Summer **2020**

WORLD BUNKERING

THE OFFICIAL MAGAZINE OF IBIA

COVID-19
CREATES TURMOIL



INSIDE THIS ISSUE:

FUEL MANAGEMENT IN 2020
GREY AREA ON HSFO CARRIAGE
CHEMICAL SPECIES IN BUNKER FUELS

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LEARNING TO COPE WITH COVID-19

Dear Reader
When, back in January, we were putting the Spring Issue together, the first troubling signs of a very serious new virus were emerging from China.

We had no idea then just how big a disaster was about to unfold. But, on not much more than a whim, we made the front cover read "2020, so far so good, but watch out for the unexpected". And because the new coronavirus was starting to make the news, we used a rather eerie looking shot of the virus up close and personal as the illustration. Unfortunately, that front cover turned out to be disturbingly prescient.

That all seems a very long time and almost another world ago now. As I write this, an Internet search tells me that at least 324,000 people have died worldwide after falling ill with what we now call Covid-19, and that figure can be expected to be much higher by the time World Bunkering hits your desk.

World trade has been sent into turmoil, the price of oil has nosedived and nobody can predict what sort of economic conditions will prevail once some degree of stability returns. Unless and until an effective vaccine is developed there is likely to be a 'new normal' in human behaviour, and consequently consumer demand, which might not seem very normal at all.

Four short months ago the preliminary ideas for this issue were all focused on how the shipping industry would be coping with IMO's 0.50% sulphur limit. You still find plenty on this topic within our pages. The short answer to that question is: "Reasonably well". But the longer answer is on many of our pages, and particularly relevant are our Fuel Management feature and our regular Legal Section.

We have moved away slightly from our regular format and, instead of an interview, this issue includes a guest feature on Chemical Species in Bunker Fuels. It has been written for World Bunkering by Peter Meeusen, a chemical engineer with over 40 years' experience in the area of marine fuel and fuel oil cargo testing. He sets out a case for increased controls of chemical species in bunker fuels.

Meeusen's observations and conclusions are entirely his own and are likely to stimulate debate. That being the case, we are also running a comment from IBIA on the arguments he puts forward.

There is, though, no getting away from the reality that the overriding issue now is the damage Covid-19 is wreaking on the world economy and, consequently on bunkering.

In our Environment pages, IBIA Director Unni Einemo reports how the pandemic has halted progress on important regulations. As she notes: "IMO will have a lot to catch up on when meetings can resume."

Meanwhile, our geographical features give a picture of how our industry is coping with the pandemic in the Western Mediterranean, the Indian Subcontinent and Mauritius.

Our last issue warned of unexpected turns of events. Both our Fuel Management and Scrubbers features consider the completely unexpected disappearance of the price differential between MGO and VLSFO. On occasions MGO has actually been quoted as being cheaper VLSFO.

From a fuel management perspective, the possibility of using MGO in the long run has no doubt brought a smile to faces of more than a few chief engineers. And it would meet with Intertanko's approval given that the tanker industry organisation has long lobbied for a move away from residual fuel.

Oil refiners who have spent time and money developing 2020 compliant blends might find it slightly more difficult to smile. Manufacturers of scrubbers and shipowners who have ordered them may also be concerned that the relative price advantage of using HSFO has shrunk greatly. But there is still a differential between HSFO and compliant fuels.

Of course, by the time I write this column for the next issue everything could well have changed again.

In the meantime, it will still be very much a case of expect the unexpected.



David Hughes
Editor

IBIA

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- ANNUAL CONVENTION 2020 -



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WHAT'S NEXT?

This is my first article as the Chairman of IBIA, and it is written under some very different circumstances than I had expected

As most of you are, I am also affected by the present worldwide coronavirus pandemic, and have been working from my home since mid-March. I have therefore been forced to change to online sessions and virtual meetings.

The impact of the coronavirus on our industry has been, and will be, significant. We are yet to experience the long-term consequences and many questions are being discussed at present, however, without any clear answers.

Will we see major changes in trade routes? When will we be back to the same level as we were before the pandemic? Will we ever get back to the same or will this change our view on worldwide transport and local sourcing permanently?

The truth is that we do not at present have those answers. We will have to wait and see, but the financial and economic impacts that the aftermath will bring are expected to be one of the largest challenges that our generation will face.

Our industry is based around seaborne transport and especially the fuel that enables goods and vessels to move around the world. Many of our members in IBIA have already felt the financial impact of slowdown in transport requirements and consequently a drop in bunker demand.

Perhaps it is time to remember that not that long ago, we did successfully manage the IMO 2020 transition to new and environmentally better fuels; a success that many of us already have forgotten in the present mess. But the success of the IMO 2020 fuel switch is perhaps also one of our main keys to overcoming the present coronavirus crisis and successfully embark on the other side as an industry.

The IMO 2020 challenge did show us that when we start working together across many different sectors and companies within our bunker industry, we can take on even large and complex challenges like the transition to the 0.50% sulphur limit globally.

It might today seem like it was easy compared to the present coronavirus crisis, but remember: when the 2020 sulphur limit was originally agreed upon, we as an industry were not able at that time to give the solution on how to solve it, but together we managed to do it and with great success.

Therefore, we need already now to start planning for the future, despite the fact that we are still fighting with both the corona virus and the many long-lasting consequences it will bring for us to deal with.

IBIA can be and will continue to be the platform where the stakeholders of our industry are able to meet each other and exchange views and co-develop the solutions required for the future.

During my first Chairman's speech at the IBIA Annual Dinner in February 2020, I shared the vision set by the board of IBIA for three areas that IBIA will focus on. Despite the fact that implementing our plans may now require more time, they are unchanged and the work has already commenced.

The first area of focus is the development of IBIA as an organisation.

In 2020, we will start the transformation to make IBIA truly INTERNATIONAL by introducing and implementing a new board structure that will consist of 5 Regional Boards and a Global Board.

Each of the Regional Boards will be empowered and work with a local mandate to act and manage on behalf of IBIA's and the members' interests locally.

Secondly, we have seen that Singapore has taken the lead on implementing a bunker licensing scheme and mandatory mass flow meters. Now, the ports in the Amsterdam-Rotterdam-Antwerp region have announced their ambition to follow their lead.

IBIA has an ambition to work on uniting the 10 most important bunker areas worldwide under a similar bunker licensing scheme, including mass flow meters, and that work has already begun.

Last, but not least, IBIA will actively start working with partners in and around our industry towards the IMO's ambition to reduce greenhouse gas emissions by at least 50% by 2050.

IMPORTANT NOTE:
IBIA only exists because of your memberships, and IBIA can only fulfil our role of gathering, educating and leading the industry in the challenges ahead, if we continue to have a strong and diverse membership platform.

I therefore ask you all to ensure to both renew your membership with IBIA and to actively promote our organisation to your networks.

IBIA can only be as strong as the members it represents, and with the uncertain future we are facing, a strong organisation is more important than ever before.

THANK YOU ALL FOR YOUR SUPPORT FOR IBIA.



Henrik Zederkof
Chairman

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FLATTENING THE CURVE

This year has not turned out as expected. During the second half of March, as the gravity of the coronavirus became clear and the WHO declared it a pandemic, most countries imposed strict limitations on the movement of people. We suddenly found ourselves largely confined to our homes, or, in the case of ship and even some barge crews, trapped onboard beyond the end of contracted periods. These restrictions, referred to in many countries as "lockdown", shared one overarching goal: to stop this deadly virus from spreading uncontrollably. Without these measures, many more people would have been infected, overwhelming health services fighting to keep those falling seriously ill alive. The focus has been on reducing the peak of infections; flattening the curve.

In the process, untold damage has been done to the economy. The full impact of the corona crisis will not be known for some time yet, but we do know that it has already disrupted the shape of several other curves significantly. Short term it has contributed to a dramatic fall in air travel and private car use, impacting global oil demand. Prices of crude oil and oil products have been on a steep downward curve, in particular during March and April, but begun rising again in May. Tankers have benefitted from a supply glut and seen rates shoot up. But for how long? Other shipping sectors have tried their best to protect freight rates, but predictions for the second quarter of 2020 have been bearish as global trade has, inevitably, been slowing down.

When I wrote the Director's report for the spring 2020 issue of World Bunkering, I was happy that our industry had managed to navigate much more successfully into the new 2020 global low-sulphur era than many had thought. I was looking forward to IBIA's Annual Dinner at the start of IP Week on 24 February, where this year we were honoured to host the Secretary General of the IMO, Kitack Lim, at the Chairman's table, and representatives for IPIECA and BIMCO. I had the pleasure and privilege of sitting next to Kitack Lim during dinner. I was, as always, impressed by his friendly and approachable manner. We were, already then, wary of the growing threat of the coronavirus outbreak, but we were delighted to see many of our members joining us for a hugely enjoyable evening.

During IP Week, I took part in two events as a speaker and panellist. One was the 2nd Fujairah London Breakfast Workshop, hosted by Capt. Salem Al Hmoudi, Director, Fujairah Oil Industry Zone and moderated by Sean Evers of Gulf Intelligence. Other featured speakers at this event were Mike Muller of Vitol Asia and Chris Wood of Uniper Energy DMCC. The subject was, unsurprisingly, how Fujairah was adapting to IMO 2020. Afterwards I went to take part in a panel on cutting carbon in shipping at the ShipInsight conference alongside several well-known names, including Jasper Faber of CE Delft, Chris Millan of Carnival Corp, Bob Sanguinetti of the UK Chamber of Shipping and Peter Hinchliffe, representing the Methanol Institute.

During 2019, I took part in 27 events as a speaker, panellist and moderator, including three IBIA conferences and five IBIA partner events. Locations included London, Fujairah, Limassol, Oslo, Gibraltar, Cape Town, Singapore, Montego Bay, St. Andrews in Scotland, Geneva, Istanbul, Panama City and Athens, and two webinars. This year will, obviously, be very different. Physical events in the first half of 2020 have been postponed or cancelled and we're increasingly moving toward online events. I took part in two this spring. In April, I was a panellist at the Lloyd's List Future Fuels webinar alongside Christos Chryssakis of DNV GL and Chris Chatterton of the Methanol Institute. In May, IBIA and S&P Global Platts co-hosted a webinar entitled 'Bunkering in 2020: Sulphur regulations, oil wars and COVID -19' featuring market analysis from Jonty Rushforth and Daniel Colover from S&P Global Platts and myself taking about the IMO 2020 experience so far. Thankfully, modern technology has enabled us to continue to do our work and take part in events and meeting, without even having to put shoes on as we dial in from our own homes.

Just before IP Week, I attended PPR 7, a week-long meeting at the IMO with delegates flying in from all over the world, with the exception of China, which had a smaller than usual delegation consisting only of its London-based representatives. PPR 7 was intense, with long working hours, making progress on environmental issues. As IBIA's IMO Representative, I was expecting a very busy spring and early summer attending several meetings, in particular MEPC 75 and MSC 102. However, due to the pandemic, IMO has postponed all meetings until at least the end of June. At the time of writing, the IMO was conducting an Extraordinary Council session by correspondence to decide on which committee meetings to prioritise once physical meetings can resume.

Since mid-March, it has felt as if the world stood still amid efforts to control the coronavirus, but shipping and the bunker industry have continued to operate, adapting to new ways of working. We are part of an essential industry. Shipping is needed to keep the world's population supplied with food, energy and other vital goods. Shipping is the engine of global trade and the bunker industry fuels that engine. However, imports and exports of certain raw materials have dipped, as has the flow of manufactured goods. As a result, the second quarter is likely to see a significant impact on global demand for shipping, but there are hopeful signals as many countries appear to be past the peak of infections and have gradually begun to ease restrictions during May.

We don't know how long it will take before the coronavirus is sufficiently under control to allow for the human activity that underpins the economy to return to normal. We will likely need to adjust to a 'new normal' for a while, and accept that it's business, just not quite as usual.



***Unni Einemo,* Director IBIA**
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IBIA CODE OF ETHICS

IBIA is appealing to all of its members to join this important initiative by showing support for our Code of Ethics. It's an aspirational statement and an important step towards our aim of promoting the adoption of a common set of ethical values across the industry. We believe that when the entire industry acts with the highest ethical standards that this will be to the benefit of us all.

FAIR BUSINESS

- We conduct our business in a fair and transparent manner
- We will always act in the best interest of each business partner and are honest with the stakeholders involved in our business
- We only engage in business using compliant products, and deliver the quality and quantity agreed with our business partners
- We always act in good faith

BEST PRACTICE

- We always act in accordance with applicable legislation, including sanctions
- We always meet contractual obligations in a timely manner
- We always do our best to avoid disputes and seek resolution promptly if disputes occur
- We comply with all applicable competition and anti-corruption laws
- We respect confidential information and do not unlawfully use any intellectual property

SOCIAL RESPONSIBILITY

- We seek to minimise our environmental impact and the risk of environmental damage
- We will always ensure employees' health, safety and security
- We offer equal opportunities, prohibit unlawful discrimination and respect human rights
- We offer the same opportunities for professional development to all our employees

TRANSPARENCY

- Our accounts and records are kept accurately and reflect the true state of the company and its operations
- During audits or investigations, we fully cooperate with the authorities
- We will not receive or give any gift or entertainment of disproportionate value
- We are fully committed to preventing both money laundering and terrorist financing

You can sign up to our Code of Ethics online: **https://codeofethics.ibia.net/**

2020 IBIA EVENTS PROGRAMME

ONLINE TRAINING COURSE		
READY TO PURCHASE	Bunker Market Regulations and Enforcement	Online at www.ibia.net
READY TO PURCHASE	Understanding ISO 8217 and ISO 4259	Online at www.ibia.net
READY TO PURCHASE	Best practice for suppliers with VLSFO	Online at www.ibia.net
READY TO PURCHASE	Best practices for users with VLSFO	Online at www.ibia.net
READY TO PURCHASE	Adapting to a changing market	Online at www.ibia.net
JUNE		
30	IBIA 1 Day Bunkering Course (SS648:2019)	Online at www.ibia.net
JULY		
1, 2	IBIA 1 Day Bunkering Course (SS648:2019)	Singapore, Asia
7, 8, 9	IBIA 1 Day Bunkering Course (SS648:2019)	Singapore, Asia
14, 15, 16	IBIA 1 Day Bunkering Course (SS648:2019)	Singapore, Asia
21, 22, 23	IBIA 1 Day Bunkering Course (SS648:2019)	Singapore, Asia
28, 29, 30	IBIA 1 Day Bunkering Course (SS648:2019)	Singapore, Asia
AUGUST		
18	IBIA and S&P Global Platts - Middle East Bunker Conference	Online at www.ibia.net
NOVEMBER		
3 - 5	IBIA Annual Convention 2020 - Going Global	Online at www.ibiaconvention.com

2020 EVENTS IBIA SUPPORTS OR PARTICIPATES IN

AUGUST		
24 - 27	Maritime Week Americas	Panama
SEPTEMBER		
23 - 24	Oil Spill India 2020	Mumbai, India
14 - 16	36th Annual Asia Pacific Petroleum Conference (APPEC 2020)	Online
21 - 25	Portugal Shipping Week	Lisbon, Portugal
OCTOBER		
6 - 9	SIBCON	Singapore, Asia
13 - 15	International Bunker Conference	Oslo, Norway
15 - 16	ARACON	Rotterdam
TBC	Argus Fuel Oil Summit	Miami, USA
23 - 26	Posidonia	Athens, Greece
NOVEMBER		
4 - 6	2nd Annual Marine Fuels 360	China
APRIL		
12 - 25	Seatrade Cruise Global	Miami, USA
17 - 25	Singapore Maritime Week	Singapore, Asia
SEPTEMBER		
6 - 10	London International Shipping Week	London, UK

*Please note that the above dates are subject to change. Please refer to IBIA's website for any postponements or changes that may occur due to the current pandemic



IBIA GOES DIGITAL

IBIA is adapting and evolving and gets an even more global character! Innovation and transformation are what make us meet our members' needs

Just over a month before the lockdown in the UK and much of the world, IBIA held a very well attended and successful **IBIA Annual Dinner** with almost 1,000 guests. It was mesmerising, and on behalf of the Secretariat, I would like to thank you all for being there! We really hope you enjoyed it as much as we did! Until next time…

As I write, we are excited to announce the **launch of IBIA's newly designed website** on www.ibia.net. Our goal is to create an engaging experience for our trusted and valued members. We wanted to make the new website easier to navigate, a better platform to promote our corporate members and offer the unique opportunity to all our members to take advantage of a **high-end online portal**.

What does this portal offer?

This portal is specially designed to give our members **access to IBIA's Membership database,** so they can get in contact with industry leaders and develop new business relations from the convenience of their PC. How can they do that? By messaging directly, emailing and setting up a meeting straight from the member's portal.

Working groups will also be hosted on the portal. These are a core means of member participation and the mechanism to discuss and develop IBIA's position and responses to key industry issues, whether international, regional, national or local. Outcomes can include input to IBIA's work at the IMO, guidance documents and publications.

Articles and News is where our members will get full access to all articles and news produced by IBIA.

After months of hard work and dedication, we are delighted to finally take this new designs and membership portal live.

Let's move to our events agenda.

Convenience and flexibility are what this period has allowed us to offer to our industry. For the first time, IBIA is launching **Online Bunker Training Courses**, which will give students the opportunity to fit learning time around the rest of their day, instead of the other way around. The five modules we are introducing are the following:

- Bunker Market Regulations and Enforcement Understanding ISO 8217 and ISO 4259
- Best practice for suppliers with VLSFO
- Best practices for users with VLSFO
- Adapting to a changing market

The renowned expert in the bunkering industry Nigel Draffin, Aauthor of 12 books on Bunkering and IBIA's Treasurer, will deliver the online IBIA Bunker Training courses.

The courses will be aimed at all bunker industry stakeholders who are keen to gain general knowledge of marine fuel. It will be of value to anyone wanting to gain a comprehensive overview the bunker market and will be delivered in clear, understandable language with delegates able to ask questions and seek clarification to any topics covered. The courses can be taken as stand-alone modules, but students will gain the most if they take all five in the order suggested. IBIA has invested in a platform that facilitates interactivity between students and the trainer, meaning students will have the opportunity to ask questions directly to the trainer. Each student who successfully completes a topic will receive a certificate of attendance.

This will demonstrate to others that the student has undergone a programme of training covering the subjects of the courses completed and give recognition of that achievement. Companies who sponsor their employees to attend will have improved the skill set of their staff,

improved the level of in-house knowledge and expertise and be able to show their clients that, as a company, they see the training, upgrading and development of their staff as a valuable resource. This initiative will allow students to participate from their own office or home, and will save costs over conventional training by avoiding travel and accommodation costs.

As the programme is rolled out, we are planning to add further courses, which will cover some topics in greater detail such as measurement and survey, legal and contractual issues and claims handling. The Online IBIA Bunker Training Courses are recorded and available to purchase only from IBIA's website.

Moving to the **IBIA Annual Convention 2020,** we are certain that this will be our most successful Convention to date with a **global** focus. The IBIA Annual Convention 2020 will take place on the 3-5 November as planned and it will be transformed into a virtual Convention. This will be the greatest opportunity for our sponsors, attendees, speakers and partners to meet at the same time, in the same environment. All the details will soon be announced on our website. Stay tuned.

As for the Middle East Bunker Conference in Dubai with S&P Global Platts (2 September) and the Future Fuels Conference with the UK Chamber of Shipping (29 September), we currently monitor the situation. If we are confident enough for our participants' health and safety, we will go ahead.

IBIA will continue working on ways to improve our offering to members. We hope you are keeping yourselves safe and healthy and we are looking forward to 'meet' you soon again.

If you want to become a speaker, sponsor or find out more about our events, you can contact me any time.

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INTERNATIONAL BUNKER INDUSTRY ASSOCIATION

ONLINE BUNKER TRAINING COURSE

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SOUTH AFRICA FACES THE CHALLENGE OF COVID-19

South African Ports remain open despite lockdown

On 23 March 2020, the President of South Africa declared a lockdown for a period of 21 days, effective from 27 March 2020, to stop the spread of the Covid-19. This lockdown period has been further extended with the introduction of 5 levels. At the time of writing, South Africa was entering week six of lockdown and operating on "level 4", awaiting further announcements from Government as to when this will change.

Although all of South Africa's main commercial ports have remained open for business and bunkering operations continued, the coronavirus outbreak has led to a significant drop in activity and restrictions on crew changes.

Ports were only operating at a capacity of around 30% during April, but this increased to 65% following the move to level 4. Vessel waiting time to berth in Cape Town in early May averaged four to five days, while in Durban it was more at about six days.

This has seen several vessels bypass South Africa in favour of Namibia's Walvis Bay on the west coast, Mozambique's Maputo on the east coast, or Port Louis in Mauritius. One shipping line was forced to introduce a ninth vessel into their rotation schedule due to the long waiting times to berth at South African ports that was impacting on their overall scheduling.

Many vessels are bypassing and returning at a later stage, or omitting South African ports completely.

Export volumes have seen a significant drop. Whilst imports continue to flow – albeit it at a slightly lower rate – there is a current imbalance in the country that cannot be sustained. A recent vessel in Durban brought in 4,000 containers and left with only 300 export containers. This was indicative of the current situation.

In Durban only three berths were operational at the time of writing, sometimes four when becoming very congested. Cape Town was only operating two berths as of early May.

IBIA Africa Exco Member and owner of Lavin Energy, Chrystel Bassett-Simmonds advised: '"In order to understand the global impact on South African bunker demand, we looked at the historical data of the port calls for Cape Town, Richards Bay, Durban and Algoa Bay for Q1 2020. Cape Town has experienced a significant drop in port traffic for April of 32% compared with January (Durban down 23%), with volume down on bulk carriers, container vessels and interestingly, 28% drop in fishing vessels."

She added: "Durban sees a drop in bulk carriers, container and cargo vessels calling port – in the region of 15-20%; and in Richards Bay bulk carriers are noticeably much lower in March than the start of the quarter."

With regards to offshore supply from Algoa Bay, demand for VLSFO has remained consistent seeing a slight decline, with some interest in HSFO. Supply offshore has so far remained consistent.

Currently, South Africa's three coastal refineries have closed with the only expected start up soon being The Astron refinery at the beginning June, however Astron have still been able to continue to supply VLSFO and MGO in Cape Town.

The feedback from our local South African members has been that bunkering volumes are down, but as the easing of the lockdown allows for the opening up of various services and industries, they remained hopeful with regards to an upturn in the not too distant future.

If you would like to engage with the IBIA Africa team, or become a member of IBIA, speaker, sponsor or find out more about our local engagements and events, please contact me.

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WAITING FOR THE STORM TO PASS

IBIA Asia is looking for positives and has good news about its training courses

Time has really flown. As I am writing this report, it is already May 2020. Many of the events planned for the first and second quarter of 2020 have either been cancelled or postponed by the storm of the global COVID- 19 pandemic. For IBIA Asia, the affected events so far in our planned 2020 activities are participation as speaker/ organiser in the Asia Pacific Maritime exhibition in March, and the IBIA Asia Annual dinner in April.

I am sure everyone of us have heard enough of COVID-19 effects, social distancing, lockdown of cities, growing fatality and cases across over 200 cities in the world. The extent of the economic damage for factories, companies that are folding, bankruptcy and millions of employees that are unemployed and retrenched worldwide makes for depressing news.

Have you ever heard this story about a mother who had two daughters: The elder daughter married into a family selling umbrellas, and the younger daughter married into a family working laundry services.

The mother was always worried. On rainy days, she worried for the younger daughter that her laundry services business would be affected. On sunny days, she worried about the umbrella business of her elder daughter.

One day, a wise man learnt about her worries and told her that she was very blessed as no matter whether it was raining or sunny; she would have good news. She was delighted after hearing that and learned to appreciate both rainy and sunny days.

The morale of the story is the attitude you have to what happens to you. Stay positive and look for another angle. We will learn and appreciate what we are now and what we had before.

We hope the COVID 19 storm will be over soon and a rainbow will appear to cheer us all up.

