



PORTS & HARBORS

Official Journal of the International Association of Ports and Harbors

Olympic dreams

Japan prepares for more cruise visitors

EU tackles port waste

Proposals meet industry criticism

California greening

Port powers up for all-electric future



Stage set for sustainability

Queen of Belgium launches WPSP in Antwerp



WPSP
WORLD PORTS SUSTAINABILITY PROGRAM



Kalmar DRF420-60S5
DK122 Year 2014



Kalmar DRF450-60S5
D3616 Year 2013



Kalmar DRF450-70S5XS
D3579 Year 2007



Kalmar DRF450-60C5X
D3478 Year 2005



Kalmar DRF420-60S5
D3578 Year 2003



Kalmar DRF100-54S6
D3650 Year 2012



Kalmar DRF100-54S6
D3576 Year 2011



Kalmar DRF100-54S6
D3617 Year 2011



Kalmar DRF100-54S6
D3586 Year 2010



Kalmar DRF100-54S6
D3577 Year 2009



SMV SC4531TB5
D3657 Year 2008



SMV SC4531TB5
D3653 Year 2006



SMV SC2016CA
D3637 Year 2004



Linde C4535TL
D3645 Year 2011



Linde C4535TL
D3644 Year 2011



Linde C4535TL
D3643 Year 2010



Linde C4545TL
DK071 Year 2008



Linde C4535TL
D3555 Year 2006



Fantuzzi CS45KL
D3551 Year 2004



CVS Ferrari F478.5S
D3597 Year 2007



CVS Ferrari F379.5
D3553 Year 2003



CVS Ferrari F278.5PB
D3649 Year 2001



Kalmar DCF100-45E7
D3572 Year 2011



SMV SC5/6 ECB100DS
D3550 Year 2011



Hyster H22XM-12EC
D3637 Year 2011



Valmet TD3012
D3503 Year 1985



SMV SL22-1200A
D3535 Year 2005



Meclift ML1812
ML001 Year 2017



CVS Ferrari F16W
D3565 Year 2007



Svetruck 1612035
D3651 Year 2004



Kalmar DCE160-12
D3652 Year 2003



Kalmar DCE120-12
D3635 Year 2008



Kalmar DCE120-12
D3571 Year 2006



Hyster H12XM-6
D3595 Year 2012



Terberg RT222 4x4
D3631 Year 2006



Kalmar TR6181
D3606 Year 2010





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Queen Matilde of Belgium opened the World Ports Sustainability Program, hosted by the Port of Antwerp

Photo: David Pintens 5076528

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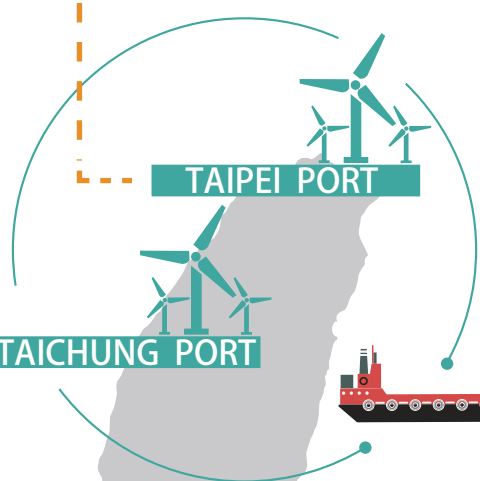
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TIPC's Business Scope of Offshore Wind Power



Wharf #S09



O&M Base

Wharf #2
Turbine assembly

Wharf #5A - #5B
Turbine assembly

Training Center

Wharf #36 ~ #41
Turbine assembly

Wharf #106

Industrial Zone(II)
(Localized Turbine Manufacturing)

Contact Window

Director, Irene Tang
 TEL / 886-4-2664-2231
 E-MAIL / irenetang@twport.com.tw

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Susumu Naruse, Secretary General of IAPH
info@iaphworldports.org

EDITORIAL & PRODUCTION

IHS Maritime
4th floor Ropemaker Place,
25 Ropemaker Place, London, EC2Y 9LY, UK
Tel: +44 (0)203 253 2100

PUBLICATIONS & EVENTS

Executive editor: Nicola Good
Email: nicola.good@ihsmarket.com

Deputy executive editor:

Namrata Nadkarni

Editor:

Penny Thomas
Email: penny.thomas@ihsmarket.com

CONTENT

Senior editors: Tanya Blake,
John Gallagher, Yannick Guerry, Greg Knowler,
Lisa Maher, Greg Miller, Turloch Mooney

Markets editor:

Nick Savvides

Singapore principal journalist:

Simin Ngai

China reporter:

Han Chen

COPY EDITING

Chief sub-editor: Terry Gault
Sub-editors: Eugene Lim, Amelia Marsani

DESIGN

Manager, design: Hannah Kidd
Designers: Mauricio Beltran, Wei Xiong Chan,
Carolina Lorenzo

PRODUCTION

Senior Production controller:
Martyn Buchanan

Image services manager: Jo Agius

GENERAL

Executive director, media & events:
Amy Middlebrook

Associate director, media & events:
Nick Blackmore

Executive director, content:
Peter Tirschwel

Executive director, global editing,
design and production: Sara Morgan
Editorial and publishing director:
Jonathan Maynard

ADVERTISING SALES

Senior Associate Sales Executive:
Deborah Fish
Tel: +44(0)203 253 2285
Email: Deborah.Fish@ihsmarket.com

SUBSCRIPTIONS

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the IAPH at:

7th Floor, South Tower,
New Pier Takeshiba
1-16-1 Kaigan, Minato-ku
Tokyo 105-0022, Japan
Tel: +81-3-5403-2770
Fax: +81-3-5403-7651
Email: ph@iaphworldports.org
Web: www.iaphworldports.org

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Integrated project

The IAPH board is considering synchronising all
the activities of its technical committees



Susumu Naruse

Secretary General – The International
Association of Ports and Harbors



IAPH agreed at its Bali Conference last year to launch a
flagship programme called the World Ports Sustainability
Program (WPSP), which augments the scope of the former
WPCI (World Ports Climate Initiative), aiming to demonstrate
the global leadership of ports in contributing to the Sustainable
Development Goals (SDGs) of the United Nations. Unlike WPCI,
WPSP covers not only climate change issues but also a variety of
port sustainability issues.

After a year of preparations, the official WPSP launch event
took place in Antwerp on 22–23 March and was hosted by
Antwerp Port Authority. More than 250 professionals from ports,
shipping, government, and society came together for the event.
We were honoured to have Queen Mathilde of Belgium open
the first day of the event with a keynote address in which she
underlined the important role ports play in achieving the UN
Sustainable Development Goals. IMO secretary-general Kitack
Lim commended the initiative of IAPH and called for more

collaboration between shipowners,
ports, maritime administrations, and
other stakeholders.

The first day of this event was
successfully concluded with the
signature of the WPSP Declaration
by the founding partners of the
programme: representatives of
the American Association of Port
Authorities, AIVP – the Global
Network of Cities and Ports, the
European Sea Ports Organisation, and
the World Association for Waterborne
Transport Infrastructure (PIANC).

The second day was devoted to identifying concrete projects
under the six major work programmes of WPSP: future-proof
infrastructure, climate and energy, community management, safety
and security, governance and ethics, and innovation and reporting.
All the participants at the event took part in brainstorming
sessions to find out what kind of port projects should be studied
and worked out by WPSP in the coming years.

The IAPH board is considering synchronising all the activities
and projects of its technical committees with the major themes of
WPSP. The IAPH Council, composed of technical committee chairs
and other officers, will thoroughly discuss this matter in Baku. If the
green light is given, IAPH is going to embark on another challenge
in contributing to the UN's SDGs in the port industry. **PH**

“ IAPH is going to
embark on another
challenge in contributing
to the UN's SDGs in the
port industry ”

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Port updates

▶ CRANES FOR VIETNAM PORT

Japan's Mitsui Engineering & Shipbuilding will supply 30 container cranes for Vietnam's Lach Huyen port. The order comprises six gantry cranes for the quay and 24 transfer cranes. It was placed by Haiphong International Container Terminal Company, which will operate a terminal in Lach Huyen, which is currently under construction and due for completion in 2020.



▶ SINGAPORE TRAINING

Singapore's maritime industry will receive an extra SGD12.6 million (USD9.6 million) towards training the next generation of seafarers. It is in the form of continued funding from SkillsFuture Singapore, the Maritime and Port Authority of Singapore, and Singapore Maritime Officers' Union, for the Tripartite Nautical Training Award and Tripartite Engineering Training Award programmes, which train Singaporeans who wish to make a career switch to becoming nautical officers or marine engineers working on board commercial ships. Each programme takes approximately three years, and 90% of the course fees are sponsored.

▶ BENOA DREDGING

Indonesia's state-owned port operator Pelindo III has contracted Dutch marine and dredging contractor Van Oord to carry out dredging works in the port of Benoa on the resort island of Bali. The growing number of tourists visiting Bali necessitates improving access to Benoa. This year, 85 cruise ships are expected to call there.



Getty Images: 1017611

US steel: proposed tariffs on imported steel are giving rise to concerns at Port Houston, which handles the cargo

Port Houston 'concerned' at Trump's steel import tariff

The number one-ranked US port in foreign waterborne tonnage has warned that President Donald Trump's plan for a 25% tariff on steel imports will damage the port and the region.

"Port Houston is recognised as the leading steel port in North America and our steel cargo volumes are growing," said its executive director Roger Guenther in a statement. However, Guenther added, the port's history has revealed that steel cargo immediately declined following a tariff increase.

"As a result, we are concerned that the proposed 25% tariff on steel could decrease cargo volumes, creating a detrimental impact on local jobs and the economy. We urge that the matter continue to be reviewed."

Trump announced the steel tariff, along with a 10% tariff on aluminium imports, at a White House 'listening session' with steel and aluminium company executives on 1 March. He has since announced that certain countries can apply for exemptions from the tariff.

Threatening tariffs on exporting countries that allegedly engage in unfair trade practices against the United States had been one of Trump's campaign promises throughout 2016 leading up to the presidential election.

Trump's tariff scheme goes even further than a US Department of Commerce report released in February. This recommended that the president consider a global tariff of at

least 24% on all steel imports from all countries, and a tariff of at least 7.7% on all aluminium exports from all countries.

A main premise of the commerce department report was that unfair trade practices were an issue of national security. "The Department of Defense already finds itself without domestic suppliers for some particular types of steel used in defence products, including tire rod steel used in military vehicles and trucks," the report stated. "While the United States has many allies that produce steel, relying on foreign-owned facilities located outside the United States introduces significant risk and potential delay for the development of new steel technologies

and production of needed steel products, particularly in times of emergency.”

The United States is the world’s largest importer of steel, according to government data, with imports nearly four times the volume of exports. Total steel imports into the United States increased by 15.4% to 34.6 million tonnes year on year in 2017, based on statistics from the American Iron and Steel Institute.

At Port Houston, total foreign steel cargos, which include exports, increased by 66% in 2017 to 3.35 million tonnes.

Other US ports are likely to be harmed by the steel tariff. Port of New Orleans imported 2.4 million tonnes of steel in fiscal year 2017 – an amount, according to the port, that is “enough to build 50 Crescent City Connections”, a twin cantilever bridge that spans the Mississippi River in New Orleans.

At the nearby Port of South Louisiana, steel imports soared 108%, from 0.88 million tonnes in 2016 to 1.83 million tonnes in 2017.

While many economic observers pointed out that Trump’s plan could have an indirect effect on other commodities if US trade partners decide to retaliate, steel industry leaders attending Trump’s meeting praised the move, contending that it would promote domestic manufacturing.

“We believe very strongly that it’s time for decisive and meaningful action to stem the flow of illegally traded imports into this country,” said John Ferriola, president and CEO of steel manufacturer Nucor. “And we are counting on the administration to fulfil the promises that were made and to give us that level-playing field to compete.”

China adds to ties with Abu Dhabi

China’s Council for the Promotion of International Trade has signed an agreement with Abu Dhabi Ports to explore new commercial opportunities and provide support to companies setting up and investing in the major Abu Dhabi industrial zone covering Khalifa Industrial Zone Abu Dhabi (KIZAD) and Khalifa Port Free Trade Zone (KPFTZ).

The memorandum of understanding was signed on the sidelines of KIZAD Business Week in March.

Owing to the geographically strategic location of the UAE for China’s ambitious Belt and Road initiative, ties between the UAE and China have been strengthening over the past year.

COSCO Shipping Ports won a 35-year concession to build and operate a new container terminal at Abu Dhabi’s Khalifa Port, followed by another

agreement with the port in November 2017 to develop a container freight station.

Bank of China has gained influence in Abu Dhabi’s KIZAD through the financing agreement as the bank looks to capitalise on infrastructure projects within the zone.

Under the agreement signed in December 2017, Bank of China would provide financial services such as loans, trade financing, trade settlement, and Dirham clearing to all companies investing in KIZAD.

Commenting on the agreement, Abdulla Al Hameli, executive vice-president of Abu Dhabi Ports, told *P&H*, “A spirit of collaboration and the values of mutual respect and ambition have always driven our strategy at Abu Dhabi Ports. Strengthening bilateral ties with China is the best demonstration.”



Abu Dhabi Ports Co. 979637

Port of Khalifa, whose industrial zone will see investment from China

Port updates

► TWISTLOCK RESEARCH

Crane spreader manufacturer Bromma has released its ‘White Paper on Structural Durability’, in which it claims that genuine spare parts outperform copies by more than four times, according to tests performed in the equipment manufacturer’s test laboratories. The paper offers a practical example where twistlock pins from different sources were evaluated and raises concerns “about the applicability of defined maintenance intervals when substandard components are used as replacements”.

► DUTCH CONNECTION

A train leaving Amsterdam for China on 7 March represented the launch of a new direct connection between Amsterdam Container Terminal and Yiwu in China’s Zhejiang province as part of the new Silk Road. The train’s 11,000 km journey was scheduled to take 16 days. Terminal and logistics services for the new rail connection are provided by TMA Logistics, a joint venture between Hutchison Ports and TMA Holdings.

► HMM EYES HPNT

Hyundai Merchant Marine (HMM) is trying to regain a substantial stake in a container terminal that it sold during the height of its liquidity crisis, according to a 3 April report by the country’s biggest news agency, Yonhap News. Citing HMM sources, the Yonhap report stated that HMM was in negotiations to purchase at least a 50% share in Hyundai Pusan Newport Terminal from the current shareholder, private equity firm IMM Investment. Responding to the claim, an HMM representative told *P&H*, “The sale of IMM Investment’s share of Hyundai Pusan Newport Terminal is taking place and the discussion is still ongoing, hence nothing is confirmed.”

Port updates

▶ COSCO NUMBERS UP

COSCO Shipping Ports' profits in 2017 surged by 107% to CNY512 million (USD81.6 million), driven by high container trade growth in the Greater China Region and the overseas market. Amid robust growth in global containerised shipping, the company handled more than 100 million teu in 2017, with volumes at terminals in Greater China making up the lion's share (78.6%) of its total throughput. Volumes there were up by 8% to 69.09 million teu.

▶ PSA POSTS PROFIT

PSA International has reported an increase in throughput across its global terminals of 9.8% year on year to 74.24 million teu in 2017. Of these, its flagship Singapore terminals contributed 33.35 million teu, a 9.0% increase in the year. Operations outside Singapore delivered a total of 40.89 million teu, a growth of 10.4%. In 2016, throughput at the Singapore terminals dipped slightly, by 0.1% to 30.59 million teu, while overseas operations delivered 37.04 million teu, up by 10.6%.

9.8% ↑

▶ MTWARA UPGRADE

Tanzania Ports Authority (TPA) is carrying out a USD214 million expansion of the country's third-largest port, Mtwara, in the south of the country. It aims to create increased capacity ahead of an anticipated surge in demand because of greater mineral exploration and production and the completion of the Mtwara Development Corridor programme. Construction of the first of four new berths began in March. All will be constructed on 263 ha of newly acquired land under a design, build, and finance model, according to TPA.



Anadolu Agency/Getty Images: 1017609

Recep Tayyip Erdogan, president of Turkey, visited Sudan in December 2017 and signed a deal to develop a naval yard

Qatar to invest in Sudanese port

Qatar Ports Management Company (QPMC) signed a USD4 billion agreement with Sudan in March to develop a port at Suakin on the Red Sea. The deal is believed to be its first international foray in the port development business.

A QPMC tweet on 16 March confirmed the value of the deal and carried footage of an Al Jazeera report detailing terms of an agreement involving redevelopment of Suakin's Osman Digna Port.

The US sanctions lifted only last year made it near impossible for Sudan to raise international finance, as demonstrated by its failure to move ahead with plans for New Khartoum International Airport.

