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red-hot port matters

Photo: Pexels

Kongsberg to tech-furnish OHT's first heavy lift vessel

The Norwegian marine tech supply company has won a \$13m-worth contract to deliver a technology suite and an electro package for a semi-submersible offshore windfarm foundation installation vessel. The delivery will include dynamic positioning, navigation, thruster control, and automation systems, all with inbuilt measures to improve functionality and safety, as well as battery hybrid power and energy management systems. The 216.3 m-long, 48k dwt ship, to be equipped with a 3.0kt of lifting capacity crane and feature a 10k m²-big open deck, will be capable of transporting and installing up to 10x1,500t jacket foundations or 11x2,000t monopiles (plus transition pieces). The ship, a customised **Ulstein Design & Solutions** blueprint, is currently under construction by **China Merchants Heavy Industry (CMHI)** and is scheduled to enter service in 2021. Once online, it will mark the entry of the Norway-based **Offshore Heavy Transport (OHT)** into the offshore renewables and installation market (OHT's order with CMHI includes an option for three more vessels). "The heavy lift market has always presented a series of very specific challenges, but combining heavy lift crane capacity with a semi-submersible vessel genuinely represents a bold step into the offshore working environment of tomorrow. In working with Ulstein to design an innovative transport and installation vessel everyone has had to pull out all the stops, including defining the most efficient marine technology and Kongsberg Maritime has demonstrated that they are in the forefront of delivering a state-of-the-art, integrated solution to meet our needs," **Torgeir E. Ramstad**, CEO, OHT, commented. **Bård Bjørlov**, EVP Sales & Marketing, **Kongsberg Maritime**, added, "The fact that CMHI selected our solution to enable OHT's expansion into the offshore renewables and installation market is a valued endorsement of our approach to the integration of operational and digital technology. We are looking forward to seeing this sophisticated vessel in operation and delivering continued support to ensure that OHT can maximise the potential of the Kongsberg systems on board."

A sulphur sniffer over the Sund

After successful trials carried out together with the **Chalmers University of Technology**, the **Swedish Transport Agency** has installed a sulphur sensing device on the Øresund/Öresund Bridge. The sniffer is used to measure the level of sulphur in ships' exhaust gasses. If the measurement points out to there being a possibility that a vessel is running on a bunker with a sulphur content exceeding the permitted level of 0.1%, a patrol can be dispatched to board the ship in order to take fuel samples for further examination. "The method makes it possible for us to undertake countermeasures against those who break the rules in an easier and faster manner. It means that the checks can be more efficient," **Simon Posluk**, Head of Unit for Sustainable Development, the Swedish Transport Agency, said. He added, "Even though the rules on ship emissions have been sharpened, inspections made by the Swedish Transport Agency, coupled with the measurements from Chalmers, show that 5-10% of ships cheat. It will be harder to do that now." On 3 September, Sweden introduced new penalties against those who violate the sulphur rules. Shipowners and operators will have to pay an environmental sanction fee even if they go over the limit unintentionally or due to negligence. The fee can amount to SEK1.0m (almost 100k) and will depend on the amount of sulphur released and a ship's total engine power.

Cargotec joins Rainmaking's Trade & Transport programme

The Finnish company has become part of an initiative that's aimed at bringing start-ups and corporations together to address the biggest challenges maritime cargo transport and logistics is facing. The London-headquartered **Rainmaking** plans to run its Trade & Transport programme for three years with its main venue located in Hamburg. "The world is changing fast, and the digital disruption is affecting even maritime and logistics industries. In order to keep up with the pace, we want to work together with those who are innovative, nimble, and can act fast. Startups are excellent cooperation partners when tackling inefficiencies and white spots along the value network with modern solutions, technologies and business models," **Tero Hottinen**, Director Emerging Digital Business, **Cargotec**, commented on joining the initiative. He also said, "We have previous experience from activities and ecosystems with different startups. With this programme, we aim to take our efforts to the next level. Together with Rainmaking's world-class experience and capabilities in startup scouting and mentoring, as well as through the collaboration with other industry partners within the programme, we can truly create a joint impact that benefits the future." **Alex Farcet**, Partner and Founder of the Rainmaking start-up accelerator, summed up by saying, "Over the years, we have built proven models and experience in other industries, and we are now bringing this to maritime, cargo transport, and logistics. We are excited to do this with Cargotec, which has a unique position in the global cargo flow chain and needed capabilities and mindset to truly impact the industry change, together with other players in that field."

ABP goes through blockchain with fine-tooth comb

Associated British Ports (ABP) has signed a memorandum of understanding with **Marine Transport International** (MTI) to explore the possibilities of using blockchain in improving port connectivity. "Currently, each party in a supply chain, from shipper to haulier and from port operator to carrier, uses different systems, which do not all talk to each other efficiently," ABP's press release reads. As such, ABP will participate in MTI's blockchain solution in pilot shipments to see whether this technology could offer a way to securely link these disparate ways of working and by bridging the silos to reduce time spent on manually re-entering data, hence ensuring a single version of the truth. "We handle almost 100 million tonnes of cargo across all sectors every year so we are a significant gateway for our customers' supply chains," **Jens Skibsted Nielsen**, Commercial Director, ABP, underlined. "This MOU with MTI is a demonstration of our commitment to technical innovation and finding new ways to improve the UK's supply chains," he also said. To this **Ron Crean**, Group Head of Marketing, ABP, and leader of the project in question, added, "Our aim is to support our customers in achieving frictionless trade. Based on the results from our previous proof of concept project, we are now looking at ways to deploy enterprise-level solutions that can deliver trust, security and speed." **Jody Cleworth**, Founder and CEO, MTI, also commented, "Blockchain is the buzzword of the logistics industry at the moment. Yet some of the projects making a big splash are blockchain in name only." He then furthered, "Blockchain-enabled technology has the potential to provide a transparent, secure and accurate way of capturing and sharing data with key parties, but for MTI the critical part is interoperability – it has to be able to openly connect with existing systems. The logistics industry is awash with proprietary technology that forces users to work in a certain way – with blockchain, we can connect all those systems to ensure data is accurately and quickly shared, helping speed-up and simplify the flow of trade in and out of the UK."

HHLA handles the world's largest ship propeller in Hamburg

The company's floating crane *HHLA IV*, able to lift up to 200t, has been used to transport the 110t-heavy object on-board the *Hyundai Supreme* container ship. The 10.5 m in diameter propeller was manufactured by **Mecklenburger Metallguss** at its site in Waren an der Müritz, located in the state of Mecklenburg-Western Pomerania. It was transported to Hamburg by road and stored at the Hachmannkai quay close to the **HHLA Container Terminal Tollerort**. The propeller was then moved by the *HHLA IV* onto its platform and brought to the **Waltershof Harbour**, where it was finally, centimetre by centimetre, stowed in *Hyundai Supreme's* hold. The propeller is currently on its way to the **Port of Busan** in South Korea. Once there, it will be transported to the shipyard of the **Daewoo Shipbuilding & Marine Engineering** and fitted into one of **MSC's** 23,000 TEU-big newbuilds.

Barcelona unveils PierNext

The Catalan port has launched its digital knowledge hub aimed at providing information on the technological and digital transformation of the port sector. With **PierNext**, part of the port's Digital Port project, Barcelona also wants to stimulate a global debate on the future of international trade and the role logistics and ports will play in shaping it, i.e., with the use of disruptive products and services. "Innovation & the digital revolution that is transforming our sector will be one of the axes defining the strategy of the Port of Barcelona in the years to come. Through PierNext, the Port of Barcelona aims to enrich Barcelona's innovation cluster with its specialised view of the port and logistics sector, which we consider to be full of opportunities and potentialities, mainly for start-ups and SMEs," **Mercè Conesa**, President, and **Carles Rúa**, Strategic Projects and Innovation Chief, the **Port of Barcelona**, said. The platform will be updated on a weekly basis with reports, videos, infographics, and other materials. "PierNext contains seven sections, which correspond to the six main elements of the smart port model (logistics, mobility, economy, environment, people and governance) and one more (technology), which we have added because of its cross-cutting nature and to highlight innovations with a significant technological or digital component," Rúa, explained. According to the port authority, Barcelona is the fourth European city in terms of capital investment in start-ups (58% of all money invested in Spain) and ranks third among entrepreneurs looking to found a start-up. "From the Port of Barcelona we want to add and to contribute to this. We aim to explain how the great digital revolution in our sector is happening, but we also want to show all the possibilities that this transformation can offer, both in terms of attracting investment and talent," Conesa added to this. "At the Port of Barcelona we have always defended an open and collaborative innovation model. This is shown by the initiatives we have undertaken to boost entrepreneurship and find innovative solutions to the challenges facing the sector; initiatives such as **Port Innova – Barcelona Port Hackathon** or the **Port Challenge Barcelona**. In the same vein, we want to make PierNext an open platform for all people and organisations interested in contributing and sharing ideas," Rúa summed up.

Gävle to have an automated warehouse for paper rolls

The Swedish port is investing in what will most probably be the world's first automated high bay storage for paper rolls, to be erected just next to the existing container terminal. The 25 m-high and 10k m²-big facility will be fed with trains, which, in turn, will be handled by an automated overhead crane that will stack the rolls inside the warehouse. There will be also a network of horizontal conveyors that will automatically transport the rolls into containers. The warehouse's annual handling capacity will amount to 0.5mt. Once the facility comes online, it will be rented for a period of 30 years to **Yilport**, a Turkish stevedore whose Nordic branch has been since mid-2016 running all the cargo operations in the Gävle port. "It's yet another investment that strengthens the port's competitiveness and will be of great importance to the region's paper industry. The port's volumes have increased significantly and at the time when the container terminal is going to increase its capacity twofold we're taking an important step towards continued strong development," **Fredrik Svanbom**, Managing Director, the **Port of Gävle**, said. **Håkan Bergström**, Marketing Manager, **Yilport Nordics**, added, "The very positive cooperation with the Port of Gävle is what has enabled this important and completely unique investment. Together we're meeting the demand of the extremely strong Swedish paper industry with the most effective solution there is."

Hamburg can go ahead with adjusting the Elbe

The third supplementary planning procedure for fairway adjustment on the Outer and Lower Elbe has been completed. The extra procedure was requested by the Federal Administrative Court and was mainly concerned with the Billwerder Island Tidal Connection project. Specifically, the Court saw the need for an additional coherence protection measure in line with the European conservation law for a unique type of plant, the hemlock water dropwort. Following the resolution, the legal preliminaries are now in place, enabling the construction works to start. However, the **Port of Hamburg's** press release reads, the Court's decision can still be challenged; this would require attempting to lodge an appeal with the Federal Administrative Court. Nevertheless, the Port of Hamburg together with the City and the State of Hamburg are looking forward to adjusting the Elbe River to meet the needs of modern container shipping. **Axel Mattern** and **Ingo Egloff**, Joint CEOs, the **Port of Hamburg Marketing**, said, "This is very good news for our trading and shipping customers worldwide and for the whole Hamburg Metropolitan Region. We have waited a long time for today and are now hoping for rapid implementation." Thanks to the fairway adjustment, ocean-going ships will be able to leave Hamburg with a draft of 13.5 m irrespective of the tide and one metre more using the flood tide. As such, container ships will be able to transport around 1,800 more TEUs. The 'passing box' downstream from Hamburg will make the Elbe navigable for mega ships in both directions without the existing restrictions. **Dr. Peter Tschentscher**, First Mayor of Hamburg, also commented, "For Germany's foreign trade, the Port of Hamburg is its gateway to the world. It is an important hub for global goods flows and contributes greatly to Hamburg's economic strength. With today's supplementary planning decision, we have full legal planning approval for the adjustment of the fairway that will make the Port of Hamburg considerably more competitive internationally." **Senator Frank Horch** summed up, "Since February 2017, we have worked intensively on eliminating the Court's final reservations. The results of this work are to be found in the resolution issued today. We now have planning permission: We will begin with explosive ordnance and preliminary construction measures in the next few days. All tendering has already been completed. The partner companies can be engaged to start work immediately."

Antwerp Gateway goes wireless

British Telecommunications (BT) has deployed a wireless backbone network at **DP World's** container terminal located in the **Port of Antwerp** with the use of **Rajant's** Kinetic Mesh technology. The network has been designed to provide always-on, real-time, secure, and resilient connectivity for not only the 900 people working at **Antwerp Gateway** but also the growing demands of connected devices. These, in turn, will help **DP World Antwerp** to analyse and optimise processes and operations, such as the movement of vehicles around the terminal. According to BT, the network dynamically adapts to accommodate connectivity for moving vehicles and overcomes obstacles within an ever-changing environment, including the presence of containers or large ships. It also complies with radio frequency and industrial regulations governing use of wireless on the site. "The container industry and the global supply chain are undergoing huge changes enabled by digital technology. BT understands this and is helping us innovate to build on our success. Working together, we have successfully completed a wireless backbone solution that creates an infrastructure for future IoT deployments, opening up the possibilities of automation and artificial intelligence. It is our backbone for growth," **Patrick Putman**, Chief Information & Innovation Officer, DP World, said. **Chet Patel**, Global Transformation Officer & President Continental Europe, Global Services, BT, added to this, "Deploying an innovative wireless backbone in such a complex and dynamic industrial environment, which operates non-stop, 24 hours-a-day, 365 days-a-year, demands detailed planning and precise execution. The success of the Antwerp Gateway wireless backbone solution is due not only to the technical expertise of the project team but also their in-depth knowledge of how major container terminals operate. This is a great example of how BT can innovate with customers and technology partners to create solutions that transform business."