Training

The IBIA Asia office offers specialised training for the bunker sector in Singapore with courses approved and certified by the Maritime and Port Authority of Singapore (MPA). We run Enhanced Bunkering Courses covering the Singapore Standard SS 600:2014 and Mass Flow Meter Technical Reference TR 48:2015. In March 2020, 10 trainees attended the course.

We have been running a new MPA-approved course since February 2020, on the new Singapore Standard SS 648:2019. During February, March and early April 2020, a total of about 240 trainees attended this 1-Day Training for approved Bunker Surveyors and Cargo Officers course.

Both our courses have been approved by MPA in May 2020 for grants of up to 90%, from 70% earlier, from the Maritime Cluster Fund for eligible trainees taking the courses between 1 May 2020 to 31 December 2020.

Interested parties are encouraged to contact Noraini noraini@ibia.net and Alex Tang regionalmanagerasia@ibia.net.

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Alfa Laval open

CHEMICAL SPECIES IN BUNKER FUELS


Peter J.M. Meeusen

Peter J.M. Meeusen, a chemical engineer with over 40 years' experience in the area of marine fuel and fuel oil cargo testing, sets out his case for increased controls of chemical species in bunker fuels. The observations and conclusions in this article are entirely the author's own

Background – the HFO supply chain

After having optimised their output, refineries are left with residual products. The cost cracking these residuals into valuable distillates often exceed the potential gain. The bunker industry is therefore used as an outlet for these residual products. Before they can be sold as a marine fuel oil, they are blended with various cutter stocks at refineries and/or at independent storage companies.

The viscosity of the heavy residual fuels can range from 600 to 700 cSt (at 50C). Adding about 5% cutter stocks result in an RMG380 grade heavy fuel oil (HFO). Refinery bottom streams, containing a wide range of hydrocarbons with high boiling points (exceeding 650C) are also used in the HFO pool. These bottoms can have viscosities as high as 20,000 cSt (at 100C) requiring 30-40% of cutter stock to get an RMG380 grade HFO.

The HFO supply chain from the refinery to the receiving vessel can be long and complex. Blend components, as well as final HFO blends from a refinery can travel over long distances and/or be traded several times.

All cargoes, including HFOs, are known and must be followed by a safety data sheet (SDS), preferably also with a REACH registration, the European Union's regulation for registration of chemical substances. All chemical species are – in principle – reported under the SDS item "Chemical composition" and will therefore automatically be subject to certain specific safety limits on characteristics such as flash point (minimum 60C) and volatile organic compounds (VOCs), including chemical species that are poisonous to humans.

Bunker stems vary from small amounts up to thousands of tonnes of fuels. However, the sample to be tested as a representation of the full bunker delivery consists of less than a litre of the fuel. The testing agencies are generally limited to run the suite of ISO 8217 tests on a single bottle sampled from the receiving ship during delivery.

Examples of endemic cases

Occasionally, endemic fuel cases happen in the marine industry.

[*Editor's note: Endemic cases are characterised by a number of ships experiencing the same fuel related operational problems, having bunkered in the same area within a given period. The fuels can be from the same supplier or barge with the same fuel properties - but not necessarily.*]

1997

Cargoes carried by MV Cape Dolphin from Ventspils which were used as a blend component for marine fuels in the the Amsterdam-Rotterdam-Antwerp (ARA) region. After several vessels experienced severe filter clogging, testing revealed polypropylene as the culprit. At the time, the polypropylene was detected by microscopic research and confirmed by FTIR - Golden Gate.

2003

Cutter stocks used in the ARA region contained a substance which caused filter blocking. Filters were plasticized (sealed), which did not allow filters to backflush. As the reports of operational problems surfaced, the industry quickly removed this cutter stock from the market.

We believe the problem was cutter stock containing styrene monomer with precursors. FTIR technique can identify transparent polystyrene.

Both these temporary incidents led to a tremendous increase of fuel testing by fuel testing agencies, which offer various conclusions about issues such as polymerisation, filter blocking, glue deposits, chemical contaminants, deleterious materials and whether the contaminants are of refining origin.

Intermediate conclusion

The fuel testing agencies are limited to the one litre sample and their in-house techniques for sophisticated analysis. Despite all the reports presenting results of GC-MS and FTIR techniques, no standard has been achieved by the industry; neither on industry standardisation for test methodology (except for ASTM D7845), on limits for detected parameters, nor on harmfulness of specific components and at which concentration.

Without standardisation or data/knowledge sharing, no chemical species can be expected in coming ISO 8217 revisions.

ASTM D7845

The only standardised method for investigative marine fuel testing is the ASTM D7845 covering a quantitative determination of a variety of chemical species in marine fuel oil by GCMS. This standard applies for the majority of the Volatile Organic Compounds (VOC) such as butylacrylate, styrene, phenol, dicyclopentadiene (DCPD), indene, limonene, styreneglycol and others.

Common for VOCs is that they serve as combustion improvers due to their volatility. The volatility impacts the flash point, hence their concentration in marine fuel is limited through the flash point limit.

Also included in the scope of ASTM D7845 are various oxygenates (i.e. hydrocarbons with oxygen), e.g. alcohols, glycols, higher phenols, ethers and esters. Similar to VOCs, oxygenates also has combustion improving abilities as it "carries" oxygen.



Alfa Laval closed

Gasoline is blended with oxygenates such as ethanol, methanol, Methyl tert-butyl ether (MTBE) and Ethyl tert-butyl ether (ETBE). Automotive diesel is mixed with another oxygenate: Fatty Acid Methyl Ester (FAME). The majority of oxygenates are introduced to these fuels by chemical processing.

This ASTM method can be used to quantify chemical species, but what we want to know is: where are the advisory limits from ISO and all fuel testing agencies over the past decade(s)?

Specific components that can be found in marine fuel oils

Similar to gasoline, bunker fuels are always a blended product composed of various blend components. Information collected from SDS' can provide an idea of which components can be found in marine fuels:

- 2 - 15 % acetophenone
- 0.5 % alpha methyl styrene – AMS
- 30 % dimerised AMS
- 0.1 % cresols
- 2 % cumene (C9 aromates)
- 20 % p-cumylphenol
- 20 % dicyclopentadiene - DCPD
- 5 – 25 % indene
- 10 % methylindenes
- 15 % methylnaphthalenes
- 25 - 50 % naphthalene
- 0.3 - 6 % phenol
- 10 % 1-phenylethanol + 2-phenylethanol
- 20 % vinyltoluene
- > 90 % solvent naphtha (C10 – C14 aromatics to keep asphaltenes in solution)
- 2 % cumene (C9 aromatics to keep asphaltenes in solution)
- 2 % naphthalene as sludge solvent

Sediments are included in ISO 8217, Table 2 with a limit of max. 0.10% by mass.

The above chemical species has good solvency power and provides better solvability of sediments in marine fuels. In addition, some of them increase aromaticity and aromatics keep asphaltenes in suspension, i.e. reduce the risk of asphaltenic sludging in tanks, separators and filters.

Blend components to avoid for bunker fuel producers - a preventive role:

Whereas the previously mentioned chemical species are not harmful to operation the industry should avoid the following, potentially harmful, blend components:

- Vegetable and animal fats
- Heads & tails from bio-industry, incl. glycerine
- FFA – Free Fatty Acids from vegetable oil industry
- Brown coal tar and coal tar derivates
- Tall oil as resins from pine trees
- Left-overs from phenol / acetone processing plant



Advice from fuel testing agencies

Fuel testing agencies have reported a number of chemical species they have identified, as shown in Table 1. [*Editor's note: It is difficult for the industry to understand which chemical species are common in marine fuels, which components are harmful to operation – and at which concentration.*]

Table 1: Some chemical species reported by fuel testing agencies

Chemical specie	Range (ppm)	ASTM D7845 method	GCMS technique
Alpha Methyl Styrene (AMS)	40 - 150	Y	
Alpha-pinene		Y	
Bisphenol	150	N	Y
DCPD (Dicyclopentadiene)	15 - 3900	Y	
Dihydro-DCPD	50 - 2100		Y
Indene (benzocyclopentadiene)	60 - 11000	Y	
Limonene		Y	
1-Methylindene			Y
2-Methylindene			Y
1-Methylnaphthalene			Y
2-Methylnaphthalene			Y
2-Methylstyrene		Y	
3-Methylstyrene	400	Y	
4-Methylstyrene	400	Y	
Naphthalene	900 – 22000		Y
Phenol	50 - 550	Y	
Styrene monomer	20 - 650	Y	

Fuel testing agencies also provide advice on the onboard fuel treatment:

- Testing agencies advise on pumpability from bunker storage to settling tank: 10 C above pour point
- Testing agencies advise on injection temperatures, basis actual viscosity at 50 C as tested.

There is a wide difference between pumpability and filterability as filters can be blocked by solids, sediments/sludge and/or chemical species including Poly Aromatic Hydrocarbons (PAH).

Table 2: The freezing/solidification point of various solids

Component	Freezing Point (°C)	Classification	Pour Point (°C)	Appearance @solids	Density
Glycerine (glycerol)	18				
n-heptadecane (C17)	23	C17 – paraffins		colourless	0.78
ortho-cresol	31	aromatic		white crystals	1.05
para-cresol	35	aromatic		white crystals	1.04
Dicyclopentadiene (DCPD)	35	di-olefins		white crystals	0.98
Phenol	41	aromatic		white crystals	1.07
p-Cumyl-phenol	72	aromatic		white crystals	1.12
Naphthalene	82	poly aromatic hydrocarbon		white crystals	1.15
Acenaphthene	94	poly aromatic hydrocarbon		white needles	1.03
Alpha-naphthol	96	syn. 1-hydroxynaphthalene		colourless / yellow	1.10
Anthracene	121	poly aromatic hydrocarbon		yellow crystals	1.25
Fluoranthene	107	poly aromatic hydrocarbon		coloured needles	xxx
Methylresorcinols	107	aromatic			
Resorcinol	111	aromatic		white crystals	1.27
Fluorene	116	poly aromatic hydrocarbon		white flakes	xxx
Phenanthrene	100	poly aromatic hydrocarbon		white crystals	1.06
Beta-naphthol	122	syn. 2-hydroxynaphthalene		white leaflets/powder	1.22

Bisphenol A	155	di-aromatic		white flakes	1.20
Pyrene	156	poly aromatic hydrocarbon		yellow solids	1.27
Creosote – coal tar			24		
Palm oil	34	vegetable oil	15		
Palm kernel oil	20 – 30	vegetable oil			
Rape seed oil	17 – 22	vegetable oil			
Soya Bean Oil	22 – 31	vegetable oil	0		
FFA – Free Fatty Acids		vegetable oil	30		
Tall oil	10 - 30	pine trees			
Tallow	20 – 55	animal fats	6		

Table 3: Various asphaltenes (which can be categorised as PAH) with boiling point. (PAHs are determined by High Performance Liquid Chromatography (HPLC). Naphthalene is also determined by GC-MS).

Chemical specie	Boiling point (°C)	Classification	Analytical technique
PAH 1	< 250	Naphthalene	GCMS
PAH 2	250 – 450	Asphaltene (C12H8 – C18H12)	HPLC
PAH 3	450 – 550	Asphaltene (C20H12 – C22H14)	HPLC
PAH 4	550 – 750	Asphaltene (C24 –C40)	None

What are centrifuges and filters doing?
Provided that the components are liquid, the centrifuge separates components by utilising their density difference.
If the components are in their solid state, i.e. at temperatures below their freezing point (Table 2), they will be removed by the separator:

- Centrifuges operating at e.g. 65 C will separate out naphthalene, various PAHs and asphaltenes as the operating temperature is below the freezing point.
- Centrifuges operating at below 80C will result in PAHs being separated on the basis of their freezing point.
- Centrifuges operating above 92C will separate the PAHs, excluding naphthalene and p-cumyl-phenol basis their freezing points and densities.

For filters, a similar process applies, i.e. solids will be removed if their particle size exceeds the filter mesh and if the temperature is below the freezing points.

This raises the question of how to avoid that "bacon & eggs" (e.g. animal fat) remains on filters when the oil passes through. The operating temperatures are the responsibility of the chief enigineer, with or without the knowledge of the naphthalene content of the fuel (generally without).

As mentioned, pumpability (from storage tank to settling tank) is ensured by keeping the temperature 10 °C above the pour point. Filterability can be ensured by keeping solids in colloidal suspension (Table 5). Higher concentrations of components with a high freezing point, including naphthalene and other PAHs, will impact the pour point.

Table 4:Temperature advise taking pumpability and filterability into consideration

Pour point (°C)	Settling tank	Centrifuge / purifier / filter
+18 °C	Min 90 °C	Min 90 °C
+24 °C	Min 95 °C	Min 95 °C



In case of observed problems at centrifuges, purifiers or filters, we recommend to log the following information:

- Temperature of bunker fuel in storage tank(s), prior to transfer
- Temperature of fuel pumped to settling tank
- Temperature of settling tank
- Temperature and filter size/mesh between settling tank and centrifuge
- Temperature at centrifuge
- Temperature and filter size/mesh between centrifuge and daily service tank
- Temperature and viscosity at injection

In order to allow testing of the sludge, sufficient sludge should be sampled from the centrifuge/purifier and/or filter.

The laboratory tests the sediment levels of the bunker sample as per ISO 10307-1 (TSE) and ISO 10307-2 (TSA and TSP). The test methods specify filtration through a 2 micron double glass filter at 100 °C (see TSP photos in attachment 1). However, operational conditions are different. The temperatures deviate from 100 °C and the filter used onboard are made of metal with different mesh.

Therefore, in case of problems, laboratory testing should be performed/repeated using same temperatures and filter material as observed onboard.

Cutter stocks indicators

Ethylene cracker residue (ECR) is a commonly used cutter stock. Indicators for presence of ECR are:

- Styrene monomer
- AMS
- Indene
- DCPD
- Dihydro DCPD
- Vinyltoluene

Occasionally, cutter stocks from non-refinery sources are found in marine fuels (Table 5).

Table 5: Example of indicators of non-refinery sources

Chemical specie	Origin
Acenaphthene	Coal tar derived
Alpha-pinene and Rosin Acids	Tall oil
Phenol and cresols	Brown coal tar and some shale oil
Acetophenone, phenol and p-cumylphenol	Phenol / acetone plant

Recommended ISO 8217 limits:

- Phenol max. 200 ppm = 0.020 %
- Phenol + cresols max. 300 ppm = 0.030 %
- Styrene Monomer + AMS + DCPD max. 2500 ppm = 0.25 %
- Indene (benzocyclopentadiene) max. 5000 ppm = 0.50 %
- Naphthalene max. 7000 ppm = 0.70 %

Note: Shale oil, which is accepted as a cutter stock under ISO 8217, can contain 500 ppm phenol and 10 % higher phenols.

Conclusions

A. **Bunker fuel blenders / traders** must be forbidden from introducing animal fats, free fatty acids, brown coal tar, coal tar, creosote, terpene processing by-products, tall oil, tallow, and left-overs from phenol / acetone plants into the bunker supply chain. It should be controlled with REACH documentation / SDS documentation by the parties concerned, including reception facilities.

B. **Bunker fuel suppliers** must agree not to accept products diluted with any of the forbidden substances mentioned in attachment 2.

C. **Sales contracts according ISO 8217** must make it clear that the list of forbidden products mentioned in attachment 2 are not acceptable.

D. **Bunker fuel blending** these days prioritises limited sulphur content, which leads to fuels with lower viscosities and lower densities in the market. This requires detailed understanding of the correct pre-combustion fuel treatment, which is the responsibility of the Chief Engineer.

E. **Fuel testing agencies** must find common ground about resins, glue, polymerisation and related claims over the past decades, and find a solution to determining poor quality by GC-MS and FTIR. The fuel testing agencies and the ISO 8217 committee must specify deleterious which chemical species, including borderline limits, starting with ASTM D 7845 parameters.

Please find on the next two pages:

Attachment 1: Example of TSP performed according to ISO 8217 (photos)

Attachment 2: Instructions for bunker fuel producers (three tables)

Peter J.M. Meeusen
Independent Petroleum Consultant
Bunker Fuel Quality Advisor



Instructions for bunker fuel producers

Chemical species - limits shared with Dutch and Belgian Authorities			Method	Remarks
Chlorinated Solvents - Organic Chlorine	max. 50 ppm	see phenol + cresols	EN 14077	
Cresols (o+m+p)	max. 0.20 %	limited by TAN - ISO 8217		Gaschromatography - MS
Free Fatty Acids - FFA	max. 0.50 %	by Dutch Law	ISO 660	alternative: GC-MS
Freons	max. 50 ppm	personnal advice PeMe		
Glycerine	max. 2000 ppm	by Dutch Law		not miscible with gasoil /fuel oil
Halogenated Hydrocarbons or Halogens	max. 50 ppm	incl. bromides	EN 14077	Microcoulometry
* Halon 1211 - Halon 1301 - Halon 2402		incl. chlorine / fluor		
* CFC 11- 12 - 113 - 114 - 115				
Phenol	max. 0.02 %			GC- Massaspectrometry
Phenol + cresols	max. 0.03 %	gravimetric filtration over 10 micron		GC - MS detector
Plastics	max. 3 ppm	PE-PP- PS by IR Golden Gate		
Plastic type, after toluene insolubles		by Dutch Law		Infra Red Golden Gate
Poly Chlorinated Biphenyls - PCB	max. 0.5 ppm / cong.	by Belgian standard NBN T52-717 (2006)	EN 12766	Electron Capture Detector
PCB and PCT	max. 10 ppm		EN 12766	
Styrene Monomer	max. 0.20 %			
Styrene Monomer + AMS + DCPD	max. 0.25 %			
Indene (benzocyclopentadiene)	max. 0.50 %			
Naphthalene	max. 0.70 %			

Note:

Some chemical substances have a freezing point, below operational temperature at daily fuel treatment on board as used for bunker fuel, example phenol (+41C) and naphthalene (+82C)

At a difference of 1 degrees C, will result in difference between liquid and solid (see water vs. ice).

For "LSFO" as e.g. 30 to 80 mm2/s blend components with %-range naphthalene can block filters, if not kept at 85C or above.

* C/E has to be informed for correct fuel treatment on board, different from fuel testing agencies, who limit themselves to bottle contents only.

* Bunker buyers have to request for max. 0.70 % naphthalene on top of standard ISO 8217 specifications at time of sales contract, prior delilvery.



List of forbidden cargoes in bunker fuels, as defined by ISO 8217-2017				
Animal Fats, incl. lard		Indicator: Rosin Acids - TAN	EN 14214	Filter clogging
Bio-derived from pine trees		Indicator: Bisphenol A and Bisphenol F		campher smell - very high TAN
Bisphenol production tar				Blocked injection pistons
Brown Coal Tar - BCT				sludge problems - too high TSE
Coal Tar		PME - RME - SME - UCOME		
FAME - Fatty Acid Methyl Esters	max. 0.50 % m/m		EN 14214	
		50 % creosote	ISO 8217-2017	
"Fluxmittel"		renewable origin - carbon of biomass		
"Fuel Cutter"		see terpene processing by-products		
		TAN 80 - 95		Strong deviating odour
Head & Tails - FAME production	max. 0.50 % m/m			High FFA - High TAN
Molasses e.g lingosulphonate		Ind.: acetophenone - phenol - p-cumylphenol		
Left-overs from phenol / acetone plant				
PGO - Pyrolyse Gasoil ex coaltar		Indicator: Rosin Acids - TAN		
Tall Oil (molasses from pine trees)		23 - 25 % turpentine oil		
Terpene processing by-products	renewable of biomass	19 - 21 % terpineol		Strong deviating odour
UCO Biodiesel BD100		Used Cooking Oil		
UCO Heavy Ship Engine Oil		KLPD 2013 - Dutch Police Auth.		
ULO - Used Lubricant Oils	collected & recycled		IP 501	advice by ILT - 2017 (not done).
Vegetable Oils & Fats			EN 14214	Filter clogging

List of accepted cargoes and REACH registration required per cargo	
	M-40
Alpha Olefins C20,	M-100
"Aromatic Oil"	MCB - Main Column Bottoms
Aromatic Rich Cracker Fuel Oil	NEXBTL Renewable Diesel
Base Oils	Olefins C20+
Biodiesel - FAME - max. 0.5 %	"Petrinex"
BMTL - Biomass To Liquid	PFO - Pyrolyse FO from ethylene crackers
CBO - Carbon Black Oil	PFO - Pyrolyse FO from tyres
CBF - Carbon Black Feedstock	PGO - Pyrolyse Gasoil
CFO - Cracked Fuel Oil	Shale Oil
Crackeroil	Slurry
Crude Oil	"Solvenol 4"
Cocker Fuel	SRFO - Straight Run Fuel Oil
Diluent cargo	Tarsands refining Fuel Oil
ECR - Ethylene Cracker Residue	"TN 350" - blend
GTL - Gas to Liquid	Vac. Resid
HCCCO - Heavy Catalytic Cracked Cycle Oil	VGO- Vacuum Gasoil
HVO - Hydrotreated Vegetable Oils	Visbreaker Resid - Visbreaker Tar
LCO - Light Cycle Oil	



IBIA COMMENT ON CHEMICAL SPECIES IN BUNKER FUELS

Bunker fuels can contain millions of different chemicals. Determining what needs to be controlled is a complex task and requires consensus-building. IBIA's Director Unni Einemo explains

The relationship between the parameters for which there are defined limits in the ISO 8217 fuel quality standard and operational issues is well understood, but when it comes to unspecified chemical substances – of which there can literally be millions – the picture is not so clear.

Before any new parameters can be introduced to ISO 8217, there needs to be strong evidence and consensus building through sharing operational experiences, research to identify the link between a specific chemical species and problems, identifying limit values for harmful substances, test results, and test methodology. The latter is absolutely crucial for any limits to be defined in the ISO 8217 fuel quality standard, because all parameters must be linked with specific recognised test methods, and the accuracy of the test methods must be known.

From time to time, bunker fuel experts share their research and views linking specific chemical species to operational problems on ships. We have an example of that in this issue of World Bunkering.

Such research is commendable and important in trying to unravel the mysteries of why some fuels, despite meeting all the limits specified in ISO 8217 specifications during routine testing, appear to be the cause of operational problems.

However, it is important to stress that the research and conclusions reached by various parties may not be universally accepted. The worst episode of endemic fuel problem cases in recent memory, relating to fuels originating in the US Gulf in the spring of 2018, is a perfect example. Although a large number of ships experienced similar operational problems, and several fuel testing agencies shared their findings and theories, no consensus was found about the root cause of the problems. To make matters even more complicated, it appeared that several ships used fuel from the same source without incident, without any clear differences between engine types and fuel systems, leaving a question-mark over the role of onboard fuel management.

In his article on chemical species in bunker fuels in this issue of World Bunkering, Peter Meeusen talks about the ASTM D7845 method, about chemical species found in bunkers as reported by various fuel testing agencies, and makes some recommendations for limit values to be added to ISO 8217. Looking at these one by one, IBIA would like to share some observations.

ASTM D7845

The ASTM D7845 test method covers the quantitative determination of a variety of chemical species in marine fuel oil by gas chromatography – mass spectrometry (GCMS). It is the only standardised GCMS method for marine fuels that allows for a selected list of substances to be identified and quantified. It gives testing agencies a standardised test methodology for identifying these substances, but they do not all agree on which ones are a cause for concern, and at what concentrations. Hence it will be very difficult to find consensus on advisory limits. Examples include indene and various phenols which are naturally occurring in crude oil, where opinions of various experts diverge.

Indene is quoted as a contaminant by some laboratories, but could originate from crude oil. Indene is also found in coal tar, which should not be used as a blending component according to the Scope of ISO 8217 (Clause 1, which states bunkers can be derived from hydrocarbons from petroleum crude oils, oil sands and shale, and hydrocarbons from synthetic or renewable sources). This means indene could be an indicator of contaminated fuel, but it could equally be a natural component of a petroleum crude derived bunker fuel.