Qatar has been boycotted by Saudi Arabia, the United Arab Emirates (UAE), Bahrain, and Egypt since 5 June over alleged ties to religious extremists. Although earlier adopting a neutral position calling for resolution of the dispute, the Sudan administration in Khartoum now appears to have sided with Qatar. This will not go unnoticed in Riyadh, Abu Dhabi,

Manama, and Cairo, which is angry about Sudan's support for Ethiopia's Nile dam project.

In December, Turkey's president, Recep Tayyip Erdogan, signed a deal with Sudan to develop a naval repair yard, as well as tourism facilities, at Suakin. Reuters said at the time that the deal was one of several bilateral agreements worth a total of USD650 million. Turkey has also apparently agreed to invest in and develop Khartoum's new airport.

Qatari involvement in the Suakin deal may have come about because Turkey does not have recourse to the kind of finance required to fund the project. The strengthening of Turkish links with Qatar, as well as with Iran, have been noticeable since the imposition of the boycott, with Turkey undertaking to boost its military presence in Qatar and create a new, largely overland, cargo route to Qatar via Iran.

An infographic on the website of the Qatar Fund for Development says Qatar has recently allocated USD72 million for developmental projects in education, health, and

infrastructure in Sudan, most of which is understood to have been allocated to the Darfur region.

Suakin, which in Ottoman times served as a conduit for seaborne Mecca pilgrims, lies 630 km northeast of Sudanese capital Khartoum and fell into disuse when Port Sudan, a British alternative developed 55 km to the north, was founded in 1905. A small port at Suakin currently deals with minor trades at a small terminal on the inlet.

Qatari transport minister Jassim Al Sulaiti met Sudanese counterpart Makawi Mohamed Awad on 26 March in Sudan's Red Sea State.

"Today's meeting comes in implementation of the memorandum of understanding signed between QPMC and Port Sudan for developing the port of Suakin on the Red Sea, making it a key seaport for cargo transportation," he said.

"Port Sudan's South Port Quay, with four berths, at a total of 733 m long with alongside depths from 10.7 m to 12.6 m, [can] handle containers, petroleum, and bulk grains," said the World Food Programme's Sudan Logistics Capacity Assessment.

"The southern port covers about 400,000 m² and has capacity to handle 3 million tonnes of cargo per year. Berth 15 handles bulk grains and is 199 m long with an alongside depth of 10.7 m. Port Sudan's Berth 16 handles roll-on/roll-off cargoes and tankers with a 128 m-long berthing position with alongside depth of 10.7 m."

Qatar is keen to challenge Emirati dominance in port development, mirroring success in aviation, although access to capital could pose few problems as it builds an international portfolio.



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Port updates

▶ LONG BEACH CARGO PILOT

Port of Long Beach in California is collaborating with digital company GE Transportation to improve its cargo flow. The port will run a trial with GE's Port Optimizer, which was successfully tried at the adjoining Port of Los Angeles. Terminals involved in the two-to-three-month pilot include Total Terminals International and Long Beach Container Terminal. Long Beach's container volumes increased by 11% last year, so the partnership is important as cargo and competition grow, the port said.

11% ↑

▶ POLISH BREAKTHROUGH

Port of Gdańsk in Poland recorded strong results in 2017 after its total throughput broke the 40 million-tonne mark for the first time. A rise of about 9% on 2016 result was the result of high shipments in the fourth quarter, when the Polish port handled more than 12 million tonnes of cargo, according to Łukasz Greinke, chairman of Gdańsk Port Authority. The general cargo, containers, and vehicles sectors all set records for the year, exceeding 2016 totals by 24%, 22%, and 412%, respectively.

▶ TUAS PHASE 2

A consortium consisting of Royal Boskalis Westminster, Penta Ocean Construction Company, and Hyundai Engineering & Construction has received a letter of award from the Maritime and Port Authority of Singapore for the port development project Tuas Terminal Phase 2 in Singapore, also known as Tuas Terminal Finger Pier 3. Boskalis' share of the consortium's SGD1.46 billion (USD1.11 billion) contract value is 30%, or about USD331 million.



AFP/Getty Images: 1019610

Port of Barcelona is improving its rail connectivity and has dry ports throughout the country

Port traffic for inland Europe to see north-south shift

Ports in southern Europe will beat northern rivals to win a bigger share of containers going to Europe's wealthy inland markets over the coming five years, according to one of the continent's leading maritime professors.

New infrastructure along the Rhine-Alpine and Scandinavian-Mediterranean (ScanMed), corridors, together with improved administrative and regulatory conditions, are supporting a brisk expansion of intermodal services linking Italian and Spanish ports with rich new hinterlands in Switzerland, Austria, Bavaria, and parts of France.

The Italian port of Trieste is one of the most aggressive movers, having already expanded the number of weekly rail services from the port to more than 220, rivalling the number offered by much larger northern ports such as Rotterdam.

Spain's port of Barcelona is also steadily lengthening its reach by improving rail connectivity with dry ports throughout the country and into southern and western France, while the ports of Genoa and Savona in Italy

are targeting growth along the Rhine-Alpine corridor, as new terminal facilities operated by APM Terminals, COSCO Shipping Ports, and Mediterranean Shipping Company are set to come on stream in the next few years.

"There is lot of additional capacity, clear development plans for rail infrastructure, and a more active collaboration among stakeholders. There is an integrated plan in place to target the Swiss market in three to five years using new tunnels under the Alps at Gothard and Loetschberg," Francesco Parola, a professor at the School of Management at the University of Genoa told *P&H*.

Infrastructure upgrades along the Rhine-Alpine and ScanMed corridors are expected to facilitate heavier trains, faster and more reliable connections, higher service frequency, and lower rail cost per cargo tonne or teu. A new high-capacity and high-speed rail line linking Genoa and Milan is due to be completed by 2022 with additional infrastructure to improve links between Milan and the Swiss

border. The new 55 km Brenner Tunnel under the eastern Alps will enable links between other Italian ports such as Trieste and La Spezia with Austria, Parola said.

The contestable markets are among Europe's wealthiest, including parts of Switzerland, Baden Wurttemberg and Bavaria in southern Germany, and Austria.

Europe's biggest container ports, Rotterdam, Antwerp, and Hamburg, handle many times more volume than the southern ports and Parola said he believed the historical scale of the northern ports would ensure they remained dominant but that southern ports would close the gap over the coming three to five years. The heavier physical constraints at German ports could see them lose out more than Benelux facilities, he added.

Chinese shipping and banking concerns are investing heavily in the maritime and logistics infrastructure of Mediterranean countries and there is speculation that the scale of the investment could have a big impact on the shape of Europe's maritime supply chains.

CMPort open to alliances with rival port

China Merchants Port Holdings (CMPort) is open to co-operating with other big port groups on overseas ports projects, Erik Yim, CMPort's vice-president and chief commercial officer said.

Singling out Hutchison, APM Terminals, and DP World, Yim suggested that they could be the group's potential partners and said the Hong Kong-listed group was open to dialogue on potential partnerships.

"Before, you saw carriers competing with each other. Now they are working together in alliances. Why can't it be the same in the global ports business? Why can't we work together on some of our overseas port projects?" he said in an interview on the sidelines of TPM 2018 in March.

"They invest huge money in a terminal and then we [CMPort] put money into a terminal nearby. I think this is a waste of resources. Why can't we concentrate our resources and explore the advantages together? We can help a local economy as well as each other, instead of competing with each other on rates," he added.

The group controls 32 ports across five continents, many of which have been developed as part of China's Belt and Road programme. In 2017, it made its first foray into south America when it acquired a 90% stake in Terminal de Contêineres de Paranaguá (TCP), the continent's second-largest box terminal in a BRL2.9 billion (USD923 million)

transaction. The group also took control of Sri Lanka's Hambantota port in December. In February, it spread its global footprint to Oceania by buying a 50% interest in Australia's Port of Newcastle.

Explaining CMPort's overseas expansion strategy, Yim said China was assisting developing nations in manufacturing bases under its port (industrial) park and city model. These are "commercial projects, not political projects", with all developments subject to intense pre-study as they had to be cleared by the group's investment committee. The manufacturing output from these projects would see the balance of China's containerised exports shift as the country imported more from these regions.

Port updates

► **ANTWERP/DAKAR TIE-UP**
Antwerp and Dakar port authorities have signed an agreement to collaborate more closely in the next few years, Port of Antwerp announced in a statement. It said the Senegalese city of Dakar was planning a new port, 50 km away from the current terminal. With a depth of 18 m, it will be able to handle the latest generation of container carriers. Also being planned is a 600 ha economic and logistics zone. "We will make use of our experience and expertise to help Dakar realise its ambitions," said Kristof Waterschoot, MD of Port of Antwerp International, a subsidiary of Antwerp Port Authority.

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Port updates

► CROSS-BORDER LINK

The German state of North Rhine-Westphalia and Rotterdam Port Authority in the Netherlands are working together to “optimise logistics connections with the European hinterland”, the port said in a statement. The parties expect to sign an agreement in the second half of this year.

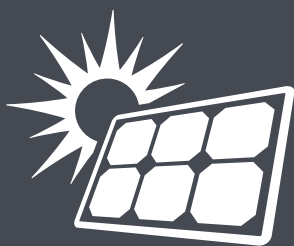
► FEBRUARY FEVER

Container volumes at Port of Los Angeles in February this year increased by 16% compared with February 2017. “Two months into 2018, overall volumes have increased 5.6% compared with 2017, which was the port’s best year ever,” the port said. It noted that the surge in February volumes was due in part to the Lunar New Year, which fell later this year.

The port handled 725,059 teu, making it the busiest February in the port’s 111-year history.

► AMSTERDAM SOLAR

Rietlanden Terminals at Port of Amsterdam has installed 452 solar panels on the roofs of two workshop and office buildings. Electricity generated by this number of panels should amount to about 140,000 kWh a year – enough “power to meet the average annual consumption needs of 31 four-person or 51 two-person households,” the port said. The electricity will be used to light the terminal, for shore power, rail loading, and water purification pumps.



DP World’s concession at Doraleh, Djibouti, was terminated in February

Djibouti reassures users of Doraleh as it takes control

Djibouti is seeking to assure customers of the Doraleh Container Terminal that the facility will be operated to the highest standards following the recent ending of the operating contract with long-time concessionaire DP World.

A statement from the office of President Ismail Omar Guelleh said Doraleh Container Terminal Management Company, created to manage the facility, was solely owned by the Republic of Djibouti and that its primary purpose was to “protect the sovereign rights of the nation.”

“Under the new management structure, Doraleh Container Terminal will once again be the leading port in the Red Sea region in terms of productivity, particularly in terms of transshipment, with a capacity of 1.6 million teu/year and an average unloading rate of 35 containers/hour.”

In February, the government announced that it was proceeding with a unilateral termination of the concession contract with immediate effect after the two parties failed to reach agreement on a dispute that

has been going on since 2012.

DP World called the ending of the contract an illegal seizure and said it was part of a campaign to force the company to renegotiate the terms of the concession agreement.

In a statement in early March, the office of the president accused DP World of limiting traffic to local markets only, which it said cut the total potential capacity of the facility by half.

In a March Country Risk report, IHS Markit said economic growth in Djibouti continued at a favourable pace, strongly driven by trade and commerce as well as foreign-financed infrastructure development.

But the report said levels of risk in the cargo and transport sector and business risk were high and noted that changes in bilateral relations with Djibouti could frustrate commercial contracts.

Growth in real GDP is forecast to remain at 5% this year before dropping to about 4% from 2019 to 2021. The Doraleh Container Terminal Management Company signed a deal last week with Singapore-based Pacific

International Lines that would allow the port to handle an extra 300,000 teu/year, according to Djibouti Ports and Zones Authority.

Meanwhile, DP World has recently concluded two agreements related to the development of another port concession and free zone on the Horn of Africa.

The Dubai-based company said a tripartite agreement was reached that gave Ethiopia a stake in Port of Berbera in Somaliland, where it in 2016 won a 30-year concession to manage and develop the Red Sea port.

A separate agreement was concluded to build a 12 km² economic free zone in the vicinity of the port.

The Berbera port and free zone will serve countries in the Horn of Africa, including potentially handling a large share of the foreign trade of Ethiopia. Under the agreement, the government of Ethiopia will take a 19% stake in the port and has been given rights to invest in infrastructure to develop the Berbera Corridor as a trade gateway to service the country.

Saudi port expects 60% throughput rise

Throughput at King Abdullah Port, Saudi Arabia's first privately run multipurpose facility, located on the west coast, 110 km north of Jeddah, is expected to jump by at least 60% this year, bringing container volume totals to about 2.7 million teu.

According to the facility's new Saudi CEO, shipping lines are waking up to the importance of improved services on the Red Sea. "Growth will be more than 60% this year, with the attraction of more hubbing services with various shipping lines.

"The market is not Saudi Arabia or the Gulf Co-operation Council – it is global," Rayan Qutub, who became Ports Development Company CEO in November 2017, told IQPC's

Global Infrastructure Congress in Dubai in April. "This is a global hub. We are very pro-business."

The goal is to position King Abdullah Port, where throughput grew by 21% to 1.7 million teu last year, as a growing transshipment platform serving the Middle East and east Africa.

The throughput figure, if achieved, would probably cement King Abdullah Port's status as Saudi Arabia's number 2 port behind Jeddah Islamic Port, further widening the gap with Dammam, which was hit last year by falling oil prices and slowing GDP growth, and increase the attractiveness of the kingdom's west coast as a magnet for Chinese Belt and Road investment.

King Abdullah Economic City, the port's immediate hinterland, is thought to be the most successful to date of Saudi Arabia's major development schemes, designed to spur growth and employment and planned in several locations, including Jazan, Medina, and Hail.

King Abdullah Economic City has good road connections countrywide and is also located on the Haramain High-Speed Railway linking Mecca to Medina, which will allow staff to travel from Jeddah in 25 minutes when trials on the 300 km/h line are complete.

It is also expected to benefit from future development of the so-called 'land bridge', joining the west coast at Jeddah to east coast Dammam via the capital, Riyadh.

Port updates

► **HHLA RISE**
Terminal operator Hamburger Hafen und Logistik at Port of Hamburg saw its 2017 revenue rise to EUR 1.25 billion (USD 1.54 billion) "as a result of increased container throughput and container transport and successful management of the property portfolio," despite a "challenging environment", it said. The company expects container throughput figures in 2018 to be similar to those in 2017.



becker marine systems



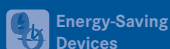
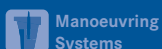
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Shared viewpoint

Technology can provide a common operational picture for ports and ships that elevates safety, security, and efficiency. But to truly maximise these benefits, new processes must be implemented and competencies learnt, writes **Frank Coles**

The most important thing to remember is that technology is an enabler. It should never be regarded as an end in its own right. This is because the conversation in maritime has, in recent times, swayed towards viewing technology as some sort of panacea, which can be dropped in and suddenly resolve all the industry's long-standing problems.

This line of thinking is especially common

with big data or digitalisation.

This should not mean we write off technology's contribution. However, the extent to which benefits materialise will hinge upon the implementation environment and attitudes. The shininess of the user interface, the gigabytes of data processed, or the throughput capacity of a satellite link are, at best, peripheral to the discussion and, at worst, risk becoming an unhealthy distraction.

With proper planning, revised processes and procedures, and rigorous training, technology can deliver significant improvements for the vessel operators and the stakeholders that they interact with elsewhere in the maritime ecosystem. However, without these supporting elements, it can be counterproductive and may even compromise the safety of a vessel and, when in or on the approach to/from a port, those around it.

The ship operating business has to move from a culture that emphasises low-cost short-term fixes to a philosophy based on long-term quality and safety. No one would fit a new bridge without removing the old one, so why does this not apply to processes and training for the new equipment? Layering new systems on top of old ways of working almost defeats the purpose of having them. It is as pointless as purchasing the latest smartphone and only using it to make voice calls or send SMS.

The objectives of ports mostly align with those of vessel operators. No one wants accidents or an environmental catastrophe on

The big picture: data sharing allows all players to access the common operational picture



their doorstep, so facilitating safe navigation is a must. Tighter security is a growing requirement, and as we live in a commercial world; we cannot afford to ignore ways of improving efficiency.

Some of the challenges are familiar too. For instance, a major study into vessel traffic systems (VTS) carried out by the US Transport Safety Board in 2016 found three major issues: poor communication between stakeholders; lack of decision support; and inadequate training. These are precisely the problems that technology combined with and supported by appropriate new processes can mitigate.

In terms of security requirements, we see a gradual push to extend the scale and scope of surveillance systems. Government agencies want to stretch the range of visibility out farther into exclusive economic zone (EEZ) waters. Closer to shore, the demand is for a higher-resolution picture of vessel movements, both to cope with increased traffic density and to identify suspicious vessel activity. While satisfying these requirements is likely to call



Technology must be operated by staff who understand the tools and possess the competence to wield them to best effect

Frank Coles
CEO of Transas

for infrastructure investment, the benefits can be shared among multiple stakeholders such as navy, coastguards, and vessel traffic service (VTS) centres. There is nothing to gain from duplication of effort.