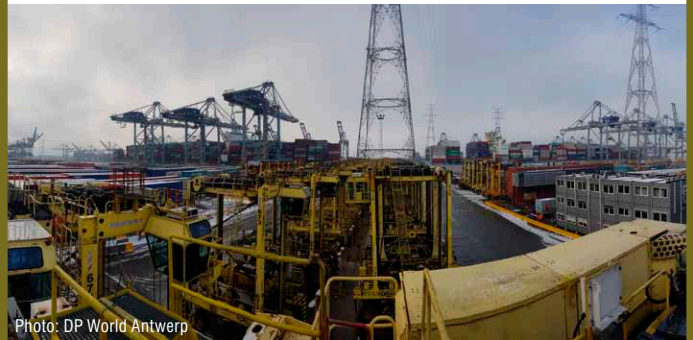


Photo: DP World Antwerp

Grangemouth's new STS arrives

The heavy load carrier **Eemslift Ellen** has transported all the sections of a brand-new **Liebherr** ship-to-shore (STS) gantry to **Forth Ports' Grangemouth**. The STS, designed and built in Liebherr's facility in Killarney, South West Ireland, will be now assembled by the expert build team from Liebherr on site at the port. The 45 m-high and 524t-heavy gantry is to be ready to lift its first cargo by late October. Once online, it will be able to take care of container ships up to 14 box rows-wide. "This is an exciting time for the port as we welcome our new ship-to-shore crane. We handle some of Scotland's most valuable exports, such as fine foods and drinks, so it is important that we deliver fast turnaround times to maintain the vessel schedules and ensure their reliability to service the Scottish export market. The new crane adds to our fleet of Liebherr ship-to-shore cranes and will provide consistency for the operations and engineering team. The Liebherr team will build the crane like a giant Meccano set over the coming weeks and we look forward to its introduction to our operations for the benefit of our customers in the autumn," **Derek Knox**, Port Manager, the **Port of Grangemouth**, commented. **Gerry Bunyan**, Sales and Marketing Manager, **Liebherr Container Cranes**, added, "In 2006 the Port of Grangemouth received its first Liebherr ship-to-shore container crane, a second followed the year after. Since that time, the cranes have been key components in the port's success. We are thrilled to be able to continue our partnership and supply a third container crane to the port. It is particularly satisfying when a customer recognises the value that a Liebherr container crane can bring to their operation. We look forward to watching this crane help to increase further the business at Scotland's leading container port." Earlier this year, the Port of Grangemouth installed a new terminal operating system as well as put in place additional storage capacity. By end-December, a new 100k sq ft-big warehouse is to be completed as well.

Antwerp to have a new tank farm

Mol Chemical Tankers and **SEA-Invest** will spend some €300-400m on setting up a brand-new tank storage terminal for liquid chemicals in the **Port of Antwerp**. The two parties have created a joint venture, **Sea-Mol** that will take care of the investment, which is expected to create 100 direct jobs. The terminal will be erected on 45 ha-big plot in the **Delwaide Dock** part of the Belgian port. "This investment is a further confirmation of our port's ability to attract major investors. It will also boost our position as one of the largest chemical clusters in the world. This is very good news for the port, and for our economy," **Jacques Vandermeiren**, CEO, the Antwerp Port Authority, commented.



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Samskip's new Antwerp-Hull container service

The new link, served by a 508 TEU-big vessel, will kick off in Antwerp on 12 October, with the arrival in Hull expected two days later. Initially, the service will run two times per week, sailing from Antwerp's **Associated Terminal Operators'** (ATO) terminal on Tuesdays and Saturdays and from **Associated British Ports'** (ABP) **Port of Hull** every Thursday and Monday. "We are excited at the prospect of offering a new solution that can meet the requirements of the local and hinterland markets in and around Antwerp, especially given the excellent rail and inland waterway links available. With the current Brexit uncertainty, we believe that our spread of dedicated short sea services can offer robust options for companies wanting to de-risk their supply chain in preparing for Brexit," **Richard Beales**, Regional Director, **Samskip UK & Ireland**, commented. **Jacques Vandermeiren**, CEO, the **Port of Antwerp**, also said, "We welcome Samskip to the port of Antwerp and their strategic decision to use Antwerp as the departure point for their new short-sea service to the UK. Mobility in and around the port remains a serious challenge and is therefore one of our strategic priorities to ensure further sustainable growth. To create a modal shift that brings the share of truck transport down, it is crucial to offer efficient alternative means of transport, and shortsea is clearly one of them. Samskip has excellent expertise in this field and this new shortsea service will definitely support us in achieving this goal." **Johan Gemels**, Managing Director, ATO, added to this, "Attracting a major multimodal operator such as Samskip very much aligns with the growth plans of ATO and fits perfectly with our services of handling ships, barges, trucks and trains. We look forward to working in partnership with Samskip to offer a new and competitive option for customers doing business in Antwerp and the UK." **Simon Bird**, **ABP Humber** Director, summarized, "It's fantastic news that Samskip has selected the Port of Hull once again as their premier short-sea departure destination. ABP has continued to drive substantial investments in its Hull Container Terminal, increasing container storage space and acquiring state-of-the-art equipment. We also make continual advancements in training our operational staff to ensure the best possible service and turnaround times for our customers."

DFDS to upgrade its BE-ENG-NO service

The shipping company has announced already today that it will tweak one of its routes next year in February. As part of the upgrade, the 160 TEU-big **Lysbris Seaways** will be replaced by the 1,891 lane metres of cargo capacity **Finlandia Seaways**. Second, the Norwegian **Port of Brevik** will be added to the schedule. The service will load on Friday and Saturday in **Zeebrugge** and **Immingham**, respectively. Unloading is scheduled on Sunday in Brevik. After having called at **Frederikstad** (Monday) and **Halden** (Tuesday), a second export call is scheduled on Tuesday in Brevik before setting sail to Zeebrugge again.

New container service Zeebrugge-Teesport

P&O Ferries, already offering a six sailings/week ro-ro link between the two seaports, has now extended its network with a container service. The 749 TEU-big container ship **Wega** crosses the **Zeebrugge-Teesport** route twice a week.

CLdN new BE-ENG-ES service

The Luxembourg-based ro-ro shipping company is sailing as of mid-September between the ports of **Zeebrugge**, **Santander**, and **Purfleet**. The new service includes two weekly calls at Zeebrugge and Santander, whereas the English Purfleet is included in a loop with Zeebrugge (Zeebrugge-Santander-Zeebrugge-Purfleet-Zeebrugge).

FINNISH PORTS:

50.75mt handled in international trade in H1 2018 (+7.0% yoy)

At the same time, the country's ports made 4.68mt in transit traffic, up by 17.7% on the H1 2017 result.

Finnish ports' international cargo traffic in H1 2018 [tonnes]

No.	Port	Imports	Yoy	Exports	Yoy	Total	Yoy
1	Sköldvik	6,278,219	-0.3%	4,344,603	+5.5%	10,622,822	+2.0%
2	HaminaKotka	2,355,934	+44.8%	5,455,013	+8.0%	7,810,947	+16.9%
3	Helsinki	3,671,572	+6.8%	3,861,364	+14.0%	7,532,936	+10.4%
4	Kokkola	743,946	+5.6%	2,715,814	+8.6%	3,459,760	+7.9%
5	Rauma	800,998	-6.7%	2,086,699	+5.3%	2,887,697	+1.7%
6	Naantali	2,071,112	+12.2%	783,472	-10.1%	2,854,584	+5.1%
7	Hanko	1,055,489	+4.5%	1,308,121	-2.3%	2,363,610	+0.6%
8	Raahe	1,726,506	-5.2%	468,227	+12.3%	2,194,733	-1.9%
9	Pori	756,032	-6.2%	800,048	+34.2%	1,556,080	+11.0%
10	Tornio	809,262	+2.7%	690,778	-3.5%	1,500,040	-0.3%
Top 10		20,269,070	Share of total imports: 84.64%	22,514,139	Share of total exports: 84.00%	42,783,209	Share of total: 84.30%
11	Oulu	738,054	-3.7%	688,661	-3.6%	1,426,715	-3.6%
12	Uusikaupunki	503,093	+28.5%	739,678	+9.3%	1,242,771	+16.3%
13	Turku	516,623	-0.8%	568,608	-8.6%	1,085,231	-5.0%
14	Inkoo Shipping	527,276	-6.7%	473,893	+101%	1,001,169	+25.1%
15	Kemi	319,038	+53.5%	597,394	+4.1%	916,432	+17.3%
16	Pietarsaari	209,764	+90.4%	361,308	+10.8%	571,072	+30.9%
17	Kaskinen	232,368	+29.4%	337,427	+17.2%	569,795	+21.9%
18	Vaasa	295,258	+2.0%	93,996	+0.5%	389,254	+1.6%
19	Kalajoki	57,669	-34.6%	231,967	+56.9%	289,636	+22.7%
20	Eurajoki	113,150	+172%	54,451	+55.0%	167,601	+118%
21	Kantvik	57,157	-53.5%	71,691	+31.3%	128,848	-27.4%
22	Tolkkinen	43,524	+30.2%	27,820	-2.6%	71,344	+15.1%
23	Lappeenranta	48,524	-12.6%	11,601	+68.6%	60,125	-3.6%
24	Joensuu	10,079	-57.1%	13,342	-60.2%	23,421	-58.9%
25	Kristiinankaupunki	–	–	13,481	+230%	13,481	+230%
26	Varkaus	2462	-80.0%	2,339	-60.2%	4,801	-73.6%
27	Kuopio	4554	-33.7%	–	–	4,554	-33.7%
28	Merikarvia	0.0	-100%	–	–	0.0	-100.0%
Total		23,947,663	+5.9%	26,801,796	+8.0%	50,749,459	+7.0%

FINNISH PORTS:

821,084 TEUs handled in H1 2018 (+1.4% yoy)

The container volumes that go through the country's ports are evenly split between imports (+1.5% year-on-year to 412,543 TEUs) and exports (+1.4% yoy to 408,541 TEUs).

Finnish ports' container traffic in H1 2018 [TEU]

No.	Port	Imports	Yoy	Exports	Yoy	Total	Yoy
1	HaminaKotka	167,213	-2.0%	169,336	-2.3%	336,549	-2.1%
2	Helsinki	133,068	+6.6%	127,477	+12.1%	260,545	+9.2%
3	Rauma	67,612	-1.0%	68,503	-2.0%	136,115	-1.5%
4	Hanko	15,562	+9.0%	15,103	+4.6%	30,665	+6.8%
5	Oulu	12,139	+19.1%	12,455	+1.4%	24,594	+9.5%
6	Kokkola	5,958	+16.0%	3,265	-10.8%	9,223	+4.8%
7	Pori	3,790	-29.8%	3,425	-42.4%	7,215	-36.4%
8	Tornio	3,014	-7.1%	4,092	-5.2%	7,106	-6.0%
9	Kemi	3,045	-11.8%	3,266	-20.1%	6,311	-16.3%
10	Turku	587	+23.6%	932	+34.1%	1,519	+29.8%
11	Uusikaupunki	455	+49.7%	544	+6.5%	999	+22.6%
12	Kalajoki	100	— ¹	—	—	100	— ¹
13	Raahe	0	-100%	89	-40.3%	89	-74.9%
14	Vaasa	0	-100%	54	+92.9%	54	+20.0%
Total		412,543	+1.5%	408,541	+1.4%	821,084	+1.4%

¹ No handlings in H1 2017

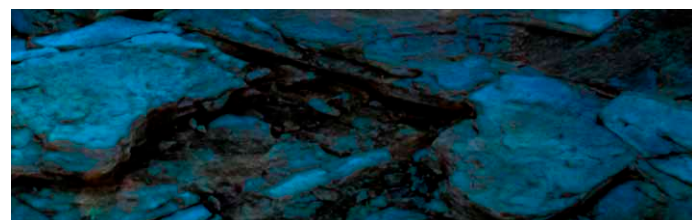
EUROGATE:

3.46m TEUs handled in Q1 2018 (-4.0% yoy)

The performance of the group's container terminals, located in 12 places in Europe and Africa, was mixed over 2018's first quarter, with ups as high as +99.7% year-on-year and downs as deep as -60.4% yoy.