Chemical species reported by fuel testing agencies

Fuel testing agencies have reported a number of chemical species not specified in ISO 8217 they have identified, sometimes including the range of concentrations. Both those found using ASTM D7845 and those found using in-house high end GCMS or FITR test methods have the same problem as described above; there is limited consensus on which ones are problematic and at what concentration

One example is styrene monomers, which some testing agencies see as a precursor of fuels that will cause filter clogging, while others say they don't, backed up by extensive testing and experience. One of them told IBIA: "If styrene monomer polymerises in marine fuels, 40% of all today's bunkerings in the ARA region should result in filter blocking. They do not." Polystyrene, when already present in cutter stock, is more reliably linked to filter clogging.

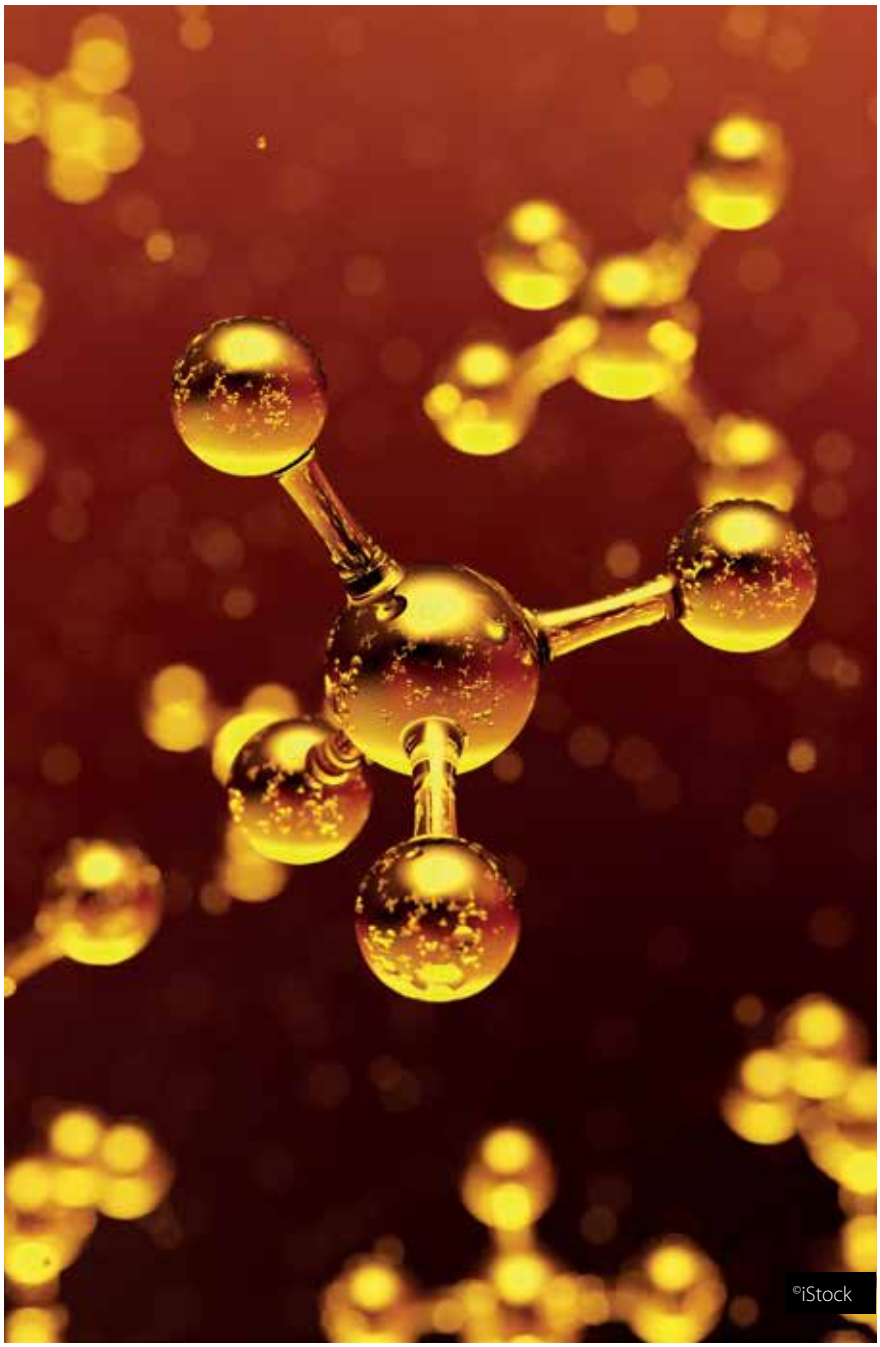
Adding limit values to ISO 8217

In order to add any new parameters and limit values to ISO 8217, there needs to be strong evidence, understanding and consensus about the basis for setting those limits. We need transparency on what is normal, including typical background concentrations, to prevent unnecessary panic about mysterious-sounding chemicals being identified and reported to a ship.

Even where there is consensus about specific chemical species representing a problem, finding consensus on appropriate upper limits is challenging.

The next thing that is required is recognised, standardised test methods, which include not just the test method but also instructions on sample preparation. This is a huge challenge when it comes to the high-end investigative test methods which, apart from ASTM D7845, are usually proprietary and costly. This limits the number of fuel samples that are actually tested this way, and if only the fuels causing a problem are tested, we won't know if the chemicals identified are in fact commonly found in fuel samples that have not been tested because they were used without issue.

A good starting point would be to establish a database of components associated with operational problems – at which concentration – in which combination. This exercise would also need to evaluate the impact of household/maintenance onboard ships that used fuels containing specific chemical species. This would require collaboration across multiple fuel testing agencies.



IBIA
INTERNATIONAL BUNKER INDUSTRY ASSOCIATION

UK CHAMBER of SHIPPING

Bunker Fuels Conference



29th September 2020

1pm -5pm

UK Chamber of Shipping, London
30 Park St, London SE1 9EQ

Registration Fee: UKCoS & IBIA Members: £99 Non Members: £199



IMO AND IBIA RESPOND TO COVID-19

Shipping faced considerable disruption as the pandemic spread but IBIA reports the bunkering industry "remains resilient"

In the first few weeks of the coronavirus being declared a pandemic, ships and their crews found themselves facing a range of issues at ports, sometimes as extreme as refusal of entry.

In response IMO, the International Chamber of Shipping (ICS) and a coalition of industry associations have issued guidance intended to ensure a safe shipboard interface between ship and shore-based personnel.

IMO Circular Letter No.4204/Add.16 aims "to address major concerns and expectations of ship's crews and shore-based personnel through the implementation of practical, risk-based measures to address Covid-19 risks to all personnel involved in the ship/shore interface.

ICS's Principal Director-Marine, Jonathan Spremulli said: "The COVID-19 pandemic is creating unprecedented challenges for the maritime sector. To keep everybody safe in the sector, including ships' crews and shore-based personnel visiting ships to do essential work, it is clear that we are all going to have to work together and cooperate to ensure that we all have a safe place to work."

He added: "The message from this guidance is that clear communication is vital.

We need to reduce the risk to all parties and communication is key. The maritime sector has to continue to operate so that countries can maintain essential supplies of food, fuel and other goods, including vital medical supplies, that we all need. But we must do this safely and in a way that eliminates the risk of infection for our seafarers and those coming aboard."

For its part IBIA has been offering practical advice to its members to mitigate the risk of infection during bunkering operations.

IBIA advises that the key issues for any personnel involved in a bunker delivery – barge crew, ship crew, surveyors or agents - are to minimise touching surfaces which may be contaminated. The virus is unlikely to persist on bunker hoses, flanges, valve wheels etc. and in any case, gloves should always be worn in these circumstances.

Towards the end of April, IBIA invited members to participate in discussions about the impacts of the coronavirus pandemic, which has created unexpected and unique challenges. Two main areas were covered, the impact of social distancing measures on the practicalities around bunkering and the financial implications as we deal with wild price fluctuations and economic uncertainty.

IBIA Director Unni Einemo said: "Problems and concerns were aired, but we also heard evidence that our industry remains resilient and participants are finding ways to manage."

Ocean Tankers in judicial management

A Singapore court has appointed two locally-based executives of international accountants Ernst & Young as interim judicial managers of Ocean Tankers, whose fleet of some 100 vessels includes nine bunker barges.

The move follows the revelations about the financial state of Singapore based oil trader Hin Leong Trading which also went into judicial management in April when it became clear the company had billions of dollars of debt.

Hin Leong and Ocean Tankers are closely connected and both owned by the Lim family, headed by the founder of the trading business Lim Oon Kuin (OK Lim).

In an affidavit to the court, OK Lim said he had directed the firm not to disclose US$800 million in losses over several years. Singapore police said in April they had launched an investigation. He also admitted secretly selling oil the company had pledged as collateral for its loans. The company's liabilities outstrip its assets by more than US$3 billion. A police investigation is underway.



In response to press reporting of the court proceedings, three government agencies, Enterprise Singapore (ESG), the Maritime and Port Authority of Singapore (MPA) and the Monetary Authority of Singapore (MAS), issued a joint statement saying that they were "closely monitoring developments related to Hin Leong Trading Pte Ltd and the broader oil trading and bunkering sectors".

ESG said it assessed that Singapore's oil trading sector remained resilient notwithstanding the challenges posed by the drop in global demand for energy. It said: "The sector is sufficiently diversified with more than 130 significant global, regional and local companies that trade energy products. Singapore is also an important regional storage, blending and distribution hub for refined oil products."

While Hin Leong was related to UT Singapore Services which operates an oil terminal, Universal Terminals, by common shareholdings, ESG made the point that Universal Terminals was operated independently of Hin Leong. Besides Universal Terminals, there are other independent oil terminal operators in Singapore including Vopak, Oiltanking and Tankstore.

MPA said it had assessed that there would be no serious impact on Singapore's bunkering industry. It said that there might be some short-term minor disruptions due to the lapse of contractual obligations by Hin Leong subsidiaries Ocean Bunkering Services, which owns 14 MPA-licensed bunker barges, and Hin Leong Marine International.

MPA asserted that the Singapore bunkering sector "is well diversified with 43 other licensed bunker suppliers, including Minerva Bunker and TFG Marine which recently received their licences".

The statement continued: "ESG and MPA will continue to work with stakeholders to ensure that Singapore's supply chain for oil products and bunkering operations continue to function without disruption".

MAS said it was in close contact with the banks on developments related to Hin Leong. MAS it added that it agreed with the assessment by ESG and MPA and had reminded the banks not to de-risk indiscriminately from the bunkering and oil trading sectors. But it cautioned: "Banks should, however, continue to apply judicious credit assessment on individual borrowers to manage their risks."

News that MPA has awarded bunker supplier licences to Minerva Bunkering and TFG Marine came at the same time as news of Hin Leong's troubles emerged. According to MPA, the two new players will bring the total number of licensed bunker suppliers to 45 in the Port of Singapore. Minerva Bunkering and TFG Marine will be required to each operate at least two clean energy dual-fuelled bunker barges.

Just as we were going to press, Brightoil Petroleum (Holdings) Limited, the parent company of Singapore-based bunker trader and supplier Brightoil Petroleum (S'pore) Pte Ltd, announced a settlement agreement of around US$30 million with its creditor, Vietnam-based trader Petrolimex, which initiated a bankruptcy order last year. Brightoil has entered into loan restructuring agreements with Bank of China and China Huarong Overseas Investment Holding Co. The latter has provided Brightoil with US$392 in refinancing and loan financing in a deal that will see the company's founder Sit Kwong Lam coming out of bankruptcy. Brightoil was a major physical supplier in Singapore but its barges have been sold and it no longer holds an MPA bunkering licence.

Bunker buyers expect price rises

Despite recent low bunker prices, a "significant proportion" of marine fuel buyers still do not have any risk management strategies in place to mitigate expected price rises, according to LQM Petroleum Services.

Two thirds of the hybrid bunker broker and trader's clients polled in a webinar in mid-May thought that marine fuel prices would rise in the next 12 months. But at the same time, only half the participants said that they currently use risk management strategies to mitigate this risk.

LQM said that 21% of the webinar participants thought that current conditions would continue only for the next three months, 32% thought between three and six months whilst 36% felt that six to 12 months was a more likely scenario.

IGF Code distance learning course

Maritime e-Learning training provider Videotel, has launched what it describes as "the world's first fully approved online learning course on the use of gases or other low-flashpoint fuels covered within the International Code of Safety for Ships using Gases or other Low-flashpoint Fuels (IGF Code)".

"The use of gas as a fuel on ships has increased in recent years due to the sulphur cap and targets set by the IMO to reduce GHG emissions by 50% by 2050, when compared to 2008. So, this distance learning course comes at an appropriate time to help seafarers get up to speed with the handling and management of these fuel types," said Videotel's MD Raal Harris.

"There is no pre-requisite sea service needed to enrol on this course or to be awarded a certificate of training," he added.

Insurers require condition surveys for tankers carrying HFO cargo

The International Group of P&I Clubs has announced that all sea-going vessels aged 10 years or more which have carried heavy HFO as cargo within the previous 12 months will be subject to a condition survey, unless certain conditions apply.

A survey will not be needed if the vessel has undergone a P&I club condition survey during the previous 12 months, has undergone a special survey during the previous six months or has a valid Condition Assessment Program (CAP) rating of 1 or 2 from a member of the International Association of Classification Societies (IACS).

HFO, in this context, is defined as residual fuel with a kinematic viscosity of 380 centipoises when measured at 50 degrees Celsius by the ISO 3104 test method. This excludes vessels carrying intermediate fuel oils or heavy crudes, as well as those carrying bitumen or tar.

Rotterdam bunker volumes down

Total marine fuel sales at Rotterdam fell from 9.5 million cubic metres to 9.0 million cubic metres in 2019, compared to 2018

The demand for LNG, bio and low-sulphur bunkers over the past year grew dramatically. In the last quarter of 2019, 48% of the fuel oil sold was VLSFO while 13% was ULSFO.

LNG volumes more than tripled from 9,483 tonnes to 31,944 tonnes. Biofuel was present in 2% of the heavy fuel oils sold, and in 0.5% of distillates.

The proportion of biofuel in the stems ranged from 5% to 50%, with most being within the 20% to 30% range.

GP Global on expansion trail

Major oil industry player GP Global has launched bunkering operations at Jebel Ali Port and Hamburg.

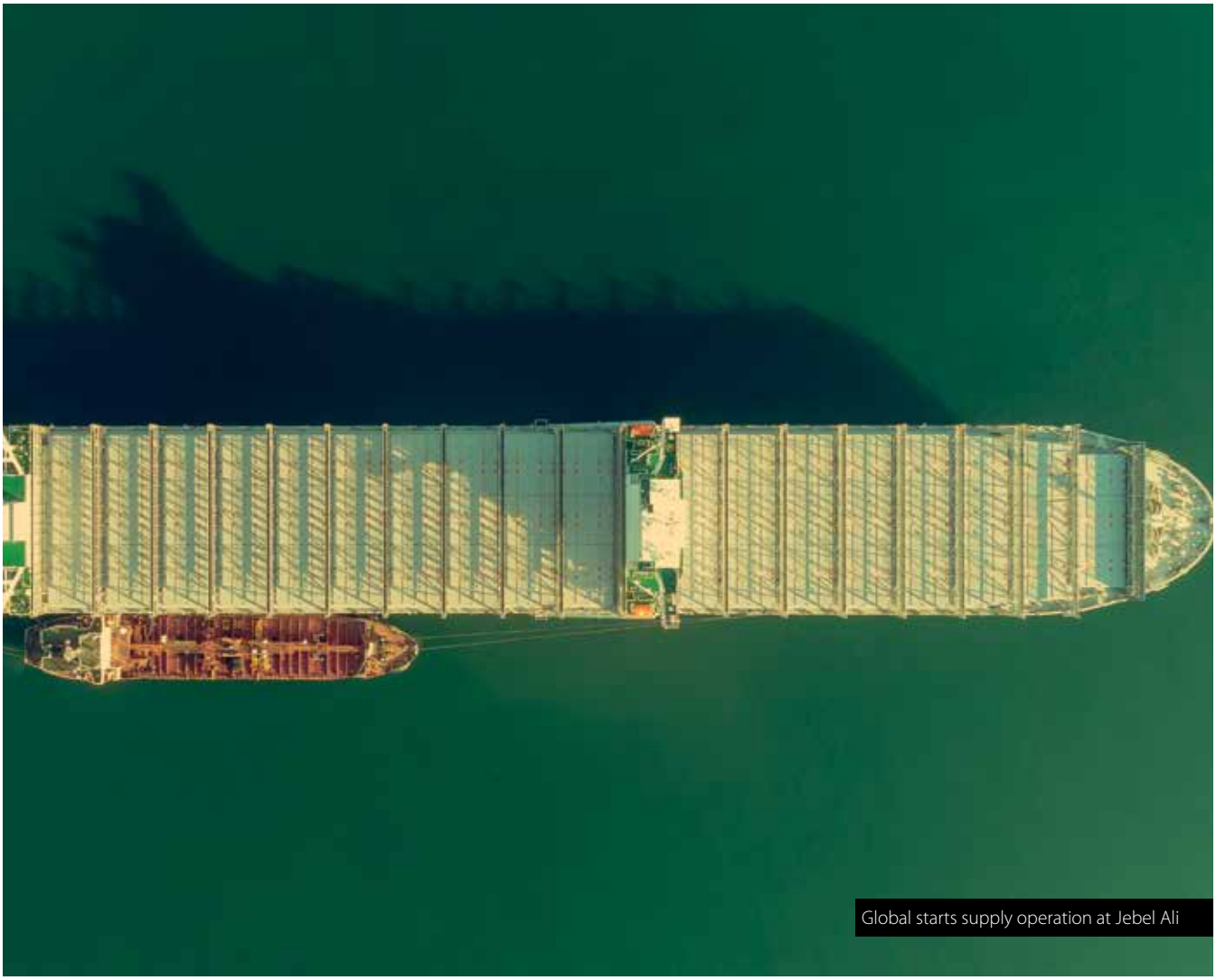
The UAE-based company will operate two wholly owned bunker barges out of Jebel Ali, giving it a total barge capacity of 9,600 tonnes of fuel oil and 2,000 tonnes of gas oil.

Anil Keswani, Head of Bunkering, East of Suez at GP Global, said: "Our East of Suez business has reported a growth of over 25% last year in revenue, which underlines the strong opportunity and potential of the region.

With our new bunkering operation at Jebel Ali Port, we are not only consolidating our strengths in the bunkering business by continuing to invest in our physical presence in all major international ports, but also demonstrating our commitment to building a robust and reliable supply chain to meet customer needs. With this, we now offer a global network that can meet the requirements of marine fuel supply as per IMO guidelines."

GP Global has also announced "new delivery infrastructure", supplying MGO at Hamburg, Germany.

Its global network of bunker trading offices comprises London, Geneva, Dubai, Mumbai, Singapore, and Houston, with representatives in Lagos, Dar el Salaam, Nairobi, Delhi and Shanghai.



Global starts supply operation at Jebel Ali



Trefoils bunker barge Leonore

EU Customs rules "complicate bunker business"

Rotterdam, Antwerp and Hamburg-based bunker supplier Trefoil has contracted Inatech to overhaul its management systems because of new Customs rules that "further complicate the region's bunker business after IMO 2020".

Trefoil said that, in the post IMO 2020 environment the speed of business and the scale of risk has gone up. It added: "This requires quicker decision making on market risk management and better operational planning to cope with changing demand.

To add to this potent mix, new customs regulations in the Amsterdam, Rotterdam and Hamburg region require a more robust audit trail of product movement."

"This double whammy of market risk and regulatory risk has prompted Trefoil to rethink our entire operating system and to invest in maximizing our efficiency in dealing with these challenges," said Max Braams, Strategic Project Manager at Trefoil in Rotterdam. "This also allowed us to consolidate all of our IT systems onto one platform as Inatech is not only supporting a CTRM but a fully integrated solution from front to back office including ERP and accounting. We are looking forward to a new era that will reduce our manual work and error-proneness significantly."

New bunker tanker at Fremantle

BP Marine has time chartered the 8,646 dwt newbuilding Absolute I from her bareboat charterer Australia-based ASP Ships Group for delivering bunkers at Fremantle, Kwinana and at the local anchorages.

The tanker, which is capable of carrying three grades of fuel, was launched in October 2019 and was delivered to Fremantle during April 2020. Following a change of flag and initial audits and inspection, the vessel subsequently went into service for BP.

BP now charters three bunker tankers from ASP.



CEUTA INVESTS FOR THE FUTURE

David Hughes asks the president of Ceuta Port Authority, Juan Manuel Doncel, about the opportunities and challenges that lie ahead for the strategically located bunker port

DH: How important is bunkering to Ceuta's port and wider economy? Can you provide recent statistics?

JMD: Bunkering in our port has a great tradition, with its origins in the supply of coal for ship boilers. Bunkering is currently one of the main business lines of the port of Ceuta, becoming one of the reference points in the Mediterranean. Its privileged geographical location, in the middle of the Strait of Gibraltar, through which more than 100,000 ships transit annually, gives us a huge potential market.

The port of Ceuta closed last year with figures up on the previous one, with an increase of 5% and a total of 772,500 tonnes delivered, experiencing some growth in the number and size of vessels. Specifically, at the end of the first quarter of 2020, the Port of Ceuta ranked fourth nationally with a total of 190,700 tonnes of liquid fuel supplied.

The supply of fuel to ships is one of the main engines of the economic activity of the port, which directly influences its quite small hinterland, so the city of Ceuta is the beneficiary of this development.

DH: What advantages does Ceuta have as a bunkering port?

JMD: It is necessary to highlight the privileged geographical situation in the heart of the Strait of Gibraltar.

The Strait of Gibraltar is the main bunker market in the Mediterranean and the second in Europe, only behind the ARA region (Amsterdam-Rotterdam-Antwerp), constituting one of the points with the highest maritime traffic in the world, in the heart of the East-West and North-South routes, and therefore with a large potential market for bunkering services.

Furthermore, in the port of Ceuta all means of supply are available, both at berth and out in the bay. Supplies can be carried out by pipeline from numerous points along the berth line, a service aimed at medium tankers. The increase in bunker operations carried out in Bahia stands out in recent years. The port currently has two barges operated by the companies Vilma Oil and Cepsa, which serve a greater number of ships and of greater tonnage, thus increasing the volumes supplied. This availability of different means of supply avoids congestion, making operations quicker and significantly reducing waiting times.

Finally, the price, quality and availability of the supplied product must be highlighted. Prices in Ceuta are very similar to product prices offered in the rest of the ports of the Strait of Gibraltar. The high competitiveness of port companies contributes to this, reducing the cost of the services provided and therefore the final price per-tonne.

The quality and availability of the product are favoured by the proximity of the Cepsa refinery, which guarantees the supply of a high-quality product, in addition to guaranteeing the availability of the product that meets the new restrictions regarding the limits of the content of sulphur that came into effect early in the year.

DH: Does Ceuta aim at a particular sector of the bunkering market?

JMD: In recent years, the port of Ceuta has specialised in bunker operations for medium-sized ships. The specialisation means that these operations are carried out very quickly, which reduces the time at the berth line and therefore the costs of calls, making them very competitive. In addition to this, they are carried out with levels of quality and safety which place us as leaders in this segment of the market in the Strait.

The new services we have operating with two barges to supply in the bay serve a greater demand outside the dock at anchor, increasing the number of ships and speeding up operations. Likewise, the new berth for ships of greater draft increases the throughput capacity in liquid bulk transport in our port, which together with our strategic geographical position make us one of the main Spanish ports in the provisioning of ships.

DH: What recent developments have improved its competitive position?
JMD: With the aim of boosting the supply market and improving the competitiveness of our port, a new berth has been built next to the current Dique de Poniente, intended to accommodate large ships and representing an investment of nearly 3.5 million euros.

To promote the transition towards more environmentally friendly maritime transport, the Port of Ceuta anticipated the limitations of the IMO 2020 regulation and began to operate with marine fuels with a lower content of sulphur, VLSFO, allowing our facilities to provide this fuel, beginning a new stage in the port's strategy to promote bunkering at its facilities.

