaining 10.6 mln tn (+7.0% yoy). Ro-ro traffic to and from Ireland's capital port advanced in the reported period by 7.6% yoy to altogether 699,361 trucks and trailers. Additionally, 77,494 new vehicles were imported, noting here an increase by 9.8% yoy. Container volumes rose, too, by 9.3% yoy to 495,304 TEU. As many as 1,460,585 ferry travellers went through Dublin's quays, more by 0.5% yoy. A total of 400,949 pax vehicles were carried on-board ferries as well (+0.5% yoy). Over the first nine months of 2016, Dublin welcomed 103 cruise ship calls, carrying on-board 152.0 thou. passengers. "At 6.8% growth in the first nine months of the year, we are now certain that 2016 will be the third record year in a row for trade at Dublin Port. We are seeing the re-emergence of exponential compounding growth which has characterised the business of Dublin Port for many decades. In the period to September this year, we handled the same volume as we did in the whole of 2009, our lowest point after the economic collapse," Eamonn O'Reilly, Dublin Port Company's Chief Executive, said. Eamonn further added: "The pace of growth is so strong that if current growth levels were to continue into the future, Dublin Port's volumes would double over the 12 years to 2025. Our challenge now is how best to create additional port capacity in sufficient time to stay ahead of this growth."

EUROGATE GROUP:

14.61 mln TEU handled in 2016 (+0.4% yoy)

Over half of the company's 2016 container handlings were made by its German facilities, summing up to 8,234,357 TEU (+/-0.0% year-on-year).

EUROGATE Group's volumes [TEU]

	2016	Yoy
Bremerhaven	5,487,198	-0.6%
Hamburg	2,265,439	-0.9%
Wilhelmshaven	481,720	+12.9%
Total Germany	8,234,357	+/-0.0%
Total Italy*	5,012,218	+4.6%
Tanger (Morocco)	1,126,872	-8.4%
Lisbon	154,959	-25.3%
Ust-Luga	82,203	-4.3%
GRAND TOTAL	14,610,609	+0.4%

* La Spezia, Gioia Tauro, Cagliari, Ravenna, and Salerno



Photo: www.pexels.com

CONTAINER RAIL TRAFFIC IN RUSSIA:

3.26 mln TEU carried in 2016 (+10.2% yoy)

With nearly 1.68 mln 20-foot boxes (+12% year-on-year), domestic routes accounted for over half of Russia's container transports carried across the country's railways.

Container rail traffic in Russia [thou. TEU]

Trade lane	2016	Yoy
Domestic	1,678	+12.0%
Exports	800	+7.9%
Imports	525	+4.4%
Transit	258	+18.8%
Total	3,261	+10.2%

featured article

The Mediterranean blue economy

Photo: ISEMAR

by **Paul Turret**,
Director of the Higher Institute of Maritime Economics (ISEMAR)



The Higher Institute of Maritime Economics (ISEMAR) was founded in 1997 by the local communities, the Chamber of Commerce and Industry, and the port community in Nantes Saint-Nazaire. Its goal is to develop expertise serving as a touchstone for maritime transport, ports, and naval industry. The Institute is, therefore, a honed observatory on changes in maritime economics. ISEMAR puts its knowledge in research and understanding of maritime transport and commerce at the disposal of a wide audience since these are crucial issues in this global economic era. For more info please visit: www.isemar.fr

“Mare Nostrum,” meaning “our sea,” was the Latin term for the Mediterranean Sea, an area in which trade has a long-standing history. All big cities on its shores Marseilles, Genoa, Barcelona, Venice, Athens and Istanbul, to name the most famous, have a rich maritime past. It seems that they have a promising future as well.

Yet, the global colonial expansion of Europe led to a relative marginalisation of the region, which resulted in a period of decline for maritime cities. During the 19th century, the European supremacy gradually evolved here, the key event in shipping being the opening of the Suez Canal. From 1869 the Mediterranean Sea became a key corridor, a section of the Euro-Asian maritime route. During the tense period in oil trading and the Cold War, the Mediterranean axis became a geopolitical issue. Today, the so-called “Med. Corridor” has regained its significance after the advent of globalisation. Its basin is again a part of the global market; the cities on its shores are home to the largest shipping companies and shipbuilders in the world, and the area

therefore bears considerable weight in the global maritime industry.

Maritime industries and stakeholders

The corridor between Suez and Gibraltar is on the oil and gas route that connects the Persian Gulf and the container routes to Asia. In 2015, 62.0 mln tn of crude oil, and 22.0 mln tn of Liquefied Natural Gas (LNG) travelled westbound. Similarly for 22 mln full TEU, the Mediterranean Sea is just a long strait linking Western and Northern Europe. As far as money is concerned – the Egyptian government has spent USD 8.0 bln on the Eastern gateway of the Suez Canal to increase traffic. However, their hope to develop crossings through the Canal is largely dependent on demand, and not on good transit times.



Photo: Wikimedia Commons

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In 2015, 62.0 mln tn of crude oil, and 22.0 mln tn of Liquefied Natural Gas (LNG) travelled westbound. Similarly for 22 mln full TEU, the Mediterranean Sea is just a long strait linking Western and Northern Europe.

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Traditionally, Mediterranean cities are home to big ship-owning families, and even the term “motorways of the sea” comes from our region and was coined by Grimaldi.

Photo: Wikimedia Commons



The investment is highly profitable for Egypt – the Canal yields USD 5.0 bln per year, which is the second national source of income after tourism.

European prospects are based on changing trade flows, with less crude oil after the closure of refineries and more products from Russia, the Middle East, and Asia. In the Med., a small group of large refineries will remain in southern Spain and Sicily. Tank storages in this case are strategically placed at the extremity of the Mediterranean Sea. The major tanking actors have invested in Spain, Cyprus, and Morocco.

Another market plays a considerable role – tourism. In fact, the Mediterranean is the largest tourist area in the world, with its sunny local climate that makes spending time (and money) here very attractive. For the maritime industry, tourism feeds the ferry and cruise industries, the latter developing dynamically. In 2015, the European cruise market represented 6.6 mln passengers (twice as many as in 2005), while customers from Italy, Spain, and France accounted for 29% of the total, while 64% of all European boardings occurred in Mediterranean ports. The cruise business is a good source of income for harbours mostly for already attractive cities, but also for smaller towns. The industry owes much to the beautiful landscapes and fascinating history of these areas. However, the excesses of mass tourism have caused local protests (e.g. in Venice).

The ferry business is another pillar of the Mediterranean maritime economy. The

vessels connect different coasts and many islands. Major ro-ro lines run between Europe and North Africa, Italy and Spain and, for 20 years now, link Turkey with the West Mediterranean. The car-carrier sector plays a major role for Spanish, Italian, Romanian and Turkish factories since the advent of the new low-cost car market.

Traditionally, Mediterranean cities are home to big ship-owning families, and even the term “motorways of the sea” comes from our region and was coined by Grimaldi. This eponymous dynamic company from Naples became one of the largest ro-ro operators after purchasing Minoan Lines and Finnlines. Naples is also the birthplace of Mediterranean Shipping Company (MSC), created by the Aponte family, which is said to be world’s No. 2 in container and No. 3 in cruise ships. The other key Mediterranean maritime cities are Marseilles, Genoa, and Piraeus, but that’s not all. CMA CGM is France’s major flagship company, while Piraeus is a hive of attractiveness on that side of the globe, which is underlined by the biggest fleet in the world accounting for 42,000 jobs in the Athens area. It is also because of this that Greece is a heavyweight in the European shipping industry, and first and foremost thanks to the use of its national flag (this also holds true for Cyprus and Malta). All in all, in 2015, 70% of EU flags were Mediterranean, and in terms of economic control of fleets by shipping companies, Greece, France, and Italy have a combined 60% share in Europe.

The European container battle

The Mediterranean container sector amounts to approx. 2.2 mln TEU for the internal market, and 18.0 mln TEU for external trade. In terms of cargo flows, it offers access to very diverse economies, such as the southern part of the EU, Israel, emerging Turkey, developing Northern Africa, Egypt and the Balkans, but the line of hubs from Port Said to Algeciras/Tanger-Med has no real impact on the countries in terms of national economies. However, there are some ports that have access to their national markets. For a long time, the hinterlands of European West Mediterranean ports were limited, but the port authorities of e.g. Barcelona, Marseilles, as well as Genoa, Adriatic’s Venice, Trieste, and Koper, or the Black Sea’s Constanta, are striving to extend their sphere of influence.