Sharing data allows all stakeholders to benefit from access to a common operational picture (COP), while reducing the chances of misunderstandings that can occur owing to different systems producing different views of the same situation. This transparency enables more efficient analysis of vessel movements and provides earlier detection of potentially dangerous manoeuvring patterns.

However, equally as important is the fact it makes collaboration and team work easier, which is particularly beneficial in high-stress situations and emergencies. Moreover, a transparent COP supports better decision-making, as evidenced by sea traffic management (STM) testbed, a three-year EU-financed research and development (R&D) initiative that concluded in early 2018. More than 300 ships, 13 ports, and four VTS centres were involved in the project's trials in the Baltic Sea of an interoperable infrastructure for information exchange, inspired partly by what happens in the aviation industry.

The project's ambitions were substantial: to reduce accidents by half; cut fuel consumption and greenhouse gas emission by 7%; and to decrease voyage costs by 10% and waiting time for berthing by a significant 30%.

Reducing friction in the exchange of information between different stakeholders is also a key objective of Transas' conceptual framework for a unified cloud-based platform, known as Transas Harmonised Eco System of Integrated Solutions (THESIS). The platform is designed to manage operations across the maritime ecosystem.

The idea is for stakeholders to be able

to work from the same data wherever they sit in the operational chain – whether on the bridge of a ship or in a shore-based facility, such as VTS centre. Data collection is automated wherever possible to minimise the risk of error and duplication of effort, while obsolete or inefficient communication channels are removed.

High-resolution COPs such as this could transform the way vessel captains, shore-based managers, port planning teams, training providers, VTS operators, and authorities work.

Considering specifically a port setting, a common operational picture has the potential to cut lead times and improve resource utilisation, allowing tugs, pilot boats, and other assets to spend less time on standby. Greater clarity of vessel movements and sharing of real-time estimates of cargo operations could contribute to optimised management and co-ordination of land-based transport and to shortened vessel dwell time. These improvements might seem marginal for an individual ship or cargo movement but will accumulate into considerable efficiency gains when measured over a 12-month cycle.

The realities of modern shipping, including larger and less manoeuvrable ships, traffic congestion, hazardous cargoes, and the potential for environmental damage, demand that sophisticated measures be taken to reduce risks. To keep cargo flowing efficiently, upgraded technology is part of the answer, however, it is not the complete answer. It must be supported by upgraded processes and procedures to unlock its full potential. It must also be operated by staff who deeply understand the tools they are using and possess the necessary level of competence to wield them to best effect. **PH**

i MORE INFO: www.transas.com

Education – a lynchpin for sustainability

Julie Lithgow, director of the Institute of Chartered Shipbrokers, and Patrick Verhoeven, IAPH managing director for policy and strategy, share their views on education as part of a sustainable future. **Penny Thomas** reports

Conversation at the World Ports Sustainability Program (WPSP) launch in Antwerp in March was inspirational and optimistic as ports came together to address the challenges laid down in the 17 sustainable development goals identified by the United Nations.

WPSP mainly concerns itself with five of these goals: resilient infrastructure, climate and energy, community outreach and port-city dialogue, safety and security, and governance and ethics. All of these themes are intertwined, and all in some way have an impact on those other goals that at first sight might appear to go beyond ports' immediate control, such as poverty, zero hunger, and quality education.

During the two-day event delegates acknowledged that ports in developed countries were embarking on their sustainability journey from a different standpoint to ports in other parts of the world, especially in developing countries. Education is arguably the starting point for sustainability and also the route through which the sustainability message can be shared in order to engage all societies. It is therefore intrinsic to the success of the sustainable development goals and the aims of WPSP.

IAPH's managing director of policy and strategy Patrick Verhoeven said, "The workshops we had at the WPSP Launch event in Antwerp made it very clear that education cuts across all the themes that we have identified in the programme."

Julie Lithgow is a great believer in levelling out disparities within the maritime and ports education sector. As director of the Institute of Chartered Shipbrokers, which offers professional courses and examinations to about 5,000 students a year, she told

delegates that the ICS's examinations must still be taken using paper and a pen as it is the only way to guarantee that all candidates can get equal access to the qualifications.

Speaking to *P&H* after the event she said, "I think it can be very easy to make assumptions about access to the internet, for example, and then it is always a timely reminder for me when I visit some students for whom consistent access to electricity is a challenge."

Lithgow pointed out that the main barrier towards the creation of a level playing field for education was access to it. Access, she said, can be limited by expectations of previous qualifications, access to technology, such as the internet, or cost. "The institute has a belief that access to quality educations means no geographical or financial barriers. This means we are on the ground in every shipping centre, and students can sit their exams in any port around the world.

"The global members of the institute support these exams by keeping the costs around USD100 for each exam. The exams are rigorous, not easy to pass, but all students are assessed to the same level and the qualification is a global standard."

IAPH's Verhoeven agrees. "Low-barrier access to high quality education is a key objective" of WPSP, he said. "Port management usually has the opportunity to travel and attend valuable courses at overseas institutes. But it is important that we reach all professional levels in the sector." He said that this aim was "fully consistent" with the UN's sustainable development goals "that we want to promote through WPSP".

The first step to improving access to education is acknowledging it is a challenge. These challenges are often overlooked by developed nations. "We have a tendency in developed countries to take things for granted that we consider self-evident," said Verhoeven, adding that the same is true in the ports industry. "Sustainability means very different things in different ports around the world. That goes for education just as well as for infrastructure," he said, highlighting that for many ports the prime concern was to make sure cargo wasn't lying idle on the quayside for months but could get to its ultimate destination within a reasonable timeframe, and that for many port employees the

“ We have a tendency in developed countries to take things for granted that we consider self-evident ”

Patrick Verhoeven, IAPH managing director for policy and strategy



IHS Markit: 5075422

Julie Lithgow and Patrick Verhoeven discuss education as part of a sustainable future

“The institute has a belief that access to quality education means no geographical or financial barriers”

Julie Lithgow, *director of the Institute of Chartered Shipbrokers*

prime target was to have decent working conditions. This is their version of sustainability at the current time. There are opportunities for the private and public ports sectors to collaborate too. Lithgow said that in the ports industry especially, a lot of sector-specific professional training is usually rolled out as part of a concession agreement with a global operator. Many ports are independently operated or operated by public authorities, and “they can miss out on this type of scaled training”, she said.

Lithgow is also keen to highlight the difference between training and education. She pointed to a comment made by Cleopatra Doumbia-Henry, president of the World Maritime University, at the launch of WPSp, who said that there was a need for “well-skilled port managers”. Education, not training, is needed to cultivate the port managers the industry needs, Lithgow believes.

Training, she asserted, is learning special skills or behaviours so people can undertake and master specific tasks, usually at operational level. It is “often taught through doing”. Education, on the other hand,

“is a process of systematic learning which develops a sense of judgement and reasoning; it engenders a curiosity, an ability to know when to ask more questions. Education is about preparing people for future jobs, not just their current tasks”.

Both Lithgow and Verhoeven can see ways for the two organisations to collaborate on WPSp and IAPH’s scholarship programmes. Verhoeven is convinced that IAPH must reach out to the ICS and other educational institutes at all levels, “ranging from academic to blue-collar level”. He is looking forward to working with the ICS team “to get a strong collaboration between our organisations”.

Lithgow agreed. “I’m really looking forward to working with IAPH, and supporting WPSp. There are lots of different joint projects we can undertake and find ways to support each other’s work, from community outreach through schools to long-term capacity building. I hope we’re going to start with the IAPH scholarship programme within the next couple of months.” **PH**

MORE INFO: www.ics.org.uk



Leave no one behind

Ports came together in Antwerp to face up to the global sustainability challenge and were told that technology and disruptive thinking would have to be embraced, writes **Penny Thomas**

“**T**echnological progress will never be as slow as today,” said Jan Hoffmann, chief of trade and logistics branch of UNCTAD (United Nations Conference on Trade and Development). Hoffmann was speaking at the launch of the IAPH’s World Ports

Sustainability Program (WPSP) in Antwerp in March and this statement was received with a mixture of surprise and approval from the high-level delegates at the invitation-only event. “In this context we will make rules for the future,” he added.



Port of Antwerp hosted the launch of WPSP

Ports set themselves an enormous challenge when they embarked on a journey to drive the agenda for sustainable supply chains. Delegates agreed this rapid evolution of technology would support their aims, but the industry is currently grappling with what this technology will look like and exactly how it will help. And one of the biggest technical challenges will be how to decouple from carbon.

Technology alone will not be a caveat. An underlying desire for change is key to a sustainable future.

This desire is at the heart of WPSP and is being driven by IAPH members to provide a framework for ports to make a sustainable contribution to society. The programme is based on the 17 sustainable development goals (SDGs) drawn up by the UN.

“ Now is the time to work and implement it all ”

Santiago Garcia Milà, IAPH president

WPSP is specifically concerned with five themes that relate to these goals: resilient infrastructure, climate and energy, port community outreach and port-city dialogue, safety and security, and governance and ethics.

Through information sharing and collaboration on projects, IAPH hopes to create a sustainability

knowledge centre and generate a think-tank environment to spawn new projects and address challenges. The Antwerp event, hosted by the port, is the first step towards realising this project.

What became apparent in the programme is the disparity between sustainability in relation to developed and developing nations. Chatter over coffee suggested that it is one thing discussing sustainability against a backdrop of one of the most sustainable ports, cities, and countries in the world with like-minded delegates mainly from developed nations, but quite another when considered in relation to countries that are trying to get a foothold in the global logistics chain, address corruption, hunger, or bring about peace. Hilde Luystermans, chair of the governance and ethics committee at Total Group, gave an example of how there are more than a million people without access to energy.

Julie Lithgow, president of the Institute of Chartered Shipbrokers, said that while there might be some extremely well-developed, technological ports in Europe, the ships calling there would still need to go to ports in other parts of the world that are not so advanced, to pick up raw materials.

Queen Mathilde of Belgium, one of 17 UN advocates for the SDGs, gave the opening address and acknowledged this imbalance early on. Every society has its own challenges, she said, adding “it is up to each of us to make an effort to make sure no one is left behind”. All ports around the world can and should promote sustainable development, and “we must all take action now to implement the sustainable development goals”.

This call for action was echoed by IMO secretary general Kitack Lim. Shipping and ports are central to the SDGs and are vital to global sustainable development. He encouraged delegates to look to technology to address some of the challenges. “To achieve better shipping for a better future the ship-shore interface has to change,” he said, adding that ports “need to adapt to almost continual developments”.

If the task ahead overwhelmed the shipping and ports delegates, their focus was renewed with an impassioned message from a young woman who said her “generation will not accept any short-term or opportunistic solutions



Delegates gather in Antwerp's Port House

anymore”. Herlinde Baeyens, the UN Youth Delegate for Sustainable Development of the Flemish Youth Council, reminded delegates that the 17 SDGs all interlinked, with education (see pages 14–15), no poverty and peace and justice all at the core of any sustainable future. “Our superpower is our creativity,” she argued. “Our creativity has changed the world [to the way it is today] and we can do it again,” and create a different, more sustainable one. Sustainability has to be at the core of a business or community for it to be successful. Jacques Vandermeiren, CEO of Antwerp Port Authority, said, “Sustainability is truly in the DNA of the port of Antwerp,” noting that it was the first port in the world to draw-up a joint sustainability report with the whole port community a couple of years ago. He also pointed out that the Sustainable Development Solutions Network ranks Belgium 12th on the worldwide Sustainable Development Goals Index. It cannot be a box-ticking exercise, Roger Strevens, global head of sustainability of shipping company Wallenius Wilhelmsen, said. “If sustainability is a bolt-on then you are doing it wrong.”

The low-sulphur benefits of liquefied natural gas (LNG) cannot be disputed and ports and shipping are

Circular society – take, make, and reuse

The current economy “is not really in touch with society”, said Jan Leysens, CEO and context designer at Regenerative Design. We live in a linear society of take, make, want, but we need to move to a circular society where we take, make, and reuse. “This is not just a possibility, but a necessity,” he said.

“If we truly believe that everyone deserves the same level of lifestyle, then we have to rethink our materials”. A circular economy, said Leysens, crosses boundaries and sectors and will require everyone to work together. It requires centralised data and materials. We “need to create an aggregated mass of

material to make it useful for a company to use materials again and again,” he added, and ports can play a significant role here. Ports could become material managers, rather than material handlers.

He also highlighted the role of labour. This is often seen as unnecessary when considering future models, but Leysens believes that in a circular economy labour will become an added value rather than a flat cost. When materials become more valuable than what you create, then once again there will be value in those that work with them, he explained.



David Pintens: 5076154



Above: WSPSP dancers guide the way. Opposite: IMO secretary-general Kitack Lim was a keynote speaker



David Pintens: 5076153

**Port of Antwerp CEO
Jacques Vandermeiren**



David Pintens: 5076152

**IAPH president Santiago
Garcia Milà**



David Pintens: 5076151



David Pintens: 5076075

Six organisations signed the WSPSP Declaration in Antwerp. From second left they are: technical advisor to ICHCA, Richard Brough; AIVP president, Philippe Matthis; IAPH president, Santiago Garcia Milà; ESPO secretary-general, Isabelle Ryckbost; PIANC president, Geoffroy Caude; IADC secretary-general, René Kolman

Collaboration between shipping companies, port administrations, and supply chain stakeholders is essential for future sustainability

Kitack Lim, secretary-general of IMO

investing heavily in creating infrastructure to support its uptake as a marine fuel to meet the IMO 2020 sulphur cap deadline.

Lucy Gilliam, aviation and shipping officer at NGO Transport & Environment, believes, however, this infrastructure could be stranded assets in 2030–40. We need “to get rid of this idea that LNG is a clean fuel”, she said. “There is no future in LNG beyond the middle of the century.”

Angus Frew, secretary-general and CEO of shipowners’ organisation BIMCO, acknowledged that LNG had carbon in it, but noted that it had huge sulphur benefits. “We seriously believe that shipping peaked its emissions in 2008,” he said, adding that he believed it was the only industry to have done so.

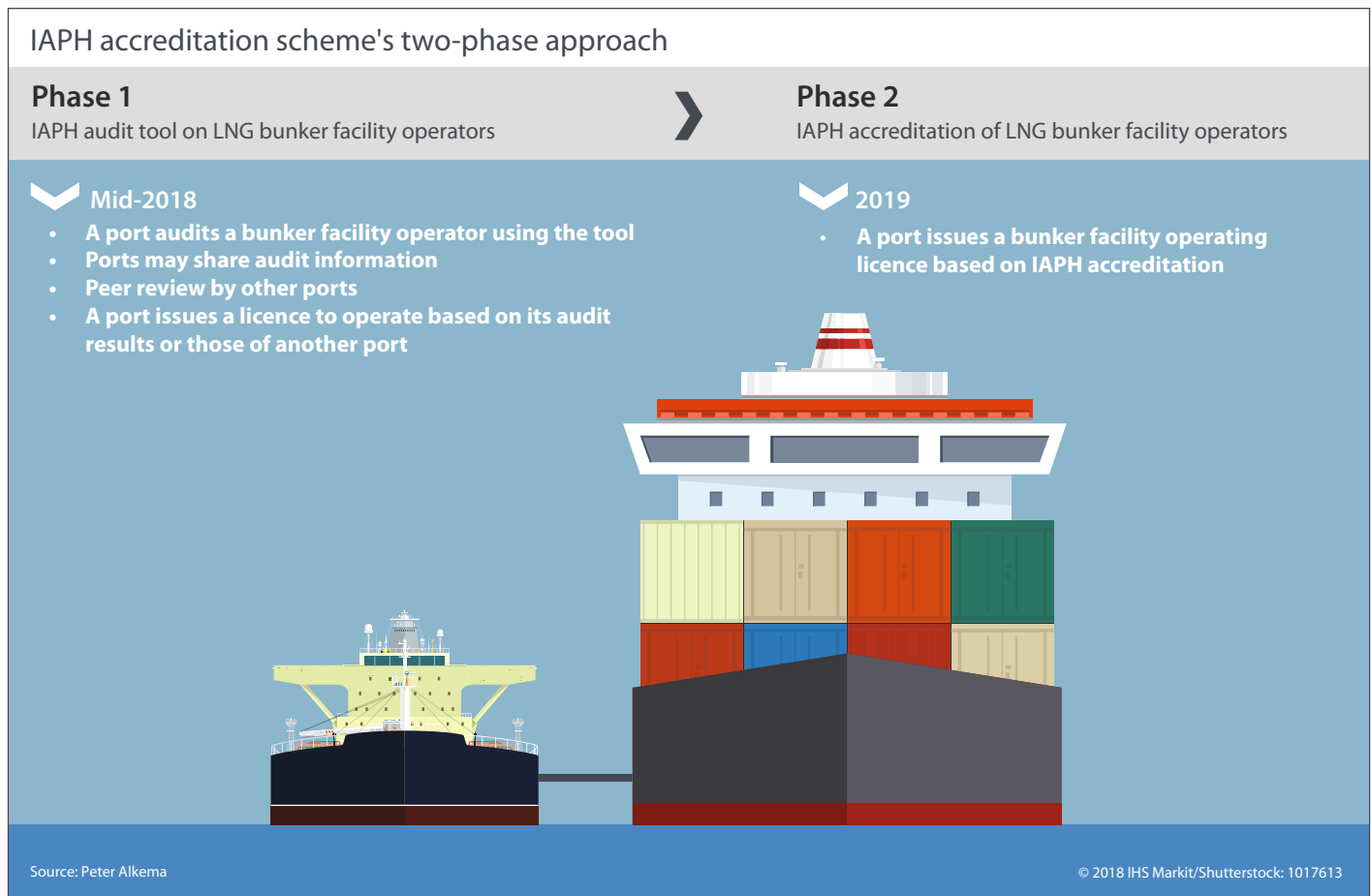
All delegates that *P&H* spoke to agreed that LNG had to be a good transition option while other ‘greener’ solutions, such as ship-to-shore power from sustainable

electricity and developments in battery technology, become advanced enough to meet the industry’s needs. Dario Bocchetti, energy savings manager at shipping company Grimaldi, echoed these sentiments and said it was “important to dream, but we have to be realistic. As shipowners we are waiting for the technology to arrive.”