EUROGATE's volumes [TEU]

	Q1 2018	Q1 2018/Q1 2017
Bremerhaven	1,354,545	-0.9%
Gioia Tauro	571,489	-14.1%
Hamburg	384,442	-19.1%
Tangier	335,851	+8.7%
La Spezia	320,110	+2.5%
Wilhelmshaven	159,270	+99.7%
Limassol	88,551	+39.3%
Salerno	84,071	+16.7%
Cagliari	58,732	-60.4%
Ravenna	43,309	-4.2%
Lisbon	38,925	-18.0%
Ust-Luga	21,565	+5.0%
Total	3,460,860	-4.0%



BREMENPORTS:

36.51mt handled in H1 2018 (-0.1% yoy)

While exports rose by 5.2% year-on-year in the reported period up to 18.67mt, imports contracted at the same time by 5.1% yoy down to 17.84mt.

Bremenports' (Bremen & Bremerhaven) volumes

	H1 2018	H1 2018/H1 2017
General cargo		
Containerised	28,463kt	+5.3%
Other	4,297kt	+1.1%
Total	32,760kt	+4.7%
Dry bulk		
Ores, cement, lime, plasters	2,178kt	-12.9%
Metallurgical products	639kt	-41.4%
Coal, lignite	324kt	-40.1%
Grains	151kt	+7.1%
Foodstuff, fodder, oil seeds	50kt	-51.0%
Chemicals	10kt	-33.3%
Total	3,352kt	-23.6%
Liquids		
Oil products	397kt	-54.5%
GRAND TOTAL	36,509kt	-0.1%
Container traffic		
TEU	2,721,111	+0.7%
Finished vehicle logistics		
New cars & other vehicles	1,118,831	-1.4%
Cruise traffic		
Passengers	94,702	+41.5%

THE PORT OF GÄVLE:

49,754 TEUs handled in Q1 2018 (+5% yoy)

Measured in tonnes, the Swedish seaport's containerised freight traffic rose by 10.1% year-on-year in the reported period, to a total of 392kt.

The Port of Gävle's volumes

	Q1 2018	Yoy
Containerised	392kt	+10.1%
Liquids	374kt	-15.4%
Forest products	299kt	+34.7%
Dry bulk	230kt	+0.9%
Iron ore & metal products	15kt	-16.7%
Other	6.0kt	-16.0%
Total, of which	1,316kt	+3.4%
Imports	927kt	+15.4%
Exports	388kt	-17.4%
Container traffic		
TEU	49,754	+5.0%

THE PORT OF LE HAVRE:

1,368,755 TEUs handled in H1 2018 (-3.1% yoy)

Measured in tonnes, the French port's container traffic totalled over 13.67mt in H1 2018, that's 5.5% less than in the corresponding period last year.

The Port of Le Havre's volumes

	H1 2018	H1 2018/H1 2017
Liquids		
Crude oil	11,627.9kt	-12.2%
Oil products	5,769.0kt	+16.3%
Chemicals	892.6kt	+22.1%
Gas	457.5kt	-4.6%
Total	18,747.0kt	-3.5%
General cargo		
Containerised	13,673.7kt	-5.5%
Wheeled (ro-ro)	728.8kt	+4.1%
Other	9.5kt	-12.1%
Total	14,412.1kt	-5.1%
Dry bulk		
Other	400.2kt	-4.6%
Ores, cement, lime, plasters	82.3kt	-0.5%
Coal, lignite	0.0kt	-100%
Total	482.6kt	-57.9%
GRAND TOTAL	33,641.6kt	-5.9%
Container traffic		
TEU	1,368,755	-3.1%
Passenger traffic		
Local and ferry	65,780	-1.4%
Cruise	381,658	+5.1%
Total	447,438	+4.1%

THE PORT OF VALENCIA:

37.39mt handled in H1 2018 (+3.0% yoy)

Only the turnover of liquids noted a drop in the reported period, by 34.9% year-on-year to a total of just over 1.05mt.

The Port of Valencia's volumes

	H1 2018	H1 2018/H1 2017
General cargo	34,882.9kt	+4.1%
Dry bulk	1,322.2kt	+26.1%
Liquids	1,052.4kt	-34.9%
Total	37,393.3kt	+3.0%
Unitised freight traffic		
TEU	2,498,384	+6.4%
Finished vehicle logistics (new cars & other vehicles)	443,218	+7.4%
Ro-ro cargo units	117,119	+11.2%
Passenger traffic		
Ferry	275,993	+2.8%
Cruise	156,845	+4.4%
Total	432,838	+3.4%

THE PORT OF GOTHENBURG:

378,024 TEUs handled in H1 2018 (+18.8% yoy)

Also the number of handled ro-ro cargo units went up in the reported period – by 4.8% year-on-year to a total of 305,397.

The Port of Gothenburg's volumes

	H1 2018	H1 2018/H1 2017
Liquids		
Oil products	6,831.2kt	+7.0%
Crude oil	4,873.3kt	-1.5%
Chemicals	0.0kt	-100%
Gas	0.0kt	-100%
Total	11,704.5kt	-2.4%
General cargo		
Wheeled (ro-ro)	4,972.8kt	-7.0%
Containerised	3,522.0kt	+15.7%
Other	120.0kt	-1
Total	8,614.7kt	+2.7%
Dry bulk		
Total	49.7kt	-47.3%
GRAND TOTAL	20,369.0kt	-0.6%
Unitised freight traffic		
TEU	378,024	+18.8%
Ro-ro cargo units	305,397	+4.8%
Finished vehicle logistics	152,270	+11.1%
Passenger traffic		
Cruise	22,222	-21.9%
Ferry	665,760	-5.0%
Total	687,982	-5.7%

¹ No handlings in H1 2017

THE PORT OF HUELVA:

16.19mt handled in H1 2018 (+3.7% yoy)

The Spanish port trades mostly in liquids which totalled 12.19mt in this year's first half, an uptick of 0.3% on the result from the corresponding period last year. A total of almost 3.43mt of dry bulk was also handled (+13.8% year-on-year) as well as some 488.1kt of general cargo (+33.8% yoy). Huelva's H1 2018 container traffic amounted to 36,292 TEUs, an increase by 40.5% yoy. The port's wheeled traffic advanced as well – by 12.5% yoy to 3,530 ro-ro cargo units. A total of 21,869 passengers went through the port's quays, more by 30.4% on the H1 2017 result. Out of the total, the ferry segment accounted for 15,885 (+9.6% yoy), while the cruise sector added the remaining 5,984 travellers (+162% yoy).

THE PORT OF KLAIPĖDA:

22.01mt handled in H1 2018 (+7.1% yoy)

The port's container traffic totalled 310,195 TEUs in the reported period, an increase by 42.1% on the H1 2017 result. At the same time, ro-ro & ferry freight traffic advanced, too, by 3.2% year-on-year to altogether 94,582 cargo units. Passenger traffic rose as well, by 3.0% yoy to 165.1k. Out of the total, ferry passengers accounted for 140.9k travellers going through Klaipėda's quays (+4.7% yoy), while the remaining 24.2k came on-board cruise ships (-5.8% yoy). The number of passenger cars in ferry traffic rose by 7.2% yoy to 35,419 vehicles.

THE PORT OF PIOMBINO:

2.24mt handled in H1 2018 (-2.2% yoy)

While imports rose by 2.3% year-on-year up to over 1.31mt over 2018's first half, exports contracted by 7.9% yoy down to 932.3kt. With 1.55mt (-1.6% yoy), the turnover of general cargo constituted the bulk of the Italian seaport's cargo traffic in H1 2018. Out of this figure, ro-ro & ferry traffic (+0.8% yoy) accounted for almost the entire volume, with the remaining 2.0kt being break-bulk (-95.0% yoy). The number of ro-ro cargo units going through Piombino's quays was smaller than in H1 2017, too, down by 1.7% yoy to 69,347 trucks and trailers. Both the throughput of dry and liquid bulk decreased in the reported period, by 2.2% yoy and 31.8% yoy to 671.6kt and 20.8kt, accordingly. Passenger traffic noted a downtick as well, totalling 1,192,976 travellers (-5.1% yoy). Local traffic amounted to 1,161,696 passengers (-5.6% yoy), ferry to 25,788 (+5.3% yoy), whereas cruise to 5,492 (+154% yoy).

THE PORT OF LA SPEZIA:

7.76mt handled in H1 2018 (-2.1% yoy)

A total of 4.48mt (-1.5% year-on-year) was shipped out, while 3.28mt (-2.9% yoy) were imported over 2018's first half through the Italian seaport.

The Port of La Spezia's volumes

	H1 2018	H1 2018/H1 2017
General cargo		
Containerised	6,763.1kt	-1.3%
Other	64.7kt	+53.8%
Total	6,827.8kt	-0.9%
Liquids		
Oil products	315.7kt	+49.5%
Gas	266.6kt	+125%
Other	64.2kt	-63.1%
Total	646.5kt	+28.5%
Dry bulk		
Coal, lignite	202.8kt	-54.9%
Other	37.4kt	-30.4%
Metallurgical products	33.8kt	+41.6%
Ores, cement, lime, plasters	11.6kt	+115%
Total	285.6kt	-46.4%
GRAND TOTAL	7,759.9kt	-2.1%
Container traffic		
TEU	722,178	+1.2%
Cruise traffic		
Guests	180,997	-7.6%



THE PORT OF BILBAO:

17.78mt handled in H1 2018 (+11.9% yoy)

With almost 11.11mt (+11% year-on-year), the turnover of liquids cut out the biggest share in Bilbao's total freight turnover over this year's first half. General cargo came in second, amounting to 5.20mt (+11% yoy), followed by 2.47mt of dry bulk (+17.6% yoy). The port's container and ro-ro traffic rose as well by 14.2% yoy and 5.5% yoy to 322,455 TEUs and 10,211 cargo units, respectively. Bilbao's H1 2018 passenger traffic totalled 92,991 travellers (+15% yoy), out of which ferry accounted for 50,503 (+17.1% yoy) and cruise for 42,488 (+12.6% yoy).

THE PORT OF OSLO:

3.02mt handled in H1 2018 (+2.9% yoy)

All freight groups advanced in the reported period – general cargo by 5.5% year-on-year to 1.20mt, liquids by 1.5% yoy to 965.2kt, and dry bulk by 0.9% yoy to 854.7kt.

The Port of Oslo's volumes

	H1 2018	H1 2018/H1 2017
General cargo		
Containerised	679.9kt	+1.2%
Wheeled (ro-ro)	348.8kt	+0.8%
Other	171.4kt	+43.3%
Total	1,200.0kt	+5.5%
Liquids		
Oil products	928.3kt	+5.9%
Other	36.9kt	-50.3%
Total	965.2kt	+1.5%
Dry bulk		
Metallurgical products	448.4kt	+16.8%
Ores, cement, lime, plasters	279.2kt	-6.2%
Grains	73.3kt	+51.9%
Other	35.6kt	-58.0%
Foodstuff, fodder, oil seeds	18.2kt	-44.5%
Total	854.7kt	+0.9%
GRAND TOTAL	3,020.0kt	+2.9%
Container traffic		
TEU	114,459	+6.1%
Finished vehicle logistics		
New cars & other vehicles	30,259	-0.1%
Passenger traffic		
Cruise	86,088	-10.3%
Local	724,263	+2.2%
Ferry	1,060,415	-0.4%
Total	1,870,766	+0.1%

short stories

Photo: Pexels

Whitstar joins WFS' fleet



Photo: Whitaker Tankers

World Fuel Services (WFS), a Miami-headquartered company, has chartered a vessel in order to strengthen its UK bunker supply network. The 75 m-long and 3.1k dwt-big product tanker, built in 2004, was deployed in early September to operate along the east and south coast with the main task of servicing UK terminals. Owned by **Whitaker Tankers**, *Whitstar* is fitted with versatile deep well pumps capable of delivering fuel in volumes of up to 450m³/hr. The vessel also hosts epoxy coated cargo tanks, closed loading, is fitted with tank level radars, while its hull is strengthened to enable access to NAABSA berths (at which a ship may ground in safety at low water). "This latest addition to the WFS-operated tanker fleet is large enough to keep storage terminals topped up but small enough to deliver bunkers to vessels," the press release of World Fuel Services reads.

KDI to deliver an LNG simulator package to GasLog

Under a turnkey contract, **Kongsberg Digital (KDI)** will supply the Greek owner, operator, and manager of LNG carriers (27 in operation, plus seven on order) with the K-Sim Navigation DNV Class A ship's bridge simulator and a K-Sim Engine Desktop simulator, including the Steam Plant Dual Fuel LNG Carrier and the Diesel Electric Dual Fuel DE21 LNG models. The engine room models will be interfaced to a corresponding K-Sim Cargo LNG Liquefied Natural Gas Carrier-M cargo handling simulator. The simulators will be installed at **GasLog's** Technical Management HQ in Piraeus, with an entire floor specifically allocated for simulator training activities. "Greece is poised to become the largest and most significant shipping nation in the global LNG sector, and KDI is proud to be such an integral associate in support of this drive. Promoting and perpetrating the smart transportation and usage of a clean, economically efficient fuel ties in very closely with our corporate desire to enable safer, greener, and more streamlined working practices," **Tone-Merete Hansen**, Senior Vice President, Maritime Simulation, Kongsberg Digital, commented. **Archontia Leni**, Competency Assurance Manager, GasLog, added, "Straight from the outset, KDI's integrated simulator solution will allow our trainee crews to reinforce and



Photo: Kongsberg Digital

build upon our core values of teamwork, quality of service, integrity, and customer focus. Above all, as our company credo indicates, safety means the world to us – and KDI's innovative simulator training package will help us to establish and support a culture of crew protection and environmental awareness that resonates throughout our entire organization." Up-to-date, KDI has provided K-Sim training solutions also to **Minerva Marine**, **Maran Gas Maritime**, **TMS Cardiff Gas**, and **Tsakos Energy Navigation**, meaning that it services more than half of the nine companies which constitute the Greek LNG carrier fleet.