Today, the Northern range controls around 75% of the European market but only 50% is in its “natural hinterland.” So for our ports, the European battle is focused on gaining a larger share of the continental market in a belt connecting Bordeaux with southern Poland via the Northern Alps and Central Europe (the potential is approximately 4.0 mln of full TEU per year, according to our calculations). To achieve this, excellent port performance, reliability, and good intermodal solutions will be required. Winning over of Bavarian, Swiss, and Austrian shippers will not be easy. However, there is a real growth potential for Mediterranean ports in this respect.

A tradition of mechanical engineering

European shipyards now focus on the sectors of passenger ships, ferries, and cruise boats. In 2015, 50% of European production was built by Mediterranean shipyards. In the case of France and Spain, the survivors of the 1980s collapse are on the Atlantic coast, while in Italy, Rome has preserved public control over a big player, Fincantieri. Italy is also the third European country in shipbuilding, and Fincantieri is striving to become European No. 1, competing with French and Norwegian yards. Being focused on the Romanian companies, they are part of larger groups (Croatia is hoping to retain this key industry). After expanding in the 2000s with new yards, orders in Turkey have now entered a contraction phase, because European owners have stopped massively purchasing small tankers and chemical carriers.

We are now seeing a new wave in maritime mechanical engineering in Europe with the advent of marine renewable energies. Unfortunately, Mediterranean countries are lagging in this sector. Europe's first windfarms were located in the North Sea, and a major part of this new industry is now in Danish and German hands. France has developed its own sector, but the south has been left out. The first French windfarm based on floating wind turbines on the Mediterranean

coast has yet to be commissioned, but Italy has already launched ambitious projects (although the scope of the first project, near Taranto, is limited). Finally, Spain has stuck to its specialty in onshore windfarms. One thing is clear: Southern Europe is not part of this new maritime economic sector.

Tab. 1. Top 10 Mediterranean container ports in 2016

No.	Port	TEU [mln]
1	Valencia	4.77
2	Algeciras	4.76
3	Gioia Tauro	2.80
4	Genoa	2.30
5	Barcelona	2.22
6	La Spezia	1.27
7	Marseille	1.25
8	Koper	0.84
9	Livorno	0.80
10	Cagliari	0.69

Source: Port authorities

Remaining in good shape

The adventure of the blue economy for the Mediterranean Sea began 3,000 years ago. Today, shipping and port activities remain strong. The dynamic maritime families and port communities have managed to preserve Southern Europe's status. For the shipping world, adapting to globalisation has been a

“ We are now seeing a new wave in maritime mechanical engineering in Europe with the advent of marine renewable energies. Unfortunately, Mediterranean countries are lagging in this sector. Europe's first windfarms were located in the North Sea, and a major part of this new industry is now in Danish and German hands. ”

challenge a challenge, overcome by stakeholders such as CMA CGM, MSC, and many Greek companies. Regarding shipbuilding, Mediterranean shipyards remain a largely preserved industry in Europe.

When comparing the Mediterranean and the Northern European maritime sectors, the South remains a strong contender. However, the picture is quite different for its ports. For 40 years now, the Northern Range has concentrated a large part of the European market. Gaining new shares is a common goal for southern ports. At the end of the day, the idea of the Mediterranean blue economy is deeply rooted in its history and the Med. retains its “emporium” on trade with the inland. ■

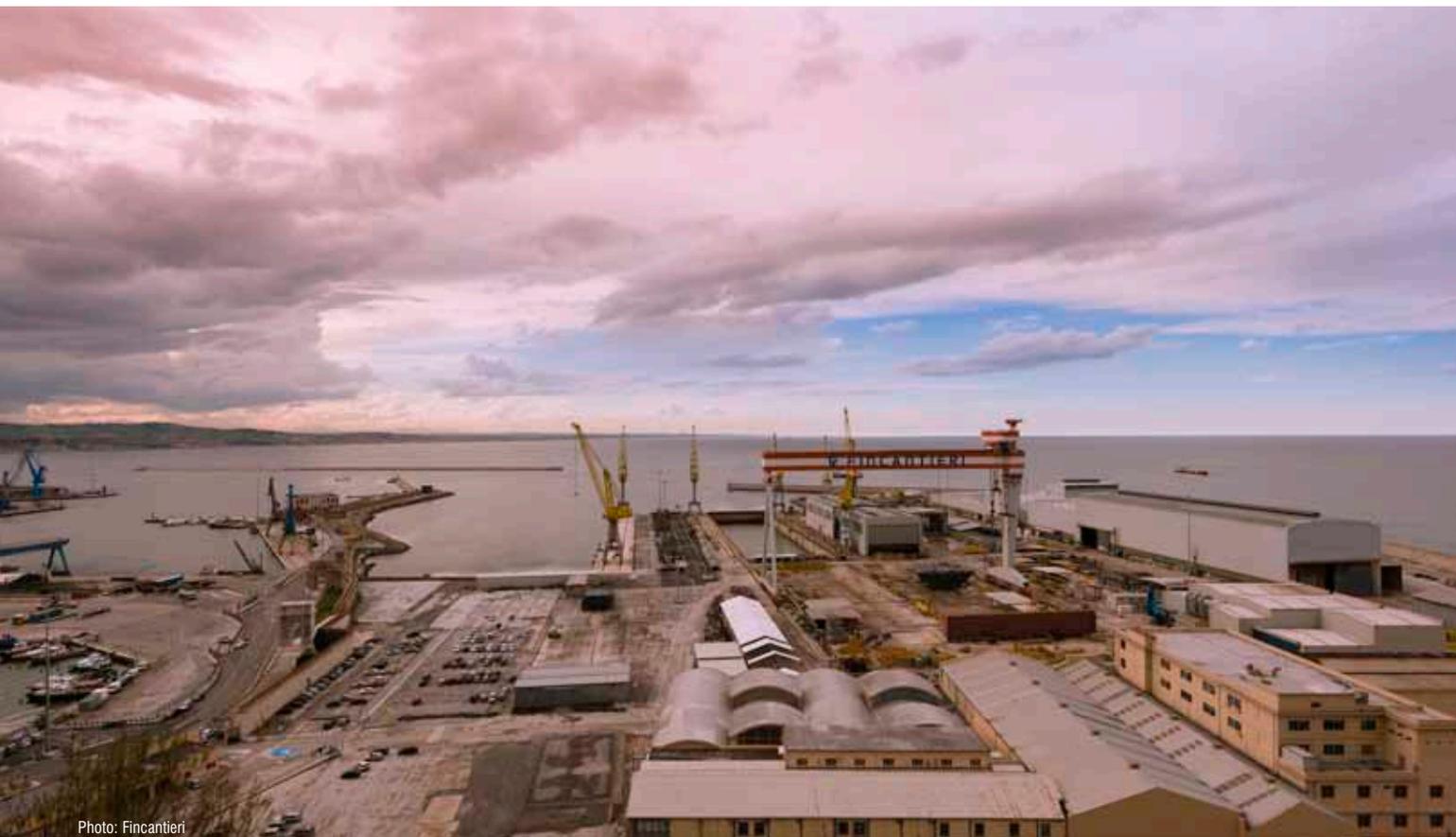


Photo: Fincantieri



Photo: all-free-download.com



Dorothy Winters

the Port of Amsterdam's Business Developer Offshore

The ports of Amsterdam and IJmuiden have joined forces under the Amsterdam IJmuiden Offshore Port (AYOP), a public-private network organisation with over 70 specialists from government and the offshore industry. One of AYOP's aims is to develop the Amsterdam-IJmuiden into an area especially attractive for the offshore wind business, but we also cater to niches in the offshore oil & gas sector, such as drilling support, platforms' modifications & maintenance, and – particularly nowadays – decommissioning, and disassembly of redundant platforms. Experience is on our side – the first out of three wind farms in the Netherlands was installed from the Port of IJmuiden. AYOP is also a cable hub, catering to equipment, as well as logistics, and strategic storage for cable producers. Experienced as we are in wind farm installation and maintenance, we have

extended the number of berths for crew transfer vessels and boats. We have also done all turbine assembly activities for the near-shore wind farm Westermeerwind. AYOP is likewise very active within Decom@work, a group of companies working together to secure careful completion and decommissioning of parts in the life cycle, including logistics, re-use, and processing.