Stevens commented that existing low-emission solutions had not been widely adopted. There is shore power available in Los Angeles, he said, but it has not had the ripple effect on other ports around the world. He argued that ports may fear cargo will go elsewhere if they do not want to use shoreside power.

Amid all the dialogues and differing views, one thing is clear: the road will be a long one, the challenges great, and action is needed now. WSPSP is a sign that the world is waking up to what is at stake. **PH**

MORE INFO: sustainableworldports.org



A tool to ensure LNG bunker system safety

The IAPH LNG fuel working group is developing an accreditation tool to support ports' efforts to provide safe bunkering of LNG. **Peter Alkema**, chair of the IAPH LNG working group and adviser at Port of Amsterdam, explains the two-phase approach

The adoption of liquified natural gas (LNG) as a marine fuel is, without doubt, becoming a reality. As large shipping lines start to make investments in LNG, we are definitely moving beyond the hype. LNG as a marine fuel will play a significant part in the evolving low-sulphur bunkers movement.

The movement of LNG as a cargo has always had an excellent safety record and the IAPH working group on LNG wants to see that continue as it is increasingly adopted as a bunker fuel. However, it does require correct handling. To support the industry as it navigates

the challenges and to promote safe and smooth operations, the IAPH working group on LNG-fuelled vessels is setting up an accreditation system that recognises high-standard LNG bunker facility operators and bunker companies that operate in ports.

The accreditation system will deliver information and tools to ports to minimise the risks associated with this new type of bunkering operation.

These products can be used by ports to support their legal arrangements in three safety domains: system safety, operational safety, and safety awareness.

Participating ports may share their audit results and information

Peter Alkema

Adviser to Port of Amsterdam and chair of the IAPH LNG working group



Port of Amsterdam: 5074787

The working group published the IAPH LNG bunker checklists in 2014. However, whereas these checklists focus on operational safety, the upcoming LNG accreditation scheme focuses on system safety by auditing the quality management system of a bunker facility operator. This ensures the responsibilities of the operator are clearly defined and that careful consideration is given to the way LNG bunker operations are organised at the front end.

Accreditation is a well-known instrument to impose quality requirements and safety procedures. The accreditation scheme has the objective to impose safe operations, to recognise good LNG bunker facility operators, and to have a deterrent effect on possible malpractice in the industry. Having an international harmonised system supports a level playing field among ports. Also, participation of ports may reduce the administrative burden for both the ports and the bunker facility operators.

The working group is approaching the creation of the accreditation scheme in two phases. The current, first phase is the development of an LNG accreditation audit tool. Part of this tool is a bunker facility operators audit checklist that is based on industry standards, guidelines, and best practice, from, for example, the International Organization for Standardization (ISO), Society for Gas as a Marine Fuel (SGMF), and the International Association of Classification Societies (IACS). Using the audit tool, any bunker facility operator's quality management system may be audited on eight safety criteria in a harmonised way (see above, right). Once audited and accredited, ports may issue a licence to operate in their port area.

Participating ports may share their audit results and information on the safety performance of a bunker facility operator with each other. With this system there is no need for a port to go through the entire audit process individually once an operator is accredited. The win for the operator is that, once accredited, it does not necessarily need to be re-audited when it wants to operate in a different port.

A third-party accreditor is required to audit the scheme. This role cannot be carried out by the ports and

Accrediting the operators

The LNG fuel accreditation scheme system has eight criteria for a bunker facility operator to meet.

- 1) The bunker facility operator's company management board has formulated a mission with regard to good performance in carrying out LNG bunker operations in a safe and environment-friendly way through compliance with legislation and regulations and by preventing incidents or environmental incidents. In addition, the company has set objectives with respect to improving these performances and the management board works proactively to achieve these objectives. The company has a well-functioning quality management system to support its quality commitment.
- 2) The quality management system guarantees optimal training and competence of staff.
- 3) The quality management system guarantees optimal resources, such as LNG bunker equipment, and optimal planned maintenance of this equipment.
- 4) The quality management system guarantees optimal preparation for performing LNG bunker operations. These procedures include risk analysis, simops (simultaneous operations), mooring system, compatibility checks between the ship and the bunker ship, and so on.
- 5) The quality management system guarantees optimal safety in performing LNG bunker operations, and has procedures in place for the use of checklists, and so on.
- 6) The quality management system guarantees optimal completion (aftercare) of the LNG bunker operations and includes procedures for reporting, including near misses and incidents. This also guarantees that all employees are familiar with the obligation to report and make written records of any incidents and near-incidents, and act accordingly. The system also enables access to information showing to what extent incidents and near-incidents happen in the company and what measures the company has taken for the prevention of incidents and near-incidents.
- 7) The company has appointed an independent quality manager who is responsible for the internal control on the mission and objectives mentioned in the first objective. This officer, for instance the company's health and safety officer, must have had adequate education, training, and experience. The same officer is the point of contact for the port in which the LNG fuel is being handled.
- 8) The quality manager has responsibility for the internal auditing of the quality management system and reports on a half-yearly basis to the ports on their achievements with respect to the performance of safe and environment-friendly LNG bunker operations.

the working group is discussing about who will carry out this task. This represents the second phase of the project and will be discussed at the next meeting of the working group on 18–19 April (when this issue goes to press).

We hope to present the final draft of phase one of the tool at the IAPH Baku conference and aim to make it available for use in the third quarter of this year. I invite all ports to join the LNG working group to help improve this fine IAPH product. **PH**



Life in the fast lane

Artificial intelligence and the internet of things can help ports support cost-effective, sustainable, and more environment-friendly shipping, writes **Charlie Bartlett**

While the enormous 22,000teu vessels hitting the water today are the most environmentally efficient method of moving cargo, unloading efficiency at ports is rarely given a great deal of consideration at the design stage, and the complexity of each ship call is increasing dramatically.

In 2017, container moves per ship call increased by a global average of 10.7% to 1,051. In the same year, more than 25% of moves at ports in northern Europe came from vessels larger than 14,000teu. In the future, larger tonnage will cascade down to lower-volume trades and waiting times at ports are likely to increase considerably. At the congested Port of Manila in the Philippines, vessels calling during the first half of 2017 waited an average of 6.2 hours before unloading could commence. During these times, ships must wait on standby, continuing to burn fuel and emit large amounts of carbon.

Experts believe that the internet of things (IoT) can help improve ports' sustainability by aiding fast port turnaround times and helping shipping reduce emissions. The concept is based on the interconnection via the internet of objects, like smart phones, and the

possibilities that this big data can bring. "In many ports, human workers can't keep up with the amount of cargo coming in and, as container ships get bigger, this problem will grow," said Gary Anderson, senior vice-president of Pennsylvania-based Rajant Corporation, a specialist in IoT applications in a variety of industries.

Getting the boxes off the ship as quickly as possible is only part of the equation. In 2019, China's next phase of emission control area (ECA) legislation will create a different challenge. Any vessel entering the Yangtze River, Bohai Sea, and Pearl Delta ECAs will have to switch over to 0.5% sulphur-content fuel. Ship operators prefer to avoid such zones for as long as possible, as the longer the stay, the greater the cost. But vessels queuing for an unloading slot inside the boundary have little choice and, until they finally moor alongside, shore power will not be available to help them either. The phenomenon is likely to be applicable to many international ports situated within ECAs.

All eyes, then, are on ports. Ship technology group Wärtsilä anticipates that ports will play a key part in its 'Smart Marine Ecosystem' – an IoT-derived concept

in which components of the maritime supply chain communicate and respond dynamically without human interaction. And under the 'smart ports' concept, input from port hardware could be combined with sensors and machine-learning to intelligently predict how long each vessel will need to remain berthed. This information would be relayed to incoming vessels, instructing them to speed up or slow down accordingly.

For Rajant, there will be another element to the fully realised smart port. "Ports can preserve jobs while improving safety and productivity by pairing humans and artificial intelligence [AI]. Timing is key. Trucks arriving and departing, rail yard arrivals and departures, and loading and offloading containers from ships can all be measured to determine time at each junction. Real-time networks facilitate an analytical environment that enables measurement activities."

Anderson maintains that leveraging the machine-learning capabilities of AI, where computers carry out tasks usually performed by humans, will not automatically dent human employment. "Humans can perform higher-level work from offices or remote locations while robots handle both the repetitive functions and the tough, dangerous manual labour, software runs the massive cranes, and automated systems lock and unlock containers on cargo ships. AI is likely to grow its presence in more port-wide automation activities, all designed to improve stoppage [time] within the port terminal while improving an array of operational efficiencies."

AI-controlled machines can use every container as part of the learning curve, optimising their approach automatically over time without human intervention, and adjusting timings accordingly. But to allow machine learning to occur, ports must be able to generate considerable volumes of data from each cargo movement. "Seaports employ a number of systems and technologies such as supervisory control and data acquisition [SCADA], radio frequency identification [RFID], and CCTV access control and monitoring, all of which generate volumes of valuable data, voice, and video. Having access to such critical information helps port officials, inspectors, employees, and tenants perform their tasks more productively as they move across the seaport."

Anderson also stressed the importance of drone technology, which could contribute supplementary video and sensor data where it is most needed. "With seaports from Abu Dhabi to Louisiana implementing drones and IP video surveillance devices, the number of interconnected devices, cameras, and sensors is fast-growing, but this also increases the need to secure and authenticate the communications traffic moving in, out, and around the network," he said.

"A digitalisation-ready communication network gives the increased capacity to support new service offerings and handle larger volumes, as well as add IoT devices and sensors without impairing network traffic or affecting other operations running on the network,"

Seaports employ a number of systems and technologies

Gary Anderson, senior vice-president of Rajant Corporation

he explained. "Pairing a mobile wireless network and predictive maintenance model, operators can access ongoing maintenance information that can keep vehicles and equipment operating at peak efficiency. This can reduce downtime and decrease maintenance expenses, especially for expensive 24/7 equipment such as quay cranes."

But there is another upcoming driver for ports that almost everyone, including Wärtsilä and Rajant, appear to agree on. Derived from the algorithms used to mint bitcoins – although, by no means affected by the cryptocurrency's ups and downs – is blockchain.

Key to this technology is the distributed ledger, a kind of encrypted spreadsheet, shared across many thousands of computers around the world, but with no centralised copy, making it nigh-on impossible to delete, copy, or tamper with. Each blockchain is comprised of individual transactions – the 'blocks' – which must be approved by all involved parties before being added to the ledger, a chronological 'chain'. As goods proceed from the factory floor to a container, to a port, a crane, a ship hold, another crane, a container yard, a truck, and eventually the buyer, a new block is added to this chain with each movement, making it possible for every party involved in the supply chain to see and track the goods, and to spot whether they have been tampered with, stolen, or held up, eliminating the need for paperwork, PIN numbers, signatures, and other methods used today.

Crucially, the blockchain will even allow machines such as port cranes and RTGs to 'know' what is inside each container, without compromising security, and communicate securely, allowing for a much broader scope of secure automation which will decisively speed up individual container handling operations.

In a 2016 test of the concept by Maersk Line and IBM, a traditional bill of lading was replaced by blockchain. The company found that, in a single carriage of a shipment of roses from Kenya to Rotterdam, a 25 cm stack of paperwork was eliminated.

In another recent case, Maersk and IBM found they could cut transport costs by about 20% on a shipment of avocados from Mombasa to Rotterdam, by replacing paperwork with blockchain. Now, the two companies have announced that they are targeting 10 million containers on blockchain by the beginning of 2019, and estimate shipping could save as much as USD38 billion annually if the practice spreads to all containers.

"Knowledge of container contents provides positive control throughout the time the container is received, stored, and shipped," said Anderson. **PH**

AI-technology machines are able to carry out tasks that are repetitive and require tough manual labour



AFP/Getty Images: 5075849

UK ports seek clarity on Brexit

Penny Thomas reports on the sentiment among UK ports as the country prepares to leave the European Union

UK ports are seeking clarity on frameworks for customs as they prepare for the impact of the UK's exit from the European Union on 29 March 2019.

'Brexit' will see the country leave the European Single Market and EU Customs Union. However, there have been confusing messages from the government about what a new customs arrangement will look like. Prime Minister Theresa May has hinted that she wants

the United Kingdom to somehow stay within the Customs Union, but others in her party fear it would stifle the country's potential to strike its own deals with non-EU countries.

Either way, ports are keen to know what the outcome will be. Stephen Carr, commercial director of Peel Ports, which operates the port of Liverpool on the UK's west coast, told *P&H*, "Ports will be able to work with whatever arrangements are put in place. What matters more to us is that there is greater clarity, sooner rather than later, on what Brexit will look like. This will allow us to plan our business operations and work with our customers to ensure that we continue to keep the UK trading, no matter what our status is. So, the worst-case scenario for us is simply more prolonged debate and indecision."

The UK's geographical and economic structure means ro-ro transport is central to the country's freight industry. Much of the UK's 'just-in-time' vehicle traffic travels through ro-ro ferry terminals as it is the fastest and most cost-effective method of getting certain goods to consumers. This is particularly the case for a number of cargoes imported to and from the European Union, such as food, perishable products, and other items that



Ro-ro cargo as handled at Port of Dover is likely to be most affected by Brexit

are part of the UK's just-in-time logistics supply chain.

"Being in the EU has meant that this traffic has not been subject to most frontier checks such as for customs or port health inspections. For other modes, such as containers and bulk shipments, existing systems and processes are in place for dealing with 'third country' traffic and the just-in-time element is simply not there," said Richard Ballantyne, chief executive of the British Ports Association (BPA).

Ballantyne pointed out that if trucks were held up at the ports with customs checks, the queues could very quickly back up on to ships and cause possible ship sailing delays. It could also cause congestion on the other side too, with trucks piling out of ports on to roads. Leaving the EU Single Market could mean differing standards and new checks, such as on plant and animal environmental health standards in ports. These could vary from documentary checks to physical inspections.

If this process "were introduced, a number of perishable products such as foods could be held at ports for hours, both in the UK and EU ports", Ballantyne said. BPA has lobbied for streamlined border processes, risk-based policies, and that the checks be conducted away from busy ports.

Not all ports will feel the bite in quite the same way. Tim Morris, CEO of the UK Major Ports Group, believes it is important to keep the potential ro-ro scenario in perspective. He acknowledges there is a "clear risk profile" around ro-ro traffic flows following Brexit but pointed out that it accounted for only 5.6% of the UK's port volumes in 2016. Container ports will have a much lower exposure, he asserted, as these ports generally already have sophisticated ports community systems (PCS) that link in with the UK's revenue and customs collection department, so goods should be cleared by customs reasonably quickly. He highlighted the fact that more than 75% of cargo handled at Felixstowe, thousands of consignments a day, was with non-EU destinations, and was already being cleared with customs at the port without delay. The bulk cargoes industry is also unlikely to see experience significant hold-ups as each load only

requires one customs declaration and, once cleared, will be unloaded and free to go on to UK roads.

The UK government has previously said there will be IT solutions to support the UK's ro-ro trade and Ballantyne said that it is considering how this might look with some fundamental operational process differences to the PCS model for containers.