Sailing on cooking oil



Photo: GoodFuels Marine

In collaboration with **GoodShipping Program**, the container carrier *Samskip Endeavour* sailed on hydrotreated vegetable oil (HVO), made from used cooking oil, instead of heavy fuel oil (HFO). The vessel was bunkered with 22k litres of HVO, a biofuel supplied by **GoodFuels Marine**. According to GoodShipping Program, the emission of some 40t of CO₂ was avoided. In addition, since HVO replaced HFO, also the local emissions of sulphur, soot, and black carbon were reduced. The HVO shipment was performed on behalf of GoodShipping Program's clients, **Tony's Chocolonely, Dopper, Blygold, Magic Marine, and Mystic**. The amount of bunkered HVO corresponds with the annual sea freight volumes of the Program's customers. "With this first bunkering, GoodShipping shows that it is possible for cargo owners to influence the carbon footprint of the sea freight in their supply chain. Thanks to the principle of mass balance, any company can join our program and have their sea freight shipped climate-neutral. Next to that, we are increasing demand and accelerating R&D in the field of marine biofuels [...]. We don't have to wait for the sulphur cap, the next IMO meeting, or for someone else to go first. You can make a positive impact, today," a press release from GoodShipping Program stated.

Blockchain bunkering

HOW THE BLOCKCHAIN WORKS

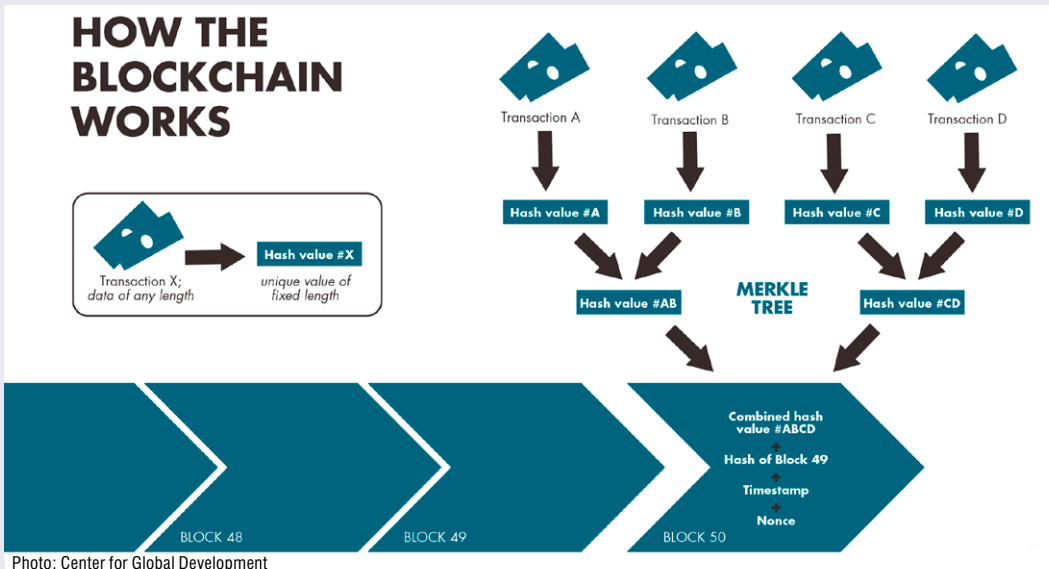


Photo: Center for Global Development

GoodFuels Marine, said to be the world's first supplier of sustainable, low carbon marine fuels, and **Blockchain Labs for Open Collaboration (BLOC)**, specialising in the blockchain technology and governance, have completed the first ever blockchain-based bunker delivery and transaction. The bunkering of 22k of hydrotreated vegetable oil to Samskip's container ship *Samskip Endeavour* was performed by the *Reinplus Vanwoerden* bunker barge in Rotterdam on 7 September. "Unlike traditional bunker delivery notes (BDN), a paper

document still widely used in the industry, blockchain – a decentralised, distributed and public digital ledger – provides end-to-end traceability of marine bunkering transactions from storage, to the barge or jetty, and on to the vessel's fuel tank, thereby providing assurance to shipowners, shippers, and charterers," GoodFuels Marine and BLOC explained in their joint press announcement. The bunkering also represented the first transaction for **Maritime Blockchain Labs (MBL)**, an initiative by BLOC of blockchain pilot projects conducted in collaboration with blockchain practitioners and industry actors. In addition, the event marked the first sustainable, low carbon marine fuel delivery made by **GoodShipping Program**, part of MBL (the GoodShipping Program requires shippers to commit to a reduction in their sea freight CO₂ emissions by purchasing sustainable biofuels, based on the premise that, as all CO₂ from container shipping is emitted into the same atmosphere, it doesn't matter which vessels take on biofuel, as long as it is traceable). "For too long shipping has been reliant upon paper transaction notes when bunkering, which expose shipowners, shippers, and charterers to the potential of being misled on the quality and quantity of fuel. At GoodFuels, we are always striving to break convention – not for the sake of it, but because in this era there is no technological barrier to providing customers better assurance," **Dirk Kronemeijer**, CEO and Founder, GoodFuels Marine, commented. He added, "In addition, for GoodFuels Marine, as the world's first supplier of sustainable 'drop-in' marine biofuel, we realise we have to go beyond current standards to ensure traceability. This transaction – the first of many to come – shows the confidence we have in delivering 'on spec', sustainable low carbon fuel." **Deanna Macdonald**, CEO, BLOC, also said, "This project not only allows us to validate the value of blockchain technology in the marine fuels supply chain but also to identify incentives to ensure that users input correct information into systems and that any technology and systems created can be used as widely as possible. The bunker industry – with its multiple large volume transactions, and history of fraudulent claims – provides an ideal platform to examine where blockchain's digital platform can be utilised to increase transparency and create better compliance and strong governance. The fact that the first transaction was for low carbon fuel makes both the project and the opportunity for the future all the more exciting." **Anniek Sluis**, Growth Accelerator, GoodShipping Program, summed up by saying, "For the GoodShipping Program, it is vital we show shippers that we can guarantee the delivery of truly sustainable fuels in a reliable, traceable, and transparent way. Blockchain has the benefits to serve as a tool to increase end-to-end traceability in the supply chain of biofuels, which is vital for our program participants."

Methanol one step closer to be officially recognised as ship bunker

The **International Maritime Organization's (IMO) Sub-Committee on Carriage of Cargoes and Containers (CCC5)** has completed the draft interim guidelines covering the safety of ships using methyl/ethyl alcohol as fuel. The guidelines finalise the work undertaken by the **Correspondence Group on Development of Technical Provisions for the Safety of Ships using Low-flashpoint Fuels** and are designed to provide for the safe design and operation of ships using methyl/ethyl alcohol as fuel. In addition, the CCC5 invited the 100th meeting of the IMO's **Maritime Safety Committee (MSC)** in December to endorse the referral of safety topics which require further input to other technical sub-committees for their consideration with feedback to CCC6 in September 2019. Interim guidelines should be ready for formal approval by the MSC in the first half of 2020. Also, earlier this July, the IMO invited the **International Organization for Standardization (ISO)** to develop a standard for methyl/ethyl alcohol as a marine fuel and a standard for methyl/ethyl alcohol fuel couplings. "This work was the culmination of a huge amount of effort by multiple stakeholders and industry participants who contributed to both the correspondence and working groups' efforts over the past several years," **Chris Chatterton**, Chief Operating Officer, the **Methanol Institute**, said. He added, "The maritime industry faces significant challenges in terms of meeting 2020 emissions standards and the longer term goal of the IMO's targets for greenhouse gas reduction. Methanol is compliant with 2020 and provides a pathway to achieving carbon emission targets. These guidelines and ultimately its inclusion in the IGF Code [the International Code of Safety for Ships using Gases or other Low-flashpoint Fuels] are a further milestone to achieving a cleaner, more sustainable maritime industry." Methanol has been up-to-date used on-board several vessels, including tankers operated by **Waterfront Shipping** and **Stena Line's** ferry *Stena Germanica*.

Stena Line tests bunker-friendly AI

The Swedish shipping company has partnered with **Hitachi** to develop a model based on Artificial Intelligence (AI) to see whether this technology will help with Stena's target of cutting fuel consumption by 2.5%/year. The AI is being tested on-board the ferry *Stena Scandinavica* which sails between the ports of Gothenburg and Kiel. "The model simulates many different scenarios before suggesting the most optimal route and performance set-up. With the help of AI, we are able to consider a number of variables, such as currents, weather conditions, shallow water, and speed through water, in various combinations which would be impossible to do manually," **Lars Carlsson**, Head of AI, **Stena Line**, explained. **Jan Sjöström**, Senior Master who has been working with fuel consumption at Stena Line for the last 40 years, added to this, "Since we are helping the AI to evolve, we might be assisting the AI more than we are at the moment, but it is a very exciting and rewarding process. We've been making adjustments to the model after each trip for about four weeks and it is amazing to see how quickly it is learning."

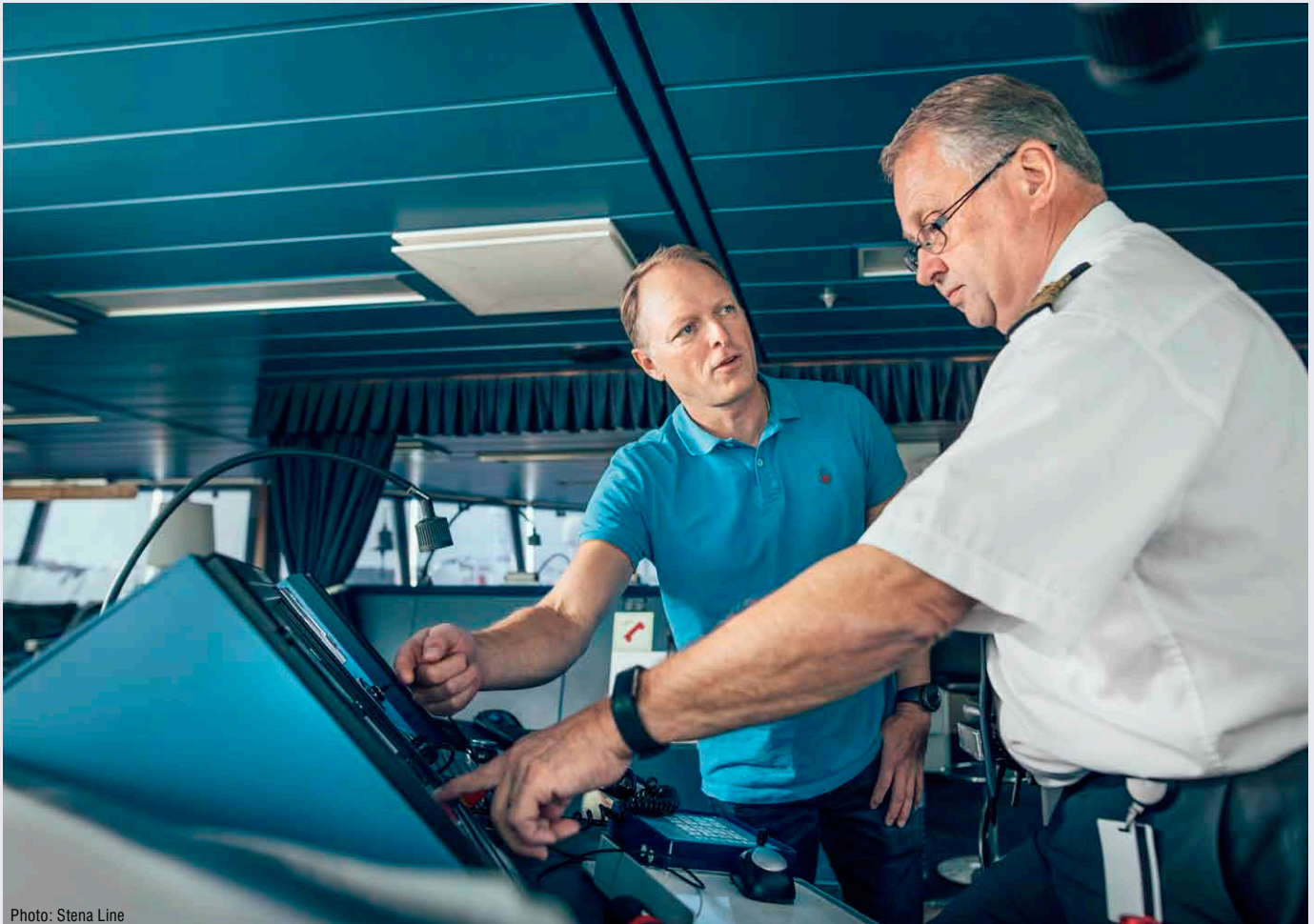


Photo: Stena Line

Høglund grows with two divisions

The Norwegian company specialising in marine automation and system integration, has added to its portfolio two departments – **Høglund Gas Solutions** and **Høglund Power Solutions** – which will sit alongside **Høglund Marine Automation** under the **Høglund Marine Solutions** brand. The former will focus on liquefied natural gas (LNG) fuel systems, including gas handling for the LNG bunker vessel segment, while the latter will have electric and hybrid vessels, integration of battery and electrical storage systems, and power management systems in its centre of attention. The two new divisions will supply both newbuild and retrofit solutions. “At Høglund our number one priority has always been to create systems for smarter, cleaner, more efficient ships. It’s the essence of who we are as a business. Our global team is constantly thinking years, even decades, ahead to ensure the vessels we work on are safe, efficient, and equipped with the systems they need to operate reliably throughout their lifetimes,” **Børge Nogva**, CEO, **Høglund Marine Services**, emphasised. He also stressed, “2020 will be the biggest shock to shipping since the switch from coal to diesel. New LNG, electric, and hybrid propulsion technologies are emerging as vital solutions, but these will require a fresh approach to maritime systems engineering.”