We see the biggest future potential in rolling out of wind zones e.g. Hollandse Kust Zuid, and Hollandse Kust Noord, representing 2,100 MW of combined power. What's more, the Hollandse Kust West and the IJmuiden Ver will support energy transition in Dutch offshore wind with 7,000 MW.

One of the initiatives taken by the Amsterdam-IJmuiden offshore region is research to support innovations in the offshore wind industry. The research covers three areas: Operations and maintenance (O&M), ship conversion, and logistics. It also offers a possibility of international knowledge-sharing between sectors in the area of process industry, materials, knowledge & expertise, manufacturing, sensor/sensing techniques, oil & gas supply, big data, etc. Furthermore, we are going to establish roundtables on each topic, so as to develop our ideas into collective industry innovation projects.

Additionally, the Port of Amsterdam supports many other offshore activities, e.g. the development of the North Sea in a sustainable, responsible, and cost-effective way for renewable industry. Finally, I can say that we are devoted to the ROC Nova College initiative of launching the Wind Technician vocational technical education, which includes Falck training (offshore safety training), and Quercus (high voltage training).



Karmenu Vella

European Commissioner for Environment, Maritime Affairs and Fisheries

As Europe's economy picks up again, creating employment and boosting investment remains a priority and number one for decision-makers. Among the most powerful economic engines are the continent's seas, coastal regions, and maritime industries, which already provide 5.4 mln jobs and a gross added value just below EUR 500 bln per year. To raise these figures even higher, the European Commission is paying particular attention to a handful of maritime sectors with high

growth potential, such as ocean energy, aquaculture, tourism, marine biotechnology, and marine mineral resources. The aim is to help put in place the conditions for these sectors to live up to their potential, hence drive blue growth by providing high-quality jobs and services. This long-term approach requires boosting research and innovation, equipping people with the right skills, and providing certainty to business. It is also based on the responsible use and interaction with the marine ecosystem. The EU countries have readily taken up the challenge of the Blue Growth Strategy. In Spain, for example, the Port of Vigo is applying the concept to all its services and facilities to become a connected, innovative, green, and inclusive port by 2020 – and a role model of Blue Growth.



Christine Cabau Woerhel

the Port of Marseille Fos' CEO

The Port of Marseille Fos, with an area as large as Paris (10,000 ha), handles all types of cargo, totalling almost 81 mln tn/year. Apart from two logistics zones alongside refineries, steel and chemical industries, there are nine dry docks, incl. a 465 m long dry dock 10, able to accommodate the largest ships and offshore platforms. As many as 2.7 mln passengers pass through our port annually, making it the No. 1 cruise port in France, No. 5 in the Mediterranean, and the No. 15 in the world.

Marseille port supports an organized industrial eco-system and brings together 16 industrial enterprises under the PIICTO umbrella – an industrial innovation platform covering 1,200 ha in the Fos industrial port zone. The aim is to create synergies between the stakeholders, and to pool services in order to create a well-functioning industrial ecology.

For instance, the special area – Innovex – is reserved for pre-industrial energy transition pilot projects (Jupiter 1000/offshore floating wind power farm).

The port and the company, La Méridionale, are also the first French and Mediterranean maritime players to have put in place quayside high-voltage electricity grid connections for vessels. This innovation limits the use of generators, and avoids harmful emissions being released into the atmosphere.

Energy transition can also be seen in practice with the Thassalia geothermal power project within our port, making it possible to connect nearly 500,000 m² of housing and office space in Marseille.

With two Liquefied Natural Gas (LNG) terminals, our port intends to play a leading role in the development of eco-friendly refuelling solutions for ships in the Mediterranean, in particular ship-to-ship, for which the first cruise vessel orders will be placed in the upcoming months.



Gunter Pauli

Economist and Author of The Blue Economy

When the island of El Hierro proposed to generate all its water and power with renewable sources of wind and hydro instead of petroleum at a cost of EUR 82 mln, the investment community and energy experts considered that this amount of capital for a population of only 10,500 inhabitants was not viable. Some even described it as a “white elephant.” Many formulating their opinions and critique lost sight of the fact that an annual cost of EUR 10 mln for fuel represented a source of financing, offering a +10% return on the investment required. Whereas the conversion to renewables was viewed as impossible, the spending on petroleum was considered normal. The elimination of heavy fuel transport reduced the risk of spills, and cut carbon emissions to zero.

The blue economy offers a fresh look at the reality of development. The interface of land and sea will undergo a major transformation caused by climate change, rising sea levels and increased wave power, and we have to learn how to design our lives with the drastic shifts that will occur. The regeneration of mangroves along the coast of Surabaya in Indonesia offers welcome protection, while the channels in the new growth provide farming for shrimp which can now be harvested without the need for feed. The financing of mangroves is funded by the highly competitive pricing of high quality food. The land behind the mangroves is encroached by the sea, and there's a salt resistant rice that can be farmed.

The blue economy works with what is available, generates value, innovates, and transforms. We have just started to see the grand portfolio before us. It is now up to the entrepreneurs and the policy makers to make this happen. With more than 200 projects implemented, and USD 5.0 bln invested, we know that this is a path that, if once walked, there is no turning back from.



Monika Woźniak-Lewandowska

Szczecin and Świnoujście Seaports Authority's Communication and PR Specialist

According to the EU's 2020 climate and energy targets, Member States will at that time be obliged to produce 20% of their energy out of renewable sources. This is why many are already looking for a source of power even in the sea. However, an offshore wind farm is a relatively expensive investment, and it must comply with the most important sea-interest, namely maritime transport. But, all in all, there are plans to construct several new wind farms in the Baltic Sea, and a good, already existing example comes from Denmark, where such projects are perceived as very good, long-term investments. This is why, I believe, it is only a matter of time before Polish businesses will invest in sea wind farms out in the open sea.



Isabelle Ryckbost
ESPO's Secretary General

The blue industry concept is gaining particular importance these days, and many ports in Europe are responding positively to the ideas behind it.

After all, since harbours are the connection nodes between land-based and

the blue economics, it's no wonder that they are often the trigger facilitating blue industry activities both in the port area, as well as out in the sea. In order to face climate change and air pollution challenges, European seaports are trying to decarbonise their

port operations in different ways. This can happen by encouraging stakeholders to embrace innovative technologies that help reduce harmful air emissions. I think that by attracting, facilitating the uptake, and even investing in alternative fuels, offshore energy and other renewables, ports can actively contribute to the energy transition in a bold move towards a low-carbon economy.

European ports are not only the nodes of transport, but also essential means of keeping the economy running or of securing the EU's energy security. The challenge for the blue industry will be to match different activities both in terms of space and priority. Therefore, port authorities can play an important role as matchmakers ensuring that the port-coastal waters cohabitation runs in the best possible way.



Jens Kirketerp Jensen
the Port of Hirtshals' Managing Director

Hirtshals is the northernmost port on the west coast of the European mainland. The service industry at our port is gathered within a cluster of smaller specialized companies, covering all kinds of competences within the blue industry. And so the first one, MarineShaft, is a fast-growing maritime company, highly specialized in truing-up vessel and rudder shafts. The second one, Hirtshals El-Motor Service, repairs larger generators, including vacuum-proofing of spool in the largest VPI installation in Denmark. The next one, Hirtshals Yard, has introduced a new business area, as the company has set off with installations of ballast water treatment equipment on-board vessels, while MarineService has kicked off laser welding. The main markets for the service industry in Hirtshals are the North Atlantic, Scotland, Norway, and naturally the domestic Danish one.

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Defining the blue terms

by Isabelle Albuquerque

One can find a lot of collocations related to the industry, economy, or growth with the word “blue” in front of them. As newcomers, they may sometimes be a bit unclear, and therefore the World Wide Fund for Nature (WWF) has prepared a report titled *Principles for a Sustainable Blue Economy*, aimed at summarizing and clarifying the objectives and goals of what we call the blue economy.

“
For some people, the term means the use of the sea and its resources for sustainable development, for others it refers to any economic activity in the maritime sector. This proves that the definition of the concept is not unified and hence not widely accepted.”