Brexit could also pave the way for the development of free ports, offering customs and tax-free opportunities for manufacturers. Currently, the United Kingdom cannot set its own tariffs and customs duties, but with Brexit it will be able to take advantage of its developed port network and existing manufacturing clusters. According to a report written by UK member of parliament Rishi Sunak in November 2016, free ports would incentivise domestic manufacturing in the United Kingdom.

Morris said the country's ability after Brexit to set its own rules and frameworks for planning and development opportunities for free-trade zones, "needs to be looked into further". PD Ports, a leading participant in developing a free-trade proposal for Teesside, for example.

Associated British Ports (ABP) owns and operates 21 ports around the United Kingdom and David Leighton, its group head of corporate affairs, told *P&H*, "Many ports, including Port Talbot, Hull, and Tees, have large areas of development land adjacent to deep water, ideal for the import of raw materials and components and export of finished products. Consequently, free ports is one way to boost the potential of these locations to attract investment in new manufacturing, helping to rebalance the economy and drive export-led growth."

Despite the uncertainties that surround Brexit, it is also proving to be a boost for the awareness of UK ports and has shed light within government and across the population on the importance of trade to the United Kingdom. Morris said the next step was to "make sure we are having the right discussions about how we confidently trade with the rest of the world, both in terms of our domestic infrastructure and future trade deals". **PH**

What a 'no deal' means for Rotterdam

Many of the UK's imports and exports from non-EU countries go via the Netherlands and Belgium, notably the ports of Rotterdam and Antwerp. According to news sources, Europe's largest port, Rotterdam, is preparing for the worst and is putting plans in place for a 'hard' Brexit, where the United Kingdom would leave the EU single market with no other deals in place. Antwerp is also taking measures to secure trade when in February it announced it had placed a full-time representative in the United Kingdom.

Leon Willems, on behalf of Port of Rotterdam, told *P&H*, "Brexit is a lose-lose situation. It will harm economic growth and increase costs for the UK and for us. Therefore, it is our job to help prepare the port of Rotterdam for Brexit. Regarding Brexit, we are preparing for the worst-case scenario: no trade agreement, just a

standard World Trade Organization (WTO) arrangement."

"Brexit demands an active commitment from the business community but also from the Dutch government and from the EU," said Willems. "We call upon all parties to step up their efforts. Rotterdam's competitive position is at stake here." The impact of Brexit on trade flows between the United Kingdom and Rotterdam depends on the result of negotiations between the United Kingdom and the European Union, he said. "We anticipate that transport by ferry, shortsea [fruit, vegetables, and other containerised goods] will be hit hardest by Brexit customs barriers. Under a worst-case 'no deal' Brexit scenario, Port of Rotterdam would lose between 3.9% and 4.2% of cargo handling." But regardless of how Brexit is implemented, "Rotterdam is committed to keep strengthening its leading position as the largest seaport in Europe."



Counting the cost of waste

New European Union waste reception proposals aim to bring legislation into line with MARPOL requirements, writes **Andrew Spurrier**, but could lead to ships discharging excessive amounts of rubbish in ports

Getty Images/5074676

The handling of shipborne waste in European Union (EU) ports is set to undergo a major reorganisation under proposals published by the European Commission in January. The EU already has a port reception facilities directive, which came into force in 2000, but, 18 years on, the commission has decided that it is no longer fit for purpose.

The fact that the commission has proposed replacing it with a completely new directive is a sign of how different from the original directive the new approach will be. Notably, it will be presented as part of a wider EU-wide strategy for dealing with plastics waste from all sources.

Part of the reason for the proposed new directive is the need to bring existing port waste reception legislation into line with the International Convention for the Prevention of Pollution from Ships (MARPOL), which has itself been updated since the original directive came into force, leading to confusion among EU member states as to which legislation they should apply.

But the commission said that, through the new directive, it was also looking to further reduce the volume of waste discharged at sea and to make port waste management more efficient by reducing the administrative burden it places on ports.

The commission's proposal has not met with total approval from the EU port sector, however. European ports body ESPO welcomed it in principal but warned that, in its present form, it could lead to shipping companies discharging excessive amounts of waste, leaving ports to pick up the bill.

This concern arises from the commission's wish to modify the way shipping companies are charged for the use of port waste reception facilities.

At present, companies make a "significant contribution" to the cost of port waste handling through a flat fee that is paid whether or not their vessels discharge waste in the course of a port call. When volumes exceed certain levels, however, ports can charge shipping companies for the real cost of handling the waste discharged.

Now the commission proposes that the flat fee system will cover the whole cost of port waste reception and recycling. The only exception would be for waste from exhaust gas cleaning systems, where the handling cost would be calculated separately according to its type and quantity.

ESPO accepted that the existing flat fee system had successfully encouraged owners to dispose of greater volumes of shipboard waste ashore rather than at sea. "However," it added, "introducing a fee system, whereby ships can deliver unlimited amounts of garbage, including dangerous waste and cargo residues, for a fixed fee seems to be a severe and unacceptable divergence from the 'polluter pays' principle."

And, it said, it risks discouraging the idea of tackling waste at source, "which has been the cornerstone of the EU waste policy", by reducing volumes produced or generated on board.

Perhaps surprisingly, ESPO's concerns were echoed by the EU shipowners' organisation ECSA, which said that it, too, feared the fixed-fee system could result in



The proposed directive addresses plastics waste from all sources

shipping companies delivering “unlimited” amounts of waste. “It may not provide an incentive to reduce waste at source – the vessel or the companies delivering supplies to the vessel – as the fee is the same no matter how much waste you deliver,” it said.

And it added, “This might also create challenges in defining the fixed price of waste delivery as the port reception facility will not know how much capacity is needed but needs to ensure its waste handling costs will always be covered.”

ESPO senior adviser for safety and the environment Sotiris Raptis told *Ports & Harbors* that the commission’s proposal marked a “huge change” from the existing system. He said a flat-rate payment, of the type proposed by the commission, had already been tried in the Baltic and had resulted in shipping companies discharging unreasonable amounts of waste.

He argued that the commission’s proposal was contrary to the logic of the directive itself in that it risked encouraging shipping companies to accumulate waste for discharge rather than discharging waste each time a vessel completed a voyage from one port to another. “Ports should be able to charge for this unreasonable amount of waste,” he said.

He added that ports also needed to be able to differentiate their charges to take account of the greater cost involved in disposing of dangerous waste.

The European Commission has not reacted to these remarks so far but its proposal needs to win the support of the European Parliament and the European Council, composed of member states, if it is to be adopted and become law.

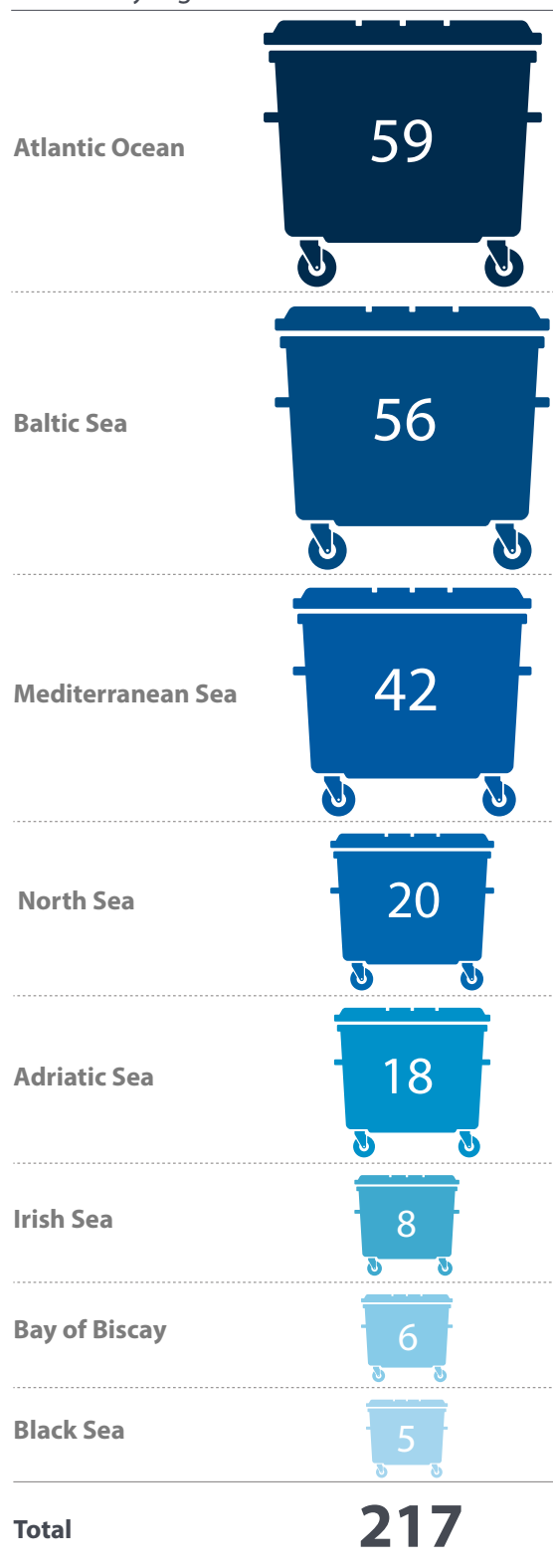
EU sources said discussions were already under way at the European Council and that it was hoped that a general approach to the commission’s proposals could be agreed before the end of the Bulgarian EU presidency at the end of June.

The European Parliament could take longer to decide on its position, however. A rapporteur will need to be appointed and will then have to produce a report for discussion by the relevant committee. Once the committee has agreed on the text of the directive, including any amendments it might want to make to it, its proposal will then need to be approved by the parliament in plenary session.

The time this will take will depend on whether or not the commission’s draft text meets with strong opposition. ESPO has already said that it plans to contribute to the ongoing discussions on the proposal.

Industry sources do not rule out the possibility that agreement could be reached before the end of this year, but EU sources appear to see the process extending until close to or perhaps even beyond the end of the mandate of the current parliament in May next year. Should a draft directive not be approved by the current parliament, it is anyone’s guess as to whether or not it will be by the next parliament, and, if it is, how long it will take. **PH**

EU ports with garbage Marpol facilities by region



Note: Correct as of 28 February 2018

Source: IHS Markit

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New port for the North Sea

The cross-country merger of Ghent and Zeeland will position the new port as the 10th-biggest port in Europe, writes **Andrew Spurrier**

The port of Ghent, Belgium (pictured), and two Zeeland ports in the Netherlands will be managed by a holding company

Europe looks set to have a new port by the middle of the year and one that, uniquely, will take in port operations in two countries.

North Sea Port is in the process of being formed by the Belgian port of Ghent and the Netherlands' Zeeland Seaports, which takes in the Dutch ports of Flushing and Terneuzen. The port will extend along a 100km belt taking in the ports of Flushing and Terneuzen on the northern and southern banks of the River Scheldt and stretching to the port of Ghent to the south via the Ghent-Terneuzen Canal.

The object of the merger, which the organisers insist was a joint idea from the start, is to attract additional traffic by pooling resources and raising the international profile of the merged operation. It also hopes to attract more companies to establish themselves in the new, enlarged port area.

Agreement was reached on the merger in December after an approval process that involved getting the

agreement of eight different shareholders, including the city of Ghent and the province of East Flanders on the Belgian side and the province of Zeeland and the municipalities of Borsele, Terneuzen, and Flushing on the Dutch side.

In practical terms, a holding company is to be set up to oversee two subsidiary companies, Zeeland Ports and Ghent Port Company. It will have a supervisory structure and a shareholders' committee, on which all the relevant local and state authorities will be represented.

The holding company will be sited in the Dutch town of Sas van Gent, which lies on the Ghent-Terneuzen Canal on the Belgian-Dutch border, while the future 'port house', which will serve as the new port's main shop window, will be located in Ghent's House of the Free Skippers, a famous historic building.

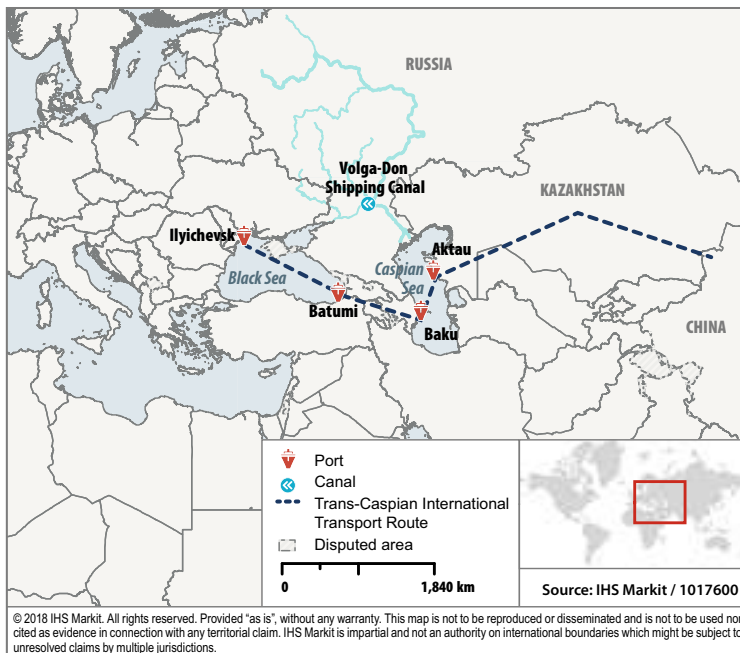
The provisional new port team told *P&H* that details of the merger were still in the process of being settled but that the process should be completed within the next few months. The two project sponsors said their choice of name for the new port was an indication of the scale of their ambition. North Sea Port will be the 10th-biggest port in Europe in terms of cargo volume handled and the 3rd-biggest port in terms of added value, they said.

The name North Sea Port reflected a "spirit of innovation and ambition, with a hint of bravado. North Sea Port represents the North Sea region," they said. "The international name is intentional and offers the new port company and port area a unique position in the heart of Europe." Had the port existed last year, based on its component operations, it would have achieved a 6.9% increase in overall cargo throughput to reach a record 66.6 million tonnes. Close to a half of that (47%) was accounted for by dry bulk, nearly one-third (29%) by liquid bulk, and nearly one-fifth (17%) by conventional general cargo. Ro-ro traffic accounted for a further 6% and containers 2%. Inland waterway traffic would also have reached a record total at 56.5 million tonnes.

But the port expects to improve on these figures in future, relying essentially on its existing strong positions in trans-Atlantic and European coastal shipping. "By means of efficiency, economy of scale, and preventing overlapping activities, North Sea Port offers opportunities to decrease operational costs," it said when it announced the agreement had been reached in December.

"These savings may also have benefits to companies, such as lower rates or a lower increase of rates. In addition, the larger scale will offer a bigger chance of combining cargo flows."

An idea of the kind of development the port is hoping for was given in February when Swiss company Alpha Terminals announced plans to make an EUR250 million (USD307 million) investment in the Flushing port area for a 34-tank, 500,000m³ tank terminal. It is expected to come into operation before the end of 2020 and will provide storage for a variety of chemicals and oil products, bringing 5–7 million tonnes of additional liquid bulk traffic to the new port. **PH**



at about 4 million tonnes. Figures released by the co-ordination committee of the TITR show that in 2017, 1.2 million tonnes of cargo was transported via the route. To achieve this anticipated growth, Alpysbaev and Turkish Transport minister Ahmed Arslan have agreed that Kazakhstan and Turkey will work together to determine the bottlenecks on the route and optimise its infrastructure. According to Alpysbaev, future cargo volumes on the TITR could grow to 17 million tonnes per year, which in turn would increase volumes on the Volga-Don Canal, which in 2017 reached 12 million tonnes.

During a parliamentary meeting in February, Kazakhstan's minister of investment and development, Zhenis Kasymbek, forecast that cargo volumes to Turkey transported via sea routes in 2018 would increase threefold compared with the previous year. According to news sources, port of Aktau shipped up to 35,000 tonnes of general cargo to Turkey.

To some extent, growth in traffic will be due to an agreement to simplify the transit of Kazakh ships through Russian waterways, Kasymbek told *P&H*. This agreement will make it easier for those ships to access the Volga-Don Canal, the only water through-passage linking the Caspian Sea with the Black Sea. In February the Kazakhstan parliament ratified the 2005 Protocol to the Convention for the Suppression of Unlawful Acts against the Safety of Maritime Navigation. This should provide additional legal protection for Kazakh ships sailing on the high seas.

The Volga-Don Canal is only operating at 70% of its throughput capability, according to the information from the Russian transport ministry. Russia's president, Vladimir Putin, has in the past suggested that Russia may build a second branch of the channel to increase its capacity if the demand exists.