We are also working on the dredging of the interior part of the dock to increase the draft and facilitate the maneuverability of ships with higher tonnage.

Dúcar company has carried out the pipeline connection works for the Levante and Poniente dikes, which provides greater versatility when supplying any product on both dikes, increasing the services for the customers.

DH: What effect has the IMO <0.50% sulphur regulation had on the logistics of Ceuta's operation? Does the port have sufficient tankage for more diverse demand?
JMD: As we have previously said, we have anticipated the IMO 2020 regulation and now we are adapted to the new scene in cooperation with the three operating companies in our port in order to continue advancing in the different actions necessary to make the Port of Ceuta a preferred bunkering port. Having a premium product like the VLSFO 0.5% in addition to the MGO 0.1%, has required a considerable investment, but also a great effort, enthusiasm and coordination between the actors and teams that work daily at the facilities dedicated to this traffic.

We have two terminals in the port area with a combined storage capacity for oil products of 120,000 cubic metres, operations from both terminals can be handled at the Levante and Poniente docks as well as the loading of barges for supplies in the bay. A third terminal that receives various energy products is located near the port's service area and is connected by a set of pipes to the different segments of the Poniente quay, where it carries out marine fuel supply. All these operations are attended on a 24/7 basis, 365 days a year.

In addition to the technical means, the highest standards of safety, quality and environmental protection are applied at the facilities and in the operations.

DH: Can you break down sales volumes since 01.01.20 by distillates, HSFO, VLSFO and ULSFO?
JMD: The VLSFO and the MGO totalled more than 185,000 tonnes in the first three months of this year, specifically 0.5% fuel oil with low sulphur content has become the top product with 124,000 tonnes supplied to ships docked and vessels anchored in the bay. With regards to the VLSFO, it became an unexpected alternative to MGO as a replacement for the HSFO. Although initially the shipping sector was sceptical, the quality of the VLSFO has produced high confidence in the market and the Port of Ceuta has increased sales of this product.

DH: Has the Covid-19 pandemic affected volumes delivered in March 2020?
JMD: There has been no drastic reduction in the volume supplied in the Port of Ceuta, our facilities have continued to supply marine fuels to ships, and operations were carried out at a normal pace. Nevertheless, maritime transport flows have been reduced, ships continue to arrive but, in less quantity, which is causing a small decrease of around 2% compared to the same period of the previous year.

DH: Has Covid-19 and the necessary countermeasures imposed affected the port's operation?
JMD: Due to the crisis generated by Covid-19, both the Ceuta Port Authority and the companies that operate in the port have acted very quickly, adopting the necessary preventive measures to guarantee the safety of both our workers and those of our customers, while ensuring that the agility and efficiency of operations were not affected.

We continue to work to minimize the effects of this crisis, offering alternatives and taking advantage of our business opportunities and, depending on when the Covid-19 outbreak reaches its peak, the Port Authority of Ceuta will assess its impact. This situation generated by Covid-19 affects our port traffic, although bunkering traffic in the Port of Ceuta is the least affected. The problem is greater globally since the deceleration in the growth of world trade will reduce the demand for marine fuels and this issue could be the great enemy of this business.

DH: What do you see as the main challenges for the future?
JMD: Regarding bunkering traffic, our objective is to build loyalty in the supply market for medium-sized vessels, in which we are great specialists, and to consolidate the emerging market in which we are entering, the supply operations in bay for large tonnage vessels.

The objective of creating the necessary infrastructures and modernising the fuel supply facilities is, in addition, to open the port to the market for vessels of panamax size up to 77,000 dwt and with a draft of 12.5 m. It would be essential for the consolidation of bunkering activity in the future. All this while maintaining the high quality standards, both in service and products.





Concept illustration of a large vessel powered by fuel cells. ©ABB

LARGE-SCALE FUEL CELL SYSTEMS PLANNED

Fuel cell technology "a step closer to powering large ships" says ABB

Swiss-based multinational corporation ABB has signed a memorandum of understanding (MOU) with Hydrogène de France to jointly manufacture megawatt-scale fuel cell systems capable of powering ocean-going vessels.

The MOU between ABB and hydrogen technologies specialist Hydrogène de France (HDF) envisages close collaboration on the assembly and production of the fuel cell power plant for marine applications.

Building on an existing collaboration announced in June, 2018 with proton exchange membrane (PEM) fuel cell solutions provider Ballard Power Systems, ABB and HDF intend to optimize fuel cell manufacturing capabilities to produce a megawatt-scale power plant for marine vessels. The new system will be based on the megawatt-scale fuel cell power plant jointly developed by ABB and Ballard and will be manufactured at HDF's new facility in Bordeaux, France.

Fuel cells turn the chemical energy from hydrogen into electricity through an electrochemical reaction. ABB says that, with the use of renewables to produce the hydrogen, the entire energy chain could be carbon free.

Zero-carbon fuels assessed

Zero-Emission Vessels (ZEVs) are likely to be technologically possible in the next few years according to Lloyd's Register (LR) and University Maritime Advisory Services (UMAS). The prediction is made in their latest assessment of the current and future fuels available to shipping to help define the optimum solutions as the maritime industry seeks to reduce greenhouse gas emissions.

Building on research already undertaken by LR and UMAS into ZEVs and potential transition pathways to decarbonisation, the report is supported by the Methanol Institute. It examines the three primary pillars of the adoption of zero-carbon fuels when compared with traditional fossil-based fuels; their readiness from an investment, technology and community perspective.

The study illustrates that regardless of which zero-carbon fuels emerge as favoured options from an economic perspective, from an onboard technology perspective, ZEVs are likely to be technologically possible in the next few years. However, the study asserts, for owners and operators to be confident about investing, the industry will require confidence in the wider community around the fuel supply chain, both in terms of the availability in the quantities required and the land-based infrastructure for production, supply and distribution.

The assessment of technology readiness for the various zero-carbon solutions also provides an insight into the current barriers to market uptake, with screening and assessment undertaken on a fuel-agnostic basis, intended to help the industry identify opportunities for new approaches. The scope includes onboard procedures for bunkering, on-board storage, processing, conversion and propulsion.

Assessment of investment readiness includes a complete examination of energy source price scenarios, ship-specific case studies, total cost of operation, fuel related voyage costs, impact on cargo carrying capacity and a sensitivity analysis. The third element considers lifecycle emissions and the evolution of the energy landscape in other sectors to provide the context of the wider energy and industrial sectors.

Marine carbon capture study launched

UK-based design & engineering consultancy Houlder says it has commenced work on a study to evaluate the potential marine applications of carbon capture technology, in partnership with PMW Technology.

PMW Technology is among the latest organisations to receive funding from the UK Government's Department for Transport's Transport-Technology Research Innovation Grant (T-TRIG). With funding from T-TRIG, the study will evaluate the feasibility, costs, infrastructure, impacts, and potential benefits of using advanced carbon capture technology to decarbonise marine shipping.

PMW's A3C carbon capture process is designed to extract carbon dioxide from marine exhaust gases by freezing, then subliming the carbon dioxide. It is then liquified and stored in dedicated tanks onboard, allowing for carbon capture from vessel emissions without radical technical overhauls of marine engines and fuels.

Finnlines ships go hybrid

Technology group Wärtsilä is to supply its hybrid power conversion system for three new ro-ro ferries being built at the Nanjing Jinling shipyard in China for Finnlines, part of the Italian Grimaldi Group. The order with Wärtsilä was placed in Q4 2019.

The hybrid solution, which includes a 5000 kWh energy storage system, will enable the ships to operate with zero emissions while in port, and to meet the Registro Italiano Navale (RINA) Green Plus class notation. They will also have Ice Class classification 1A Super.

Batteries plus hydrogen on Norwegian coast

Norwegian Electric Systems, which specialise in installing batteries and proton-exchange membrane (PEM) fuel cells onto modern ships. says it is a partner in a project to achieve zero-emission operations in the World Heritage Fjords and along parts of the Norwegian coastal route by a newbuild vessel through a combination of batteries and hydrogen fuel cells.

The vessel, designed in Norway by Havyard Design, has been ordered by Havila at Tersan Shipyard Turkey.

Norwegian Electrical Systems' senior vice president sales, Stein Ruben Larsen: said: "The ability to move to a 3.2MW fuel cell that enables the vessel to sail zero emission for long distances along the coast will be a milestone within green shipping. For tourists experiencing the Norwegian coastline it means this vessel will be able to enter the country's unique and beautiful world heritage Fjords where vessels powered by any form of hydrocarbon that produces CO_2, exhaust and other emissions will be banned from 2026."

Ammonia as a fuel

Classification society Korean Register (KR) has published technical information on the use of ammonia as an alternative marine fuel, comparing it to other types of carbon-neutral alternative fuels.

The free guide, Forecasting the Alternative Marine Fuel – Ammonia, covers the fuel's key features, industry trends and relevant technologies. Detailed guidelines and analysis examine the future outlook for ammonia.

KR notes that LNG is widely viewed as a next generation clean fuel, but "it derives from a fossil fuel and still emits carbon dioxide when burned, limiting its use as a green fuel".

The classification society expects that, to stay ahead of regulations on carbon dioxide emissions and to reduce greenhouse gas emissions, there will be an increasing industry shift to 'zero carbon' or 'decarbonised alternative fuels'. Examples of these fuels include: bio-diesel, methane, hydrogen, methanol and ammonia.

The new guide provides a comparative analysis of the different types of carbon-neutral alternative fuels.

KR says it believes that ammonia is a carbon neutral fuel with a high probability of being commercialised. It is environmentally viable and in relation to other fuel options, does not require a high level of technical expertise when used as a renewable energy.

Maersk links credit facility to CO_2 performance

AP Moller - Maersk says it has secured a new sustainability-linked revolving credit facility of $5.0 billion through a syndicate of 26 banks. This is the first bank refinancing arranged by Maersk after its transformation from a diversified conglomerate to a global container logistics company.

The facility refinances the undrawn $5.1 billion facility maturing in 2021 and has a life of five years which may be extended by up to two years. It will be part of the company's liquidity reserve.

The credit margin under the facility will be adjusted based on Maersk's progress to meet its target of reducing CO_2 emissions per cargo moved by 60% by 2030, which is significantly more ambitious than the IMO target of 40% by 2030 (all against a 2008 baseline).



In 2019 Maersk announced its commitment to becoming carbon neutral by 2050. The new finance facility affirms Maersk's efforts to drive sustainability into its operations and supply chains.

EEDI study

A consortium led by US-based class society ABS has been granted EU funding for a study on the future of the Ship Energy Efficiency Design Index (EEDI).

ABS, Vessel Performance Solutions (VPS), and Arcsilea have formed a consortium to carry out a study on Decarbonisation of Shipping: Technical Study on the future of the Ship Energy Efficiency Design Index.

It will analyse EEDI's ability to deliver improved designs and evaluate its relationship to various technologies. The study will also propose updated targets, speeding up the deployment of low carbon solutions and make recommendations on how to integrate innovative technologies.

The study is intended to return preliminary results ahead of MEPC 76 in October this year and be concluded in early 2021.

Sail assist and solar power system ready for testing

Japan-based Eco Marine Power (EMP) unveiled its EnergySail demonstration and test unit at the Onomichi Marine Tech Test Centre (MTTC) recently. This full scale version of an EnergySail is an upgrade of the pre-production unit and represents one of the smaller types of EnergySail that is intended to be put into commercial service. It was manufactured by EMP's strategic partner Teramoto Iron Works Co and will be used for demonstrations for potential customers and during preparations for sea trials.

The patented EnergySail can be fitted with marine-grade solar panels and therefore it is capable of providing ships with a zero emissions source of supplementary propulsive power and electrical power. Currently EMP is evaluating a number of photovoltaic (PV) panel types at the Onomichi MTTC and the type of PV panel to be used for sea trials will be determined by the middle of this year.

EMP says that EnergySail's flexible design enables for it to be upgraded during the life-cycle of the ship so that newer technologies can be incorporated if required. It has also been designed so that it will require little maintenance and be robust enough to withstand the harsh conditions of an operational life at sea over many years. These features of the design will be evaluated during further shore-based testing. The demonstration and test unit has an overall height of approximately 6 metres when raised and can be lowered and stored when not in use.

The EnergySail is also a core sub-system of EMP's Aquarius MRE® (marine renewable energy) solution. Aquarius MRE combines wind, solar, energy storage and marine computer technologies into a scalable clean energy system for a wide range of ships including coastal cargo vessels, bulkers, tankers and cruise ships. The solar power sub-system of Aquarius MRE has already been installed on ships and the next step will be to combine this with the EnergySail technology. A project to plan and install a complete Aquarius MRE solution is underway and it is anticipated that the installation of equipment will commence this year.

Greg Atkinson, Chief Technology Officer at Eco Marine Power commented: "We have spent some years now working towards the commercial deployment of our EnergySail rather than simply installing a prototype onto a ship. This is because we have been focused on getting a class-approved and cost effective sail-assisted propulsion system ready that can also be integrated with other systems via our Aquarius MRE solution. Installing an integrated class-approved renewable energy system with the EnergySail's as a source of zero emissions power will be a major step towards reducing greenhouse gas emissions from shipping."

Ferry completes five years of methanol fuelled service

The ro-ro ferry Stena Germanica, the first ship in the world to run on methanol as a marine fuel, has completed five years using the alternative fuel.

She was converted to be capable of running on methanol fuel in early 2015 at Remontowa Shipyard, Poland. The 240-metre long ferry, with a capacity for 1500 passengers and 300 cars, was retrofitted with a first-of-its-kind fuel-flexible Wärtsilä 4-stroke engine that can run on methanol or traditional marine fuels. She resumed sailings between Gothenburg, Sweden and Kiel, Germany in late-March 2015.

LPG fuel system approved

US-based classification society ABS has granted Approval in Principle (AIP) to Kawasaki Heavy Industries, Ltd. (KHI) for its LPG as fuel system design.

KHI claims the system simultaneously reduces fuel consumption and enables the engine to meet NOx Tier 3 regulations.

"Using LPG as a fuel can lower emissions to air compared to conventional fuels, both in terms of greenhouse gas emissions and other pollutants," said Patrick Ryan, ABS Senior Vice President, Global Engineering and Technology.

KHI's design is for an electronically controlled LPG injection marine diesel engine (ME-LGIP), the first order placed for an engine of this type in Japan.

"LNG as fuel is attracting widespread attention as an environmentally friendly option, but LPG as fuel has advantages over LNG, including potentially reduced initial investment and simpler handling onboard. As a result, we believe LPG as fuel will prove increasingly attractive to the market in the future.," said Hideaki Naoi, General Manager, KHI.





VIRUS PUTS ENVIRONMENT AGENDA ON HOLD

IMO will have a lot to catch up on when meetings can resume, IBIA's Unni Einemo reports

As the global regulator for the shipping industry, the International Maritime Organization will always be called upon to minimise the impact of international shipping on the environment. The IMO's Marine Environment Protection Committee (MEPC) has been scheduled to meet twice during 2020, but since mid-March, the coronavirus pandemic has forced the IMO to postpone all its meetings until further notice. MEPC 75, and a week-long meeting of its working group on greenhouse gas (GHG) measures to come before it, were among them.

The 7th session of the Sub-Committee on Pollution Prevention and Response (PPR 7) in mid-February was the last IMO meeting dealing with environmental issues before the coronavirus pandemic put all meetings on hold. Progress was made on several agenda items, but PPR can only prepare the ground: decisions are made by the main IMO committees, such as MEPC. Nevertheless, PPR 7 outcomes give a good indication of what's coming.

Guidelines for taking onboard samples

Since March 1, 2020, ships are not only prohibited from using fuel with sulphur above 0.50% sulphur under MARPOL Annex VI; they are not be allowed to carry it in fuel tanks either. Only ships with an approved exhaust gas cleaning systems (EGCS) can use and carry HSFO now. The carriage ban should make enforcement easier as you only need to prove that a ship has non-compliant fuel onboard. (This has posed problems for ships that have had delays to scheduled scrubber retrofits, an issue which is considered in our Legal Section.)

That's where sampling and testing comes in, which is why PPR 7 developed draft '2020 Guidelines for sampling of fuel oil intended to be used or carried for use on board a ship'. The objective was to ensure that such samples can be taken in a safe and consistent manner to allow authorities to assess whether ships are complying with the carriage ban.

Shipping organisations raised concerns about whether samples collected in accordance with the new onboard sampling guidelines would be representative of the actual sulphur content in the tank. PPR 7 nevertheless agreed on the guidelines because they are needed to support enforcement efforts. The draft guidelines will need to be formally approved by MEPC.

Revision of EGCS guidelines completed

Revised IMO guidelines for the approval and certification of exhaust gas cleaning systems (EGCS), or scrubbers, were finalised by PPR 7 and are due for adoption by MEPC. Regulation 4 of MARPOL Annex VI on "Equivalents" allows for the use of alternative compliance methods if they provide at least the same reduction in sulphur oxide emissions as using compliant fuels (maximum 0.10% sulphur content in emission control areas and maximum 0.50% outside ECAs). The EGCS Guidelines specify the criteria for the testing, survey, certification and verification of scrubbers to ensure they meet the emission equivalence requirement, while also meeting discharge water quality criteria.

They also cover continuous monitoring requirements for emissions to air and for discharge water quality. In general, the draft 2020 EGCS Guidelines, updating the 2015 EGCS Guidelines, have made the requirements to ensure scrubbers perform in line with limits on emissions to air and discharges to water more stringent. Once adopted by MEPC, the revised guidelines will be applied to new exhaust gas cleaning systems installed after a date to be decided by the Committee.



That could be as soon as the date of adoption plus six months. Existing systems approved under the 2015 EGCS Guidelines would not need to be approved again, meaning these should not be affected by changes to requirements around installation of the scrubber and its associated monitoring equipment.

Workplan to harmonise approach to EGCS discharges

PPR 7 drafted a scope for factors to consider when assessing the discharges from exhaust gas cleaning systems, or scrubbers, as part of the IMO's work to harmonise rules and guidance on the subject. There have been unilateral moves to implement restrictions on the use of open loop scrubbers in a number of ports and countries. MEPC 74, which met in May 2019, asked the PPR Sub-Committee to look into how the approach to scrubber discharges might be aligned under an IMO framework.

Discussions during PPR 7 in February showed the very different concerns raised by the various member States and NGOs present, which was also evident from the papers submitted to the meeting.

Among the submissions was a report from a task team on EGCS established by the Joint Group of Experts on the Scientific Aspects of Marine Environmental Protection (GESAMP). The 120-page report (PPR 7/INF.23) contained the task team's conclusions based on assessing the available evidence on the environmental effects of discharge water from EGCS, as well as recommendations on the data, tools and approaches that could be used as basis for conducting a risk assessment of the possible effects of discharges.

While the work done GESAMP was appreciated, concerns were also raised by CLIA in a commenting paper (PPR 7/12/6) that the report appeared to have given little weight to studies providing the most comprehensive analysis data from actual washwater samples, whereas it placed considerable reliance on a German study that presented only preliminary findings drawn from a very limited data set.

IBIA was among PPR 7 delegates sharing that concern and made the following statement in plenary: "Anyone observing the discussions around the subject of discharges to water from EGCS must be struck by how hard it is to come to clear conclusions, when the evidence presented to us appears to support opposing views. Our task when trying to establish the right policies are further complicated by a well-known phenomenon called "confirmation bias" meaning we have a tendency to trust any evidence that supports our opinions, and be suspicious about any evidence that goes against what we believe to be right. What we actually need is to look at all the available evidence without prejudice."

After an extensive discussion in plenary, it was agreed that the focus should be on developing a common approach for assessing potential environmental impact on sensitive areas, not on an overall global assessment, though that may be raised in the future. Possible future regulatory measures should be based on scientific knowledge and risk assessments.

The scope of the work should be development of risk assessment guidelines for the evaluation of possible harmful effects of the discharge water from EGCS, and impact assessment including considerations that may be specific to each area. Also included is establishing a database of substances identified in EGCS discharge water that can be used for risk assessment purposes.

Other aspects to be covered include developing guidance on delivery of EGCS residues to port reception facilities, and regulatory matters. The latter would include assessing state of technology for EGCS discharge water treatment and control, identifying possible regulatory measures, and developing a database of local/regional restrictions/conditions on the discharge water from EGCS. Such a database, managed by the IMO, would require all member states to report on any specific restrictions they have imposed to enable ship operators using scrubbers to obtain a clear overview over where restrictions apply, which today can be challenging.

Clearing up black carbon misunderstandings

Delegates arriving for PPR 7 were greeted by demonstrators outside calling for a ban on "dirty fuels" to protect the Arctic. They had arranged a crime scene with dead polar bears which they said had been killed by black carbon emissions. PPR 7 was due to discuss measures to reduce the impact on the Arctic of black carbon emissions. A few weeks prior, a group of environmental NGOs begun a media campaign asserting that the new fuel blends meeting the 0.50% sulphur limit should be banned because they would increase BC emissions. The campaign reflected conclusions they had drawn on the basis of a measurement study submitted to PPR 7, investigating the potential link between 0.50% sulphur fuel specimens with high aromatic content and the formation of black carbon (BC). The study, submitted by Germany and Finland, said the results "clearly indicate that new blends of marine fuels with 0.50% sulphur content can contain a large percentage of aromatic compounds, which have a direct impact on Black Carbon emissions."

This caused alarm and led the aforementioned group of environmental NGOs to assume that "the refining industry has created a range of new blended fuels that could overnight send ship-sourced BC emissions soaring". They called for an immediate ban on the use of 0.50% sulphur fuel blends and mandate a switch to distillates in the Arctic in PPR 7/8/2 and to "prohibit the use of low sulphur heavy fuel oil blends that increase BC emissions" in PPR 7/8/3.

The subject was discussed at length during PPR 7 where organisations including ISO, IMarEST, IPIECA and IBIA helped to put the record straight and explain why the findings of the study, which looked at theoretical 0.50% sulphur fuel blends, could not be extrapolated to mean that all such fuels would be highly aromatic and hence cause BC emissions to increase. On the contrary, most of the VLSFOs introduced to meet the sulphur limit have been less aromatic than the fuels they have replaced.

The co-sponsors of PPR 7/8/2 and 7/8/3 have submitted essentially the same papers to the MEPC 75, to call for urgent restrictions on the use of VLSFO. Although the subject was thoroughly discussed at PPR 7 and hopefully better understood now, IBIA and IPIECA have submitted a paper to MEPC 75, which documents why claims that VLSFO blends introduced to meet the 0.50% sulphur limit would be highly aromatic and lead to an increase in black carbon emissions are based on flawed assumptions.

HFO use and carriage ban in the Arctic

PPR 7 agreed draft amendments to MARPOL Annex I that would prohibit using and carrying heavy fuel oil as fuel by ships in Arctic waters with effect from 1 July 2024, but with a provision to allow a waiver for domestic shipping to continue using HFO for another five years. The temporary waiver would, for example, allow Russian flagged ships to operate in Arctic waters subject to Russia's jurisdiction up to 1 July 2029.

The Arctic HFO ban will not apply to cargo, only the product carried in the ship's fuel tanks.

As in the Antarctic, ships engaged in securing the safety of ships, or in search and rescue operations, and ships dedicated to oil spill preparedness and response would be exempted from the ban.

The draft amendments will be sent to MEPC 76, due to meet in October 2020, for approval. If that runs according to schedule, the amendment could be adopted by MEPC 77 in spring 2021.

It is worth noting, meanwhile, that under the Polar Code, ships are encouraged to not use or carry HFO in the Arctic. Moreover, MEPC 75 was due to discuss a proposal for a draft resolution calling for ships to voluntarily switch to distillates when operating in or near the Arctic.

MEPC 75 agenda

At the time of writing, MEPC 75 should have been behind us. Apart from subjects discussed above, another agenda item of interest was the expected adoption of draft amendments to appendix VI of MARPOL Annex VI dealing with sulphur verification procedures.