For some people, the term means the use of the sea and its resources for sustainable development, for others it refers to any economic activity in the maritime sector. This proves that the definition of the concept is not unified and hence not widely accepted. On this occasion the WWF has prepared a more detailed clarification. It goes hand-in-hand with a set of principles, saying the “Blue economy must respect ecosystem integrity, and that the only secure pathway to long-term prosperity is through the development of a *circular* economy.” Apart from containing this definition, the principles describe how public and private subjects should behave, as well as what needs to be done for the blue economy to be realized.

The principles described below can play many important roles. First of all, they should be used for communication, and secondly for guided decision-making, both in the public, as well as in private sectors. Thirdly, these principles can be used for informing on assessment processes that track the progress in developing a sustainable blue economy. They can also serve as a support in stakeholder dialogues, since there is a common and comprehensible definition of the topic. Last, but not least, a mobilizing commitment by government and all relevant stakeholders in realization of the blue economy’s aims is also possible.

Public and private must be like...

To sum up, according to the WWF’s paper, a sustainable blue economy is a marine-based economy that provides socio-economic benefits for generations, especially in the areas of food production, employment, health, and safety. It also restores, protects, and maintains the values of marine ecosystems, like diversity, productivity, or resilience. The basis of the blue economy is most of all new technologies, renewable energy, and circular material flows.

It would be good if we remind of some important points while implementing the term in real life. First, inclusiveness, meaning that it should be built on active and effective stakeholder engagement and participation. Secondly, decisions should be made supported by scientifically-proven information to avoid harmful effects undermining sustainability. In cases where sufficient knowledge is missing, we must take a precautionary approach and look for it, refraining from any actions that could lead to potentially harmful effects. Next, being accountable and transparent, and finally – take holistic, cross-sectoral and long-term innovative and proactive strategies. Decisions must be based on economic and environmental calculations, benefit the whole society, as well as assess potential impacts on other activities now and in the future. Therefore, looking for the most effective and efficient ways to meet the



“Targets are necessary. Setting them in a measurable and internally consistent way will help move in the right direction. What’s more, they will assure that all activities and policies are coherent, steering clear of contradictions.”

needs of present and future generations is more than welcome.

What the public and private must do

Targets are necessary. Setting them in a measurable and internally consistent way will help move in the right direction. What’s more, they will assure that all activities and policies are coherent, steering clear of contradictions. Once established, goals need to be monitored regularly, and the news about progress should be spread to all stakeholders, including the public. Thirdly, the WWF proposes to create special economic and legislative incentives, such as taxes, subsidies, and fees. Next, “All relevant uses of marine space and resources must be accounted, planned, managed and governed through forward-looking precautionary, adaptive and integrated processes that ensure the

long-term health and sustainable use of the sea, while also taking into account human activities on land.” Another point is the development of standards and best practices supporting the blue economy. Organizations that will do it, will not only ensure sustainability of their own actions, but also increase performance and competitiveness. Public and private actors must also recognize that the maritime and the land economies are mutually interdependent, and to reduce a negative impact on the sea, something must also be done inland. Finally, all who are involved in the sustainable blue economy need to take responsibility for the process of implementation.

So, the instructions exist, we’ll see whether they will be put into practice. There seem to be a lot of challenges, but there’s a lot to win, too. ■



2016

HEKLA
on-the-road campaign
South-East Baltic
Gdańsk/Gdynia/Sopot
Riga/Ventspils

Green InfraPort
April 2016-March 2017

Go LNG
May 2016-April 2019

HEKLA
Baltic Ports LNG Forum
in Vilnius
2 June 2016, Vilnius

Green InfraPort
seminar in Kiel
30 June-1 July 2016, Kiel

**Seminar on comprehensive
ports in Helsinki**
7 September 2016, Helsinki
Baltic Ports Conference

Green InfraPort
seminar in Helsinki
8 September 2016, Helsinki
Baltic Ports Conference

Go LNG
Go LNG Polska!
18 October 2016
The University of Gdańsk

Green InfraPort
seminar in Gothenburg
December 2016, Gothenburg

2017

Go LNG
LNG Bunkering in the Sea Port
7 February 2017
Port of Gdynia Authority

Green InfraPort
Final Seminar
7 March 2017, Sopot
Transport Week

Polish LNG Platform
LNG for Transport and Industry
7 March 2017, Sopot
Transport Week

Go LNG
Baltic LNG Cluster
Establishment
26-27 April 2017, Vilnius

LNG Conference
Investing in LNG in the BSR
17-18 May 2017
Tallinn

Go LNG
LNG Policy Conference
7-8 September 2017, Trelleborg
Baltic Ports Conference

HEKLA
Partner Meeting
7-8 September 2017, Trelleborg
Baltic Ports Conference

HEKLA
LNG Transport Forum
2017

Small-scale LNG solution for bunkering, distribution & floating terminals



Photos: Kanfer Shipping

One stop LNG shop

Founded in 2013, Tønsberg-headquartered Kanfer Shipping is a Norwegian company focused on small- and medium-scale LNG transportation and terminal solutions. Its company slogan reads, "We can do nothing about the LNG prices, but we can have a huge impact on the infrastructure cost." For more information on Kanfer Shipping's know-how, please visit www.kanfershipping.com.

by **Stig Anders Hagen**,
Founder and Director of Kanfer Shipping

Year by year, Liquefied Natural Gas (LNG) grabs a firmer foothold across the maritime industry. However, the demand issue from the side of the shipping business is still a major puzzle, a case-by-case affair in contrast to traditional offshore tanking services, making an investment in a bunkering barge an adventurous enterprise. Why then not address the problem the other way round – by adding extra features to the barge concept, rather than reading the shipping demand cards?

“Will there be enough employment for several bunker ships to do the bunkering tomorrow, in two or five years' time?”

This has led us at Kanfer Shipping to combine the small-scale solutions for bunkering, distribution and floating terminal in one place. The idea is based on an American articulated tug barge (ATB), which is fairly popular in the United States, as some 500 of them are currently up & running between US harbours. They are universal and serve a variety of shipping segments, be it containers, break-bulk, as well as petrochemical products (ATBs have been used by all the oil big players for years now).

Obviously, there is a need for LNG bunkering in the Baltic, and this will for sure increase in the near future. However, will there be enough employment for several bunker ships to do the bunkering tomorrow, in two or five years' time? We clearly see that combining the abovementioned solution in today's market situation makes the investment much more competitive both when it comes to operating (OPEX), but also capital expenditures (CAPEX).

The demand for bunkering/supplying ships with LNG will be increasing, but few expect an explosion in demand overnight. Investing in a bunker ship will be very expensive, but one barge and one tug will operate like a bunker ship, and will be a lot more cost efficient solution than an ordinary ship. However, why not to start with a self

propelled barge that could easily operate inside a port on its own. If there initially is a demand only for supplying ships inside a port, this could be the first step, but when it will grow outside a port, then you could add a barge and together they will be an ocean going solution. This way you limit your risk, grow together with the market and can eventually build a hub for the region. Kanfer Shipping will charter the solution to operators in the market on a long term basis and will be your long term cooperation partner and add barges and tugs when required.

How we did it?

Will a pure bunkering ship be a viable and sustainable solution when we do not know the demand for it? Naturally, doing business goes hand-in-hand with taking the risk. On the other hand, doing serious long-term business, putting at stake millions of dollars for instance, should also involve managing the risk. "Forewarned is forearmed," the saying goes.

Therefore, combining bunkering with distribution and a floating storage facility for LNG will make the business case much more attractive by providing flexibility, much needed these days. We have no doubt that LNG infrastructure costs need to be reduced in order to keep it competitive





and offshore benefits can be merged.

But this can be further upgraded by having regasification equipment on-board the barges, turning them into first small scale floating storage and regasification units (FSRU) of its class with a pumping capacity of 50 tn/hr at a pressure below 10 bars. While this will initially add cost, it can improve the overall competitiveness, whereas in the long-term – even decrease the expenses by making the investment in onshore regasification redundant.

ATBs enter the LNG stage

In case there is a concrete requirement for a pure LNG bunkering ship only, there is also an option to look at one barge and a tug. This will have the same purpose as a small-scale LNG ship and/or bunker barge or ship, hence distribution and bunkering.