Veysi Kurt, chairman of State Railways of the Turkish Republic (TCDD), believes if the TITR's infrastructure is optimised, its long-term prospects could be increased to 100 million tonnes per year, serving the need for fast and cheap transport of cargo between China and Europe.

Critics argue that business case for the TITR is not there as the Chongqing (in central China)-Duisburg/Yuxinou route offers a service that takes 12 to 15 days. **PH**

Eurasia connection

Kazakhstan wants to increase cargo flows to ports on the Trans-Caspian International Transport Route, writes **Vladislav Vorotnikov**

Kazakhstan plans to boost cargo flows on the 14- to 15-day land and water Trans-Caspian International Transport Route (TITR) that connects China with southern Europe via the Caspian and Black seas.

Kanat Alpysbaev, chairman of national transport operator Kazakhstan Temir Zholy, said he expected 2018 cargo volumes on the route to be

Baku on the Belt and Road

Port of Baku is one of the original members of the co-ordination committee, formed in 2014, for the Trans-Caspian International Transport Route (TITR), along with Azerbaijan Caspian Shipping Company, Azerbaijan Railways, Georgian Railway, Port of Aktau in Kazakhstan, Kazakhstan Railways, and Batumi Sea Port in Georgia.

About 4.4 million tonnes of cargo passed through the Baku terminals in 2017, an increase of 31% on the previous year. It is investing in

its future to ready itself for increased trade flows between China and the West, and is developing a 100 ha free-trade zone. In January 2018, it opened a new two-berth ro-ro terminal able to handle 1.8 million tonnes of cargo or 60,000 trucks a year.

In November 2017, the port held the opening ceremony for the Baku-Tbilisi-Kars railway, connecting Azerbaijan, Georgia, and Turkey. "This rail line is designed to become

a key part of the southern route of the emerging New Silk Road network of trade and transport corridors that are coming together between China and Europe," said the port.

Port of Baku will hold the next IAPH conference in May 2018, where Belt and Road will feature prominently on the programme.

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Port of LA: 507/4063

All charged up for greener future

Electric-powered port equipment is still a greener alternative, even if the energy source is natural gas, **Charlie Bartlett** explains

As the new year began, a new phase of China's incremental emissions control area (ECA) experiment took effect. Vessels berthing at any Chinese port in the Yangtze River, Bohai Sea, and Pearl Delta ECA zones must now either turn off their engines, use scrubbers, or switch to low (<0.5%) sulphur fuel within an hour of docking.

The adverse effects of sulphur, NO_x, and particulate matter (PM) on the human respiratory system are well understood and have persuaded the International Maritime Organization (IMO) to enforce a global cap on emissions in ship exhausts from 2020. But cheap, filthy bunker fuel has been the lifeblood of the shipping industry, and burning cleaner distillates in auxiliary generators while berthed is an expensive business. Ports around the world know they must offer an alternative.

In Norway, this is straightforward. Since more than 95% of grid energy is derived from renewables, installing infrastructure whereby vessels can plug in while in port, running their lighting, heating, and other

systems on offshore power is an obvious choice. Many island and coastal ferries have been replaced with battery-powered versions, which are able to charge up fully during the 20-minute intervals it takes to load passengers at the terminal. Increasingly, as well, newly built cargo vessels in the region are being designed either with batteries installed from the outset, or with designated areas for them to be retrofitted in the future. These will be charged using shore power, to supplement vessel efficiency.

In China and America, however, the story is different. At Port of Los Angeles, the law states that berthed vessels must spend at least 50% of the time plugged into shore power, to reduce the particularly harmful contaminants – sulphur, NO_x, and PM – and their effects on the residents of the surrounding city sprawl. But that power is derived from the US national grid, of which renewables make up only 17%. Somewhat ahead of the game, the California Air Resources Board (CARB), is targeting a 33% renewable energy quota by 2020.



Electrified cranes feature high torque with zero emissions

"The state of California has made great progress in the transition to renewable energy. As we make the transition to zero emissions and electrification, the power generation must also be green," said Chris Cannon, director of environmental management at Port of Los Angeles. "We are continuing to transition to green sources of power."

This includes finding other methods of cutting emissions, and not only those from docked vessels. The port has embarked on a highly ambitious programme of electrification, replacing the machines that unload and load containers with fully electric versions. The results speak for themselves.

"This past calendar year [2017], the port moved 9.3 million teu, which is the most for a western hemisphere port and a record for us," said Cannon. "But the emissions per teu were the lowest ever. So 2017 was our best year for emissions reduction and cargo growth. This shows that the goal of cleaner air and growth are not mutually exclusive."

But hanging over these developments is the implicit question with which sceptics routinely challenge electric car makers: where is all this mains electricity coming from? If it was generated at a fossil-fuel power station, are any carbon emissions really being prevented?

In fact, yes. In situ energy generation using an internal combustion engine (ICE), of the sort found in cars or on ships, is limited to about 35% efficiency, with only the most extraordinarily technologically and materially advanced engines ever exceeding that number. Conversely, at a modern natural gas-fired power station, thanks to the addition of a steam turbine, 60% generation efficiency is not unusual. Once the electricity reaches the port, the electric motor performing the work is likely to reach 95% efficiency with near-instantaneous torque and throttle response, and no-gearing losses.

"What we've seen thus far is that an electric motor is faster, because it has more torque and doesn't need time to spool up," said Cannon. "It can move much quicker than a diesel forklift."

In California, where electric cars such as the Tesla Model S are common, electrification makes a particular kind of sense. The high generation efficiency and relatively high renewables content of California's grid power, compared with other states, means the CO₂/km from an electric car here is just more than one-sixth of a gasoline model. The electrified mechanisms at Port of Los Angeles, meanwhile, including electric STS cranes, operate on the same principle.

But for many machines such as yard trucks, top handlers, and forklifts, which must be highly mobile and cannot remain on mains power, batteries remain the limiting factor. But thanks to the smartphone industry, and now electric cars, development of batteries is ramping up dramatically. Experts predict that by 2040 a battery with the same size and weight as a tank of

gasoline could house the same amount of potential energy. But the technology is not there quite yet, and this necessitates intermediary measures.

"We're testing yard trucks that would use renewable natural [methane] gas, which comes from landfills, waste facilities, and livestock as a transition technology before they become fully electric," Cannon said.

The port is working on electrifying its external traffic, as well. "We're working with a number of the equipment manufacturers to develop new battery-electric or other types of zero-emission truck technologies, such as hydrogen fuel cells. Most recently, we've started working with Toyota, Tesla, Volvo, and one of the smaller local companies called Transpower.

"Of course, the main issue is the batteries," he added. "Right now, the ones we've tested so far have a range of about 100 miles [160 km]. But the newest versions under development are expected to have a range of about 300 miles or more." Tesla claims its 'semi' prototype truck will be capable of a maximum 500-mile range when launched in 2019.

Even better gains are on the way. According to Bloomberg Research, the cost of solar panels – a massive potential energy source in California – will fall by more than 50% in the next 20 years. The port has already moved to leverage this to its advantage. In 2016, it announced the Pasha Green Omni Terminal, a new facility that will use a combination of solar power and battery storage to provide constant renewable energy to support its own operations, partly funded by a USD14.5 million CARB grant. On completion, a 1.03 MW photovoltaic rooftop array will supply a 2.6 MWh battery storage system, which will discharge to support operations come nightfall, and cut 3,200 tonnes of CO₂ emissions annually.

Other ports along the west coast of North America are following suit. In August, Vancouver Fraser Port Authority signed a contract with ABB to install a shore power facility at Deltaport in British Columbia.

Thanks to the fact that much of America's trans-Pacific trade is with China, many of the vessels capable of compliance with California's CARB rulings also call there. As a result, Port of Los Angeles' approach has cross-pollinated and in 2014 the port set up a working group with Port of Shanghai that was instrumental in informing China's new ECA programme.

"We have a very good working relationship with most of the largest ports in Asia," Cannon told *P&H*. "Port of Shanghai has been a partner of ours for a decade now and is installing shore power based on our collaboration with them. Our relationship with [Shanghai] has been productive and mutually beneficial."

In late 2017, China's Ministry of Transport, National Energy Administration, and State Grid Corporation of China signed an agreement to install 130 small shore-power facilities along a 2,500 km stretch of the Grand Canal, from Beijing to Hangzhou, by 2019, potentially cutting an annual 3,950 tonnes of CO₂. **PH**



Cavotec: 5074866

Electrification: the barriers to entry

Once the initial infrastructure to electrify port equipment is in place, ports could enjoy lower operating costs, writes **Charlie Bartlett**

With the huge quantities of energy consumed in the process of handling a single container, as well as fluctuations in power requirements from moment to moment, ports' power needs have typically been met by on-site diesel generator sets. With the advantage of being able to quickly spool up at times of increased demand, gensets have also allowed for mobility and redundancy. But this comes at a cost. Since gensets do not rev at a consistent level, they suffer from the same inefficiencies as cars in a traffic jam, compounded by gearing losses.

Even with a perfect operating profile, the efficiency of on-site power generation is unlikely ever to exceed

30%, and this generally means high fuel costs are a fact of doing business for ports. There are also large amounts of pollution to be considered, as ports aim to reduce their greenhouse gas emissions. Before various initiatives were conceived to clean up its act, Port of Los Angeles, for example, was deemed one of the highest pollution hotspots in California, exceeding a number of power stations and oil fields.

Small wonder that many ports around the world are considering electrification for many of the elements in their handling chains. Thanks to developments in battery and charging capability, the technology now exists not only for static but also for mobile port equipment to be made to run from grid power – up to a point. While the technology is still very expensive, new developments bring down the costs all the time and, for many ports, electrified infrastructure is crossing a cost-benefit threshold, beyond which they will be able to invest.

Much of the cost and time associated with electrification work is not necessarily related to the port equipment itself, but rather the reinforcement of the local power infrastructure that will allow for the surge in demand. "The power requirements increase substantially," explained Jim Andriotis, Cavotec Group innovation market development manager.

"Depending on the scale of the electrification, it can

go from new transformers to new main line feeds. In addition, site distribution has to be created to get the power from the main transformer to the equipment connection points. This infrastructure work is a large percentage of any new electrification at the port.

"Such costs are still high enough that, for many ports without an environmental mandate, they are considered prohibitive. But many of the costs associated with electrification are decreasing over time," Andriotis explained.

"Of course, the first push that ports had was legislation and compliance. Once the opex benefits were evaluated, this accelerated the pace of adoption. In certain regions, external funding has also accelerated the uptake of the technology.

"The US and Asia are the most active regions in electrification activity. There is plenty of work being done in other regions as well, but not at the same pace and urgency."

But once the initial major expenditure is out of the way, ports enjoy much lower operating costs thanks to the reduced requirement for generator fuel. Recent installations of electrified rubber-tyred gantries (RTGs) at Sri Lanka's Port of Colombo, as well at Port of Savannah, in Georgia in the US, boast a 95% reduction in fuel costs. "As the technology is available, RTG retrofits are an increasing trend," Andriotis explained.

"Automated plug-in systems, battery systems, cable reels, and auto steering ... allow the port to retain flexibility as well as reap the opex benefits of electrification and zero emissions.

"However, the implementation is more complicated [than with ship-to-shore (STS) cranes]. The major benefit for ports using RTGs is that they allow operational flexibility as they, being on tyres, are not restricted to which stacks they work. It is imperative that any electrification to these cranes allows the port to maintain this flexibility safely and efficiently."

Although it is not as common as that of RTGs, STS crane electrification is a growing trend. In a recent deal, Cavotec was contracted to electrify eight STS cranes at Port of Tanjung Pelepas in Malaysia. The contract involved fitting electrical power reels, as well as eight spreader reels, for the second-tallest STS cranes in service – the tallest being the ZPMC cranes at DP World, Dubai.

STS cranes are one of the simpler electrifications to perform, as they are rail-mounted. "In saying this, STS electrification now happens more frequently through crane replacement as opposed to retrofit," said Andriotis. "Combined with the port's need for larger cranes to handle the newer vessels, it makes more sense for the port to purchase a new crane that is already electrified as opposed to performing a retrofit.

"The mobile elements of the handling chain are more of a challenge, however.

"Since yard trucks and straddle carriers are expected to remain mobile on a constant basis, having to stop to



Cavotec 5074867

“The US and Asia are the most active regions in electrification activity”

Jim Andriotis, Cavotec Group

charge could potentially offset many hours of uptime over the course of an operating lifetime.

"Some port OEMs have already released equipment that is fully battery powered or [uses a] battery/fuel cell hybrid," said Andriotis. "The ports are interested but the uptake has been slow to start.

"Battery life is still a concern for many. Cavotec already has technologies that are well suited for these new operations. One of our connection technologies was specifically created for opportunistic charging of port vehicles. With the addition of battery technology and control into our portfolio, we are capable of powering and charging this equipment."

But for the manufacturers of electrified port equipment, as with electric carmakers, there is one question that continues to be asked time and again: where is the power coming from? Andriotis responded, "This is difficult to answer empirically." However, "if you consider ports are typically located close to city centres and densely populated areas, removing another large pollution generator from this cluster will benefit the health of the population immensely.

"Another consideration is that large generating stations are much more efficient at generating electricity than onboard gensets. Combined with the increased clean energy on the grid available to the port, I feel that electrification does reduce emissions at a holistic level. The flip side is that if ports continue to use diesel on their equipment, there would be no hope of environmental or opex improvements." PH

Rubber-tyred gantry cranes are one of the most common electrification retrofits because of the amount of energy they use



Getty Images: 1017604

Sun rises on Japanese cruise

The Japanese government is using investments and incentives to leverage the increase in cruise passengers to its ports, writes **Kevin Tester**

In May 2020, *Queen Elizabeth* will for the first time call at Maizuru Harbour on the Sea of Japan coast, north of Kyoto. Municipal authorities see the Cunard vessel's arrival as a vindication of efforts to make the port more attractive to luxury cruise ships and hope it will be the first of many.

Queen Elizabeth will be based at Yokohama for the duration of the Tokyo Olympics, with four cruise itineraries departing from the port and stopping at six domestic ports, as well as Busan in South Korea, before returning to base. One of those domestic stops is the city of Maizuru and, for all the excitement at the city hall there, the ship and its passengers will only dock for 12 hours.

In 2011, Maizuru was granted designated base-port status for international cruise ships by Japan's Ministry of Land, Infrastructure, Transport, and Tourism. Last year the port welcomed 39 cruise ships, the most on record. Maizuru's story is by no means unique. Towns and cities across Japan are revitalising their ports to cope with a wave of inbound passenger traffic, especially from the country's Asian neighbours. The majority of ships are from China, accounting for 80% of visits to west Japan, with Okinawa and Kyushu the most popular destinations.

Last year there were 2,765 calls at 120 locations,

covering all 39 of Japan's prefectures with a coastline. This year that number is expected to top 3,000, double the figure of three years ago. And that headline statistic masks some local fluctuations: the number of ships calling at ports situated along the Sea of Japan is expected to drop because of continued anxieties about nearby North Korea. So far only 18 ships are booked to berth in Maizuru in 2018, for instance.

However, the upward trend continues and municipal governments are looking to port regeneration to reap the rewards of an untapped revenue stream that could stimulate and support local economies, which, especially in more rural areas, are stagnating or shrinking due to populations ageing and leaving.

Around the country, different measures and incentive schemes aimed at attracting passenger ships are being practiced. For example, since 2014, Osaka Port has not charged ships for freshwater replenishment. In addition, it has dispensed with the berthing fee, which for a 150,000 tonne ship amounts to a total saving of JPY5 million (USD50,000) per visit. Through initiatives like this, the port expects to welcome one-third more ships this year than last year.

Maizuru plans to deepen part of its quay to 10m within the next five years to enable larger ships to include the town on their itineraries. It is hoped that tensions surrounding North Korea will have eased by then.



Diamond Princess docked in the port of Nagasaki in Japan at sunset

Meanwhile, a public-private partnership (PPP) has got under way in Yatsushiro Port in Kumamoto, where Royal Caribbean Cruises is investing in a new passenger terminal, while the national and local government bodies are managing the development of the quays and land around them.

The PPP came about following a change to the law through a suite of reforms enacted by Japan's parliament, the Diet, last year, designed to attract more tourists on cruise ships. The amendment to port law gives cruise ship operators priority access to piers for up to 20 years in exchange for their building or renewing passenger terminals at designated ports. The state and municipalities, for their part, will shoulder the burden of introducing piers suitable for large cruise ships.

The Ministry of Land, Infrastructure, Transport, and Tourism also designated six ports – Yokohama, Shimizu, Sasebo, and Yatsushiro on the mainland, and Motobu and Hirara in Okinawa – as international cruise ship hubs and will consider making additions to the list in the future.

Incentivised by a major earthquake that hit Kumamoto last year, disrupting port services, the ministry will also introduce an emergency system under which the state would take over port control at the request of municipalities hit by future natural disasters.