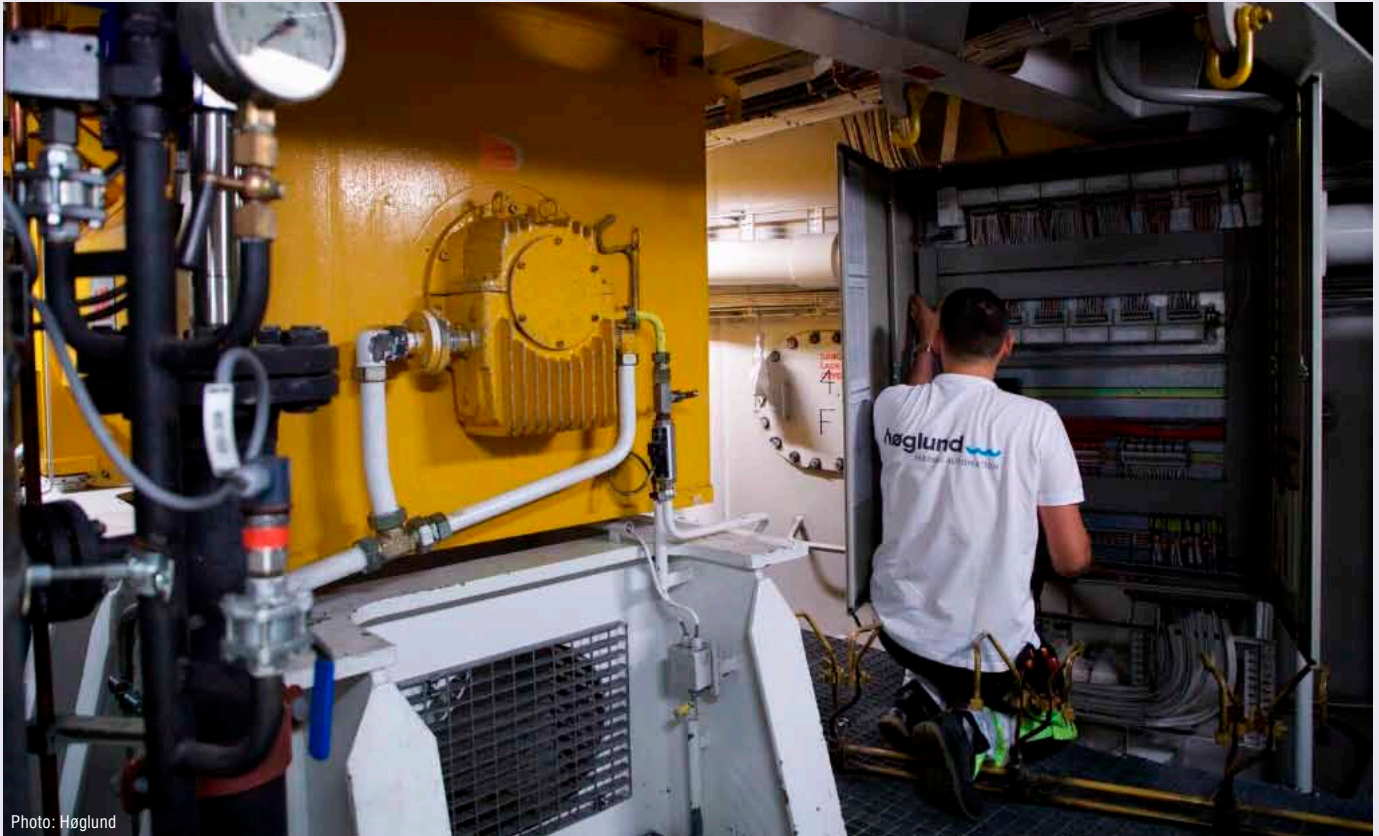


Photo: Høglund

Marlink-We4Sea big data co-op to cut ships' bunker consumption

The two companies have teamed up to deliver a smart fuel efficiency solution for the maritime industry. Specifically, the agreement will see the Dutch start-up **We4Sea** leveraging on **Marlink's** broadband satellite communications network, digital solutions, and contacts to further test, develop, and mature its fuel efficiency solutions. We4Sea specialises in digital monitoring solutions that reduce fuel consumption and related emissions. It uses the so-called digital twin technology, which combines different data, such as on a ship's position, speed, and the carried cargo, with that on the weather. All data is then presented in a web platform, providing users on-board or ashore with the actual fuel consumption and CO₂ emissions of their ships. The digital twin technology does not need additional hardware to be installed, meaning no initial capital investment or off-hire. The online reporting is certified to comply with new EU legislation, aiming to cut greenhouse gas emissions from maritime transport. “Our global, high bandwidth data connectivity, enables We4Sea to efficiently collect data that further optimises the already 98% accuracy of its ‘no capex, no sensors, no port visit’ digital twin fuel and emissions monitoring algorithms, helping the maritime industry to meet requirements under the 2020 sulphur cap,” **Gennaro Faella**, Head of Strategic Business Development, Marlink, stated. **Tore-Morten Olsen**, President Maritime, Marlink, added, “This agreement with We4Sea will allow us to offer a highly intelligent and cost-efficient solution based on big data technologies, which will support our customers ambition for greener, more environmentally-friendly shipping.” **Dan Veen**, CEO and Co-founder, We4Sea, talked about the start-up's solution in a wider context of the 2020 global 0.5% sulphur cap, “Big data will play a significant part in enabling ships to reduce sulphur emissions and together with Marlink, we will contribute to addressing one of the biggest challenges that the shipping industry faces. In less than 2 years, all ships worldwide will have to comply with the new 2020 sulphur cap legislation, which according to *The Economist*, could cost the industry \$60b. Our solution combined with Marlink's connectivity and industry leadership will contribute to reducing fuel costs, helping ship owners to operate more cost-effectively. Now is the time to act.”

NOVATEK-JOGMEC LNG co-op

The Russian natural gas producer and the **Japan Oil, Gas and Metals National Corporation** (JOGMEC) have signed a memorandum of understanding, according to which the parties will jointly work on exploring the opportunities created by **NOVATEK's** liquefied natural gas (LNG) fields, including the \$25.5b Arctic LNG 2 project (three liquefaction trains of 6.6mt/year capacity each), as well as on developing regular transports to the Japanese and Asia-Pacific markets via the Northern Sea Route. "We welcome the expression of interest from international partners to our LNG projects in the Yamal and Gydan peninsulas. Our prolific hydrocarbon resource base combined with our experience in implementing large-scale LNG projects and navigating the Northern Sea Route creates a solid platform for mutually beneficial cooperation," **Leonid Mikhelson**, Chairman of the Management Board, NOVATEK, commented on the memorandum. He also said, "Japan is one of the most significant global LNG markets, and we expect further expansion of cooperation in this area which will facilitate the development of trade and economic relations between our countries."



Photo: Novatek

DFDS chooses scrubbers to comply with the 2020 sulphur cap

The Danish shipping company will invest DK300m (approx. €40.2m) in equipping 12 of its freighters serving the company's traffic in the Mediterranean with hybrid open/closed loop scrubber systems. The scrubbers will be supplied by **ME Production**, a Danish developer and manufacturer of customised emission reduction systems for marine applications with whom **DFDS** cooperated in the past while installing scrubbers on-board its ships that ply in the 2015-established 0.1% Sulphur Emission Control Area (SECA) in northern Europe. "We are happy to already now start preparing for complying with the new limit on sulphur content in emissions in the Mediterranean. This will bring environmental benefits for all. By applying DFDS' extensive experience of procuring, installing and operating scrubber systems we are achieving both operational and financial synergies," **Niels Smedegaard**, CEO, DFDS, commented. As of 1 January 2020, all of the world's other seas that currently aren't a SECA will become an emission control area, requiring ships to run on a bunker with sulphur content less than 0.5%.



Photo: ME Production

MAN to LNG-convert Baleària's ferries

MAN PrimeServ, the after-sales division of **MAN Energy Solutions**, has been contracted to convert two ferries of the Spanish operator to dual-fuel operations. The sisterships *Nápoles* and *Sicilia* – serving the Barcelona-Ibiza and Algeciras-Tanger Med routes, respectively – will see their 2xMAN 9L48/60A main engines swapped for the 9L51/60DF units. The conversion of the former ro-pax is to take place between November 2018 and January 2019, while the latter will receive her new engine in October-December 2019. “We showed – with the conversion of **Wessels Reederei**’s *WES Amelie* container ship – that operational MAN engines can successfully be converted to LNG operation with a tremendous effect on exhaust emissions and the environment. We are very happy that **Baleària** has seen fit to bring these benefits to a new segment and application and look forward to the conversion procedure,” Dr. **Thomas Spindler**, Head of Upgrades & Retrofits, PrimeServ Four-Stroke, MAN Energy Solutions, said.



Photo: MAN PrimeServ

LNG cold ironing in Hamburg



Photo: Becker Marine Systems

Becker Marine Systems, **Hapag-Lloyd**, and **HHLA** have trialled a mobile power generator that runs on liquefied natural gas (LNG). Becker Marine Systems' onshore power supply solution is a two FEU-big Becker LNG PowerPac – a unit comprising a gas-powered generator and an LNG tank – that has been installed at the **HHLA Container Terminal Burchardkai**. As soon as a container ship docks, a gantry lifts the mobile 1.5-MW power generator from the quay into position at the stern of the ship. Once there, it is connected to the ship's power system, thus making it possible to switch off the auxiliary diesel engines. A prototype has been tested multiple times on-board a few of Hapag-Lloyd's 20,000 TEU container ships. “We can safely say that the pilot phase was a complete success, and we thank our partners for the great teamwork. The Becker LNG PowerPac® represents a straightforward solution for the reduction of harmful emissions in the port and has the potential to be implemented internationally. We are in conversation with a variety of European and Chinese ports, and we are

confident that the Becker LNG PowerPac® can be successful on the market,” **Dirk Lehmann**, Managing Director, Becker Marine Systems, commented. **Anthony J. Firmin**, Executive Board Member for Shipping, Hapag-Lloyd, added, “As a global company based in Hamburg, we were more than happy to support the tests. Shoreside power is an important component in our extensive efforts to make our business even more sustainable.” **Jens Hansen**, Executive Board Member, HHLA, also said, “We are delighted to add our experience and expertise to this important pilot project for the Port of Hamburg. From what we can see, the tests have been very successful so far. PowerPac handling might well be integrated into our terminal processes.” **Enak Ferlemann**, Parliamentary State Secretary for the Federal Minister of Transport and Digital Infrastructure, which awarded a seven-figure sum to fund the development of the new technology as part of the government's mobility and fuel strategy, summed up by saying, “Air pollution control is very important, especially in ports in densely populated areas. We therefore support sustainable and alternative power units and innovations like the LNG power packs, which contribute to modernising shipping and reducing emissions.”