But why to choose an ATB for this purpose? The answer is simple: The cost of building and the expense of running it are less than for an ordinary ship of the same size. It will be as robust and seaworthy as a standard vessel, and we're talking rough sea and ice conditions. If demanded so, it could even be built with the highest ice-class.

Such an ATB is a patented solution and Kanfer Shipping has the global rights to the design. There are no new technologies involved in the project, all is proven (e.g. the C-type tank which has been on

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Combining bunkering with distribution and a floating storage facility for LNG will make the business case much more attractive by providing flexibility, much needed these days.

the market for years), only carrying LNG is new (though not in the Baltic looking at the Seagas bunker barge). The connection between the hull and the barge is well proven, too, and an ATB with the same design, carrying petroleum products, is built to run between Alaska and California.

We see that the LNG market is in the need of more competition as well as of smart and cost-efficient solutions in order for LNG to be a viable alternative to other fuels.

Kanfer Shipping is taking part in projects globally and have an approval in principle in place. We are currently in close talk with a global investor within shipping, gas and energy which will add trust and credibility to the solution. Kanfer is having one of the class companies to do a technical due diligence to the solution only to show the clients that there are no show stoppers. This will add trust and credibility to the solution and together these two milestones will trigger projects that Kanfer Shipping are involved with. ■

towards Marine Diesel Oil/Marine Gas Oil, as well as other alternative fuels.

Our solution makes use of two barges and one tug boat. One barge will at any given point in time be connected to the land-side, pumping LNG to an onshore facility. However, it can also serve as an LNG bunker station pipe/hose-connected to vessels with regular timetables like ro-ros, ferries, or feeders. Meanwhile, the other barge will together with the tug be on its way to/from the LNG source, fulfilling the distribution and floating terminal duties. In such a way, the onshore



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Challenges and opportunities

Photo: www.pexels.com

by **Alastair Fischbacher**,
CEO at Sustainable Shipping Initiative

Along with the aviation and automotive industries, the shipping industry is facing increased scrutiny of its social and environmental impacts. This drive for sustainability has arrived at the same time as several other notable pressures on the industry.

“The SSI’s aim is to help create an industry where, by making sustainable practices commonplace, it not only delivers environmental and social benefits, but also ensures commercial and financial prosperity.”

Low freight rates and increased competition, uncertainty over crude prices and more complexities in the marine fuel supply chain, a lack of liquidity, shifting trade patterns as well as increasing governance and scrutiny – it all makes the journey towards a sustainable future challenging, yet ever more essential, particularly with the commercial opportunities that embracing sustainability creates.

industry, providing healthy and desirable work environments to attract top talent into shipping, transparency and accountability driving business-making decisions, developing financial solutions that reward sustainable performance, and shifting to responsible and diverse fuel sources, reducing greenhouse gas (GHG) emissions. Together these chart a path to success by 2040.

Who are we?

The Sustainable Shipping Initiative (SSI), a coalition of shipping leaders from around the world, was created in order to help shipping address the environmental, social and economic challenges that are currently impacting the future sustainability of the industry. The SSI’s aim is to help create an industry where, by making sustainable practices commonplace, it not only delivers environmental and social benefits, but also ensures commercial and financial prosperity. This is encapsulated in our Vision2040 strategy.

In order to achieve a sustainable industry by 2040, the SSI recently launched the “Roadmap,” a live working tool that highlights the challenges that the industry faces, some milestones to be met and developments needed within six key areas. These include responsible governance of the oceans, being a responsible partner to communities part of or touched by the

The governance of the ocean

Governing the oceans is logistically difficult, with the vast majority of the world’s water falling outside national jurisdiction. Despite this, the evolution of the IMO has meant that national and international management of the oceans in terms of shipping has increased significantly over the past three decades. Yet, as an industry, shipping is currently uncertain as to what direction future governance will take. In an ideal world, the international community would come together and create a regime that offers fair rules to all of those who use the world’s oceans, but there is a danger that instead, various local regimes will implement different rules, creating a patchwork of legislation that is difficult to enforce and voluntary codes that go unheeded.

In order to prevent this from occurring, the SSI believes the IMO must be bold in providing long-term certainty and enabling the gradual development of an

international framework. A strong, cohesive form of ocean governance means that environmental legislation (as opposed to builder and buyer preferences) would drive the future of ship design and operation, as all would need to be compliant with global rules. All ocean users would be beholden to the same social, environmental and trade laws, creating a level playing field for all.

Being a responsible partner

While many stakeholders within the shipping industry make considerable efforts to consider and protect those they come into contact with, the industry overall does not effectively promote itself in terms of its importance within the global economy, and the good that it provides. Rather, whenever shipping hits the headlines outside the industry, the majority of stories are negative: labour rights issues, vessel disasters such as *Costa Concordia*, the social and environmental dangers of ship recycling or rising GHG emissions. These news stories cause significant reputational damage.

A crucial part in tackling the negative perceptions of the industry is being seen to be responsible towards the people the shipping industry comes into contact with, both in terms of employees and those who live or work near ports or harbours. Delivering a more sustainable approach to those the industry affects offers benefits. Indeed, some high profile companies, including Unilever and Marks and Spencer, are exploring the implementation of the living wage and the positive impact it may

have on productivity. Investment in human capital is an essential step in achieving a truly sustainable industry. It is vital that all ship-owners and operators consider their environmental and social impact not only at each level of the supply chain but also in the adjacent communities, and continue to push for higher standards.

Healthy & secure working environment

Like many other industries, the shipping industry relies on a high-calibre and professional workforce, equipped to deal with the many developments the industry is undertaking. Unfortunately, trends data have indicated that attracting skilled workers, who may fill an officer-class role, is a challenge. A particular difficulty is the high turnover of staff, especially in the US and Europe, as seafarers are often reluctant to spend long periods of time at sea away from their families. In addition it remains a risky occupation in terms of safety – despite improvements and initiatives there are still too many incidents due to human error and inadequate procedures and equipment. By 2040, we need to see the accident rate for shipping at least in parity with land-based industries.

A positive step for social responsibility has seen less-developed nations demanding high standards of worker welfare as they catch up with European and American trends. This is encouraging from a sustainability perspective, but presents additional problems when it comes to retaining skilled staff. Dong Baohua, professor of Law at East China University of Politics and Law, has found that “workers born

after the 1980s and 1990s are concerned not just about pay but about safety, rights and respect.” The shipping industry needs to take this into account if it is to attract and retain the skills it needs now and in the future.

Seafarers are the lifeblood of the shipping industry. As such it is vital that they have a quality of life that is appropriate and in line with the welfare standards that we expect within a modern workplace. Not only is this important because it is the right thing to do for the seafarers themselves, it is also central in enabling shipping to market and position itself as an industry of opportunity for the crews of tomorrow.

While the implementation of the Maritime Labour Convention (MLC) as a minimum standard is a significant step forward in rooting out the unacceptable employment and living conditions that have persisted, there is more that can be done to raise standards towards the modern workplace on a global basis. In the first instance there are the non-mandatory Part B provisions of the MLC that can be implemented by owners and operators to go beyond the minimum. There are also other initiatives covering on-board facilities or welfare for seafarers and their dependents being trialled by leading companies that value

“ Although there is an increase in the adoption of clean technology and alternative fuels, uptake is not quick enough.



Photo: Wikimedia Commons



Photo: www.pexels.com

their staff and seek to ensure that they are employers of choice.

Encouraging sustainable decisions

Although there is an increase in the adoption of clean technology and alternative fuels, uptake is not quick enough. This is despite current and impending environmental regulations, and the requirement to increase operational efficiencies, and reduce fuel burn and associated costs.

There are a number of reasons for this: A lack of capital to invest, a general scepticism of the efficiency benefits that clean technology manufacturers claim, the volatile fuel price affecting payback and finally, the issue of the split incentive, a specific area where the SSI has been focusing its attention. The split incentive is where the person who reaps the rewards when a technology is retrofitted is not the same person who made the retrofit investment. The ship-owners are typically responsible for upgrading their vessels; however, it is the charterer, paying for the fuel, who frequently benefits from the fuel savings. Ideally, both parties should benefit, but in a market of short-term time charters this becomes increasingly complex.