The IMO has agreed, in principle, on verification procedures to determine whether the fuel oil delivered to, in-use or carried for use on board a ship is in accordance with the applicable sulphur limit of regulation 14 of MARPOL Annex VI, a subject that we have covered at length in previous issues of this magazine. Assuming the amendments had been formally adopted at MEPC 75 in early April, they would only enter into force in the second half of 2021. That may now be delayed, however the IMO has urged all member states to apply the sulphur verification procedures, as amended, from the start of 2020 in order to encourage uniform enforcement of the 0.50% sulphur limit.

Also up for discussion was a proposal from several shipping organisations for a template for Bunker Supplier Licensing Schemes to be annexed to the Guidance for best practice for Member State/coastal State (MEPC.1/Circ.884), and a proposal to establish a global research body to reduce GHG emissions from shipping via a mandatory R&D contribution per tonne of fuel oil purchased for consumption.

Like so many other things put on hold due to the coronavirus, however, those discussions will have to wait until IMO meetings can resume.



Environmental demonstrators placed this polar bear outside the IMO during PPR

COVID-19 ROCKS MARKET

Olga Bogacheva reports that, after a promising start to 2020, Russia's bunker market was plunged into turmoil by the coronavirus pandemic

This year began very much as everybody had expected. In January, bunker prices climbed, particularly for MGO and VLSFO.

Also in line with expectations, there were shortages of supplies in several of Russia's regions while a number of quality issues emerged.

The switch to 0.50% sulphur compliant fuel was relatively trouble free in the Baltic Sea, where suppliers had been familiar with 0.10% low sulphur fuel for five years.

Most problems occurred in the Russian Far East. This region often experiences a shortage of fuel due to the limited capacity of local railways.

In addition, quality issues arose, to the extent that the Ministry of Transport had to intervene. A special meeting in Vladivostok was organised with the participation of local authorities, fuel suppliers, ship owners and other parties engaged.

By the middle February, however, the Russian market had adjusted to the new situation.

Then a brief period of relative calm ended abruptly in early March. The cancellation of the OPEC+ deal and the global coronavirus pandemic led to a rapid decline in oil prices and, as a result, a collapse in bunker prices.

At the time of writing the price of marine fuel in Russian ports had fallen by more than 60% compared to the beginning of 2020.

While a similar situation developed around the world, the Russian market tends to follow global trends, but with a few weeks delay. This meant it rapidly lost its main competitive advantage; relatively low bunker prices.

On 2 April a lockdown began which saw most business close down throughout the Russian Federation. However, regional governments had the delegated authority to determine which enterprises could continue operations during the quarantine period.

All sea and river ports, without exception, have continued operating. Port administrations reported in press releases that the reception of vessels, unloading, loading, and storage of cargo would be carried out as normal and restrictive measures would not lead to a halt in the production cycle.

Vladimir Sergeev, Chairman of the Council of the Russian Association of Marine and River Bunker Suppliers, joined a Ministry of Transport task group that was set to provide prompt solutions to serious and urgent problems experienced by bunkering companies.

2019 port statistics

In 2019 cargo throughout at Russia's seaports amounted to 840.27 million tonnes. This was 2.9% higher than in 2018, mainly due to the growth of oil and LNG exports.



Throughput at Petersburg Oil Terminal (POT) declined by 4.2% in 2019.

Dry cargo amounted to 376.03 million tonnes (-3.0%), liquid cargo to 464.24 million tonnes (+8.2%). All regions apart from Azov-Black Sea increased throughput.

For the bunker sector, 2019 was neither a successful nor a really bad year. Deliveries were down a bit, falling to 11.04 million tonnes in total for all types of fuel from 11.7 million tonnes in 2018. Of these, 4.62 million tonnes were sold in the Far East, 1.9 million tonnes in the Black Sea, 3.87 million tonnes in the North-West (the Baltic, Barents and Arctic), and 0.64 million tonnes in inland waterways.

As expected, the share of high-sulphur fuel oil decreased slightly and the supply of low-sulphur products increased.

The market shares of the main players, all are large vertically integrated companies with their own refineries, remain practically unchanged: Rosneft Bunker 24.4%, Gazpromneft Marine Bunker 15.7%, LUKOIL-MarineBunker 15.7%, NNK-Bunker 11.3%, TransBunker 3.8% and other, smaller companies 29.1%.

New tax law adds to bureaucracy

A law that came into effect on 1 April 2020 has meant that marine fuel oil is subjected to excise duty. However, the same law entitles bunkering companies to a tax deduction equivalent to the amount of the excise tax paid.

The seller charges excise duty and sells fuel. The bunker supplier then also charges excise duty and claims for excise payments. As a result, the real cost of fuel should approach the excise-free price, although it is clear that the overall costs will inevitably rise due to the time gaps between the dates of payment and reimbursement.

Bunkering companies still expect considerable difficulties related to both proving the amount of fuel actually consumed, and the classification of products with different physical and chemical characteristics.

The main issue which was not clarified at the time of the law's entry into force was how excise tax on blended fuel, including low-sulphur fuels, should be calculated.

LNG working group formed

The Russian Association of Marine and River Bunker Suppliers has joined a working group that is developing national standards for the operations of the LNG-powered fleet and LNG infrastructure.

The group includes all interested parties on a voluntary basis: shipping companies, sea and river ports, bunkering companies, shipbuilders and ship equipment manufacturers, and LNG suppliers.

Petersburg throughput volumes down

Throughput at Petersburg Oil Terminal (POT) declined by 4.2% in 2019. During the year, the company's share in the total volume of oil transshipment through St. Petersburg port shrank from 84.1% to 79.9%.

"The past year was not easy for the entire oil market, it continued to stagnate and was volatile. Competition in the transshipment market increased, and we have ended up with a reduced share. A poor summer navigation season also contributed to the drop in throughput. Nevertheless, even under these circumstances, we slightly increased transshipment, which for the past year can be considered a successful result," commented Mikhail Skigin, Chairman of the Board of Directors of the terminal.

Skigin explained that the company shifted some of its throughput from Belarus to the ports in the Russian Baltic ports. Also, a significant expansion of the range of petroleum products allowed POT to pursue a more flexible policy in the volatile market environment, he claimed.

In 2019, the reconstruction of the terminal infrastructure continued.

Skigin added: "The construction of a 40,000 cubic metre tank is in the final stages. The facility should be completed by the summer navigation season of 2020. After the completion of this tank we are going to start modernization of two other tanks of 20,000 cubic metres. Then reconstruction of the so-called old part of the terminal will follow. The total investment is over $100 million. We will use our own assets and borrowed funds as well. The programme is due for completion in 2024.



The Varzuga became trapped in ice

"On completion of the project a modern transshipment complex will emerge, replacing the outdated part of the terminal and providing high-tech transshipment of a wide range of petroleum products."

Gazprom Neft boosts VLSFO sales

Gazprom Neft's bunker business operator, Gazpromneft Marine Bunker, has published its results for 2019. The company delivered about 350,000 tonnes of low-sulphur marine fuel to the market, up 47% 2018. Total sales of petroleum products were up 2% to 3 million tonnes.

As a part of a diversification of its marine fuel portfolio, Gazprom Neft has expanded the range of petroleum products meeting the MARPOL requirements. In 2019, the company launched VLSFO in the ports of the North-Western region, as well as in Novorossiysk. The total volumes of <0.50% compliant fuel were 88,000 tonnes. Sales of ULSFO for ECAs increased by 10%, to 261,000 tonnes.

Alexey Medvedev, Gazpromneft Marine Bunker CEO, said that the company planned to increase the proportion of ULSFO and VLSFO of its total sales to 50%. Gazprom Neft also intends to develop LNG bunkering. It is currently building the first Russian LNG bunkering tanker. Once in service this will enable ship-to-ship LNG deliveries in the Baltic Sea.

Tanker towed to safety

Arkhangelsk-based bunker supplier JSC's 1977-built, 16,038 dwt ice-class tanker *Varzuga* became trapped in ice in the north-east the Barents Sea on 3 April and was towed out by a nuclear powered icebreaker. The ship was in ballast when its Azipod failed.

Two nuclear-powered icebreakers were involved in the rescue operation. The Vaygach opened up a channel through the ice to the tanker and the shallower draft *Victory* secured a line and towed the tanker to safety. JSC was founded in 1996 in Arkhangelsk and also transports fuel to ports in the Russian Far North.

Gazpromneft Marine Lubricants gains approvals

Technology group Wartsila has approved the use of four new marine oils produced by Gazpromneft Marine Lubricants.

Approval of Gazprom Neft Ocean TPL 3030, 3040, 4040 and 5040 marine lubricants followed some 14 months of testing.

LNG passenger vessel under construction

A Russian shipyard has started work on the country's first LNG-powered passenger ship.

Intended for inland waterways operation, the Seagull LNG is being built at the AM Gorky yard at Zelenodolsk. The ship has been ordered by Russia's state transport leasing company, with delivery scheduled by the end of 2022.



AM Gorky yard at Zelenodolsk



HSFO PRICE ADVANTAGE NARROWS

Covid-19 crisis pushes down fuel costs and some owners have postponed installing scrubbers

The main economic case for fitting scrubbers is that doing so and thereby continuing to use HSFO will be significantly cheaper than buying either VLSFO or MGO.

In the first two months following the coming into force of the 0.50% sulphur limit on 1 January that was certainly true, although the gap was narrowing. According to S&P Global Platts the 'premium' for buying VLSFO in Rotterdam dropped from $181 per tonne on 3 February to $99 per tonne of 28 February.

Then along came Covid-19 and disrupted global trade and trashed demand for oil. By late March, consultancy Alphatanker forecast that cost-cutting and the erosion of marine fuel oil premiums would make scrubbers redundant and predicted a "flood of cancellations" of scrubber installations.

At about the same time Ian Adams, executive director of scrubber-promoting association Clean Shipping Alliance 2020, argued: "Given the unprecedented circumstances we all find ourselves, we should not dwell too much on the narrowing fuel price spread. Bunker prices will undoubtedly be distorted due to the difficult and challenging post-coronavirus market, exacerbated by the spat between Russia and Saudi Arabia which is culminating in an oil surplus in a market where demand has reached a nadir."

He continued: "Certainly, media reports concerning the narrowing of fuel prices should not be a deterrent to the wider take-up of marine emission gas cleaning systems (EGCS) as the technology remains the optimal, most effective means of meeting MARPOL Annex VI requirements. The use of EGCS also avoids the uncertainty surrounding the quality and availability of VLSFO."

Adams concluded: "Existing and new users of EGCS have invested in the technology first and foremost to reduce the impact of sulphur emissions on human health. Indeed, with members of the Alliance reporting that their installations are reducing sulphur emissions down to less than 0.1% to the mandatory 0.5%, then their investments can be considered not only sensible but successful."

By mid-May there had been reports of some cancellations or postponements of scrubber retrofits. During the first half of May, Scorpio Bulkers announced the delay of 13 scrubber systems installations until at least next year and affiliated company Scorpio Tankers has postponed 19 retrofits.

Speaking to World Bunkering following those reports, Adams reiterated his earlier views.

He said: "The situation now is unique. It doesn't make sense for owners to take a ship out of service for perhaps 60 days to retrofit scrubbers when, as is the case now, tanker rates are sky high. Scrubbers are going to be fitted during planned dry dockings when the ships wouldn't be earning anyway."

Adams also stressed that the human health arguments for scrubbers would become increasingly prominent once the Covid-19 emergency was over. He said that scrubbers removed most of the small particulate matter that was becoming a cause for concern regarding the use of VLSFO.

He pointed out that scrubber reliability and their emissions reducing efficiency had been addressed at a technical seminar held in February during which CSA members reported on the installation and performance of their respective exhaust gas cleaning systems.

A shipowner panel comprising Grimaldi Group, Genco Shipping and Trading, and Spliethoff informed delegates that, despite initial installation problems, there had been little by way of mechanical breakdown, corrosion or non-compliant operation.

All panel members said that their EGCS installations were removing substantially more sulphur emissions than required to comply with the global 0.50% sulphur cap.

With almost ten years' experience operating ECGS, Arne Hubregtse, technical director and a member of the Spliethoff executive board, said: "We have not had any major problems; we don't see any corrosion issues or any breakdown issues. We are satisfied with our decision to install scrubbers and we look forward to operating these systems for a long time. From an environmental perspective, if you look at the total picture, scrubbers are still the best intermediate solution we have until a zero-emission propulsion solution is found."

Dario Bocchetti, head of Grimaldi's corporate energy saving and innovation department, said his company had fitted scrubbers to about 70% of its fleet, with installations capable of reducing sulphur emissions down to 0.10%. Grimaldi Group's scrubber installations are achieving about 90% 'up-time'.

Genco Shipping and Trading has installed open-loop scrubbers on 17 capesize bulkers. Its chief operating officer, Capt. Robert Hughes, reported: "We've had no breakdowns. But a lot of that is due to good planning, planning for performance. You must do the mental heavy lifting ahead of time, chose the right supplier, and identify where there could be some limitations and vulnerability. We haven't experienced any issues."

He continued: "While scrubbers have been operating successfully over many years in land-based power stations, the marinisation of the technology has led to some concern over corrosion. However, his can easily be avoided by applying proper countermeasures."

Scrubber training

Scrubber supplier Yara Marine has formalised the training it provides to marine engineers, deck officers and shore staff with the creation of the Yara Marine Training Academy.

Yara experts have given on-site training when a scrubber is installed. Now a modular package is being offered by the newly created academy. Successive modules cover system design and function, governing documents, operation, maintenance and troubleshooting.

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The Norwegian company says it has delivered over 300 SOx scrubber systems to customers in all major shipping sectors, with millions of successful operating hours logged.

"Customers can operate and maintain the scrubber system in an optimized way when they have the right knowledge and skills," said Technical Trainer Ulf Johansson. "Training enhances not only our in-person relationship with customers, but also builds customer satisfaction in the long term. Our focus is on developing and offering different learning methods for different target groups in different situations."

Hybrid scrubbers for Norwegian Cruise Line

Technology group Wärtsilä is supplying hybrid scrubber system packages for retrofitting on two Norwegian Cruise Line (NCL) vessels, the Norwegian Breakaway and Norwegian Getaway.

The Wärtsilä equipment is scheduled for delivery in the first half of 2020. For the past seven years, Wärtsilä has had an engine maintenance agreement with NCL, and four new NCL cruise ships, currently under construction, will also be fitted with Wärtsilä engines and scrub


Ian Adam



SCRUBBER RETROFITS IMPACT FIRE-FIGHTING SYSTEMS

Survitec warns that existing engine room capacity may be insufficient when scrubbers are fitted to vessels

Shipowners looking to retrofit marine exhaust gas cleaning systems as a way of complying with the new 0.50% sulphur limit should verify the capacity of their fixed fire-fighting systems before undertaking any retrofit projects, according to fire-fighting systems supplier Survitec.

It cautions: "While amendments to MARPOL Annex VI, dubbed the IMO 2020 regulation, do not specifically require additional fire-fighting capability any increase in machinery space size will require an increase in fire-extinguishing capacity."

Dagfinn Aas, Director, Technical Management, Survitec Fire Solutions, says: "A scrubber installation often requires extending the engine room in the casing area and when the engine room's volume is increased the capacity of the extinguishing agent – in most cases CO_2 - must also be increased."

He explains: "If a scrubber is installed in a totally separate space, with a bulkhead facing towards the engine room, then there is no need for an additional fire-fighting system.

In other cases, additional nozzles will have to be connected to the existing pipework covering the scrubber area, or additional CO_2 cylinders may be required. However, we have seen scrubber retrofits that have required completely new fire-fighting systems. It all depends on the calculations and the CO_2 concentration."

For a CO_2 fire-extinguishing system, the calculation is based on 40% concentration of the total gross volume, excluding the casing, or 35% concentration of the gross volume including casing; whichever method gives the highest CO_2 capacity.

"When volume is increased, the system needs to be re-calculated and re-engineered with additional CO_2 cylinders and additional nozzles. New flow calculations need to be carried out to verify the new system will discharge the correct amount of gas within the required two minutes. Drawings must also be sent to the classification society for approval before installation can take place. This means some installations may have to be removed and reinstalled," continues Aas.

Survitec says it saw a hike in fire system retrofits in the run-up to the 1 January 2020 0.50% sulphur limit implementation date. The company believes up to 6% of the global merchant fleet is set to have a scrubber installed by year-end, and advises shipowners to plan ahead.

"We have completed more than 30 retrofit projects over the past two years in Europe alone," said Michal Peruga, Operations Director, Survitec Fire Solutions. "However, we are seeing a number of inquiries where shipowners have left it too late and have realised the need for CO_2 upgrades only when classification surveyors begin certifying the scrubber installation. Inquiries are coming in just one or two months before the drydocking, which is far too late. This can result in delays to the vessel re-entering service and unbudgeted drydocking costs."

According to Survitec, while most upgrades to the fixed fire-fighting system are relatively simple, requiring additional CO_2 cylinders, nozzles and extra pipework, some projects have required complete system redesigns or a totally separate fire-fighting system.

"It can be a major task updating the drawings and submitting the paperwork for class approval," says Peruga. "It could take four to five months from taking an order to getting the approvals in place and carrying out the engineering before the vessel returns to service, assuming drydock availability."

Commenting specifically on Chinese shipyard availability, Beibei Qiu, Country Manager China, Survitec, says: "Slots are difficult to find with many yards fully booked due to the increased demand for scrubber retrofits. One Shanghai shipyard I visited has 80 vessels booked in for scrubber installations this year, which doesn't leave a great deal of room for other projects. Shipowners do need to upgrade their fire-fighting systems at same time they install the scrubber. Otherwise, it will not be approved in time, which often comes as quite a surprise to the shipowner."

Propeller electricity generation for new tankers

Two newbuild 22,000 dwt product and chemical tankers for Swedish shipowner Donsötank that are being built at China's Wuhu Shipyard, will be fitted with the WE Drive variable frequency drive system and Yaskawa Environmental Energy/ The Switch's permanent magnet (PM) shaft generators.

Finland's WE Tech, which specialises in innovative marine hybrid solutions, says that it will provide a comprehensive technology package for the sister ships, with delivery starting in spring 2020.

The technology delivers lower emissions, significant efficiency gains, and lower operational and maintenance costs for the advanced ice-class 1A tankers.

The WE Drive works with The Switch PM machines to tailor energy efficiency, production and consumption according to vessel needs.

In the Power Take Out (PTO) mode, the solution allows mechanical energy from the propeller shaft to be converted to electrical energy, which is said to be the most energy-efficient way to generate power in a vessel. Switching to the Power Take In (PTI) mode enables the technology to convert auxiliary generator power to propulsion power by utilizing the PM shaft generator as an electrical motor. This effectively boosts the propulsion system for demanding operations, such as those in ice-covered water.

"This is both an environmentally friendly and operationally powerful solution," comments Mårten Storbacka, Managing Director of WE Tech. "In the PTO mode, there is no need to run auxiliary engines and generators when sailing, slashing fuel costs, emissions and saving on maintenance requirements. Switching to PTI allows the vessel to adapt to the most demanding conditions, using the shaft generator as a reliable and economical auxiliary propulsion drive."

EGR bleed-off water solution

Swedish water treatment manufacturer Marinfloc has launched a combined exhaust gas recirculation bleed-off water treatment system and bilge water separator. The solution has been approved by both DNV GL and MAN Energy Solutions and fulfils the requirements of MEPC 107(49) and MEPC 307(73).

The approval means that only one separator is required instead of two. Marinfloc claims that reducing the amount of equipment needed on a vessel will provide shipyards, engine makers and ship owners with a significant cost saving solution.

Exhaust gas recirculation (EGR) is used to reduce NOx as per the MARPOL Tier III requirements when use with compliant fuel. The EGR process generates bleed-off water that must be treated to < 15 PPM oil content, which is also the requirement for bilge water.

Marinfloc says that, by combining the two treatment systems, the capital expenditure will be significantly reduced without any negative impact on performance. Operating expenditure, including on maintenance, spare parts and training, should also be reduced.



Marinfloc's new combined exhaust gas recirculation bleed-off water treatment system and bilge water separator.



Eight very large gas carrier vessels are to be fitted with Wärtsilä's LPG Fuel Supply System

LPG FUEL SUPPLY SYSTEM TESTED

Wärtsilä says system is the first to undergo engine testing

Technology group Wärtsilä says its LPG Fuel Supply System (LFSS) has successfully completed full scale testing with a full sized 2-stroke marine engine burning liquid petroleum gas (LPG) as fuel.

According to Wärtsilä this was the world's first such testing protocol. It was initially decided to retrofit the Wärtsilä LFSS to four very large gas carrier (VLGC) vessels owned by Oslo-listed BW LPG, the world's largest gas shipping company.

However, following the tests, in which the performance exceeded expectations, BW LPG decided to exercise its option to retrofit an additional four vessels, making a total of eight ships to use this technology. The initial order with Wärtsilä was placed in December 2018, and the order for the four additional retrofits was signed in February 2020.

Wärtsilä is the designated system integrator for the retrofittings. This involves not only the installation of the LFSS, but also the required ship design modifications, integration of the LFSS control system into the ships' integrated automation system (IAS), and acting as the coordinator between the yard, the engine manufacturer, and the owner.

"The use of LPG as a marine fuel is likely to increase in the future, and a high quality, reliable, supply system is essential if this is to happen," says Peter Zürcher, Project Manager, Wärtsilä Marine.

Project to assess suitability of bio-based fuels for ships

Finland's VTT Technical Research Centre is working on a three-year Business Finland BioFlex project with partners to determine whether fuel oils made from biomass and waste plastics are suitable for power plant and marine diesel engine use.

VTT says the aim is to determine the most ecologically and economically sustainable way to replace fossil fuels.

The BioFlex project has a budget of EUR 1.6 million and is co-financed by, along with Business Finland and VTT, the participating companies: fuel oil producers, users and equipment manufacturers. The companies involved include Auramarine, Fortum, Neste, Pohjanmaan Hyötyjätekuljetus, Polartek, St1, Valmet and Wärtsilä.

"Our goal is to find the most ecologically and economically sustainable way to replace fossil heavy fuel oil in ship and power plant diesel engines. We compare different methods of industrially producing fuel oils from, for example, waste plastics or biomass, such as harvest residues from forestry and agriculture. We are also conducting experiments to examine the suitability of the oils for applications", says Senior Principal Scientist Anja Oasmaa from VTT.

In addition to seeking a sustainable solution for the production of load-following capacity, the BioFlex project also aims to support the objective of the International Maritime Organization (IMO) to halve greenhouse gas emissions from marine traffic by 2050.

"The use of bio-oils is still limited, mainly for cost and availability reasons, and I expect the project to address these factors. It is very important that the subject is researched together to identify all potential challenges throughout the manufacturing, distribution and consumption chain. Every effort must be made to reduce greenhouse gas emissions, and bio-oils will play a significant role in this battle going forward", says CTO Ilkka Rytkölä from Auramarine, a supplier of fuel injection systems.

VTT says it is bringing to the project its expertise in sustainable development, analytics, diesel engine emission measurement, and thermal conversion methods used in the liquefaction of biomass and waste plastics. These include pyrolysis and HTL, or hydrothermal liquefaction, among others. The aim is also to utilise the expert networks of the International Energy Agency (IEA).



Turkey is looking at heavy market contraction, but short-sea shipping could be a boost. ©AHT Photograph Agency

EDGING TOWARDS THE NEW NORMAL

The Eastern Mediterranean has weathered the pandemic storm better than most could have expected and is beginning to open up again, however tentatively, as John Rickards reports

While the littoral states of the other end of the Mediterranean have become the epicentre of Europe's coronavirus struggles, the east has seen some successes in containing the virus and is beginning to look ahead to the post-lockdown world.

Here, the country most directly affected has been Turkey. Back in mid-March, at a time when confirmed cases of Covid–19 in the nation were still in the low double-digits (at the time of writing, a month later, there had been 112,000), I spoke to Energy Petrol head and IBIA board member Mustafa Muhtaroglu. I asked about the then-current situation in Turkey. How - on the basis that the pandemic would inevitably cause the same disruption there as seen in other affected countries - the Turkish fuels sector would hold out?