Skangas climbs SEA\LNG's membership to 34

The 2016-established multi-sector industry coalition that aims at accelerating the widespread adoption of liquefied natural gas (LNG) as a marine fuel has welcomed a new member, **Skangas**, a Norwegian producer and supplier of LNG. The company's portfolio comprises the liquefaction plant in Risavika, four import terminals (two in Finland, in Pori and Tornio, one in Sweden, in Lysekil, and one in the Norwegian Øra), two client terminals (**Glava** and **Dynea**), as well as its own fleet of feeder and bunkering vessels, the 5.8k m³-big *Coralius*, 15.6k m³ *Coral Energy*, and 18k m³ *Coral EnergyICE*. "Skangas will be a valued addition to our growing coalition. We're proud that our members have individually operated at the forefront of the industry, creating landmark developments in the supply and operation of LNG bunkers," **Peter Keller**, Chairman, **SEA\LNG**, and Executive Vice President, **TOTE**, commented. He also said, "Together, the coalition cooperates to inspire change and create a driving force behind the uptake of LNG as an environmentally and commercially important fuel. Collaboration, demonstration, and communication on key areas such as safety, regulation, emissions, and the economic case are essential to providing the confidence and demand required for an effective and efficient global LNG value chain." **Kimmo Rahkamo**, CEO, Skangas, added to this: "When the *Coralius* began operating last fall, it marked a major turning point for the market. Ship-to-ship bunkering is central to supporting the maritime industry's interest in using LNG as a marine fuel; the flexibility of the operations allows vessels to access LNG at higher transfer rates in a vastly expanded geographic area. In joining SEA\LNG, we hope to connect with like-minded industry leaders to optimise the LNG value chain across the shipping industry." SEA\LNG's roster includes LNG suppliers, downstream companies, shipping lines, infrastructure providers, shipyards, original equipment manufacturers, classification societies, port authorities, shipbrokers, and financial institutions.



Photo: Gasum

A rock

by **Lars Fischer**, *Managing Director, Softship Data Processing, Singapore*



Founded in Hamburg in 1989, Softship, part of the Wisetech Global Group, offers a number of software solutions to the international maritime industry. Its portfolio includes the LIMA, ALFA, and SAPAS software suites, packages, and associated applications for liner shipping carriers, liner agents, and port agents. In addition, the company provides a wide range of business management tools that allow shipping executives to fully analyse their commercial and operational activities. For more info please click www.softship.com

The decision made by the International Maritime Organization (IMO) to lower the global sulphur cap to 0.5% as of 2020 will make fuelling requirements much more complex and expensive, impacting shipowners' and charterers' bottom line. In result, efficient bunkering practices will become all the more important. Incorporating modern and inexpensive software solutions is one avenue worthy of exploring in order to address this challenge.

Post-2020, shipowners and charterers will have to choose from a variety of options to meet the more stringent fuel requirements. Irrespective of the final choice, however, all of them will have a significant impact on the final bunkering bill.

The soft option?

Fuelling a vessel with a low-sulphur alternative seems the most straightforward response and was in fact the preferred pick made by the majority of shipping companies that operated across the 0.1% Sulphur Emission Control Areas (SECA) that were introduced back in 2015. However, challenges are likely to arise around availability and therefore the price of these fuels, i.e., because the 0.5% cap will be a global, not a regional challenge.

Another alternative is to fit a scrubber to clean the exhaust gasses before they enter the atmosphere. But the time spent in dry dock or indeed a lack of shipyard space, which is likely to be at a premium,

make this option unattractive. Also, a running scrubber system adds to a ship's fuel consumption.

Another alternative is to consider a less conventional fuel, such as liquefied natural gas (LNG), but this option is still in its infancy relative to the worldwide availability of the more traditional marine fuels; to remedy this situation, the global supply chain will require significant investment. Added to this, some experts believe that whilst LNG eliminates NO_x and SO_x from ship emissions, it actually does nothing or very little to reduce the carbon footprint (the so-called methane slip is still an issue with gas-powered engines, this compound being a far more potent greenhouse gas than carbon dioxide). IMO's recently announced wish for shipping to cut its carbon emissions by 50% by 2050 will not be achieved by adopting LNG as a future fuel for the world's merchant fleet.

There is, of course, the option to ignore the laws altogether and take the risk. However, global concerns around



sulphur emissions are likely to intensify, rather than weaken. So while operators might get away with ignoring the rules in the short-term, this approach will become increasingly risky to corporate reputation, as politicians, campaigners, and the broader society become increasingly less tolerant to shipping's negative impact on the natural environment.

Cheap and cheerful

With the impact these changes are going to have on shipowners' profitability, ensuring all bunkering and other relevant processes are efficient will be more important than ever. Currently, most shipping companies employ fairly cumbersome internal processes that are required to source cargoes, manage voyage schedules, handle commercial arrangements, deal with port calls, raise and reconcile invoices, and much more. These processes are always admin-heavy and require large teams to manage them.

Using software, in most cases more or less costly proprietary solutions, to introduce automation and efficiency to heavy workload internal processes has been a feature of large shipping companies for 20 years or more. The difference the so-called digital revolution has brought us these days, is the advent of cheaper and more available technology platforms, something which has

encouraged automation to spread to smaller operators who are now finding themselves able to afford such software. Alongside this, shipping companies have understood that purchasing "packaged" software – off-the shelf solutions that are easily customisable to suit individual requirements – is a much better option than commissioning bespoke applications. A packaged solution weighs in at a fraction of the cost of a tailor-made application, and it benefits from having been tried and tested in a range of "live" shipping environments.

By and large, automation has penetrated more deeply into the container sector, where there is a requirement to exchange many individual pieces of data relating to boxes, voyages, and port calls. But non-container operators have also benefited from using software that streamlines invoicing and other back-room processes. Until recently, automation had not extended to cover the bunkering process, but carriers are nowadays demanding time and again that software houses place a focus on fuel.

The optimum

Many ship operators are now using sophisticated software algorithms to ensure they achieve the best possible profit per voyage. Today, the integration of a set of bunker tools into existing scheduling software gives the operator an immediate and

accurate forecast of anticipated bunker costs as the schedule is being created.

Good software will also manage various bunker types and make accurate adjustments when switching to alternative fuel when, for example, the vessel enters an emission control area. When a ship's schedule hits a problem, say, poor weather, vessel breakdown, or port congestion, it is important for the operator to understand fully the impact of the delay and to take action to get the vessel back into its optimum operating pattern.

Using a combined voyage and bunker software package, an operator can run a series of options to understand how making changes to a vessel's speed or routing will affect bunker consumption. They can then select the solution that has the least impact on the bottom line while retaining the best level of customer service. At the same time, they are able to see, at a glance, the amount of bunkers remaining on the vessel following any changes made to the schedule. If on-board fuel is likely to fall below a pre-set minimum threshold, the software will alert the operator and suggest a suitable port to take on more bunkers.

Aside from scheduling and planning, new bunker tools are also being used to streamline the purchasing process. Existing bunker contracts are stored within the software and tied to all new orders. On delivery, the order is automatically matched with the original one and any discrepancies are highlighted. Later, this information is used to reconcile invoices presented against agreed volumes and prices. Mismatches are spotted out before invoices are paid. Also, if a scheduled delay or alteration requires the vessel to take bunkers outside of its usual pattern, intelligent software will automatically create a pro-forma bunker order for the vessel operator.

In addition, using this type of software gives a certain transparency over bunker usage as up-to-date fuel statistics can be made available at the press of a button. This allows the management to analyse and monitor consumption and cost per voyage, nautical mile, hour, and even per container. Remedial steps can be taken early on if required.

Software can't run a shipping company, but...

... it can handle repetitive, resource-heavy processes that require absolute accuracy and immediate attention. With the global sulphur cap pending enforcement in 2020, a reliable and efficient software tool offers a rock in what could be a stormy sea of change. ■



Organising the switch to low-sulphur fuel

It won't happen overnight

by **John LaRese**, *Marine Fuels Technical Advisor, ExxonMobil*



John LaRese, a 1979 BS graduate in Marine Engineering from the Maine Maritime Academy, is the Technical Advisor for ExxonMobil Marine Fuels. He has been with ExxonMobil for over 39 years, with most of his career spent as Chief Engineer sailing on-board affiliate Very Large Crude Carriers, as well as product and chemical tankers. Since coming onshore, LaRese has had a number of other assignments, such as an Energy Conservation Specialist, Contract Negotiator, Ships Superintendent, Fleet Operations Support Manager, and Auditor and Trainer of senior officers specializing in vessel management and safety. He has been ExxonMobil's Marine Fuels Technical Manager since 2009. A large portion of his current position focuses on the development of 0.50% sulphur compliant marine fuels.

The International Maritime Organization's (IMO) decision to implement a 0.50% cap on sulphur emissions has created uncertainty amongst vessel operators. Questions are already being asked about how to comply with the changing emissions target as well as what types of fuel will be available and where. However, ensuring compliance isn't just about fuel selection; the actual switchover process from heavy fuel oil (HFO) to new, low-sulphur alternatives needs careful management. There are also implications when it comes to the selection of lubricants.

A series of important steps needs to be taken before bunkering a low-sulphur fuel; vessel operators will, therefore, have to work out arrangements that meet the specific requirements of their vessels. Significantly, without careful preparation operators may jeopardise their sulphur compliance which carries the risk of costly fines. They must also plan around fuel availability, given the possibility that some ports may be unable to meet the demand from the industry.

Tank cleaning and cylinder oil stocks

Unless a vessel is fitted with a scrubber, operators will need to ensure that their fuel tanks do not contain high-sulphur HFO by the IMO deadline. The fuel tanks will probably retain sediment from the existing HFO, which is likely to contain those higher levels of sulphur. If this is not removed, there is the risk that the sulphur will contaminate the compliant fuel, pushing its sulphur content above the 0.50% limit. We at ExxonMobil expect that many

compliant fuels entering the market will have a sulphur content very close to the 0.50% cap, so even very low levels of residual sulphur left in a fuel tank could tip a vessel over the IMO's compliance limit.

To minimise this risk, our company recommends that vessel operators flush fuel tanks with a distillate-based product which will help remove sludge deposits. This process may need to be repeated, depending on the amount of residue present. In some instances, tank bottoms may have to be manually cleaned. The fuel used to flush tanks could contain damaging levels of cat fines, too, which will require on-board treatment. Vessel operators must factor in how long these processes could take, and keep in mind that any sludge removed from the tanks will need to be disposed of properly.

Operators should remember that the storage, handling, and treatment of 0.50% sulphur fuels will involve bunkering fuels of a wider variety of viscosities, types, and formulations than seen today. On-board



handling practices have to take into account likely changes in fuel types, including fuel segregation and routine compatibility testing.

One of the benefits of the 0.50% sulphur cap is that vessels will be able to streamline their lubricant inventory as only one cylinder oil will be required.

Vessels with scrubbers will continue to use HFO and high-base number (BN) oils, while those who choose to switch to low-sulphur fuels will need correspondingly low-BN formulations. These vessels should deplete their stocks of high-BN cylinder oils prior to the IMO deadline to avoid waste and disposal costs.

The 0.50% switch won't be a snap-of-a-finger operation. To ensure compliance, ExxonMobil recommends that vessel operators work with suppliers who have adopted the latest ISO 8217:2017 fuel standard and have the proven technical expertise to help them navigate the upcoming changes. ■





The FUELSAVE
MARINE+
eco-technology
for reducing
bunker
consumption

Photo: Pixabay

A guarantee against inefficiency

by **Stefan Schneider**



FUELSAVE

Founded in 2012, the German start-up, headquartered in Walldorf, is committed to enhancing fuel efficiency and reducing engine emissions in an innovative and environmentally-sustainable way for a variety of industries and applications thanks to its patented systems, all designed in accordance with the company's motto, "Save Energy, Save Money, Save the Planet." For more info please go to www.fuelsave-global.com

FUELSAVE, a German energy efficiency start-up, has launched a technology the company believes is so groundbreaking that it is offering a contractual guarantee of a 10% reduction in a ship's bunker consumption. The company also says that the FS MARINE+ solution leads to a significant decrease in nitrogen oxide (NO_x) emissions as well as in filter smoke number (FSN) and engine's air intake manifold temperature. In other words, the engine is more efficient, cleaner, and runs smoother.

In a nutshell, FS MARINE+ is a patented, DNVL GL-approved engine efficiency enhancement system. It uses an on-board hydrogen synthgas generator to inject a gas and liquid water/methanol mixture into an engine's combustion chamber to improve efficiency.

The technology is up-to-date ready to be used with 4-stroke engines, running on heavy fuel oil (HFO) or marine gas/diesel oil (MGO/MDO). Further modifications will be made in the near future to adjust FS MARINE+ for 2-stroke engines as well as those running on liquefied natural gas (LNG; while the bunker gains for gas-run engines will be around half of those to be experienced with traditional diesels, hydrogen has been shown to have the potential to reduce the so-called methane slip, which, depending on the time frame, is a greenhouse gas 25-to-72 times' more potent than carbon dioxide).

So far, even though the test engine operated one cylinder only, the FS MARINE+ system was shown to reduce fuel consumption by more than 11%, NO_x by

up to 36%, and FSN by 40%. The solution was also shown to reduce the engine's air intake manifold temperature by 50°C – without detriment to engine operation and performance whatsoever.

Good, better

Efficiency gains were confirmed during land-based tests carried out by FTVR, the same independent test laboratory at the University of Rostock used by engine builders to assess their products' emission behaviour. Next, similar results were achieved during pilot trials on a 4-stroke engine mounted on-board *Annette*, a 160 m-long heavy-lift crane vessel of SAL Heavy Lift. During the 30-month 4,000+ in operations hour-long trials, overseen and verified by the shipowner, independent third-parties, authorities, and engine service companies, the introduction of the FUELSAVE enhancement resulted in net fuel savings of more than 16%.