Fushiki-Toyama Port has carried out works to increase the size of ships it can admit from 160,000 dwt to 220,000 dwt. A project is currently under way to extend the quay at Hakata Port in Fukuoka, a major city and prime retail destination in southern Japan, which has struggled to keep up with demand from ships wanting to call.

Lately there has been increasing concern about the way in which passengers are, immediately after disembarking, packed on to buses and whizzed directly from the port to tax-free shopping centres, with little or no opportunity to stop, look around, and open their wallets in local shops and restaurants.

There are signs of mounting discontent about the promised stimulus effect failing to materialise. This lack of economic uplift also makes it difficult for municipal governments, especially in cities visited regularly by ships, to allocate funds to tackle issues such as noise and litter, generated by a continual flow of cruise ship passengers. Hiromi Tagawa, president of JTB, Japan's



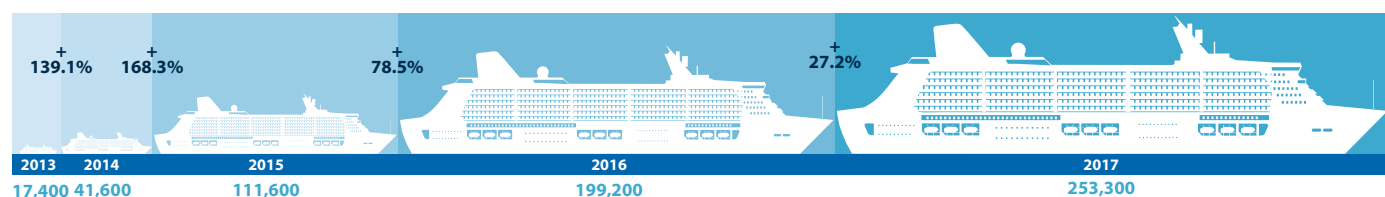
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largest travel agency, described Japan's ports as lonely places. Yokohama Port can accommodate just two or three large cruise ships at a time, he pointed out, "whereas in places like Miami, Helsinki, or Barcelona you can easily see up to a dozen ships. The contrast with Japan couldn't be starker."

Part of the reason, he explained, is that most ports in Japan were built originally to serve the fishing industry or as import/export hubs, resulting in a landscape dominated by gantry cranes and stacked containers.

Nine years ago *Queen Mary 2* had to dock at a cargo yard outside Yokohama because it was unable to pass under Yokohama Bay Bridge to reach the international terminal. "That's like telling a visitor to your home to enter through the back door as the front entrance is awaiting repair. This is an unsatisfactory 'welcome' for the mostly affluent guests that arrive in Japan on passenger ships," Tagawa contended. "More preparation is vital before the Olympics open again in Tokyo in 2020." **PH**

Number of foreigners visiting Japan by cruise ship



Source: Japanese government

Number of visitors

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Mumbai reinvents itself as cruise port

Mumbai's cruise terminal upgrade and the removal of charges are designed to reinvigorate its passenger throughput, writes **Ramadas Rao**

The iconic Taj Mahal Hotel in Mumbai. The port wants to reclaim its place as a major international shipping player

Mumbai Port in India is gearing up for a projected cruise boom with an upgrade of the existing terminal costing nearly INR2 billion (USD31 million). The expansion and modernisation will be completed in two phases and will see terminal capacity increased first to 200,000 passengers/year by December 2018 and to 700,000 passengers by the end of 2019, the chairman of Mumbai Port Trust, Sanjay Bhatia, revealed at the foundation stone laying ceremony in January.

India could grow its cruise tourism from the existing 200,000 passengers to 4 million, with Mumbai alone having the potential to achieve a passenger count of 3 million, according to consultancy Bermello & Ajamil and Partners, which has been tasked by the government with preparing an action plan for the development of cruise tourism in India.

Mumbai's cruise ambitions received a shot in the arm when Europe's Costa Cruises launched homeporting in Mumbai last year. Royal Caribbean and Norwegian Cruise Line are also said to be interested in using the city as a home port.

Mumbai's cruise terminal upgrade will include hotels, shopping centres, and separate lounges for arrivals and departures. The operation and maintenance of the facility will be entrusted to private enterprise under

the public-private partnership (PPP) model. The port is relying on cruise tourism to regain its place as a major shipping player. Once the premier cargo-handling port in the country, Mumbai has slipped down the ladder, mainly because of severe congestion within the port and the challenges of evacuation from the port, as it sits in the middle of the bustling metropolis.

The greenfield port of Jawaharlal Nehru Port Trust (JNPT) in Nhava Sheva, which was built in 1989 to ease congestion in Mumbai, now receives nearly all the area's container cargo. Overall, Mumbai handled a record 63 million tonnes of cargo in financial year 2016/17, dominated by crude oil imports. Vehicle exports are also rising, amounting to 205,577 units in 2016/17, an increase of 24% over the previous year.

Urban growth, which has proved to be a disadvantage in terms of cargo movement for Mumbai, could be turned into a strength as an increasing number of cruise passengers experience the sights and sounds of the colonial-era city and urban areas. But for the mega plans to succeed, cruise operators believe international-class infrastructure needs to be complemented by fiscal and procedural reforms to attract cruise passengers and facilitate their smooth entry and exit. The operators also feel port charges are too high.

"No cruise company will be willing to establish an Indian domestic cruise industry while service taxes and income taxes apply to cruises," said David Dingle, chairman of Carnival UK at a conference in Mumbai last August. Dingle, however, is optimistic about the growth of the Indian cruise market despite its low base. A compound annual growth rate (CAGR) at 31% is impressive, as is the age profile of the average cruise passenger, at 37, Dingle pointed out. Indian cruise growth, he believes, will depend on building a domestic market observing that Asian market growth depends on short domestic cruises, which are cheaper.

To encourage cruise calls and ensure smooth entry and departure of cruise passengers, Mumbai Port Trust has removed certain charges and has dedicated a berth for cruise ships. The existing terminal has been expanded to provide more space for customs and immigration formalities.

The Indian government, too, has rolled out new requirements at the ports of Mumbai, Cochin, Mormugao, and New Mangalore to handle cruise vessels and cruise passengers. Since last November, cruise tourists arriving with an e-visa, for example, have been exempted from the requirement of biometric enrolment for three years, until 31 December 2020. E-visas and e-landing cards at these four ports aim to facilitate fast and smooth immigration clearance.

Port charges have been rationalised for cruise ships calling at major ports – ports controlled by the government – with a uniform tariff rate of USD0.35/grt. Passenger ships flying foreign flags have been exempted from having to have a licence from the Directorate-General of Shipping until February 2024. **PH**

London port offers incentives



Port of London Authority became the first UK port to join IAPH's Environmental Ship Index (ESI) when it became a member of the scheme last year.

Tanya Ferry, the authority's environment manager, told *P&H* that 150 vessels benefiting from the scheme called more than 330 times in 2017, and that "we are really pleased with the [vessel] operators joining". Ferry said investment to reduce emissions could be costly for ship operators, and that it created "an economic benefit for the investment while driving it forward".

Port of London Authority is one of 55 ESI incentive providers, most



Port of London Authority manages 153 km of the River Thames

of which are ports, offering ship operators discounts or other incentives. The ESI evaluates the amount of nitrogen oxides (NO_x)

and sulphur oxides (SO_x) that a vessel emits and offers a reporting scheme for greenhouse gas emissions. Incentives to shipping

companies are based on their ESI score, between 20 and 50.

ESI is one of a few environmental schemes Port of London has adopted. Ferry said it had a number of proposals under the UK's Air Quality Strategy that were being developed with partners.

"We have been running behaviour change campaigns for the past few years around litter in the Thames estuary, under the banner #cleanerthames. More recently we have been working with operators in London to spread awareness of the appropriate way to behave around marine mammals," she said.

Emissions strategy sees support at IMO

Delegates at the International Maritime Organization (IMO) on 13 April mainly supported the initial strategy presented to the Marine Environment Protection Committee (MEPC) by the chairman of the Inter-Sessional Working Group (ISWG), Sveinung Oftedal.

The initial strategy will see a 40–70% improvement in ship efficiency and a 50% reduction in absolute terms of greenhouse gas emissions by 2050. This level of ambition does not suit many of the supporters of the deal, including the Marshall Islands, the world's second-largest flag state, which says it would have walked away from the IMO had the strategy not been adopted.

At the beginning of the debate,

IMO secretary-general Kitack Lim told the MEPC that the "text [of the initial strategy] may not be satisfactory to everyone". However, he said the ISWG had found a "strong middle ground".

The widespread support for what was generally accepted as an imperfect strategy was agreed because the delegations believe that there will be opportunities to adjust the aims of the industry over the next five years; in 2023 the final strategy is expected to be agreed.

The ISWG will meet again, probably in September ahead of MEPC 73, to discuss issues surrounding the strategy and report again to the MEPC.

All but two states, the United

States and a west Asian state, backed the initial strategy, with a view to improving the plan in the years up to 2023 when the final strategy is due to be adopted.

In its statement, the United States pointed out that the references to the Paris Agreement were redundant as the country will withdraw from this pact at the earliest possible time. Further, the United States said it had "serious concerns" about how the document, the initial greenhouse gas (GHG) strategy, was finalised, as states were not allowed to lead and develop their views.

The United States also pointed to the IMO's three-step strategy of monitoring, reporting, and verifying the collection of fuel

consumption data as a first step before agreeing on further measures to the staged approach meant that the application of emissions targets was "premature".

In addition, a western Asian state also withheld its support, claiming, "It is premature to adopt targets before the development of an operational review, which could be harmful to shipping because it could lead to a focus on net emissions. Any ambitions should not place extra pressure on the shipping industry."

Most delegates felt that the initial strategy could have been more ambitious, but that the work and lead-up to the adoption of a formal strategy in 2023 will be served well by the initial strategy.

Notable numbers



USD172

Subsidy offered in Taiwan for ships using low-sulphur fuel

92

Ballast water detentions in the US in 2017

US acts on ballast water

Commercial shipowners are feeling the sting of the US Coast Guard's (USCG's) stepped-up efforts to ensure vessels trading in the United States are complying with US ballast water regulations, according to preliminary data obtained by P&H's sister title, *Fairplay*.

While the number of ballast water examinations conducted by port state control (PSC) officials increased by just 1.9% in 2017 compared with 2016, the number of ballast water examination deficiencies nearly doubled, from 110 in 2016 to 219 last year.

Part of the jump may be attributed to an increase in the number of vessels that have passed either their initial or extended compliance date for meeting US ballast water requirements, leaving them more susceptible to an infraction.

But since US-type approved ballast water management systems became available to shipowners in December 2016 – as of late March there are six from which to choose – coastguard officials in Washington, DC, have been less sympathetic to owners who continue to delay purchasing and installing the equipment, or at least submit a strategy on how they plan to do so.

Port state control, the agency's eyes and ears on the ground in nine districts around the country, has also been taking a harder line on enforcing regulation on ships entering port.

While actual vessel detentions are rare – there were just 92



In 2017 there were 92 ballast water-related detentions in US ports

overall in 2017, out of thousands of port calls made by foreign vessels – the increase in the number of ballast water-related deficiencies could be a sign of more detentions to come.

According to the coastguard, most of the ballast water-related deficiencies recorded last year were to do with record keeping, inadequate ballast water management plans, or illegal discharge of untreated ballast water into US waters.

In 17 cases, the agency imposed a restriction or operational control on the vessel, which ranged from a letter of warning or civil penalty to ordering the vessel to leave port to conduct a ballast water exchange in open water.

Jennifer Williams, who oversees foreign vessel investigations as the coastguard's director of inspections and compliance, said some common threads behind the data show a lack of familiarity and training among vessel crews with installed ballast water management equipment, as well

as an overreliance on manufacturers for routine equipment maintenance. In some cases, she said, vessels were only operating ballast water management systems when entering US waters – a problem for equipment that requires regular use to function reliably.

"Shipowners have a lot of questions, because ballast water systems are somewhat new and they're not used to them yet," Williams said. "They feel like they don't know enough about the manufacturers, how to fix them [the systems], how to maintain them – there's a lot of people in the industry that are very uncomfortable with the situation."

BIMCO CEO Angus Frew, also speaking at CMA, said manufacturers of the equipment should also bear some responsibility. Manufacturers, he said, should "provide systems that are as easy to use as possible and [have] a service network worldwide to support these systems. It's an upfront investment, but we can't run ships

in international trade without them in place".

Getting manufacturers to shoulder responsibility for equipment breakdowns outside the contractual agreement with the vessel owner is not likely. But shipowners trading in the United States can be spared some of the headaches they are experiencing from equipment breakdowns through a liberal enforcement policy by the coastguard, argued maritime regulations compliance expert Jeanne Grasso, a partner at law firm Blank Rome.

Grasso is in favour of a USCG ballast water regime in which the ability of a ballast water manufacturer to respond to service outages is taken into account during the equipment type-approval process.

"What does the vendor's service network look like and how extensive is it? What is their capacity for getting parts delivered in a timely fashion at port locations around the world? If the coastguard is not considering those questions during the type-approval phase, then I think it should be using more discretion when enforcing the regulation."

Williams acknowledged the challenges faced by foreign shipowners trading in the United States. "The US Coast Guard recognises that the BWM systems on the market are not perfect and operators will experience problems as they make an effort to comply with the standards," she said. "But waiting for a perfect solution while the real environmental threat of invasive species continues is not an option."



USD10,000

Available funds for IAPH training scholarship



10 million

Target for containers on blockchain by 2019

US feels pressure on ship automation

A planned two-year regulatory scoping exercise at the International Maritime Organization (IMO) on autonomous ships is months away and already the US Coast Guard (USCG) is receiving heat from unions representing vessel crews on Jones Act and other US-flagged ships.

"Yes they're pushing back against this, but I think they believe that fully automated ships are going to happen right away – but it won't be happening in our lifetimes," said Mayte Medina, head of the merchant mariner credential office at the USCG, after a panel discussion at the Connecticut Maritime Association (CMA).

"The unions are being very cautious, maybe a little paranoid, because they believe vessel crews are going away. But that's not going to happen on US flag ships."

The scoping process at the IMO began as a result of a submission on autonomous shipping by the United States, along with

Denmark, Estonia, Finland, Japan, the Netherlands, Norway, South Korea, and the United Kingdom. This exercise is supposed to start in May and conclude in 2020, according to the USCG.

Seafarers' concerns about the rollout of autonomous ships was evident in the results of a survey conducted by the Nautilus Federation and released in January. Of the close to 1,000 seafarers from 16 countries, including the United States, the United Kingdom, the Netherlands, Norway, and Singapore, who were surveyed, nearly 84% said they saw automation as a threat to their jobs. More than 85% said they considered unmanned, remotely controlled vessels to be a threat to safety at sea.

"With a host of projects testing various forms of autonomous vessel, and with the International Maritime Organization embarked on an ambitious project to assess the legal and regulatory framework governing their operation, it's

high time that the voice of maritime professionals was heard," said Nautilus Federation director Mark Dickinson, in announcing the results.

Medina also noted that while the pressure against automation was coming initially from the International Organization of Masters, Mates and Pilots, which represents deck officers on Jones Act and other US-flagged vessels, she expects to see pressure in the United States from pilot representatives against autonomous foreign vessels too.

"I highly doubt the pilots in the US will allow a foreign ship to come in without anyone on the bridge," she said. "And the technology is not just about the automation of the engines and navigation systems, it's about how it interfaces with the pilots and the port. Those are the things that need to be looked at."

The CMA panel members, who represented three of the major classification societies, received pushback themselves from

International Chamber of Shipping (ICS) chairman Peter Hinchliffe, who questioned the need for the IMO to get involved with autonomous vessels at all.

"I'm not against the use of technology to increase the efficiency of ships and improve safety, but why are we actually doing this?" he asked. "There doesn't seem to be a real call from shipowners for completely unmanned ships. I have a fear that I'm seeing the wheel turning on yet another subject being taken to the IMO that's led solely by technology rather than demand."

Kirsi Tikka, vice-president for global marine at the American Bureau of Shipping, responded that while class was in no hurry to replace vessel crews, "I think technology can be an aid," she said, citing the example of a 20,000 teu container ship.

"Having some additional navigational aids to be able to see around a large vessel with a large number of containers can only be a plus."

CPC adopts low-sulphur subsidy at Taiwan ports

Taiwan's state-owned refining group CPC Corporation has begun offering fuel oil with a sulphur content of 0.5% at Taiwanese ports.

The Taiwanese government, through the Ministry of Transportation and Communications, had announced that such bunkers would be available at least a year before the International Maritime Organization (IMO) implements its global sulphur cap in 2020.