To help alleviate this challenge, the SSI's finance and technology Working Groups collaborated to develop the Save As You Sail (SAYS) financial model, which owners, charterers and financiers can use to model returns on investment and profits from more efficient vessels. Using SAYS, an owner and charterer can identify the estimated fuel cost savings and return over investment associated with different upgrade options. The loan, which the owner can access through SSI member ABN AMRO, is paid back over an agreed period,

and if the first charter is shorter than the loan, SAYS enables changes to charterers during the financing period.

Shifting to responsible fuel sources

In the past two decades, global trade has expanded rapidly, partly due to the availability of cheap fossil fuels. Yet, this cannot continue forever; stagnating supply, an enormous increase in demand and rising concerns about global warming have already begun to shape the energy landscape. Over the next thirty years, bunker fuel use will need to change dramatically, especially with the introduction of the global sulphur cap, which will require vessels to burn fuel with a sulphur content of less than 0.5% by 2020. This will transform the marine fuel supply chain, presenting a number of challenges, including a significant shortage of low sulphur distillate products to match demand. The question is no longer if we will need to switch to a post-oil model, but when. The SSI's vision for 2040 pushes the industry to achieve an 80% CO₂ reduction per tonne/mile, and to be prepared to use a diverse range of sustainable fuel types.

Fortunately, efficient and sustainable alternatives to fossil fuel are becoming more readily available, and there has been a moderate uptake in the use of Liquefied Natural Gas (LNG), although there needs to be significant development in the global LNG bunkering infrastructure to drive increased uptake over the next 15 years. However, this is only one stepping stone and the reality is that a range of propulsion solutions will need to be found. Switching to more sustainable fuels presents one of the biggest challenges to sustainable shipping.

If action is taken now, the shipping industry has time to adapt to the energy landscape of the future. But if it is delayed, the industry is in danger of having to rush changes or risk stagnation. Those who engage in a planned transition to an efficient, non-fossil-fuelled fleet have the potential to seize competitive advantage through any supply crisis with minimal impact on their business.

Transparency needed

The theme of transparency stretches across several of the critical pillars of the SSI's vision. Increasing the transparency of social and environmental business impacts is a growing global trend, and sees end customers expecting high standards across a supplier's whole supply chain. This means that more than ever, shipping businesses need to take steps to collect and report data to demonstrate their environmental, safety and social performance in clear, standard and comparable formats.

Transparency is also already being used by some as a tool to drive business decisions, commercial shipping decisions will increasingly be based on beyond-compliance sustainability rating schemes, and these credible sustainability rating schemes will be in place for all ship types, benefitting both the bottom line and the environment.

In summary it is undeniable that the shipping industry faces many challenges to its sustainability, from financial pressures to social and environmental considerations. Yet there are some existing solutions to the early obstacles. With innovation, investment and collaboration, the industry will be in a position to overcome each hurdle and be truly sustainable by 2040. But action needs to be taken now. The longer we wait, the larger the challenges grow. ■



Wind-assisted ship propulsion captures energy and attention

Set rotors!

Photos: Norsepower

by **Tuomas Riski**, *Norsepower's CEO*



Norsepower Ot Ltd is a Finnish clean technology and engineering company, founded in Helsinki back in November 2012. Since then, Norsepower has been developing its Rotor Sail Solution. Most recently, the company's technology received the Electric & Hybrid Marine Awards 2016: Innovation of the Year Award. For further information on the company and its Rotor Sail Solution please visit www.norsepower.com/rotor-sail-solution

As pressure mounts on ship-owners and operators to demonstrate lower energy consumption and reduce greenhouse gas emissions, technologies such as wind-assisted propulsion – that have been proven to reduce fuel consumption, costs, and CO₂ emissions – have re-emerged and captured the shipping industry's attention. Relying on devices such as a wingsail, kite, soft sail, or Flettner rotor, this technology harnesses the energy of the wind in order to generate forward thrust.

Though it has roots dating back to antiquity, wind-assisted propulsion with modern technology applied has garnered a significant amount of attention in recent years, triggered by new interpretations of the ultimate clean energy of good ol' wind. The focus is well justified: Wind-assisted propulsion is viable as the gusts captured provide a renewable power alternative that is clean, abundant, and 100% carbon neutral.

Re-discovering wind

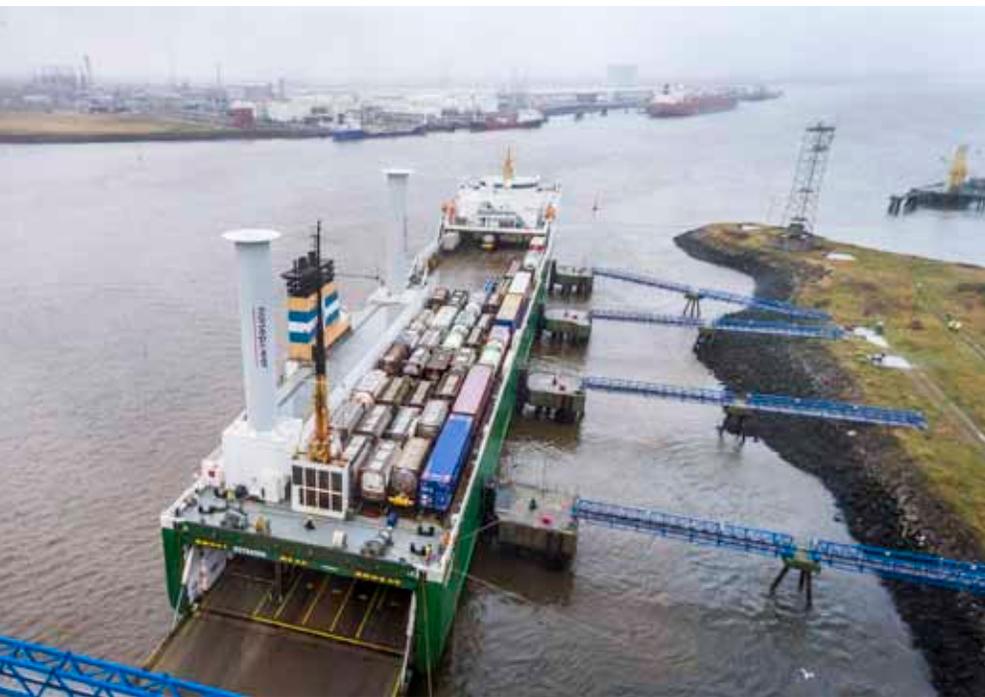
According to the *Third IMO Greenhouse Gas Study 2014*, there are significant latent efficiencies locked within the shipping sector. Consequently, there is huge potential to increase efficiency and profitability by utilising retrofits in conjunction with operational efficiency measures. As such, the Finnish company Norsepower has picked up this eco-challenge, and is currently paving the way with the commercial application of wind-assisted technology in shipping by offering the first data-verified, low-maintenance, and software operated auxiliary wind propulsion.

The Norsepower Rotor Sail Solution is a modernised version of the Flettner rotor – a spinning cylinder that uses the so-called Magnus effect to harness wind power to propel a ship forward. In layman's terms, a

Flettner rotor is able to harness wind power to propel a ship due to the pressure difference between the sides of the rotor, which generates forward thrust. Once captured, the wind energy is converted to supplement and complement the ship's traditional propulsion system. In everyday life, the Magnus effect can also be observed in sports such as cricket (spin bowling), tennis (top spin), and football (curling free kicks).

Given the increased level of analysis understandably required for new technologies, Norsepower has gathered independent robust data to support its fuel and emissions reduction claims. The first commercial application of our technology is installed aboard Bore's 9,700 dwt ro-ro ship *Estraden*. The vessel was fitted with two of Norsepower's smaller Rotor Sails which produce wind-assisted propulsion, and have been proven to reduce fuel consumption by 6.1% – equating to approx. 400 tonnes per year in reduced fuel, and roughly USD 180,000 annually in reduced fuel costs. This fuel consumption saving has been measured and independently verified by NAPA, one of the top maritime data analysis, software, and service providers. The figures suggested that fuel savings of up to 20% per year will be achievable on routes with favourable wind flows and full-size Rotor Sails.

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The vessel was fitted with two of Norsepower's smaller Rotor Sails which produce wind-assisted propulsion, and have been proven to reduce fuel consumption by 6.1% – equating to approx. 400 tonnes per year in reduced fuel, and roughly USD 180,000 annually in reduced fuel costs.”