Carl Baguhn, a Hamburg-based engine service company, also reported



Photos: FUELSAVE

less engine wear and tear; this was due to a cleaner combustion, cleaner cylinder heads, greater cylinder lubrication efficiency, and substantially fewer carbon deposits, all of which had a beneficial impact on engine maintenance. Last but not least, FS MARINE+ also extended the times between lubricating oil changes from 500 to over 1,500 hours. Carsten Körbelin, one of Carl Baguhn's technicians, said in this regard, "It is a matter of fact. We have been maintaining the owner's auxiliary engines for some years. They run on MDO, have always been well maintained and operated under normal conditions. But since we installed the FUELSAVE system, the engine has become much cleaner. There is no visible soot and engine running is much smoother, with reduced levels of noise and vibration. The improvement is astonishing. This is something very special." Janusz Rut, one of the engineers working aboard *Annette*, added to this, "From the vessel side the handling and attendance of the plant was easy and not bothersome. The service needful was limited to the minimum. The big screen gave an excellent view on all parameters. Summarising the hydrogen plant which was installed on *Annette* is worth consideration as a future solution for an air pollution reduction giving the profit for the owner at the same time. I am really pleased that I could take part in that project."

Universal, yet individual

FUELSAVE is not a one-size fits all solution but gets configured individually according to the specific requirements in order to achieve the best trade-off between efficiency enhancement and emissions reduction. However, any vessel can be retrofitted with the technology. It allows operators of older tonnage to achieve IMO Tier I and Tier II compliance and can be used with IMO Tier III engines for even greater fuel efficiencies (this is because the emissions are controlled through the exhaust after-treatment system of a Tier III compliant vessel). No special training is required to run this completely autonomous system.

During the latest SMM trade fair that took place this fall in Hamburg, the company presented a containerised version of FS MARINE+. This setup features an all-in-one module that can be loaded on/off a ship, meaning that the system can be deployed without extensive preparations, thus cutting the installation costs down to the minimum handling required. This also gives the shipowner the flexibility to swap FS MARINE+ between different ships in virtually no time, e.g., when a vessel needs to go to a dry dock.

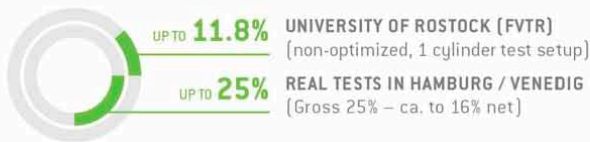
In addition, FS MARINE+ can

be combined with other emission abatement technologies, such as scrubbers, which is crucial in the light of the 0.5% sulphur cap that will enter into force as of 2020. On the one hand, anyone not able to install a scrubber before this deadline will have to bunker more expensive low-sulphur fuel to comply with the more stringent rules. On the other hand, though, those who will make it before 1



PROVEN BENEFITS

1 — REDUCED FUEL CONSUMPTION



2 — REDUCED EMISSIONS IMO tier I & IMO tier II compliant



3 — REDUCED ENGINE WEAR & TEAR



4 — NO HARM TO THE OPERATING ENGINE

- ✓ UNIVERSITY OF ROSTOCK (FVTR)
No harm observed on the operating engine
- ✓ DNV GL / CARL BAGUHN HAMBURG
Two inspections > excellent results (less soot / less vibrations, etc.)

January 2020 will face higher fuel costs, as a scrubber system requires extra energy to run. The mutual benefit of having a FS MARINE+ and a scrubber is, therefore, lower fuel consumption of a cheaper bunker (HFO). “When a scrubber is used in concert with FS MARINE+, higher fuel efficiencies can be achieved since the scrubber has less work to do, which equates directly to a greater reduction in fuel consumption. With a scrubber working with our process, we found shipowners can reduce the amortization rate for the scrubber which, currently does not provide a great return on investment,” Marc Sima, Co-Founder and President, FUELSAVE, highlighted.

The industry standard

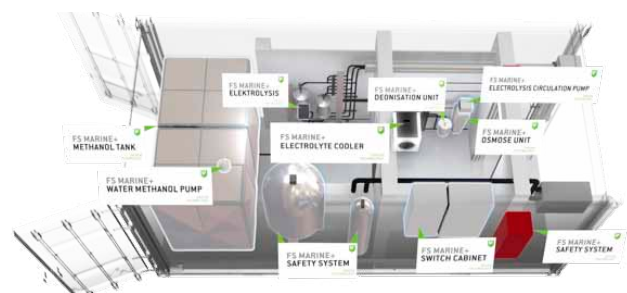
“Since 2008 shipping has been in a crisis and we decided to commercialize our cleantech and efficiency enhancement technology. While sending goods by sea is a backbone of global trade and economy, it is also a major source of polluting emissions. With FS MARINE+ we want to hit two birds with one stone

– save shipping fuel costs and make it more eco-friendly,” Sima stated.

FUELSAVE has been successfully implementing energy efficiency solutions for overland transports for the past four years. FUELSAVE has already been approached by shipyards and engine manufacturers interested in the technology and incorporating the FS MARINE+ solution in their engines, as a competitive edge over their competitors’ products.

But it’s not only about gaining the upper economic hand. We’re only a blink of an eye away from the 0.5% sulphur cap. To meet the post-2020 requirements, FUELSAVE advocates the continued use of HFO/MDO/MGO in combination with a scrubber-FS MARINE+ mix.

All in all, FUELSAVE is confident that FS MARINE+ will deliver tangible economic and environmental benefits from day one, as well as have a ROI of three years only (within a five-year-long warranty, support, and maintenance period). “We aim to establish FS MARINE+ as the industry standard for fuel efficiency across the maritime industry,” Sima summed up confidently. ■





Photos: GoodShipping Program

**Enabling shippers
to mitigate their carbon
footprint with innovative
bunker solutions**

One atmosphere

by **Anniek Sluis**, *Growth Accelerator, GoodShipping Program*



The Amsterdam-based GoodShipping Program is the world's first global marine initiative that aims to change the fuel used in the marine market space. It wants to help stimulate and demonstrate the use of biofuels for as long as it is the best option to make the shipping industry more sustainable. The Program's 'Board of Recommendation' comprises selected experts in the field of sustainability, shipping, and/or biofuels, who we believe to have the power and ability to influence the container shipping industry. For more details please click www.goodshipping.org

Many are rightly preoccupied with the upheaval the lowering of the global fuel sulphur content cap, from 3.5% to 0.5%, will bring on 1 January 2020. This sweeping regulation is set to cause a spike in crude and fuel prices, even provoking US President Trump's intervention to slow its implementation, further confusing shipowners that are seeking to identify the best option to meet compliance in an already capital-starved market. As such, shipping is facing unprecedented challenges in terms of its fuel supply chain. A perfect storm is forming on the horizon and those inclined towards innovation are planning to take advantage of it.

The sulphur cap put aside, a far greater challenge awaits the industry, as it seeks to meet requirements to reduce carbon emissions from the 2008's level of over 1.0bt by 40% by 2030 and 50% by 2050. While the former is a target, the latter is a firm legislative requirement.

Increasingly on the minds of industry leaders looking beyond 2020, therefore, is the question how shipping will go about reducing its carbon footprint. It has become a commercial issue in its own right as well as a matter of social responsibility. In some ways shipping has come late to express in a clear and industry-wide manner how it will tackle its negative impact on the climate. Shipping represents almost 3% of all man-made CO₂ emissions – the same as Germany – and yet, until recently, the sector fell outside of any decarbonisation efforts mandated by the Paris Agreement. Indeed, apart from obligations at the European level resulting from the Monitoring,

Reporting and Verification (MRV) legislation – which obliges all ships above GT 5,000 to report their yearly data on CO₂ emissions, and operational or design non-binding indexes like Energy Efficiency Operational Indicator and Energy Efficiency Design Index – shipping has been broadly exempt from any efforts to decarbonise.

Things changed this April, when the International Maritime Organization (IMO) reached an agreement on an "initial strategy" for the reduction of shipping's CO₂ emissions outlined at the very beginning of this section. Moreover, the agreement called for emissions reductions to begin as soon as possible – a clear call for action across the industry board. Whilst this agreement does not give a timetable for rolling out restrictions on carbon output – due to be incorporated in a further revision in 2023 – it does, however, provide a platform for the industry's future action on decarbonisation.



A new era

Clearly, these legislative changes are beginning to create the commercial setting for decarbonising the industry. As for today, however, there isn't a raft of easily-accessible measures that are at shipping's disposal to reduce its carbon footprint. In the short-term, energy efficiency technologies – such as wind power used for auxiliary propulsion or air bubbles that reduce friction under a ship's hull, matched with slow steaming for additional lowering of bunker consumption – will provide “quick wins” of, perhaps, 20% or 30% less pollution. However, for an industry that will not have the same access to renewables as the land-based transport and power generation sectors will, only genuine innovation around new low carbon fuels will enable shipping to meet the targets set by the IMO.

According to the latest market intelligence suggesting that liquefied natural gas (LNG) does not, on a source-to-combustion analysis, reduce CO₂, it is marine biofuels that are now recognised as the only impactful solution that is market-ready. In 2017, research found that biofuels, of any of shipping's potential alternative bunker solutions, remain the fuel with the most emissions abatement potential. Sustainable marine biofuels have the potential to reduce CO₂ by up to 90%, at the same time considerably reducing local pollutants, including sulphur, nitrogen oxide, and particulate matter. Indeed, the classification society DNV GL, in the past a vocal advocate of using LNG as ships' fuel, has thrown its weight behind biofuels, saying that, “if we are to significantly reduce emissions from shipping as an industry without using nuclear fuel, the only real option we have today is sustainable biofuels.”

Despite this, fuels on their own will not be a convincing solution. For a market that requires accelerated adaptation, a change in mindset is needed, too. Innovative fuel solutions require similar out-of-the-box

models that fully take advantage of them. In an era when new solutions hit the market, market leaders across this supply chain – be them shipping lines, cargo owners, shippers, charterers, but also us, the customers – are more and more aware that decarbonisation can be approached more proactively.

All vessels emit into one atmosphere

Take shippers and cargo owners, for instance. In many ways, the shipping industry can be seen as something akin to a national power network, i.e., at some point almost all businesses make use of it. However, unlike the sustainable choices that conscientious consumers and businesses can make about how they receive power, e.g., by choosing a green or renewable supplier, they have historically had no agency over the type of energy used to transport their freight around the world.

This poses a great challenge for decarbonisation. For sustainably-minded cargo owners the only way they could reduce their seaborne transportation-related climate impact was to select an energy-efficient carrier, which was and still is a very limited option. Otherwise, they could offset their carbon footprint somewhere else in their supply chains – outside of the shipping industry.

In 2017, the GoodShipping Program was formed to meet these challenges. The initiative provides ocean cargo owners and shippers with a quick, traceable, transparent, and convenient way to reduce their carbon footprint. This is done through improving the shipping industry itself by, e.g., purchasing and driving the uptake of marine biofuels that directly change the marine fuel mix, not thanks to some alternative mitigation scheme.

By understanding the collective concept that all vessels exhaust into one atmosphere, the GoodShipping Program works on the principle that it does not matter for the purposes of carbon reduction

which container vessel takes on biofuel instead of fossil fuels. By partnering with leading marine biofuels company GoodFuels Marine, the Program allows shippers and cargo owners to offset their emissions regardless of transport volume, location, trade routes, or existing contracts with carriers and freight forwarders.

This is just the start

In September 2018, five shippers became the first to save CO₂ emissions through the scheme, when GoodFuels Marine delivered sustainable marine biofuels to one of Samskip's container vessels in Rotterdam.

This milestone demonstrated that shippers do not have to be beholden to fossil-based fuel norms. As biofuels are ‘drop-in’ and compatible with fossil-based ‘fuel equivalents’, it does not matter how much fuel is added to the tank, as there is no detrimental effect to the engine. This first refuelling collectively reduced the carbon footprint of the participating shippers – Tony's Chocolonely, Dopper, Blygold, Magic Marine, and Mystic – by over 40t, equivalent to removing 24 cars off UK's roads for an entire year.

And this is just the start. By remaining flexible in its approach, this model provides far greater scope for immediate impact on a significant scale, whilst having the same net effect in realising shipping's decarbonisation. What the success of GoodShipping Program proves, is that innovative models, when combined with cutting-edge fuels, demonstrate the potential to change the shipping industry for the better today – and not at some indeterminate point in the blurry future.

As decarbonisation becomes an even greater commercial priority for the industry, more leaders from across the shipping supply chain will have to face a simple concept: in a closed system any CO₂ improvements are better than none, and the green-means are upon us with the advent of sustainable marine biofuels.



Photos: Total Lubmarine

Preparing for 2020



by **Serge Dal Farra**, *Global Marketing Director, Total Lubmarine*

The 0.5% sulphur cap, due to enter into force on 1 January 2020, poses a unique and challenging test for the shipping industry. While much of the conversation has centred on the question of compliant fuel choice, what is discussed far less is the importance of determining the correct lubricant. More than ever before, the advice and monitoring services offered by the suppliers of marine lubricants will be critical to ensuring a vessel's ability to sail.