WB: Covid–19 is obviously having a huge effect in already-affected parts of the world on both an economic and trade level, and in terms of the day-to-day running of business. How do you expect to see both Turkey's overall bunker and shipping sector and Energy Petrol's share of that market hold up? Have there been any impacts so far? What adaptations or adjustments have you had to make, or do you think you or the Turkish sector as a whole will have to make, as a result of the pandemic?

MM: We are of course very concerned about the effects of coronavirus on day-to-day business and are watching the situation very closely. Surprisingly, up to now we have not seen a very dramatic drop in bunker demand but as an effect of countries closing everything, we should have a very serious decrease coming.

Istanbul managed almost the same volume in the first 2 months of 2020 as in 2019; in total about 400,000 tonnes of bunker fuels was delivered to ships in the same period of 2019 and 2020, confirming that Istanbul maintains its strong position in the area. However, I do expect volumes in the 2nd quarter will be much less due to the current situation. I hope after summer we will again catch the same business potential and hopefully close 2020 with minor losses.

WB: How seriously do you think the local shipping sector could be affected across the coming months by Covid–19, based on what's happened so far?

MM: Shipping in our area is mostly small ship traffic. The average dwt of ships passing through the Turkish Straits is 15,000 dwt so we mostly have short-sea coaster shipping which could be much healthier in the second part of 2020 due to the change in the supply chain from China. Many countries will prefer sourcing from short distances due to the problems of being largely dependent on China so I expect shipping will be doing good in our area in the second half of 2020.

WB: Given current uncertainties over everything from oil prices to trade patterns to developments in emissions regulation, is it possible to make any predictions for business in the long-term? Have you been able to put any plans or contingencies in place to cover likely eventualities?

MM: It's one of the very serious historical crises in the world. This time it's not a financial or oil or commodities or shipping crisis: it's human life, it's health cases. You can't compare anything with human life, so people are only thinking of their lives, everything else is really secondary. First, we need to get rid of this virus then think about business. Of course, you can't make any plans, you can't predict anything at this stage. We first aim to survive, then try our best. As a company we have assured our employees they will not lose their jobs, then we try to do as much as we can in order to keep business running, then we will see results and make plans for the rest of this year and the future.

Apart from the current situation, which we hope ends soon, as a company we are financially very strong with no debts and no cash bank credit lines used for running our business. Once we are back to normal, we are very much ready by all means together with our strong barge fleet, which reached 11 bunker barges by our latest acquisition of the Energy K (ex-Haci Tell), a 2,818 dwt tanker able to supply four fuel grades.

Thankfully, some six weeks after that interview, the pandemic's peak looks to have passed in Turkey following the imposition of lockdown measures, and the government was, according to anonymous sources quoted by Reuters, in discussions about reopening sections of the domestic economy towards the end of May, with all the usual caveats. Separate remarks made by industry leaders within the country would seem to indicate that while public-facing services will be the slowest to reopen due to social distancing measures, manufacturing and commercial sectors, particularly those outside Istanbul itself, hit the worst by the virus, should be among the first.

Across the Aegean, Greece's response to the virus has been, by any standard, exemplary, with swift action seeing cases limited to just over 2,500 at the time of writing despite the fragile economy and the country's infrastructural complexities. Greece is to begin its own emergence from lockdown at the start of May, which should bode well for those hoping to see a slow rebound in maritime traffic.

It seems very unlikely that the cruise business - during good years, at least, such a steady source of bunker sales for Greek suppliers - will return to its old self any time soon, and the Greek economy's heavy reliance on tourism must leave its immediate prospects bleak, but other sectors will hopefully fill some of that gap alongside more normalised inter-island traffic.

The Greek shipping ministry announced in April that it would be shoring up coastal shipping and its island economies in the wake of the pandemic. €33.7m is to be allocated to the Greek islands, with island-based companies eligible for the country's transport discount receiving €11.2m, €15m going to maintain island ferry services, and €7.5m to cover half the cost of coastal shipping contracts covering February, March and April of this year.

Shipping Minister Yiannis Plakiotakis described the measures as "realistic" and "sustainable" actions aimed at "strengthening liquidity in sectors such as coastal shipping and island entrepreneurship, which have fallen into disrepair due to the pandemic."

On the other hand, the collapse in the oil price could cast a question mark over the future of plans to open up waters offshore Crete to exploratory drilling. Last year, Total and Exxon took up exploration licenses for 40,000 square kilometres of sea bed, but while in the long term oil prices should recover so long as another price war doesn't break out, the likelihood of reduced demand lasting for years rather than months could slow exploration efforts, as they have done off Cyprus.

Not that such concerns have stopped Turkey, which despatched a drillship into what's considered Cyprus' EEZ in April to continue the country's oil exploration efforts, a move which quickly drew protests from the EU and Cyprus individually. Such protests, which have also come from the US and Russia, have had no effect in the past, and Turkish president Recep Erdogan was quick to respond by claiming the EU was becoming a "tool" of Greece and Cyprus. Observers have noted that this could well be a move to stir nationalist support and unity as the pandemic continues to grip Turkey and distracts its neighbours.

Cyprus, meanwhile, has managed to contain the virus well, and the government is maintaining talks with foreign investors and other business interests in a bid to the minimise economic impact.

"We are optimistic that with the measures we put in place we will overcome the crisis," the country's Finance Minister Constantinos Petrides said during an online forum with investors at the end of April. He also said that predictions were that Cypriot GDP would shrink by 5–7% this year, considerably better than the expected EU average.



Sections of the Turkish economy may have reopened by the time this magazine goes to print. ©Shankar S.

The shipping sector remains a crucial part of that economy, with ship management alone contributing 5.2% of the country's GDP last year, the highest since 2015, according to a report from the Cyprus Central Bank the week before the minister spoke. The Cyprus Shipping Chamber (CSC) took the opportunity to note that the industry's economic contribution "is reflected once again in the results of this report, demonstrating its robustness and the tangible prospects for its further development."

"In very few other maritime nations, the economic contribution of the local shipping industry reaches such high level, so it is important to receive the appropriate financial and operational support to deal with the effects of this pandemic crisis, keeping world trade and maritime transport moving."

A small sign of business as usual, perhaps.

Energy markets and the immediate future of energy supply across the Eastern Mediterranean was discussed by the energy ministries of Cyprus, Greece, Italy, Israel and the Palestinian Authority through a teleconference in late April. The main issue under discussion, according to a terse statement issued by the Greek Ministry of the Environment and Energy, was the effect of the coronavirus crisis on the countries' energy markets and the measures taken to address those. They also discussed wider issues of energy cooperation in the East Mediterranean region - though there's been no word as to whether Turkey's actions were one of those subjects up for debate.

Israel, which initiated that conference call, hasn't passed through the first wave of Covid–19 as comparatively untouched as Greece or Cyprus, but the state has nonetheless seen its infection rates drop and has been making plans for its own gradual re-emergence from lockdown.

In the months before the pandemic started, there were signs of movement in Israel's bunker sector, with Cyprus-based Island Oil adding Ashkelon and Ashdod as physical supply locations. Meanwhile, a survey conducted on behalf of - but not by - the Israeli environment ministry published at the end of 2019 showed that shipping, primarily at the ports of Haifa and Ashdod, could be responsible for 6–15% of NOx and Sox. That number was significantly higher than the ministry's own estimates, though this was suggested to be a case of survey methodology.

SOx should have been largely resolved by the switch to VLSFO since the turn of the year, but, assuming coronavirus eventually ceases to be an all-consuming factor trampling almost all of regular life beneath it, such a high level of NOx is likely to see pressure for regulation of these emissions from ships. NOx emissions from ships can be cut by engine technology, SCR aftertreatment, or by using LNG.

Another is to plug the ship into shore power, so there could be calls for the establishment of cold-ironing or similar facilities in Haifa.

Whether the new coalition government ends up being in a position to look at air pollution in the country any time soon is another matter still. At the time of writing, prime minister Benjamin Netanyahu was indicted on criminal charges and facing a challenge to the legality of taking up the post again being heard in the Israeli Supreme Court. Deeper military involvement against Iranian forces in Syria, and fresh tensions with Hizbollah on Israel's northern border were adding further strain. Ongoing political stresses on top of the social and economic chaos wrought by Covid–19, and the implosion of energy markets, means that it's anyone's guess which direction this end of the Mediterranean will be facing in a few months' time.



The Greek government has taken steps to bolster coastal and inter-island transport links. ©Marco Verch

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NOT TOO HOT, NOT TOO COLD

Few serious problems with using VLSFO have been reported following the 2020 fuel switch deadline but an early lesson is that correct temperature management is crucial

In the run-up to the 1 January implementation of the 0.50% sulphur limit there was widespread concern that switching between different compliant fuels could lead to problems. At least one large global tanker operator went to the extent of securing worldwide VLSFO storage to ensure its vessels would be able to take on compatible fuels. In the event VLSFO use has created relatively few headaches.

The assumption had been that VLSFO would be widely used by vessels without scrubbers as it would be significantly cheaper than using MGO. And that appears to be the way it turned out for the first quarter of the year at least. However, the effect of Covid-19 on the fuel market has, albeit perhaps temporarily, changed the economic case. By mid-May, in Singapore, MGO was reported as being US$4 a tonne cheaper than VLSFO. That would seem appealing to ships' engineers who have had to deal with clogged purifiers.

But it is much too early to assume that all the hard work and resources refiners have put into developing VLSFO, and the all the effort the shipping industry has expended to be ready for the new blended products, have been wasted.

Last year, a number of shipping, refining, fuel supply and standards organisations, with IBIA prominently involved, worked together to produce Joint Industry Guidance on the supply and use of 0.50% – sulphur marine fuel (JIG) which was released on 20 August.

The publication has been developed by experts from across shipping, refining, supply and testing of marine fuels.

The publication still represents best practice for stakeholders across the marine fuels and shipping industries, from fuel blenders and suppliers to end users. It presents the specific safety and operational issues relating to the supply and use of 0.50% sulphur fuels, an overview of fuel quality principles, and the controls that should be put in place to ensure that safety issues are identified, prevented and/or mitigated. It addresses issues such as fuel compatibility, fuel stability, and fuel handling and storage, and contains a comprehensive review of existing operational factors that can affect safety.

Among its key messages is the need to ensure fuel quality by making sure that blend components are suitable for bunker fuel production, with particular attention being given to ensure that the final product is stable.

Fuel suppliers and purchasers should provide adequate information to the ship concerning the fuel as supplied to enable ship crew to identify and manage potential safety and operational issues associated with certain fuel properties and characteristics.

Reflecting a widespread worry, the guidance notes that fuel characteristics are expected to vary considerably between bunker stems. The ship's crew will need to adopt a more proactive approach to fuel management. They will need to know the fuel characteristics as loaded and be able to respond to the requirements, especially in terms of on-board temperature requirements and any commingling.

While compatibility between fuels from different supply sources can be a concern in today's environment, assessing compatibility of 0.50%-sulphur fuels from different sources will be key. To the extent possible, fuel should be loaded into an empty tank. The available space for new bunkers to be loaded should be taken as the capacity of the empty tanks in order to avoid commingling on loading.

The JIG emphasises that ship operators and fuel suppliers should review operational practices to allow sufficient time to test for compatibility between existing and proposed bunker fuel delivery, especially if no "empty" dedicated storage tank is available on the ship.

So, what has the actual experience of using VLSFO been? IBIA's Regional Manager for Asia, Alex Tang has been talking to two Singapore-testing companies to find out.

Gowri Shankar, Tribocare's Regional Sales Manager- Asia, said: "During the last months of 2019 and during the first two months of 2020 we observed that fuels with widely different formulations were supplied across the world and even in the same port, including Singapore, with viscosities ranging from 2 cSt up to 380 cSt. Lately a stable trend has been observed in fuel quality across the globe.

In my opinion, I dare to say that the quality of VLSFO fuel is far better than HSFO fuels. The calorific value of VLSFO fuels is definitely higher than HSFO fuels which means there is certainly a reduction in fuel consumption and hence fuel savings for the buyers. The majority of the fuels we have tested have low asphaltene content and middle to low micro carbon residue (MCR) which was an initial worry, since there were concerns for the detergency properties of the newly formulated 40BN cylinder oil, with regards to high MCR content fuels."

"As regards to the problems faced," Shankar said, "we are repeatedly contacted regarding stability issues of the new VLSFOS with vessels facing filter and purifier chocking issues. Those stability issues were expected, since those fuels are produced by blending residues with distillate fuels to bring down the sulphur content to the compliant level. When you mix paraffines with aromatic residue you have to take special precautions to maintain the stability of the fuel, specifically the 'capacity' of the fuel matrix to keep the asphaltenes in suspension. Unfortunately, not all blends are successful. Once the stability of the fuel is disrupted and the asphaltenes start to precipitate, the process is not reversible. There is nothing you can actually do to bring the fuel back in a stable condition and the only choices are to either debunker or live with this. The majority chooses to live with the problem instead of getting into a legal dispute regarding the quality of bunkers, which results to a heavy burden for the crew, who need to manually clean the overloaded purifiers.

He continued: "We have also noted an interesting fact that the purifiers are getting clogged due to mishandling of fuels by ship's staff.

We have handled a few cases where the ship was supplied with fuel which has a viscosity of about 30 to 40 cSt and density was about 945 to 965 Kg/m3. Since the ship staff was used to set up 98^{0}C as fuel heating temperature at the inlet of the purifier, they continued maintaining the same for those low viscosity fuel. The main function of the purifier is to remove the dirt/catfines/heavier particles from the fuel.
The highly viscous HFO had to be heated to reduce its viscosity so that the separation would be more efficient.


Charlotte Rojgaard

In this case, though, the VLSFO fuels already have low viscosity and density. When these fuels are heated at 98°C and passed through the purifier, the purifier clears all the heavier particles including asphaltene. Again, this leads to overloading the purifier and clogging it. We have observed that by reducing the purifier inlet temperature, this problem has gradually reduced.

Shankar concludes: "Further to the stability issues, there are also certain issues with high pour points, especially effecting bulk carrier vessels when they load temperature sensitive cargos. Therefore, we always advise buyers to procure fuel that is fit for purpose and not just compliant with ISO 8217 requirements."

Martin Chew, Regional Sales Manager-Asia Pacific, Innospec Fuel Specialities, reported that bunker alerts from global bunkering ports are continually highlighting teething problems with VLSFO. Many expected to see this as suppliers used unfamiliar blend components to achieve lower sulphur levels while continuing to include residual streams. "Regarding the ISO 8217 specification, we have seen many VLSFO deliveries to be off spec with the main parameters being flash point, TSP and pour point which, together, made up about 45% of all off spec cases in April," Chew said.

Chew said that VLSFO instability issues very similar to those seen with HSHFO but "due to the process and components used to produce the VLSFO, this issue has become more pronounced post 2020".

He also made the point that testing the fuel to ISO 8217 was giving shipowners a false sense of security. He explained: "A very good example of this was a VLSFO that was found with on-spec total sediment potential (TSP) caused countless stability issues during operation. At the same time, surprisingly, many off-spec TSP cases don't lead to similar issues. The conclusion is that ISO 8217 gives an indication of the fuel quality but doesn't guarantee it is fit for purpose. We are of the opinion that Reserve Stability Number (RSN, ASTM D-7061) is a better indication of the fuel stability compared to TSP."

According to Chew the issue of unstable fuel can addressed by using the right fuel treatment, for example dispersant and stabilisers.

He also notes: "Due to the heavy components used to produce the VLSFO, high pour point VLSFO is becoming quite common. This is particularly an issue for low viscosity fuels where fuel handling and purification is done at a relatively lower temperature. On many occasions, the handling and purification temperature falls below that at which wax forms. This is similar to the cloud point of MGO. One needs to understand that once the wax is formed, much more energy is required to raise the temperature and melt."

Chew said that wax formation had caused many cases of purifier clogging and failures. These cases had often been mistaken as instability of the fuel causing asphaltene sludges. He said: "This is not surprising as it is not easy to spot the difference between sludge and wax on-board a vessel. On many occasions this issue can be easily solved without breaking the purifier water seal by increasing the purification temperature gradually until wax disappears."

Finally, Chew said that premature failure of engine components, for example excessive liner wear and piston ring breakage, has become common. He added that the question to ask was: "Is this an issue caused by VLSFO?".

He said the answer was: "Yes and no. But from what we have seen, it is much more likely that components and lubrication cause 80-90% of these failures. Only a mere 10-20% can be attributed to poor VLSFO combustion, leaving causing excess deposits on the piston ring packs. This eventually causes rings and liners to fail. Where this is the case, one should consider a combustion catalyst to assist the VLSFO burn more efficiently."

In a recent interview with Bunkerworld the global head of Bureau Veritas' Marine Fuel Services, Charlotte Rojgaard, like Sankar and Chew, raised the issue of the temperature of the fuel.

"It is all about temperature management to ensure the correct viscosities are applied for separations and injection. This is not a new challenge but whereas the RMG 380 fuels pre-2020 did not vary much on viscosity, the VLSFOs currently vary quite a bit."

In the article she also stressed that it remained important to keep different fuels separate. World Bunkering asked: "Was BV aware of any incidents that have led to main engine failure?"

Rojgaard said: "Main engine failure requires that the fuel makes it to the engine. If the fuel treatment system is filled with sludge, the problem is more likely fuel starvation. It has always been good housekeeping not to mix fuels onboard due to potential compatibility issues. This recommendation still stands."

Following on from the Joint Industry Guidelines, Videotel produced and e-learning package. How important did she think chief engineers being aware of potential issues has been?

"I think it is very important that the chief engineers are aware of the challenges related to fuels," Rojgaard replied. "In the end, they are the ones that have to manage the fuel they receive onboard."

World Bunkering asked, from the limited experience so far, did she think any clear lessons had emerged?

Rojgaard replied: "It is still early days and we are still building up experience. One lesson learnt is the importance of preparation and education. Also, as predicted, onboard temperature management is key."

The industry was, in general, well prepared and has been learning how to manage VLSFO. It would be ironic if, against all expectations, MGO pushed the new blended products out of the market.



Import/export traffic has been hit hard by the country's lockdown ©Cyprien Hauser

EASING TRADE OFFERS SOME REASON FOR HOPE

Virus-control measures in South Asia have kept something of a lid on the pandemic, John Rickards reports, but with cargo building up at the region's ports, closer ties to China and Central Asian states may offer some comfort

A tight - and hurriedly-imposed – lockdown in India may have brought Covid–19 somewhat under control in the vast country although questions remain over testing numbers and case reporting, and of numbers of infections and deaths continue to rise. The pandemic has also heavily hit the country's economy, as well as the capability of itinerant and temporary workers to follow seasonal work and keep a significant part of Indian production operating. Consequently, there will be a lot of interest in what shape the country and its import and export markets are in as emerges from lockdown.

Swiss bank UBS published a report in April evaluating several scenarios. Easing mobility curbs by mid-May would, UBS predicted, see a minor 0.4% recession in 2021, versus a 3.1% contraction if restrictions end up lasting longer, into late June, or up to 4.2% if the virus continues to resurface for the next year.

"The challenges for India versus its peers are starker if infections spread rapidly considering India's higher population density per capita, weaker health infrastructure and limited resources for intensive testing," UBS said. "Any rise in cases post lifting of restrictions would lead to restrictions being imposed again. That said, we assume restrictions would be more selective in areas where the infected cases are higher versus a one-size-fits-all approach on a pan-India basis."

Some states would like to see the lockdown extended, but the Modi government begun cautiously reopening some industry, including the crucial agricultural sector, ahead of planned wider easing in the coming weeks with unemployment in late April standing at a mammoth 21%. Engineering and production exports have been down 80% given order cancellations and lockdowns elsewhere.

Cargo has piled up at Indian ports either because movement restrictions prevent easy processing or because customer demand has evaporated en route, leading the Shipping Ministry to demand everyone involved in the import-export chain waive a list of demurrage and other charges as the delays have been considered unavoidable and alternate processing methods less risky.

The refusal of some lines, in particular, to cooperate with the request - citing charge waivers and changes in payment procedures as offering no incentive to clear goods from ports - led Shipping Minister Mansukh Mandaviya to issue an extraordinary rebuke, reported in the *Hindu Business Line*.

"Today, this situation has arrived, at this time if the shipping lines don't support us, I will quarantine them," he said. "If they don't follow the advisory of the government, be warned that the ships have to come to Indian ports, to my territory where my rules and regulations are applicable, I will quarantine them for 14 days. It is a force majeure situation, in such a situation, everybody has to cooperate. In this situation, we are taking all the necessary steps because it is the government's responsibility not to let industries die and to support them, so we are doing it."



Manufacturing should slowly resume as restrictions ease. ©Tawheed Manzoor

Strong words

Sri Lanka too faces a raft of challenges going into the second quarter of the year. The island nation had yet - at the time of writing - to see an explosive outbreak of Covid–19, though numbers had started to climb over the 600 mark and Sri Lankan authorities remained highly vigilant. However, the same type of social and commercial restrictions as elsewhere have put it under sharp economic strain, made worse by Sri Lanka's close commercial links with China – which was only just emerging from shutdown - and India - still plotting emergence from its own - and the weight of immense foreign debt repayments due later in the year.

The reduction in commercial activity and traffic has been particularly marked in car imports offloaded at Hambantota and then left on the wharf. In a similar situation to cargoes in India, nearly six thousand vehicles have been left in the port since pandemic procedures came into effect.

Despite a waiver of demurrage costs from March 16 to April 30, offered as a carrot to tempt the vehicles' importers to claim them without fear of incurring penalty fees, by the day before the deadline only 425 had seen port dues paid, and 5,755 were still waiting in their yard.

Hambantota International Port Group COO Tissa Wickremasinghe was quoted in local press as saying he couldn't understand why owners hadn't cleared their vehicles on time, with the waiver period so close to ending. Ro-ro car imports have been one of the port's few marked areas of success since its troubled opening, but the economic shocks caused by Covid–19 would seem to be biting into Sri Lanka's import markets already.

And it's not just HIPG. The Sri Lanka Ports Authority was reported to be facing up to $13m in lost revenue for April as a result of the pandemic, a collapse of 50% against 2019.

SLPA chairman Daya Ratnayake was reported in local media as saying that container traffic through Colombo was down 22%, even allowing for the year to date's minor increase in vessel calls. Once more, imported goods were backing up in Colombo due to movement restrictions to the tune of 40,000 TEUs. With a similar waiver in place for boxes at the port; it was not clear yet how many of those containers might end up unclaimed.

Lockdowns in India and Bangladesh - from which 55–60% of Sri Lanka's import volumes are reported to arise - have also hampered transshipment. Some reports put potential container line traffic on local routes as down up to 30% of normal - with the usual caveat that specific projections are very tricky in the current circumstances.

In a bid to shore up its currency reserves against the demands of national debt and shrinking economic activity, in April Sri Lanka's Central Bank took out a US$400m currency swap facility with the Reserve Bank of India.



The country has US$1bn in international sovereign bond debt to repay in October, and is one of those countries pushing the IMF to arrange debt delays or reprofiling for developing nations in light of the pandemic-triggered depression.

While China holds around US$5bn in Sri Lanka's debt, the Asian superpower has long considered Sri Lanka a key part of its "Belt and Road" economic initiative and state-run and state-backed concerns have continued to maintain their investments in the country.

In April, Sinopec officially commenced operations at its newly established oil depot at Hambantota Port, successfully refuelling its first ship. Hambantota's long struggles to become both a viable cargo and a significant bunkering port based on its proximity to the main east-west trade routes, are well-documented, so Sinopec's first moves there - at a time of such global uncertainty - are welcome.

In a statement, the Chinese energy giant said: "Impacting primarily Northeast Africa and South Asia's oil market, Sinopec's Hambantota Port oil depot will enhance [the company's] comprehensive bunkering service capabilities, as a significant boost in its continued effort to expand its bunkering activity around the world."

"Given its strategic location, Hambantota Port has emerged as a key port on the Belt and Road. In 2019, Sinopec Fuel Oil obtained rights for oil trading and operations as well as oil depot maintenance through global bidding and subsequently registered a wholly-owned subsidiary in Sri Lanka."