It suits a ship well

The technology is a simple, robust, and hi-tech, yet low maintenance solution. Each Rotor Sail is made using the latest intelligent lightweight composite sandwich materials, which ensure the Rotor Sail remains well-balanced. Norsepower Rotor Sails are particularly suited for medium to very large tankers, bulk carriers, cruise, ferry, ro-ro, and ro-pax vessels. The rotors can be used with new vessels, or can be retrofitted on existing ships or on newbuilds, without off-hire costs. The solution is typically delivered as a complete turn-key solution that includes delivery,

installation, and maintenance of the hardware and software components. The sails are available in three different heights (18, 24 or 30 metres) with the main requirements for installation being deck space and electrical connections to the ship. It is also worth noting that the Rotor Sails, if needed, can be tailored to a vessel.

In addition, Norsepower's Rotor Sail Solution is fully automated and senses whenever the wind is strong enough to deliver fuel savings, at which point the Rotor Sails start automatically, hence minimising crew time, training, and resources. Norsepower's Rotor Sails allow the main engines to be throttled back, saving fuel and reducing emissions, while at the same time providing the power needed to maintain speed and voyage time. Because it generates supplementary renewable energy, the solution is compatible with all other fuel and emissions saving technologies.

Technology as a service

In today's market, sluggish freight rates, continued weak commodity markets, and sustained low bunker prices, have resulted in diminished demand for new eco-efficiency technologies. Conversely, the challenge remains for ship-owners and operators to continue reducing their fuel burn, thus bunker costs, a happy by-product of which are lower emissions, including SO_x, NO_x, and CO₂. And, with many ship-owners and operators viewing perceived "non-core" capital expenditure as a calculated risk, fresh-thinking is required to get beyond this sentiment, and to share and mitigate the risk to ship-owners, charterers, and financiers.

Norsepower views "paying" for the technology as an old way of thinking. It relies on the idea of fuel savings technology being sold as a product; charging the fuel payer for initial outlay and installation. As such, Norsepower has introduced "Technology as a Service," which is similar to other initiatives gaining traction in the industry. Rather than pay for a technology up front and install it on a vessel, costs are billed monthly at a subsidised fee based on

“ Norsepower views “paying” for the technology as an old way of thinking. The company has introduced “Technology as a Service,” – rather than pay for a technology up front and install it on a vessel, costs are billed monthly at a subsidised fee based on the achieved fuel savings.

the achieved fuel savings. This reduces the barriers to entry, and provides the added benefits of a service agreement rather than a one-off purchase.

For interested owners or charterers, "Technology as a Service" guarantees that the owner will not pay for the technology unless it delivers pre-agreed fuel savings in commercial operation. Gains are verified by a third party measurement and verification software provider like NAPA or BMT. In order to achieve this, the technology company needs to demonstrate consistent savings based upon robust data over a sustained period.

As Norsepower continues to expand commercially, the company will be able to develop larger Rotor Sails which will deliver more fuel savings for the operators and owners that pay for the fuel. Since the technology has more than proved its worth, Norsepower now encourages the shipping industry to use lateral financial thinking to embrace it.

As the world shifts to a low carbon economy, the shipping industry must play its part in cutting harmful emissions. This will mean abandoning current high polluting fuels and taking a proactive step towards switching to new, more eco-friendly alternatives. And with wind-assisted propulsion being one of the few technologies potentially offering double-digit fuel savings, it presents a realistic option for introducing renewable power into shipping by reducing the required propulsion power on a macro scale.

With high fuel costs, forthcoming new environmental regulations, as well as the development of material and automation technologies – it's time to capture clean energy and recapture imagination. ■



Case Study

The Port of Barcelona's Air Quality Improvement Plan

Photos: Port of Barcelona/Ramon Vilalta

by **Jordi Vila**, *Environment Chief at the Port of Barcelona*



Jordi Vila has been working at the Port of Barcelona for many years. In the past he i.a. independently worked as Consultant, and at MED GROUP INVERSIONES as Responsible for Environment and CSR.

Recently, the Port of Barcelona launched a special strategy aimed at reducing negative emissions. The document involves 25 actions rolled out across 53 operations, the main conclusion being the use of Liquefied Natural Gas (LNG) as an alternative fuel, as well as an ambitious environmental policy.

According to a study conducted by Barcelona Regional, a public agency responsible for urban growth, port activity is responsible for 7.6% of the average annual concentrations of NO_x in the city, and for 1.5% of particulate matter. Container ships, on the other hand, are responsible for 1.7% of the annual average concentration of NO_x in the Catalan

capital, with other cargo ships representing 2.0%, ferries – 1.4% and cruise ships – 1.2%. Regarding particulate matter, the contribution port activities make to total concentration in the city (estimated at 1.5%) is split into 0.38% for container ships, 0.48% for other cargo ships, 0.23% for cruise ships, and 0.28% for ferries, among others.

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Port activity is responsible for 7.6% of the average annual concentrations of NO_x in the city, and for 1.5% of particulate matter. Container ships, on the other hand, are responsible for 1.7% of the annual average concentration of NO_x in the Catalan capital, with other cargo ships representing 2.0%, ferries – 1.4% and cruise ships – 1.2%.”



In order to lower this contribution, we target promoting LNG as an alternative fuel both for road freight transport and terminal machinery, and putting in place a discount policy for cleaner ships. We are also replacing the whole port's vehicles corporate fleet with electric units. I can see it myself that for over the last two decades Barcelona has been leading the way on environmental issues, and we are firmly committed to continuing this role. We are fully aware that our responsibility as a public company is to lead the change towards a more sustainable model.

Experienced with environmental issues

Since 1996, the Port of Barcelona has been playing a pioneering role in promoting eco-friendly actions. And so we've been advancing the use of rail and short sea shipping, environmental controls of all construction works, as well as creating an air quality monitoring network in the port environment (the first and most comprehensive in the Spanish port system), regulating handlings of solid bulk, and monitoring the emissions.

making further investments in rail transport and short sea shipping, and supporting sustainable mobility.

LNG as a fuel for mobility

Since the use of LNG cuts NO_x by approx. 80%, and completely stops particulate and sulphur oxide emissions, its promotion as an alternative fuel for ships, terminal machinery, and trucks is one of the highlights of our scheme. In addition, new legislation on greenhouse gas is increasingly restrictive, and the maritime industry is turning to LNG as a future fuel for powering an increasing number of vessels that will enter into service in the coming years.

This action consists of various operations, such as providing the necessary supply infrastructure (fuelling vessels with LNG requires the installation of a flexible cryogenic loading arm at the Enagás terminal to supply a barge and small boats, plus adapting a barge to bunker larger vessels with LNG), as well as developing

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The policy of environmental discounts on ships' fees is one of the most innovative aspects of the plan, since it is a fundamental instrument for bringing change to the vessels.

the conversion of two diesel straddle-carriers to LNG. The terminals of BEST (Hutchison) and APM are carrying out the pilot project, and if the results are satisfactory, the straddle-carrier fleet of both facilities will be renewed progressively.

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Finally, we're planning a complete renewal of the corporate vehicles, which will progressively be replaced by electrical units. The aim is that by 2020 all of our vehicles will be electric.

Discounts for cleaner ships

The policy of environmental discounts on ships' fees is one of the most innovative aspects of the plan, since it is a fundamental instrument for bringing change to the vessels. The problem is that at present the law allows a maximum eco-discount of 5% on ships' fees, which is a very small margin for building an ambitious environmental strategy.

Therefore, the Port of Barcelona has asked the Ministry to amend the Ports Law in order to implement environmental discounts of up to 40% on ships' fees, just like the ports of Northern Europe (Rotterdam, Hamburg, Antwerp). With these new regulations, the Port of Barcelona aims at more effectively attracting cleaner ferries, as well as cruise and cargo ships. Furthermore, the past six years we have also been lobbying in various international bodies, urging the International Maritime Organization (IMO) to be more ambitious in regulating vessels' emissions.

Finally, we're planning a complete renewal of the corporate vehicles, which will progressively be replaced by electrical units. The aim is that by 2020 all of our vehicles will be electric. This measure will be accompanied by rolling out electrical connection infrastructure to the parking areas, car parks and public spaces of the port precinct.