Until the end of this year, a TWD5,000 (USD172) subsidy will be offered to all ships that use low-sulphur fuel oil when calling at Taiwanese ports. Ships must produce a log showing the type of bunkers consumed, bunker delivery notes, and a record of the last 10 ports of call.

However, ships installed with scrubbers, which remove sulphur dioxide and other unwanted chemicals from emissions,

do not qualify for the subsidy.

The availability of low-sulphur fuel oil is one of the challenges in becoming compliant with the IMO's global sulphur cap, which will restrict sulphur content in marine fuels to 0.5%. Refineries with advanced technologies will be able to produce low-sulphur fuel oil at the lowest possible cost, although many will require some upgrades that involve hydrogen injections to reduce the sulphur content.



2,765

Cruise ships calling Japan in 2017

100 km

New port along Scheldt River following Ghent/Zeeland merger



AFP/Getty Images: 5075219

JICA is supporting the upgrade of India's environmental management

Japan funds Alang to improve safety

The Japan International Cooperation Agency (JICA), a government entity that co-ordinates overseas development, has established a 'soft' loan agreement with the Indian government to upgrade environmental management for

ship recycling in the Alang and Sosiya areas in Gujarat, India.

The agreement was signed in September 2017 and implementation begins in the second quarter of this year.

The project loan is worth JPY8.5 billion (USD80.6 million),

and its conditions are favourable to the borrower: a 1.2% annual interest rate for project activities and 0.01% interest rate for consulting services, with repayment over 30 years, including a 10-year 'grace period'.

The implementation period for the project, which is being overseen by the Gujarat Maritime Board, is five years.

JICA's India office said that the project "aims to stimulate more environment-friendly, sound, and safer ship recycling through upgrading ship-recycling-related facilities and introducing preventive measures in accordance with international conventions such as the Hong Kong International Convention for the Safe and Environmentally Sound Recycling of Ships (HKC)".

India has the biggest ship recycling capacity in the world and the Alang and Sosiya regions are key areas for the industry, with approximately 130 operational ship recycling yards along their coasts and more than a 90% of domestic share of ship recycling.

JICA's assistance will be felt by approximately 10,000 employees working at the recycling yards, with major improvements in the methods used. It is understood that 70 yards will be upgraded

under the initiative.

The project will work on onshore and offshore activities, JICA said. The yards will be equipped with impermeable floors, as well as drainage ditches and pits to prevent groundwater pollution. Large crawler cranes will be deployed to directly carry the cut parts of a ship to avoid dropping them and potentially polluting the intertidal zone.

Advanced operational processes will include an offshore barge that will clean tankers before beaching and a mobile decontamination system to completely remove sludge in a ship.

The project covers capacity development training courses for stakeholders at different levels. These will reflect key aspects such as safety, the environment, and prevention of pollution. Recycling waste will be systematically collected and processed in treatment, storage, and disposal facilities.

These new safety measures aim to reduce the chance of fatal accidents and casualties. More broadly, Alang is hoping to increase its global share of the ship recycling market to 55% from its existing 32%, according to the Gujarat Maritime Board.

EU approves IBM/Maersk blockchain joint venture

The European Commission approved in March the IBM and Maersk joint venture that will allow the use of blockchain technology to transmit shipping documents and payments.

Following the announcement of the joint venture (JV) in January, the two companies have been awaiting regulatory approval before

a name for the company will be announced. The company is now awaiting approvals from other regulatory authorities.

According to the competition directorate's information service, "As a result of the transaction, the JV entity will issue – and GTD Holdings [a wholly Maersk-owned

subsidiary] and IBM will acquire – units representing fractions of the limited liability company interest in the JV entity in proportions of 49% for IBM and 51% for GTD Holdings. Post-transaction, the JV will be responsible for the commercialisation of the GTD Solution to end customers."

USD31 million

Budget for Mumbai cruise terminal upgrade



95%

Renewable energy on national grid in Norway

Cruise head to promote WPSP



Sacha Rougier, managing director (MD) of Cruise Gate Hamburg (CGH), has been appointed by IAPH President Santiago Garcia Milà to chair the association's Cruise Committee. On her appointment she said that principles of the recently launched World Ports Sustainability Program (WPSP) were reflected in the cruise industry and this was one area on which Rougier planned to focus.

CGH is a subsidiary of Hamburg Port Authority, and Rougier has been its MD since February 2015. It

operates three cruise terminals in Hamburg – Altona, HafenCity, and Steinwerder – and is the single point of contact for all cruise lines.

Prior to joining CGH, Rougier worked for France's largest port, Marseille, where she held various positions, including head of cruise development for the port.

She replaces Monica Michel-Bonvalet, who left Port of Marseille last year, as chair of the committee. IAPH said she "will bring her profound knowledge and experience of cruise to IAPH".

"IAPH is widely known in the maritime cargo sector, but not yet in the world of cruising. That is why I look very much forward to assuming the chair of the IAPH Technical Committee to activate the Cruise Committee," Rougier commented.

She noted that WPSP, based on the guiding principles of the 17 Sustainable Development Goals drawn up by the United

Nations, reflect the main issues that currently concern the cruising industry.

"With WPSP, global ports aim to enhance and co-ordinate future sustainability efforts around five essential themes: future-proof infrastructure, climate and energy, societal integration of ports, safety and security, and governance and ethics. My intention within the Cruise Committee is to establish a capital benchmark between ports regarding those subject areas.

"I look forward to helping in sharing and building success stories of [world] ports taking up the challenge to align economic, social, and ecological interests and shape the global sustainability process."

“My intention is to establish a capital benchmark between ports regarding the subject areas of WPSP”

Sacha Rougier, managing director of Cruise Gate Hamburg



MORE INFO:
www.iaphworldports.org/members/cruise-committee

Ports helped to reduce emissions

A strategic partnership between the IMO-executed GloMEEP energy-efficiency project and IAPH is helping selected countries to develop port emissions inventories and subsequently draw up a port emissions reduction strategy.

A three-day workshop package, 'Prevention and control of shipping and port air emissions', is being developed as part of the GloMEEP-IAPH strategic partnership. Training will begin in May 2018 and it will be rolled out to the 10 lead pilot countries participating in the GloMEEP project.

The workshops will train port personnel on how to develop an inventory of emissions in a port, and subsequently how to develop a strategy to address emissions from ports, based on two technical guides

that are being developed. The first is entitled 'Guide for assessment of emissions in ports' and the second is 'Guide for the development of port emissions reductions strategies'.

The workshop package is designed for port personnel and

aims to increase their awareness about maritime energy efficiency from a port perspective and show how port management, port infrastructure development, and port logistical systems contribute to overall maritime energy efficiency and air quality.



GloMEEP will roll out the project to 10 pilot countries in 2018

GloMEEP is a GEF-UNDP-IMO project aimed at supporting the uptake and implementation of energy efficiency measures for shipping, thereby reducing greenhouse gas emissions from shipping. The lead pilot countries of the GloMEEP project are: Argentina, China, Georgia, India, Jamaica, Malaysia, Morocco, Panama, the Philippines, and South Africa.

IAPH has been a strategic partner of the GEF-UNDP-IMO GloMEEP project since August 2016. As a strategic partner, IAPH contributes to the development of tools and materials that will support GloMEEP in quantifying air pollutants and greenhouse gas emissions in ports and assists in the identification of measures to cost-effectively reduce port-related emissions.

MORE INFO:
glomeet.imo.org

Florian Janssen/Cruise Gate Hamburg: 5074893

GloMEEP: 5074892

Your chance to train and win an IAPH training scholarship

The IAPH training scholarship is an exciting opportunity for two members of staff from IAPH regular member ports in developing countries to attend advanced short-term port training programmes of a week or so in length at IAPH-affiliated training institutes overseas, so they can gain the latest knowledge in port management and operation and expand their network of contacts.

For each calendar year, USD10,000 is budgeted to fund two scholarships, each of USD5,000, which should be used to cover

tuition and course fees and, if deemed necessary, economy international air travel. The approved applicants are requested to make all necessary arrangements themselves, including registering on the approved course and paying the tuition fees. If international travel is required, the applicant is recommended to seek support from his/her port, including permission to leave and obtaining the necessary visas.

More info:
www.iaphworldports.org/award



Membership notes

The IAPH Secretariat is pleased to announce that the following have joined the association

Associate members

ASEAN Ports Association

Address: c/o Philippines Ports Authority, PPA Corporate Building, Bonifacio Drive, Port Area, Manila 1018, Philippines

Telephone: +60-7-253-4000

Fax: +60-7-251-7684

Email: razifahmad@lpj.gov.my

Website: www.aseanportsassociation.com

Representative: Muhammad Razif Bin Ahmad, chairman

Nature of business activity: Regional ports association

VERIFAVIA

Address: 33 Avenue du Maine, 75015 Paris, France

Telephone: +33-665697489

Email: julien.dufour@verifavia.com

Website: www.verifavia.com

Representative: Julien Dufour, CEO

Nature of business activity: Independent carbon emissions verification for ports

C-MAT, Centre for Maritime & Air Transport Management, University of Antwerp

Address: Prinsstraat 13 2000 Antwerp, Belgium

Telephone: +32-3-265-5151

Email: c-mat@uantwerpen.be

Website: www.uantwerpen.be

Representative: Franziska Kupfer, academic director

Nature of business activity: University education

OMC International

Address: 126 Trenerry Crescent, Abbotsford, Victoria 3067, Australia

Telephone: +61 3 94126500

Fax: +61 3 94159105

Email: admin@omcinternational.com

Website: omcinternational.com

Representative: Peter O'Brien, CEO

Nature of business activity: Maritime engineering company

Strategic Alliance-Teixeira Duarte /Bolipuertos

Address: Av.Venezuela, Torre JWM, Piso 5, Oficina 5-2 Urb. Chacao, Caracas, C.P. 1060, Venezuela

Telephone: +58 412 732-0307

Email: rcc@teixeiraduarte.pt

Website: www.teixeiraduarte.com

Representative: Rui Cardoso, general manager, Specialised Container Terminal, La Guaira

Nature of business activity: Port operator and port administrator

International Center of Excellence in PPP for Ports

Address: High Council for Privatisation and PPP, Grand Serail, Beirut, Lebanon

Telephone: +961-1987500

Fax: +961-1983061

Email: zhayek@hcp.gov.lb

Website: hcp.gov.lb

Representative: Ziad Hayek, secretary-general

Nature of business activity: A UN-affiliated centre specialising in public-private partnership for the port sector

ESI continues to attract ships

The Environmental Ship Index (ESI) continues to attract ships and incentive providers, with 213 joining since 1 January, representing an increase of about 3.5%.

Most ships that joined have an ESI score of 20–30, and represent 108 of the newcomers to the scheme. This category continues to be the largest, with 1,727 of an overall 6,370 allocated to this category.

In addition, the figures compiled by IAPH up to 1 January showed that 50 ships joined with a score of 30–40, 52 ships with a score of 40–50, and a further 10 with a score of 50+.

It is worth noting that 1,727 vessels have joined the scheme but have a score lower than 20, however, that number is slowly reducing indicating that ships in this bracket may be improving their emissions.

One further incentive provider also joined the scheme, bringing the total to fifty five.

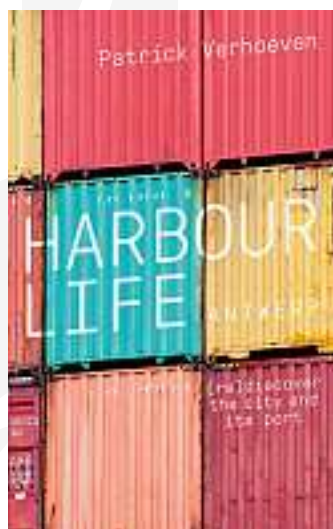
The ESI evaluates the amount of nitrogen oxide (NO_x) and sulphur oxides (SO_x) that a vessel emits, and offers a reporting scheme for greenhouse gas emissions. Incentive providers such as ports, offer shipping companies incentives based on their ESI scores. These scores can be calculated using a process which can be found on the ESI website. For more information go to www.environmentalshipindex.org/Public/Home.

Antwerp in your hand

Harbour Life, a book that takes the reader on an alternative 'walk' through Port of Antwerp, has been translated into English and was released at the World Ports Sustainability Program launch in Antwerp in March. It was written by IAPH managing director for policy and strategy Patrick Verhoeven.

The book delves into life at the port – from the people who work there, to the different terminals and cargoes handled – and brings it to life through accessible stories, bright photographs, and infographics.

The Dutch version of *Harbour Life* was first published at the beginning of the year. Verhoeven fell in love with the port at the age of 16 when he was a student, he writes, and in his book shares that enthusiasm with the reader. It offers readers the chance to explore the port on four different tours, for those who want to embrace the fast-paced drive of the container terminals or step back in time to



Harbour Life by Patrick Verhoeven

the picturesque Polder villages.

It contains useful maps for those wishing to explore the port, information on 'how to become a docker', a brief introduction on art that was inspired by the port, along with an abridged version of its long history and much more.

Go to www.harbour-life.com to purchase a copy.

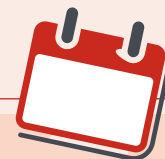
2018

2019

2020

Dates for your diary

A selection of forthcoming maritime courses and conferences



May

8–11: IAPH Mid-Term Conference
Baku, Azerbaijan
www.iaphbaku2018.com/

16–25: IMO-Maritime Safety Committee (MSC) 99th Session
London, UK
www.imo.org

21–23: 7th Black Sea Ports and Shipping 2018
(*20% discount for IAPH members)
Varna, Bulgaria
www.transportevents.com

31 May 15th ESPO Annual Conference

–1 June: Rotterdam, Netherlands
www.espo.be

June

4–8: IMO-Facilitation Committee (FAL) 42nd Session
London, UK
www.imo.org

4–15: APEC seminar: Container Terminal Management
Antwerp, Belgium
apecporttraining.com

11: IMO Special Event on Ports
London, UK
www.imo.org

11–14: 16th World Conference Cities and Ports
Quebec, Canada
citiesandports2018.aivp.org

11–29: IHE Delft Seminar: Environmental Assessment for Water-related Policies and Developments
Delft, Netherlands
www.un-ihe.org

18–20: Canada Trade Conference
Toronto, Canada
events.joc.com

18–22: Strategic Port Logistics and Global Supply Chain Management
London, UK
www.ttpminternational.co.uk

25: Day of the Seafarer 2018
London, UK
www.imo.org



Port of Baku 5066627

Future bound Baku stages connectivity debate

Baku wants to be green, smart, and healthy, says **Taleh Ziyadov**, director-general of Port of Baku, and it aims to be the 'greenest' port on the Caspian Sea

“Baku’s environmental efforts will trigger a win-win situation for the region”

Welcome to the IAPH Conference 2018 in Baku, Azerbaijan, the booming capital city in the Caspian basin.

Baku has been known as a port city for centuries. In the 1st century, the Romans organised two Caucasian campaigns and reached Baku. Marco Polo and Alexander Dumas both lived in Baku for a period of time, leaving behind mesmerising accounts of the rich cultural heritage of Azerbaijanis. In the mid-19th century, the Rothschilds and Nobel brothers exploited the rich oil fields of Baku and turned the city to the world’s biggest oil supplier of the time.

In September 1994, an independent Azerbaijan, under the late President Heydar Aliyev, signed the Contract of the Century, once again inviting oil industry tycoons to believe and invest in the Azerbaijan Republic. The contract has sealed the future of our economy, making it one of the most rapidly developing economies of the world.

Now, a strategic shift has been made to drive Azerbaijan’s economy, based on value-added services. One of the main drivers of this policy will be the Alat Free Trade Zone (FTZ), part of greater Baku. The Alat township is already host to the biggest port of the Caspian, the Port of Baku. In a few years, it will be able to handle 25 million tonnes of cargo and 1 million teu every year. With the development of

Alat FTZ, various clusters will be developed, from traditional petrochemicals and agriculture to advanced high-tech parks and biotechnology, among many others.

The main theme of IAPH 2018 is ‘Ports of the Future: Creating Hubs, Accelerating Connectivity’. Here we will discuss mainstream developments in the port industry, including multimodal transport and containerisation of land-based and maritime trade, the synergy between ports and FTZs, and the implications of major global transport initiatives such as Belt and Road, the Baku-Akhalkalaki-Kars railroad, and the north-south transport corridor on global economic growth.

Sustainability will also be prominent on the agenda, in keeping with the recent launch of the World Ports Sustainability Program (WPSP) in Antwerp. The city of Baku is a fitting place to further the conversation as the port is embarking on a programme to make the city green, smart, and healthy. Projects will include energy, waste management, water, and air quality, as well as sustainable business practices.

As I said in Antwerp, the port’s efforts will trigger a win-win situation for the region.

We hope you enjoy the conference and the enigmatic city of Baku. **I&H**

i MORE INFO: www.iaphbaku2018.com



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