"As the COVID–19 outbreak intensifies around the world and fuel consumption drops, Sinopec has been committed to implementing pandemic control measures and resuming work and production, heeding the Chinese government's call to maintain stable foreign trade by expanding its overseas bunkering business. Prior to the start of the oil depot's operations, Sinopec Fuel Oil overcame the adverse impact unleashed by the outbreak by quickly adopting cloud office solutions. During this time, domestic experts provided remote support to inspect, approve, and jump start operations, enabling the port to successfully realize the first refuelling mission at the new oil depot."

Quick action

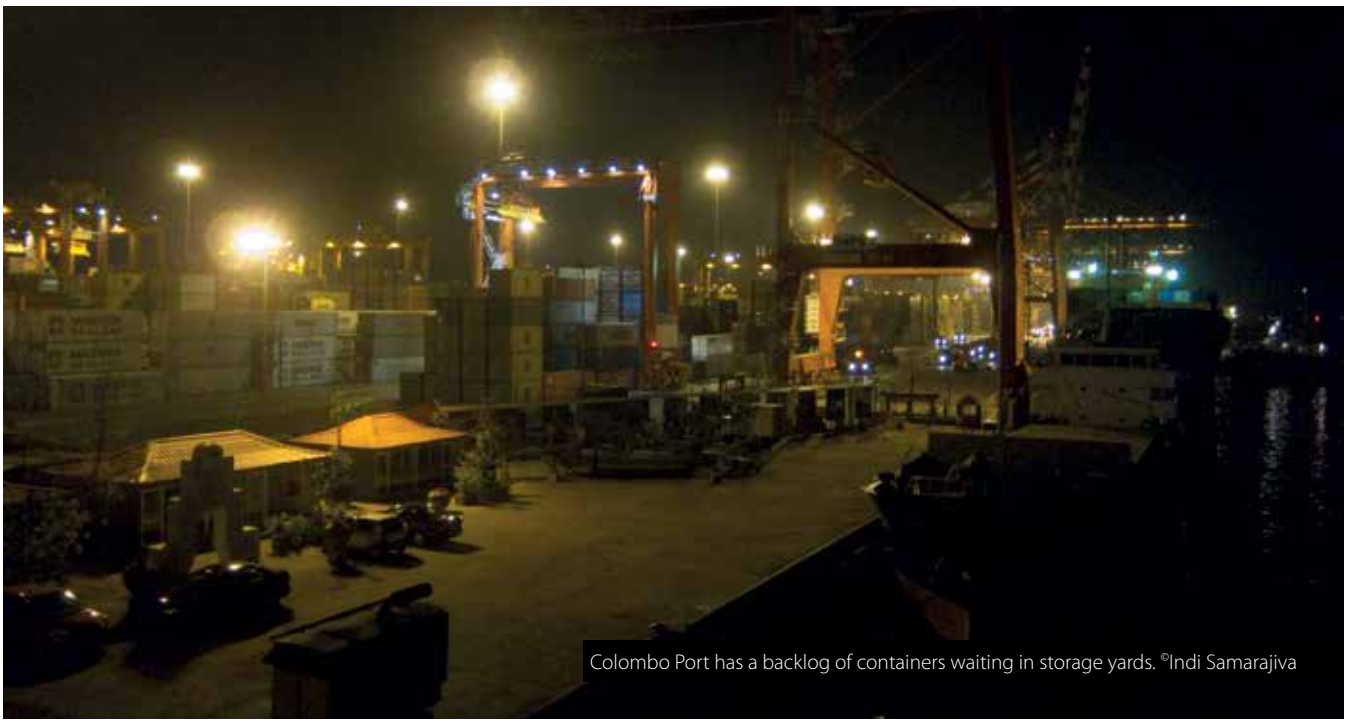
Pakistan acted fast to contain Covid–19 and while its own lockdown has been less strict in some respects than others, the country's restrictions have still meant significant impacts on life and livelihoods, with much developmental activity curtailed and international trade severely reduced.

Pakistan's prime minister Imran Khan had been in talks at the time of writing with President Rouhani of Iran about the possibility of reopening cross-border trade and strengthening ties - with the assumption that health regulations will be followed throughout.

"The resumption of commodities exchange between the two countries will greatly help Pakistan's economy, which has encountered many problems due to the coronavirus," Prime Minister Khan said, who also took the chance to repeat his opposition to US sanctions against Iran in the current situation.

"We are willing to continue the exchange of commodities and border trade with Pakistan in the same way that trading of commodities with a number of the neighbouring countries is going on," President Rouhani added.

Pakistan's port industry should benefit from continuing efforts to broaden the country's market as a transshipment gateway to central Asia. In April this year,



Colombo Port has a backlog of containers waiting in storage yards. ©Indi Samarajiva

the country opened Gwadar Port to agricultural imports bound for Afghanistan.

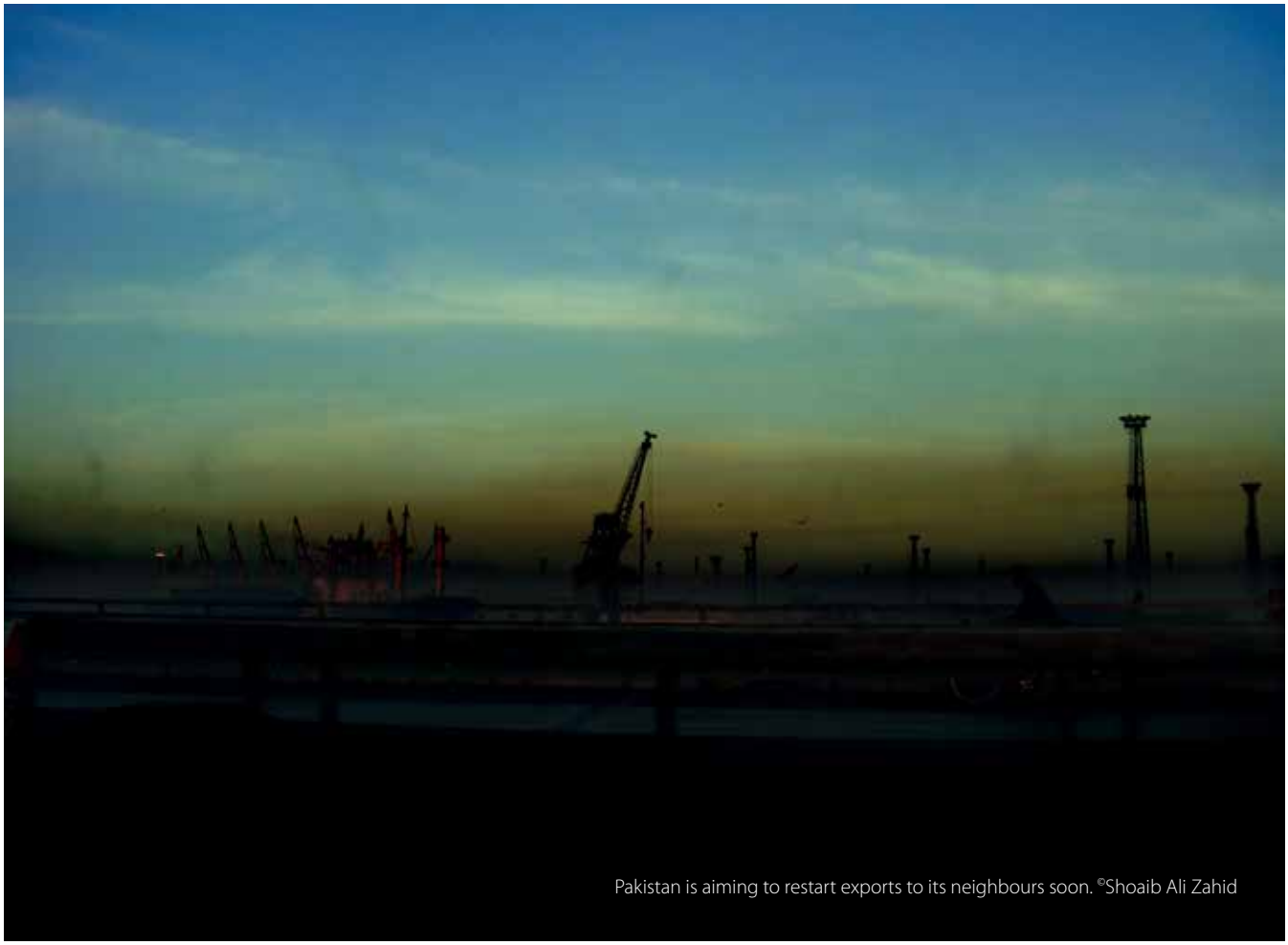
"The petitions have been examined in light of the Afghanistan-Pakistan Transit Trade Agreement (APTTA) 2010, and in view of the provisions of the APTTA, the petitions of the stakeholders, and for the sake of efficient and cost-effective operationalisation of the Gwadar Port and the western-corridor of the [China-Pakistan Economic Corridor], the import of Afghan bulk-cargo of wheat, sugar and fertilisers at the Gwadar Port and onward transit to Afghanistan shall be permitted in bonded carrier, insured and sealable trucks having a tracking device installed on them," the memorandum announcing the arrangements said.

The move is the first major step in incorporating Gwadar as a significant trading port to stand alongside Karachi and Port Qasim as well as a sign of closer and quicker links to the landlocked Asian states to the north; Afghanistan had previously been reluctant to join the existing trade agreement between Pakistan, China, Kyrgyzstan and Kazakhstan. Pakistan, reports suggest, stands to lose at least US$3bn in export trade as a result of the pandemic, and previous efforts to link the two countries closer together have been thwarted by Afghanistan's insistence that India be part of any deal, something which seems highly unlikely given the huge tensions between the Modi government and its western neighbour.

The trade deal hasn't been without complications of its own, though; shortly after its announcement, the Federation of Pakistan Chambers of Commerce and Industry claimed that bilateral trade between the two was at a "standstill". According to the FCCPI, authorities were only allowing through transit cargo when the same arrangements could be used to allow Pakistani imports, particularly of perishable agricultural goods - goods only able to be exported to Afghanistan, to enter Afghanistan again. Wider moves to reopen the border had not yet come to fruition as of the time of writing.

Pakistan has also suffered to some extent from the same cargo handling issues that have plagued other states, with a shipping policy covering it not - reportedly - submitted to the cabinet until late April.

EFP-EC Chairman Ismail Suttar told local press Business Recorder: "Shipping lines were charging non-uniform tariff structure and high container security deposits and suggested that free days for terminal demurrage and carrier detention should be increased from 4 to 10 days because custom examination and appraisement takes longer before container is released."



Pakistan is aiming to restart exports to its neighbours soon. ©Shoaib Ali Zahid

SSAL

SOUTHBOND SHIPPING AGENCY LTD

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Southbond Shipping Agency Ltd (SSAL), incorporated in Mauritius as an operator/management shipping company since the late 1980's. We consider ourselves among the market leaders, given our experiences and dedicated team to achieve the best possible turn around of your vessels. In doing so we provide top class services based on attention to details, due diligence and timely communication.

The company forms part of a cluster in related maritime activities, spanning from third party management, ship handling, shipchandling, ship agency services, crew change, crew recruitment among others.

Over the years, the company has developed an unparalleled expertise in the field of its activities and our reliability and professionalism have ranked us amongst the best ship agency on the island. we recognize that every activity has its specific needs, which is the reason why we propose to you the expertise in a range of different domain and activities, all of which are backed by competent and professional staff.

Our high quality services include:

- Bunkering co-ordination
- Crew change (immigration formalities/ provision of air tickets/ local transport/meet and greet at airport)
- Crew medical attendance
- Accommodation services
- Garbage, sludge, bilge disposal arrangement
- Cash to master
- Stevedoring, cargo loading/discharging
- Dry & cold warehousing solutions
- Dry docking and technical surveys
- Provision of crane services-up to 45 mts
- Pilotage and tugs services
- Clearing and forwarding
- Clearance and delivery of ship spares
- Commercial services, custom brokerage
- Fresh water supply (inside/outside port limit)
- Freight forwarding solutions(air/sea/road/rail)
- Courier services
- Supply boat facilities
- Shipchandling and ship stores supply at quay & anchorage
- Provision of gas free and hot work permit
- Protective agency services and provision of armed security guards
- Cargo, hull and machinery surveys
- In-water survey, under water inspection, cutting/welding, hull cleaning and diving assistance
- Provision of anti piracy security in High Risk Areas.

WEATHERING THE STORM

As it prepares for a gradual emergence from an effective lockdown, there are long-term reasons to be hopeful for Mauritius, John Richards reports

Mauritius has handled Covid–19 well overall. Its lockdown and public adherence to distancing and containment measures had seen cases dwindle to one every day or two at the time of writing. In the final week of April, the country's prime minister, Pravind Jugnauth, announced that a phased exit from lockdown would begin in May - with all the usual caveats about being wary of a second wave of infections.

The country certainly hasn't been spared the enormous economic shock of the pandemic, but domestically seems to be in as good a shape as could be expected. However, with the Mauritian economy heavily influenced by the two main trade drivers either side of the Indian Ocean - India and South Africa - and those countries still endeavouring to bring their respective outbreaks under control, it would seem as though Mauritius shouldn't look toward any return to business as normal in the short term. Indeed, government figures have said as much.

That said, growing the 'blue' economy, including the island's bunkering sector, was a centrepiece policy of successive governments before the crisis. Even allowing for the enormous disruption to international trade to follow it, it seems likely to form an important part of any future recovery.

As late as the end of January, the Mauritian government's economic plan for 2020–24, as presented by the country's Prime Minister Pravind Jugnauth, said: "As part of its new industrial and trade policies, Government will also focus on developing new economic pillars. Accordingly, it will come up with a Unified Regulatory Framework, an Offshore Petroleum Bill, a Seabed Mineral Bill and set up a Marine Biotechnology hub, among others, to accelerate the development of the blue economy."

In late February, a bunkering group set up in August last year jointly by big-hitters Trafigura, Frontline and Golden Ocean - the existing bunkering aspects of the former being rolled into the new venture in which the two latter companies have a 25% total stake - TFG Marine, revealed the scope of its operational abilities.

TFG said it "currently has arrangements in place covering bunkering operations in Singapore, South and West Africa [Mauritius, Algoa Bay, the Gulf of Guinea], Panama and Ecuador, with plans to announce further developments in Asia, as well as in Europe and the Americas over the coming months." The exact scope of those arrangements isn't clear, though the company was only provided a bunker license to operate in Singapore two months later in April, with supply due to begin in May.

However, the company is clearly ambitious and also clearly driven by the main East-West trades, with all its key port interests along the corridor between Asia, the Cape of Good Hope, and then Panama and northern Europe.

At the time of its launch, Kenneth Dam, Trafigura's co-head of bunkering, said: "Over the past 24 months, Trafigura has been growing its physical bunkering business worldwide. We believe that the JV's increased base volumes and greater access to both infrastructure and credit will provide increasingly competitive bunkering supply services to our customers. We are confident in our ability to supply quality products at competitive prices to the fleets controlled by the JV partners as well as to third party shipowners and operators."

Mauritius has long sought to target the big cargo operators on the Asia-Cape routes, taking advantage of the country's strategic position - and the historical expense involved in making bunkers-only calls in South Africa. TFG's eye on the same operator type (albeit shaped by its partner companies' own needs) is hopefully a sign that the Mauritian fuel and maritime services industry is drawing precisely the kind of business it's been trying to attract. If those operators weather the deep recession expected to follow the pandemic, and if local suppliers weather the collapse in oil prices, there's good reason to hope that the future could still be bright.



Mauritius will be hoping its maritime economy recovers quickly as restrictions ease ©Air Babble



LNG plus batteries will power new tug for Singapore ©ABB

"STRONG ROI" FOR LNG FUELLED ORE CARRIER

Study indicates LNG could deliver a strong return on investment for a capesize bulker on Australia to China trade route

SEA\LNG, a global coalition promoting LNG as a marine fuel, says the results of the latest independent investment study, commissioned by SEA\LNG, highlights the commercial benefits of LNG as a marine fuel for a newbuild 210,000 dwt ore carrier sailing from Australia to China.

The study suggests there could be strong returns on investment for LNG as a marine fuel on a net present value (NPV) basis over a conservative 10-year horizon. The modelling analysis indicates payback periods of two to four years for the newbuild capesize on this major ore trade corridor.

Commenting on the study, SEA\LNG, Chairman Peter Keller, said: "The impressive results of this latest instalment in our investment case series further underlines LNG's position as a financially sound investment for deep-sea vessels, across a range of vessel specifications."

He added: "Building up a robust foundation of leading knowledge, credible data, and proven understanding, is a core pillar of SEA\LNG's mission to support shipowners and operators through the complex investment decision matrix they face in ensuring their vessels are compliant for both current and future legislation.

"All our studies prove LNG to be a safe, mature, and commercially viable marine fuel offering compelling returns on investment, superior local emissions performance, significant greenhouse gas reduction benefits, and a pragmatic pathway to a zero-emissions shipping industry."

Key findings from the study included that LNG delivers a superior return on investment on an NPV basis of "several million dollars" in comparison with conventional compliant fuels across all fuel scenarios investigated. The study claims that investment on LNG engine and fuel systems is paid back within two to four years.

LNG promotional film launched

The Society for Gas as a Marine Fuel (SGMF) has released a video claiming that LNG is currently the only viable solution available that can cut carbon emissions from deep-sea shipping while newer, cleaner options are being developed.

The video describes how "LNG can provide a clear pathway to fuels that will enable the industry to meet the International Maritime Organization's target to reduce greenhouse gas (GHG) emissions by at least 50% by 2050".

SGMF's General Manager Mark Bell said; "We produced this video as there is still a lot of debate around the use of LNG and its role in achieving the 2050 targets, and eventual zero-carbon emissions in shipping. We are not here to tell anyone what to do but we are here to lay out the facts regarding the use of LNG. Be quite clear that the fuel choice is only part of the solution but without its widespread use or the delay of that use, 2050 targets will not be met. Net zero carbon fuels are not yet available for shipping and could be some way off, LNG is a both a pathway to those fuels whilst also providing benefits now."

Bell continued: "With a changeover to LNG today we can reduce GHG emissions by up to 21% compared with current oil-based marine fuels over the entire life cycle from well to wake. We want to help the industry understand that it is more attainable then people may believe to have a significant and immediate impact on emissions."

Time charter deal for two LNG dual-fuel VLCCs

Singapore-based tanker company AET is to time charter two LNG dual-fuel VLCC newbuildings to Total subsidiary Chartering and Shipping Services.

The first of the two ships has been scheduled to be delivered to AET in the first quarter of 2022.

AET already operates two LNG dual-fuel aframax vessels and two LNG dual-fuel dynamic positioning shuttle tankers within its global fleet.

According to AET, the two ships will be operated in LNG mode and be "among the most environmentally friendly VLCCs in the market".

LNG combined with electric power for new tug design

South Asia's first LNG hybrid tug will combine LNG fuelled and electric powered propulsion. She will operate in Singapore port and has been ordered by Sembcorp Marine subsidiary Jurong Marine Services for delivery from the Sembcorp Marine shipyard by the end of 2020.

An ABB electric propulsion and power distribution package will enable the tug to switch between low emission LNG engines and zero-emission battery power.

The project represents the first delivery of ABB's power and distribution system Onboard DC Grid for a tug application.

LR issues AIP for dual-fuelled VLCC design

Lloyd's Register (LR) has granted approval in principle (AIP) to China Merchants Energy Shipping (CMES), CNOOC Gas and Power Group, Dalian Shipbuilding Industry (DSIC), and Gaztransport and Technigaz (GTT) for an LNG-fuelled VLCC design that uses a prismatic GTT Mark III membrane LNG tank.

The main objectives of the AIP include developing a specification for a dual fuel VLCC that meets IMO's 2030 GHG emission reduction targets and preparing the relevant design drawings. CMES and CNOOC G&P, with assistance from LR and GTT, also performed an economic analysis in terms of capital expenditure (CAPEX) and operating expenditure (OPEX). LR also conducted a risk assessment and reviewed the design in accordance with the latest regulatory requirements.



AET and TOTAL agreed time charter for two LNG-fuelled VLCCs ©AET





UAE BANS MSC VESSEL

Major boxship line falls foul of HSFO carriage ban, but case highlights grey area surrounding storing HSFO in ships scheduled for scrubber retrofitting

The United Arab Emirates' Federal Transport Authority (FTA) has banned the 9,200 TEU container ship MSC Joanna from operating in UAE waters and ports for a year for the alleged carriage of fuel with a sulphur content of over 0.50%.

According to a widely reported FTA circular (which could not be found on the FTA's website at going to press) the ship's master was banned from working on any ship calling UAE waters or ports, and legal action will be initiated against the master for violating an IMO regulation and UAE law.

The ship was said to be carrying more than 700 tonnes of HSFO when boarded at Jebel Ali on 12 March this year.

The FTA circular said it had issued repeated warnings to the ship to debunker the non-compliant fuel before calling at UAE ports. The FTA also said that the ship was ordered to offload HSFO before its departure but the ship sailed without offloading the HSFO or obtaining the port state control officer's permission.

This was the first reported port state enforcement of IMO's ban on the carriage of non-compliant fuel oil for combustion purposes for propulsion or operation on board a ship unless the ship has an exhaust gas cleaning system (scrubber) fitted. The measure was adopted in October 2018 as an amendment to MARPOL and came into force on 1 March, 2020.

In response MSC issued a statement saying: "In relation to the 16 March 2020 Circular from the Federal Transport Authority (FTA) in the United Arab Emirates, MSC is discussing the matter with the FTA and would like to provide the following context to our customers and partners."

The statement did not address the issue of why the non-compliant fuel had not been debunkered prior to arriving at Jebel Ali nor why it had not been discharged there.

However, MCS did make the point that it had a very large fleet of 520 container ships and was "fully committed to implementing the UN IMO 2020 low-sulphur regime". It said all its vessels requiring compliant fuel were supplied in advance of the implementation date, including the MSC Joanna, which had used only compliant low-sulphur fuel since IMO 2020 came into effect.

The implication appears to be that the fuel is intended for use by the ship once it has been fitted with a scrubber system.

The shipping company's statement continued: "MSC has also made – and is still making – significant investments in the fleet with the installation of IMO-approved exhaust gas cleaning systems (EGCS)."

However, MSC added: "Many of the shipyards where EGCS installation has been taking place are in areas affected by the current COVID-19 pandemic and this has generated a large backlog of installations for shipowners. In particular, Chinese shipyards were closed or partially closed for a significant period of time following the extended Lunar New Year holiday as the country grappled with the new coronavirus outbreak. This has impacted shipowners' schedules for retrofitting ships, as has been widely documented in the media. MSC Joanna is one of those ships which has been subject to an EGCS delay and the installation is currently scheduled for June 2020."

The statement concluded: "We have sufficient arrangements in place for compliant low-sulphur fuel to maintain our commitment to IMO 2020 and we will implement orders for EGCS as part of a planned diversification strategy where appropriate in due course."

This case raises the question of whether non-compliant fuel can be carried in ships for use after scrubbers have been fitted, as appears to have been the case with the *MSC Joanna*.

IBIA Director Unni Einemo was closely involved in discussion at IMO when various guidelines for consistent implementation of the 0.50% sulphur limit were considered. She comments:

"It is a tricky one because there's no specific mention in the IMO guidance documents about whether it would be OK to carry HSFO in a sealed fuel tank while waiting for a delayed scrubber unit to be installed and commissioned. It boils down to interpretation by port and flag state."

A read of the Annex to IMO's *Guidance for Port State Control on Contingency Measures for Addressing Non-Compliant Fuel Oil* reveals that interpretation could indeed be complex.