Serge Dal Farra has held the position of global marketing manager at Total Lubmarine since 2011, having previously worked in a variety of sales and marketing roles at the company, and an affiliate, since 1990. Before joining Total, Serge spent several years at sea as an engineer and deck officer. Serge is committed to industry-focused education initiatives, founding the Total Lubmarine Maritime Academy Support Program, which provides lubrication knowledge to future engineers and supports student projects in 10 academies worldwide. He further initiated the Total Lubmarine Shipping Community Initiative, providing customers and shipping industry stakeholders a platform to address industry challenges throughout the world.

However, it'd be short-sighted to assume that lubricant suppliers need to make only small modifications to existing products to prepare for the reduction to 0.5% sulphur emissions. From optimizing the base number (BN) through to ensuring fuel quality, the change in regulation means that there have been lubrication-related obstacles to overcome. Customer and supplier and original equipment manufacturers must work together to understand and subsequently overcome these obstacles.

The package deal

In preparation for 2020, the big decision with a substantial impact on lubricant suppliers will be fuel choice. Feedback from Total Lubmarine customers, as well as our partners at Total Marine Fuels Global Solutions (TMFGS), indicates that only a small number of operators have decided how to comply with the new regulations. Whether to scrub, move to liquefied natural gas, or use low sulphur fuels is not an easy call. Our research

suggests there will be a convergence on the last of these options.

To this end, we are in the development stage of a brand new product to support this market demand. Furthermore, Total Lubmarine considers low ash chemistry to be the foundation for future trunk piston engine oils, specifically dual-fuel engines or those running on diesel that will be fitted with selective catalytic reduction systems. As a result, Total Lubmarine is also currently developing new lubricants designed to limit CO₂ emissions.

What have we learned so far

The emergence of the Sulphur Emission Control Areas (SECAs) in North America and northern Europe, along with similar initiatives undertaken across China's Emission Control Zones (ECZs), demonstrates the problems the industry is already facing and offers a glimpse into how a post-2020 shipping market will look.

Taking SECAs as the forerunner for the regulation commencing in just over a year, from an engine lubrication perspective, the



Total Lubmarine, headquartered in Nanterre as part of Total Lubrifiants SA, is a specialized marine lubricants business, offering a pioneering range of marine lubricant and grease products and solutions. With a presence in over 100 countries and 1,000 ports, Total Lubmarine provides local support to its global network of maritime industry customers.

0.1% sulphur cap regulations have already proven to be extremely challenging. This mostly has to do with the engine damage that can occur when a vessel switches from a low to high sulphur fuel when leaving a SECA. Low BN lubricants designed for 0.1% sulphur fuel lack the basicity to defend an engine against the increased acidity in high sulphur fuels.

For marine engineers, a significant challenge is how to deal with the numerous grades of lubricants on vessels that only have two lubricant tanks. Total Lubmarine is helping its customers address this issue by providing a single oil solution. Talusia Optima is a 100 BN cylinder lubricant which is specially formulated to allow for fuel switching during transit, both in- and outside of SECAs, without needing to change lubricants. At the same time, the Total Lubmarine network of experts is advising engine teams on how to best manage the changeover challenge.

Just the right amount

When accounting for the additional complexity highlighted above, the value of continuous monitoring cannot be overstated. In the case of a two-stroke engine,

achieving the right levels of cylinder lubrication is dependent on combining numerous different operating parameters managed by a lubricant expert. Modern engines are particularly sensitive to corrosive wear and both under- and over-lubrication can result in costly and long-lasting damage. The Total Lubmarine feed rate optimization programme has been a significant step forward in tackling this issue, with customers reacting positively to this added-value service.

Oil the wheels

As the industry approaches 2020, two clear schools of thought are emerging in the lubricants market: to be reactive or proactive. The former looks to refine existing products in the hope that this will achieve the necessary results. Total Lubmarine, in turn, believes that dynamic research & development is the best long-term strategy, along with crew and on-shore technical staff support.

Emerging fuel and engine technologies need new types of lubricants. With engine technology continually evolving, the need to remain agile and close to customers as a supplier of lubricants is more important than ever before. ■





Photo: Trefoil Trading

Readying the industry for the sulphur cap transition

The inevitable 2020

by **Larry Rumbol**, *Marine Condition Monitoring Manager, Parker Kittiwake*



The UK-based company has 24 years of sustained and profitable growth under its belt, fuelled by vast R&D investments made in on-line, on-site, and off-site monitoring solutions for in-service lubricants, greases, bunker fuels, exhaust emissions, wear metals, acoustic emissions analysis, gas and valve leakage, as well as in sampling systems and worldwide logistics for large used oil analysis. For more info please go to www.kittiwake.com



At the recently concluded 73rd meeting of the International Maritime Organization's (IMO) Marine Environment Protection Committee (MEPC), the message was once again loud and clear – the implementation of the more stringent global 0.5% sulphur cap regulation will take effect with immediacy despite calls for a period of “experience building” and “pragmatic enforcement.”

With less than 14 months before the directive becomes mandatory, the time of the “wait-and-see” approach is over for shipowners. While some have announced their commitment to a method of compliance, others are scrambling to determine what is a cost-effective and reliable solution that will ensure compliance in the most efficient manner.

Effective enforcement, non-compliance, and fines

As the industry continues to be inundated with endless reports and speculation on the variability of the different routes to compliance – just as was the case when the 0.1% Sulphur Emission Control Areas (SECAs) were debated prior to their introduction on 1 January 2015 across parts of the northern hemisphere – widespread concerns remain around how the regulation will be enforced and how compliance will be effectively ascertained.

Effective enforcement sits at the heart of the sulphur cap, as without this the regulation will be rendered meaningless. However, it is still unclear exactly how this will be policed. Will there be a formal process

in place to allow shipowners and port authorities to effectively test and prove compliance? What impact will the regulation have on insurance policies? What to do when a given bunkering market lacks low-sulphur fuel? These are all issues that, at the moment, remain unresolved.

According to predictions from the *World Oil Outlook* report produced by the Organization of the Petroleum Exporting Countries, only seven in 10 vessels will be compliant by 2020. So, what about the remaining 30%? And how will they be identified? Anne H. Steffensen, Director General, the Danish Shipowners' Association, rightly stresses that “we must get sulphur enforcement right otherwise there will be distortions in the market.” Deliberate non-compliance is a key concern that needs to be tackled to ensure a level playing field for all.

The current lack of enforcement mechanisms and the variance in fines handed out to shipowners serves as an incentive for non-compliance, leaving rule-abiding companies at a disadvantage, given the additional investments and costs associated with meeting the sulphur cap regulation. Shipping



Photos: Parker Kittiwake

consultancy Moore Stephens noted that vessel operating costs could rise by 2.7% in 2018 and further by 3.1% in 2019 as the industry braces itself for the impact of the regulation. According to shipping giants CMA CGM and Maersk, it will cost as much as \$1.5b and \$2b, respectively, in order to ensure compliance.

At present, fines and penalties for non-compliance in existing SECAs vary significantly. For example, the highest fine in Denmark is currently \$60k for vessels operating within the SECA, whereas in Belgium non-compliance could cost a shipowner \$7m. A recently reported breach by a cruise vessel in France could result in a fine of up to \$200k and a potential prison sentence for the shipowner, the captain and/or the chief engineer.

Also, one might wonder whether non-compliance takes place from time to time or are we talking about a deliberate practice. The Swedish Transport Agency, in cooperation with the Chalmers University of Technology, has installed a sulphur sensing device on the Øresund/Öresund Bridge. According to the data the two parties gathered during the trials, some 5-10% of the ships cheat. As such, Sweden introduced this September new penalties against those who violate the sulphur rules. Shipowners and operators will have to pay an environmental sanction fee, up to SEK1.0m/ 100k depending on the amount of sulphur released and a ship's total engine power – and even if they go over the limit unintentionally or due to negligence.

Fuel quality

Another pressing challenge for shipowners is the impact that the 2020 sulphur cap will have on the future fuels market, which, in turn, will affect vessel operations and efficiency. In preparation for the cap there has been a notable rise in new varieties of alternative fuels and new blends entering the market. Oil majors, such as Cepsa, BP, Sinopec, and ExxonMobil, are working to produce and supply low-sulphur fuels to meet demand ahead of 2020.

Fuel quality has a significant impact on vessel performance and as such, concerns about the quality of blended products introduced to the market are being raised. Shipowners and operators have to address fuel compatibility and stability issues, including increased cat fines and differing parameters regarding viscosity, flash point, pour point, and ultimately confirmation of sulphur level. Failure in doing so may result in engine damage and costly repairs as well as associated downtime. This can prove to be catastrophic for shipowners.

These aren't just some theoretical if-then-well-maybe deliberations. Earlier this year, over 100 ships were affected by contaminated marine fuels, first hitting Houston and then spreading further to ports in Singapore and Panama. Vessels bunkering in these ports suffered mechanical issues, ranging from clogged pipes and filters to catastrophic engine breakdown and power loss, leading to claims worth millions of dollars. Without proper checks and technical guidance in place, the sharp rise in bunker quality issues seen in recent

months could be an indication of what may lie ahead when the global sulphur cap comes into effect.

What's being done?

To address these challenges, various measures and initiatives aimed at ensuring the consistent implementation of the sulphur cap were tabled at the recently concluded MEPC meeting. Regulators made concerted efforts to make it clear to the industry that there will be no phased approach to the enforcement of the new rule limit, including green-lighting the adoption of a ban on the carriage of non-compliant fuel oil for vessels without scrubbers. The ban, which would come into effect as early as March 2020, eliminates any doubt surrounding the IMO's commitment to fully implement the regulation.

During the weeklong discussions, the IMO found itself in a deadlock over a proposal to implement an "experience building phase" after the 2020 sulphur cap comes into effect. The proposal, highlighting concerns over the safety of compliant fuels, was submitted by the Marshall Islands, Liberia, the Baltic and International Maritime Council, and the International Association of Independent Tanker Owners, and was latterly supported by the United States, too. However, the proposal was seen by some as an attempt to 'water down' the regulation. As a compromise, the IMO invited members to make new submissions on matters around compliant fuel oil quality and non-availability reporting at the next gathering of the MEPC in May 2019.



Photo: Port of Gothenburg

Another key development was the approval for a new guidance designed to assist shipowners to safely comply with the 2020 sulphur cap. This will offer advice on how to prepare vessels for implementation of the new rules, including, among many, a proposed ship implementation plan that entails risk assessments of the impact of the new fuels as well as guidance for the procurement of compliant fuels and the switch from conventional residual fuel oils to low-sulphur compliant bunkers. The first draft is set to be tabled during a February 2019 meeting of the IMO's Sub-Committee on Pollution Prevention and Response.

While these measures are encouraging news for the global shipping industry, it is also vital to provide port state control (PSC) and shipowners with easy access to the data they need to accurately check and prove compliance. The policing role of the sulphur cap regulation falls on the individual flag states – not the IMO. The latter has no authority to enforce its own regulation, therefore, flag states and port authorities have a key responsibility in ensuring compliance.

Portable sulphur testing

Traditional methods for confirming compliance rely on paperwork requirements,

like the Bunker Delivery Note. This not only significantly increases the risk of non-compliance and subsequent penalties for shipowners but also heightens the environmental impact of burning fuel with a higher sulphur content. In addition, the delay incurred by laboratory analysis creates the risk that the vessel may have left port with non-compliant fuel on-board, or may require non-compliant fuel to be de-bunkered and compliant fuel re-bunkered, incurring significant delays and additional cost.

Accurate and reliable portable sulphur testing allows for a 'spot check' analysis of the sulphur content in fuel. For PSCs, it gives them the ability to easily ascertain the sulphur content of fuel in-situ and efficiently target vessels for sampling and compliance testing – before the vessel leaves port with non-compliant fuel on-board. And for shipowners, portable sulphur testing allows them to quickly and easily determine if the fuel is compliant, hence allows them to take preventative action before non-compliant fuel is bunkered complete, as a result preventing the need to de-bunker non-compliant fuel and avoiding incurring penalties and significant delays.

The Parker Kittiwake XRF analyser provides on-site analysis of the sulphur

content in fuel on-board a vessel, allowing the PSC to ascertain compliance almost instantly. The XRF provides an accurate indication of sulphur content through the analysis of a small fuel sample in three minutes. Test results can be stored electronically, allowing operators to manage compliance audits more efficiently. More significantly, the portable device can also be used to measure a range of wear metals in lubricating oil, allowing operators to quickly identify potential damage in cylinder liners, bearings, piston rings, gears, stern lubes, and hydraulic systems.

The tech-leverage

The preparatory moves towards the robust implementation and enforcement of the global sulphur cap in recent weeks provide some reassurance to the industry. However, many questions still remain unanswered. Despite the uncertainties, PSC inspectors and shipowners can leverage readily available technology to access reliable fuel testing data that will allow them to prove and check compliance quickly and on-site – allowing for timely and appropriate action and facilitating the effective policing of the regulation; ultimately, for significantly reducing sulphur emissions from shipping. ■

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