Driven by our past achievements, we hope that any potential future successes will make Barcelona's environment cleaner on the one hand, and reduce the costs of running the port business on the other. It is our firm belief that these two can – and should go hand-in-hand. ■



In a more recent perspective, we have developed the Air Quality Improvement Plan, as part of two more far-reaching programmes coined by the Catalan Government, Generalitat de Catalunya (2015-2020 Air Quality Improvement Plan for the Metropolitan Region), and Barcelona City Council (2015-2018 Air Quality Improvement Plan for Barcelona). This document proposes a wide range of areas for improvement: Reducing emissions from ships, trucks, and terminals' machinery,

pilot and demonstration projects. Both initiatives are already under way, and have received EU funding, since they are part of the CORE LNGas hive project run by the European Union.

Speaking of examples, one is especially worth mentioning, namely adding an auxiliary gas engine to Balearia's ferry *Abe/ Matutes*, and constructing a gas generator on the quay to replace auxiliary engines of ro-ro vessels by providing them with electrical energy from land. We are also testing



Tallinn's digitalization and environmental protection

Photos: Port of Tallinn

by **Valdo Kalm**, *Chairman of the Management Board* and **Ellen Kaasik**, *Head of Quality and Environmental Management, the Port of Tallinn*



Valdo, a graduate from the Automatics and Telemechanics Department of Tallinn University of Technology, started his career as a Maintenance Specialist of the Tallinn Telephone Network, where he later became Administrative and Sales Director. In 1997, Valdo became a Member of the Management Board of Eesti Telefon. Since 2000, Valdo has chaired numerous management boards – at Elion, EMT, and most recently at Eesti Telekom.

Our seaport, situated on the southern shore of the Gulf of Finland, is one of Europe's busiest passenger and commercial ports, surrounded by large residential communities. It enjoys a favourable location for passengers and cargo, but on the other hand it must constantly focus on its ecological footprint, as well as on the effects port activities have on local citizens. New technologies and solutions are of great help in this matter.

The digital revolution has changed our everyday lives, creating new possibilities for individuals and businesses. For instance, process digitalization and quick development of smart devices, not to mention mobile connections available virtually everywhere, make many everyday activities more convenient, improve availability of public services and – which is very important

in our view – create necessary conditions for significant simplifications of processes, which in turn lead to efficiency increases.

Also money-saving innovations

With the use of bigger vessels and by employing innovative solutions and an eco-friendly way of thinking, the shipping sector reaches better efficiency indicators all over



Ellen, a long-standing environmental manager at the Port of Tallinn, is also involved in the works of Baltic Ports Organization's Environmental Working Group.





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With the use of bigger vessels and by employing innovative solutions and an eco-friendly way of thinking, the shipping sector reaches better efficiency indicators all over the world. All of this particularly applies to the Baltic Sea region.

the world. All of this particularly applies to the Baltic Sea region. Together with our partners, the Port of Tallinn has taken a number of initiatives aimed at using digital and smart solutions to minimize time expenditure of passengers and shippers, significantly reducing traffic loads created by trucks (and thus axe down air pollution), as well as eliminate unnecessary bureaucracy from processing of logistics data along with data duplication.

As such, we're aiming at becoming the region's most innovative seaport which offers the best possible framework for its customers. With this goal in mind, we plan to develop

a simple service environment for passengers, as well as for operators, shippers, freight forwarders, and anyone else working in the port which is free of any technical and bureaucratic obstacles and unnecessary procedures. The closer our processes get to “once-only” entering of data, the more efficient and competitive our business becomes.

The Smart Port

Besides the Old Port's infrastructure renovation, which by the way demonstrates record passenger numbers every year, and new traffic solutions, we have launched the

Smart Port project, the main goal of which is to offer passengers travelling with and without vehicles, as well as shippers, a better user experience. Its main components include a simple check-in and shorter waiting times thanks to minimizing wasted time and efficiently managing vehicles and trucks.

In order to test the pilot project of the Smart Port development we launched a solution allowing to avoid accumulation of vehicles in the port. Currently, vehicles bound on ships usually first have to park in the port, and simultaneous boarding inevitably results in traffic jams. When the real-time waiting line system is implemented, trucks will stop on the outskirts of Tallinn and will then be directed by the system onto vessels, which allows shortening waiting times and reducing traffic load, thus also minimizing air pollution. The parties involved in the project include the port itself, numerous shipping



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Today the maritime information on vessels, cargo, and passengers is readily available. Yet, the shared information on processing of goods, as well as rail & road transportation is lacking or not present at all.

It means that, for instance, operational data on movement of cargo in terminals and movement of railcars today is still largely communicated by telephone or e-mail, thus duplicating the already existing data.

companies, road carriers, the City of Tallinn, as well as the Customs Office.

“X-Road” for logistics – the Single Window solution

Another and even more ambitious long-term initiative is the digitalization of logistics data, as well as agreeing on exchange standards common to all members of the logistics sector’s value chain, all in order to minimize unnecessary bureaucracy and ensure significant financial savings.

Just like in any other field of activity, all parties of the Estonian logistics sector have been transferring their day-to-day activities to digital platforms as much as possible. Agencies and businesses already have well-functioning digital solutions. The bottleneck, however, being the places of interconnection between such systems. The solution here is a core digital infrastructure similar to the X-Road state information system exchange

layer designed specifically for the logistics sector.

Today the maritime information on vessels, cargo, and passengers is readily available. Yet, the shared information on processing of goods, as well as rail & road transportation is lacking or not present at all. It means that, for instance, operational data on the movement of cargo in terminals and movement of railcars today is still largely communicated by telephone or e-mail, thus duplicating the already existing data.

In the digital age, when we are accustomed to buying electronics or consumer goods online from overseas or booking a ride home from a restaurant with a single click, duplication of data is, at best, annoying. In the bigger picture, however, such duplication weakens the competitiveness of the Estonian economy as a whole.

As a result, on January 30th, 2017, the Port of Tallinn along with leading logistics, freight forwarding and transit companies, professional associations, universities, and the Ministry of Economics and Communications signed the Single Window agreement to transfer the logistics and transportation sector to paperless and secure information and document exchange in the coming years.

Tallinn eco-changed

The Old City Harbour of Tallinn has for several years in a row enjoyed traffic increases; with 5,600 ships visiting the port last year and serving a total of 10.2 mln of passengers.

A big eco-investment has already been up-and-running since then, namely a new

micro-tunnel, constructed in the Old City Harbour, allowing ferry and cruise ships to discharge all of their sewage at the port. For this EU co-financed project, which contributes to the cleanliness of the Gulf of Finland’s ecosystem, the Port of Tallinn was honoured with the Environmental Initiative Award by Seatrade Cruise Awards. Construction of the micro-tunnel is also an important step in light of the International Maritime Organisation’s (IMO) Maritime Environmental Protection Committee decision to ban all passenger ship sewage discharges into the Baltic Sea from 2021.

Another notable environmental initiative of 2016 was the installation of the innovative e-Nose system in commercial Muuga Harbour which helps to detect anomalies in air composition, which are caused by the presence of reactive trace gases in the environment. In cooperation with operators, and environmental governmental agencies, a total of 21 scent sensors together with four wind sensors were installed, which help to monitor the chemical composition and spread of particles in real-time on a dedicated web-based graphical interface. The system works as an early warning system for terminal operators, thus providing them with a chance to reduce the risk of odour nuisance in the port area and, more importantly, in nearby residential communities.

In addition to these particular measures aimed at waste management and air quality measurement, the Port of Tallinn is actively looking for opportunities provided to consumers, and businesses by our so-called “Era of Smart.” Currently, there are two initiatives in the pipeline that would – if completed – directly have a positive ecological effect.

Under the umbrella of “Smart Port” a beta-test is being carried out for a project that aims to reduce heavy truck traffic clogs in the Old City Port. By streamlining the check-in and loading procedures through a smartphone-based queue system, the traffic intensity and thus also CO₂ emissions into the urban environment would decrease considerably.

In recent decades, global maritime industry has seen enormous development when it comes to environmental concerns. Maritime companies in all countries, and this is especially true around the Baltic Sea, must focus hard on finding the most suitable business models that foster development and at the same time help to preserve our sea’s fragile ecosystem. Together with our domestic and international partners, we at the Port of Tallinn are committed to explore and pursue every nook and cranny to help further such goal. ■



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