The first section of the Annex states: "In the case of non-compliant fuel oil, communication between the ship and the port State should occur. The ship and the port State should consider the following as possible contingency measures:
1. actions predetermined in the Ship implementation plan, if available, for consistent implementation of the 0.50% sulphur limit under MARPOL Annex VI (MEPC.1/Circ.878);
2. discharging non-compliant fuel oil to another ship to be carried as cargo or to an appropriate shipboard or land-based facility, if practicable and available;
3. managing the non-compliant fuel oil in accordance with a method acceptable to the port State;
4. and operational actions, such as modifying sailing or bunkering schedules and/or retention of non-compliant fuel oil on board the ship. The port State and the ship should consider any safety issues and avoid possible undue delays."

So "retention of non-compliant fuel oil on board the ship" is seen to be a possibility.

Classification society DNV GL responded to this issue involving ships intending to fit scrubbers and issued a guidance note, *Sulphur Cap 2020 – carriage of non-compliant fuel due to delays in scrubber installation,* on 21 April this year.

DNV GL quotes the IMO Annex and says that PSC must evaluate and decide on "managing the non-compliant fuel oil in accordance with a method acceptable to the port state". The classification society advises sealing off the inlet and outlet valves of the tank containing the non-compliant fuel, noting the seal numbers and tank sounding in the oil record book under *Additional operational procedures and general remarks*". This should all be witnessed and endorsed by a class surveyor.

However, it is clear that everything hinges on the approach of the particular PSC authority involved.

So DNV GL emphasises: "If your vessel has HSFO on board due to a delay in EGCS installation, it is vitally important to proactively contact PSC and inform them of the situation. Be transparent and cooperative to implement any required contingency measures with the acceptance of PSC and the flag."



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Chun Yin Cheng
Marine Fuel Trade Limited
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Azaarath Rasheed
Vivcore Energy Solutions PVT Ltd
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PROVIDING THE BEST SERVICES

Big enough to be powerful, small enough to be agile

Our aim, at Bunkeroil, is to offer our clients a truly competitive advantage by providing the best services in terms of maritime transport, delivery & sale of oil products and the relationship between shipowners and port operations.

We offer bespoke solutions with a high added value when it comes to operational flexibility and financial conditions.

Since the company was founded in Livorno in 1980, our history has always been marked by constant growth and focus on the quality of our products and services, as well as on client satisfaction. This has made us one of the key players in bunker and marine lubricants sale, both nationally and in the Mediterranean.

From the port of Livorno, our marine fuel and lubricant distribution operation began to expand into all Italian ports, in order to meet the diverse needs of our clients in an increasingly comprehensive way.

From the outset, our shipping activity in the transportation of petroleum products in the Mediterranean has run alongside the Bunker service, and in the early 2000s we upgraded our fleet.

During the same period, we launched the Clearing and Shipping Agency service in the port of Livorno, whilst our international expansion in the lubricant sector began in the second half of the 2000s. Today, we cover all of the world's main ports as bunker and lubricant traders, of course with a greater focus on the Mediterranean Sea.

In 2018 we launched a constantly stocked lubricants storage service as leading ExxonMobil Distributors for local market in the territories of Italy and Malta.

The cornerstones of our work.
Being a supplier is not enough, and that is why we strive to form partnerships with our clients, through:

- the best products in terms of quality;
- maximum operational flexibility;
- problem solving;
- bespoke financial solutions.

With years of experience in the industry, we have developed a well-established network that enables us to respond to client requests promptly. We offer our clients:

- availability of the product or equivalent alternatives;
- 24/7 service;
- the most competitive price on the market, thanks to our greater purchasing power.

BUNKEROIL CONTACTS:
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Bunker enquiries: bunker@bunkeroil.it
Lubricant enquires: lubricant@bunkeroil.it
Please visit: www.bunkeroil.it
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THE PENINSULA PETROLEUM GROUP

The Peninsula Petroleum Group (PPG) commenced trading in 1996 when owner and CEO John A. Bassadone identified an opportunity to offer bunker supplies in Gibraltar

Peninsula is now the leading global integrated marine fuel supplier and reseller operating from 18 global offices.

With physical supply operations in 15 worldwide ports and global reselling coverage, Peninsula is a diversified group, covering the supply chain from cargo sourcing through to ownership and operation of a modern product tanker fleet.

Peninsula is the most trusted brand in bunkering.

Operating from regional hubs in Houston, London, Gibraltar and Singapore Peninsula is enabled by a dynamic global team of 350 employees.

Our commercial teams span the globe from Europe to Americas to Asia. Our presence in every major shipping and bunkering hub gives our customers and suppliers the confidence to trust Peninsula as an integrated solution for the supply of marine fuels. We are truly able to offer global knowledge with local insight.

Peninsula is the largest physical supplier in our main ports providing the most comprehensive regional bunkering solutions, including IMO 2020 compliant fuels.

What sets us apart

Our physical supply base, global reselling capabilities (with well-vetted and reliable suppliers), technical expertise, fleet management, yachting services & lubricants enables us to supply the future of bunkers today.

As the world's leading independent bunker supplier and reseller operating from an integrated platform, Peninsula's physical supply chain features comprehensive cargo sourcing, strategically located storage and dedicated logistics; including post-fixture operational support.



Peninsula's reselling activity boasts an international blue-chip client base and an industry leading supplier portfolio, whilst its risk management expertise offers clients and suppliers a range of hedging products to mitigate price risk.

PPG's own low risk ethos and conservative growth strategy sets it apart. For professional stakeholders Peninsula's 'best in class' reputation has been earned through tight credit control, impressive liquidity and strategically astute leadership. Indeed, we operate the most comprehensive and sophisticated credit risk management framework in the bunkering industry.

The company now operates around 36 vessels worldwide, of which 10 are owned and the rest chartered-in. It also owns a Panamax tanker and has commenced a new-build vessel programme.

This platform provides us genuine global coverage for our blue-chip client base. If they need fuel anywhere in the world, we can source and supply at competitive prices.

Our IMO 2020 commitment

PPG is extremely well placed in financial and operational terms to manage the volatility and uncertainty that the IMO 2020 legislation introduced from 1 January 2020.

PPG's direct relationships with oil majors, large IOCs, refiners and large global commodity traders on the supply side have helped enable the implementation of a diverse 2020 procurement offering which has provided clarity to customers on product availability in each of its physical locations.

The business has secured the right mix of compliant fuels matching the demand of its blue-chip customer base enabling PPG to be fully prepared for 2020 and beyond.

Long-term, we have a strong commitment to reducing shipping emissions and providing cleaner air in line with the IMO roadmap.

Peninsula is doing now what shipping needs next…



ORION BUNKERS LIMITED

Delivering quality fuel and services from the day the company started its operations

We have been a highly active player in the Pakistan bunkering market since 2004 and till date have supplied 85% of total market share.

With the introduction of IMO 2020 grades, we are the only supplier who has started supplying LSMGO 0.1 (as local refineries are not upgraded to produce VLSFO now). This means we are once again leading as a premium bunker supplier of Pakistan - no other supplier can supply LSMGO 0.1 because we are exclusive physical supplier of refineries.

As per the recent Pakistan Refinery Limited notification, by the end of 2020 their refinery will be able to produce VLSFO as upgradation of refinery in loop. Once production will start than our market will make a come back with competitive prices, as usual with good availability the refinery is expecting approx. 10KT to 15KT production per month.

We are the only supplier offering ISO 8217:2010 specifications meaning our customers trust that we always supply quality-controlled products.

Understanding the needs of different customers, we have not stopped delivery of RME180, so scrubber fitted vessels can lift the bunkers in port Karachi and Bin Qasim. Therefore, HSFO availability is still smooth and our dedicated self-propelled barges are deployed for the purpose.

Currently, all our four barges are self-propelled, Orion II can load approx. 200mts LSMGO, Orion I can carry 200mts HSFO, Orion VII has a loading capacity of 400mts. Finally, Falcon can load 600mts with pumping rate of almost 130-150 mts / hour. Our plan to dedicate 1 barge for HSFO and 2 barges for VLSFO delivery once the product will be available.

Moreover, we also have arrangements with other chartered barges for when there is any additional requirement and need.

In terms of pricing, we are always competitive while offering best quality products every time no matter what the cost is.

We thank all our clients for trusting us and remaining part of the business as family. We assure you that Orion will keep improving and give you the best service and quality fuel at all times.





EXPERTS IN LNG

GTT (Gaztransport & Technigaz) is a technology and engineering company

Which designs cryogenic membrane containment systems dedicated to the transport and storage of liquefied gases, in particular LNG (Liquefied Natural Gas). For over 55 years, GTT has developed technological expertise in the liquefied gas industry, building trusting relationships and lasting partnerships with the different stakeholders. The company provides them with established, reliable and efficient technologies promoting storage space optimisation as well as a reduction in construction and operation costs of ships and tanks. GTT helps its customers define their requirements before translating them into membrane-based solutions for multi-gas and LNG transport, as well as onshore and offshore storage.

GTT is listed on Euronext Paris, Compartment A (ISIN FR0011726835 Euronext Paris: GTT) and is notably included in SBF 120 and MSCI Small Cap indices. For more information, please visit www.gtt.fr.

New markets

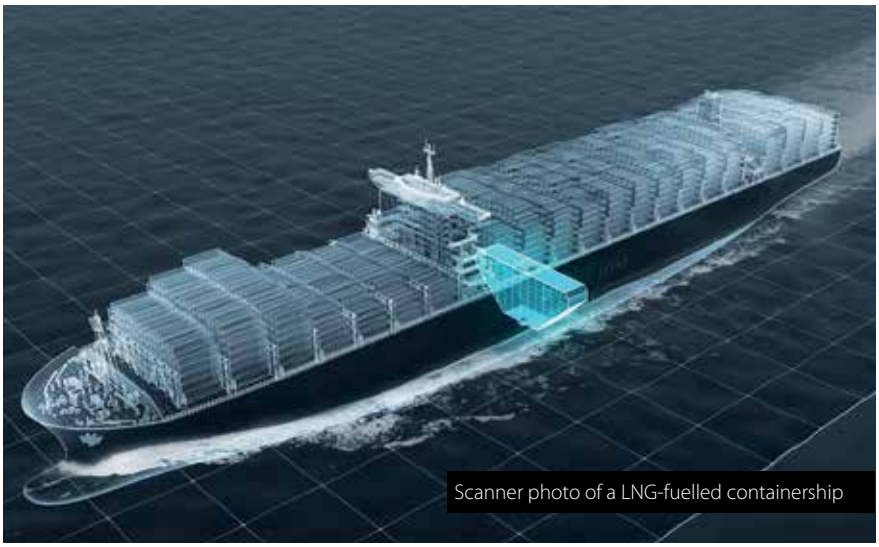
Always striving to meet future requirements, GTT anticipated the shift towards greener shipping, notably with the introduction of the Global Sulphur Cap enforced since the 1st of January 2020 and the reduced limit for SOx emissions in the world's oceans from 3.50 to 0.50% today.

To address this challenge, the company has expanded its offer for this new and promising market, providing customised technological and engineering solutions for small and mid-scale vessels, as well as new applications for the LNG market, such as the use of LNG as a propulsion fuel and the associated logistics chain (bunkering). GTT develops innovative solutions to ease bunkering operations and to optimise the LNG volume and the space occupied, resulting in a minimum loss of cargo capacity. The company offers highly competitive storage and handling solutions which cover the whole logistic chain, from the LNG liquefaction terminal in a producer country to the tank of an LNG-fuelled ship. LNG as fuel offers a viable solution for this energy transition.

LNG propulsion has been used successfully on LNG carriers for many years. It reduces significantly the emission of SOx, NOx and CO_2.

Services

GTT and its subsidiaries have also developed a broader range of services to better support its customers and partners focusing on operational issues, for the entire lifetime of the vessel, including training services, assistance and operation support, consultancy services & engineering studies, membrane tanks maintenance services... As shipping is turning digital, GTT and its subsidiaries Ascenz and Marorka propose Smart Shipping Solutions, combining their experiences and skills to offer a wide range of digital services to the maritime industry.



Scanner photo of a LNG-fuelled containership

TOTAL LUBMARINE

Total Lubmarine, a division of Total Lubrifiants S.A., provides the shipping industry with pioneering marine lubricants and greases.

The company is dedicated to partnering with its customers to provide turnkey solutions to their lubricant needs. A genuinely local partner, with sales and technical support based in 100 countries, Total Lubmarine provides one of the world's largest delivery hub networks – supplying to over 1,000 ports worldwide

TOTAL
Committed to Better Energy

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29 JUNE - 2 JULY 2020
MARITIME WEEK LAS PALMAS
LAS PALMAS, SPAIN

The Port of Las Palmas and its key Government and Industry stakeholders have joined forces with Petrospot to create the inaugural Maritime Week Las Palmas – Supplying Ships in the Atlantic, a major new biennial event designed to showcase and promote this dynamic logistics hub and the wide range of maritime services provided by Las Palmas to ships sailing to and from Africa, Europe and the Americas.

For more information:
https://www.petrospot.com/events/mwlp-2020

18 AUGUST 2020
IBIA & S&P GLOBAL PLATTS
MIDDLE EAST CONFERENCE ONLINE

IBIA and S&P Global Platts are pleased to announce the new Middle East Bunker Fuel Summit 2020. This is a must attend event for industry participants in the region. Coming at a time of significant change in the industry, this participatory event builds upon our shared bunker portfolio success. This timely S&P Global Platts and IBIA conference will provide Insight on the impact of the sulphur cap, analysis of current bunker market dynamics, supply chain challenges, through freight and across commodities, the latest information on bunker quality and regulatory restrictions, updates on fuel supply and demand fundamentals and credit markets, assessment of the opportunities and challenges in shipping and fuel industries.

For more information: www.ibia.net

23 - 24 SEPTEMBER 2020
OIL SPILL INDIA 2020
MAHARASHTRA, INDIA

Oil Spill India (OSI 2020) envisions being the Indian subcontinent's flagship conference & exhibition on the oil spill Prevention, Planning, Preparedness, Response & Restoration industry. A global forum for governments, policy makers, regulators, asset owners, response organisations, contractors, technology majors, research organisations & equipment suppliers to explore collaboration opportunities whilst deliberating the best of practices, technologies & experiences on oil, chemical or HNS spill management. Attracting a diverse and eclectic mix of speakers, delegates and attendees, the conference will build upon the existing knowledge of experts, facilitating the discussions on pertinent issues, while simultaneously meeting the strategic objectives of the region.

For more information:
http://www.oilspillindia.org/index.php

30 SEPTEMBER - 2 OCTOBER 2020
ASIA PACIFIC MARITIME 2020
SINGAPORE

APM dedicates one day for industry thought leaders to discuss and debate pressing topics such as digital disruption and the various dynamics impacting businesses, IMO 2020 Sulphur Compliance, Green Shipping, Cyber Security and Decarbonisation of Fuel and Standardization of Digital Codes.

For more information:
https://www.apmaritime.com/en-gb/APM-Conference.html

6 - 9 OCTOBER 2020
SIBCON 2020
SINGAPORE

"Powering Fuels of the Future, Driving towards Decarbonisation", SIBCON 2020 will centre stage strategic views on responsible shipping, fuel mix and compliance scenarios, emerging fuels and bunkering 2030 and beyond. The conference opens with a Guest of Honour and keynote speeches, and key decision makers across the community will converge in Singapore to outline market potential, growth segments, and strategies to operate in the current environment.

Organised by the Maritime and Port Authority of Singapore, the world's largest and most influential bunkering event was attended by 2000 attendees in 2018.

For more information, please visit www.sibconsingapore.com.

13 - 15 OCTOBER 2020
INTERNATIONAL BUNKER CONFERENCE
OSLO, NORWAY

IBC 2020 will summarize 2020, provide market overviews and solutions in the new regulatory regime. and ask whether the real storm is brewing in the horizon.

Don't miss the chance to obtain an update on what's happening in the bunker industry.

For more information: http://www.bunkerconference.com/

19 - 20 OCTOBER 2020
MARITIME WEEK AMERICAS
PANAMA CITY, PANAMA

Maritime Week Americas 2020 returns to Panama with a week of key maritime events, including the MWA Conference plus top-level training and other specialist training. With over 200 delegates expected from over 30 counties, MWA remains the largest and most popular bunkering conference in the Americas.

For more information:
https://www.petrospot.com/events/mwa2020-panama

23 - 26 OCTOBER 2020
POSIDONIA
ATHENS, GREECE

Posidonia Exhibitions is a leading organiser of trade fairs in Greece, and operates through its headquarters located in Piraeus, Greece. Posidonia, the international shipping exhibition, has long been established as one of the major calendar events of the shipping industry, and Posidonia 2018 attracted the most influential personalities from the Greek and international shipping community and major companies and organisations active in all sectors of the shipping industry. The international exhibition Posidonia first took place in 1969 and has been taking place every two years ever since.

For more information: https://posidonia-events.com/

All dates are correct at time of going to print and are subject to change, please review the related websites

DIARY

3 - 5 NOVEMBER 2020
IBIA ANNUAL CONVENTION 2020 – GOING GLOBAL ONLINE

The IBIA Annual Convention 2020 will be transformed into a virtual Convention with a fully inclusive global focus. This will be a unique and exciting opportunity for the bunker industry, our sponsors, attendees, speakers and partners to engage, network, exchange views, knowledge and vital industry information globally.

For more information and updates visit the IBIA website: www.ibia.net

4 - 6 NOVEMBER 2020
2ND ANNUAL MARINE FUELS 360 ZHOUSHAN, CHINA

The Investment Promotion Bureau of Zhoushan is aggressively developing the Zhejiang Free Trade Zone (FTZ). Linked to this is the development of marine logistics at the Ningbo-Zhoushan port which handled 21.6 million TEU of cargo, making it the fifth largest port in the world.

As such, Port of Zhoushan has undertaken a conscious effort to develop policy and attract investment into its marine fuel industry, and related infrastructure, thereby leading to new collaboration opportunities. After a stellar success in 2019, the 2nd Annual Marine Fuels 360 Conference in China will spell out the detail and enable new business partnerships in this fast emerging marine fuel market.

For more information: https://www.informaconnect.com.sg/event/marine-fuels-360/

17 - 21 FEBRUARY 2021
EUROPEAN SHIPPING WEEK BRUSSELS, BELGIUM

The third European Shipping Week will feature an array of events with high-profile keynote speakers from the world of shipping and the European institutions.

For more information: https://europeanshippingweek.eu/

'IBIA ONLINE BUNKER TRAINING COURSE'
WWW.IBIA.NET











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WORLD BUNKERING

AUTUMN 2020... NOW OPEN FOR BOOKINGS

AUTUMN 2020

SPECIAL FEATURES:

Independents

How have the independents coped with the double whammy of a much more complex marine fuel scene followed by the hit to world trade caused by the COVID-19 pandemic? What sort of future is there for the independents when shipping starts to recover?

Fuel Quality

We look at how the industry has coped with the practical issues of complying with the 0.50% sulphur limit. Have the fears about contamination and engine shutdowns been borne out in practice?

GEOGRAPHICAL FOCUS:

The Americas

COVID-19 has hit the US economy badly. What effect has that had on the bunkering sector? We look too at how bunker suppliers in South America are coping, not only with the impact of the pandemic but also the 0.50% sulphur limit.

Far East

Since COVID-19 started its lethal progress from Wuhan in December, most other considerations have been eclipsed. We report on the effect of the pandemic the region's bunker sector. Scratch the surface and longer term changes are clear. For example, the number of bunker suppliers in Singapore has continued to fall. We take a look.

Regular Features

News, Views, Analysis
Russian Update
Interview, Industry News, Environment,
Testing, LNG, Lubricants, Innovation, Legal News,
Equipment and Services, Diary
Event Previews & Reviews



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DOING NOW WHAT SHIPPING NEEDS NEXT

Peninsula Petroleum is the leading global integrated marine fuel supplier. With over 20 years' experience and operations in all major shipping and oil hubs, Peninsula is the most trusted brand in bunkering.

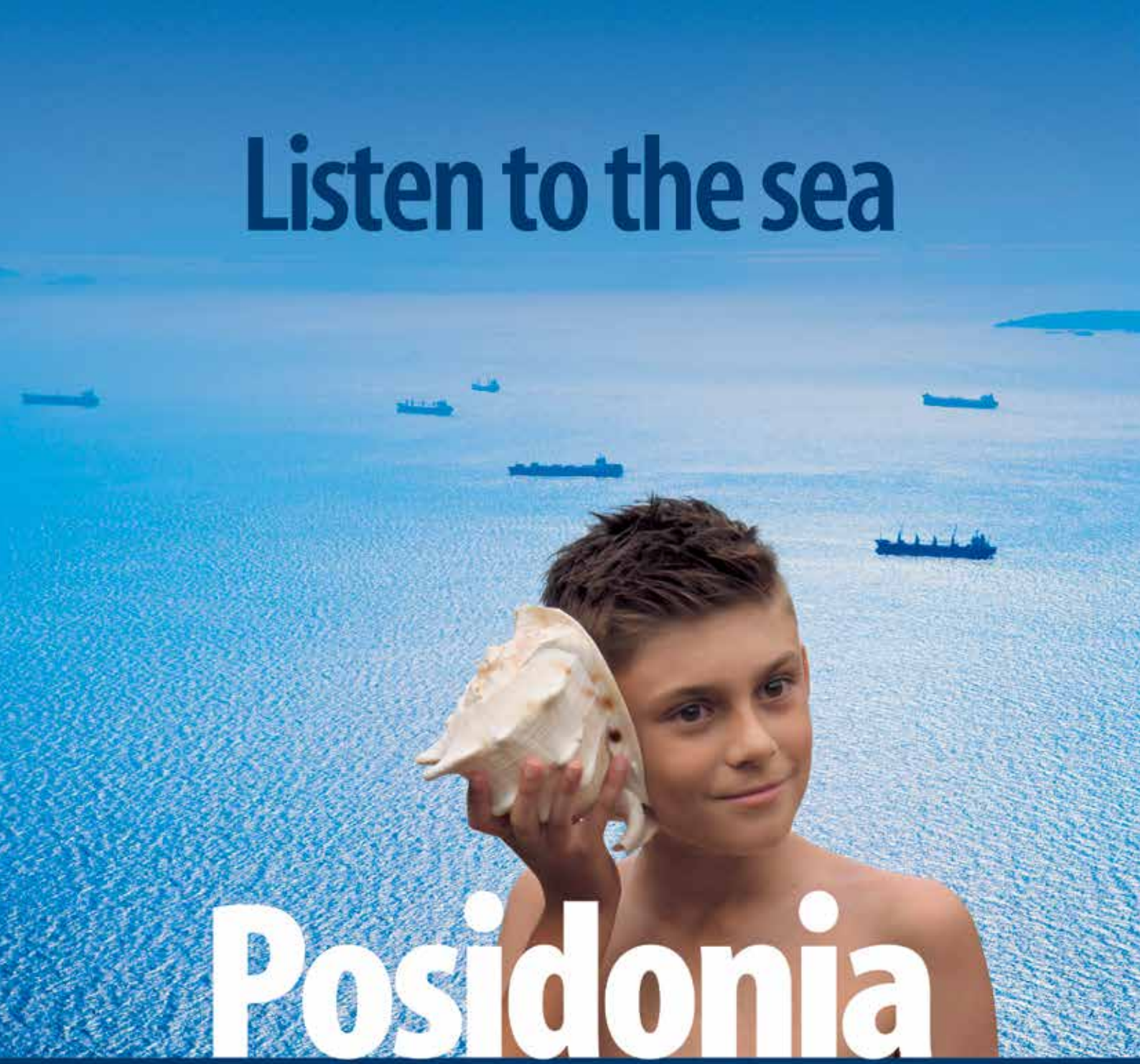
We're the largest physical supplier in our main ports providing the most comprehensive regional bunkering solutions, including IMO 2020 compliant fuels.

Our physical supply base, global reselling capabilities, technical expertise, fleet management, yachting services & lubricants enables us to supply the future of bunkers today.

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Leading global integrated marine fuel supplier and reseller

Peninsula Petroleum



26 - 30 October 2020

Metropolitan Expo, Athens Greece

Posidonia Ποσειδώνια

The International Shipping Exhibition

Organisers: **Posidonia Exhibitions SA,** e-mail: posidonia@posidonia-events.com

www.posidonia-events.com