



# **Global Maritime Weekly Digest**

Publishing Director: Prof Minghua Zhao

Editor: Richard Scott

**27 March 2018**

**issue 114**

*The **Global Maritime Weekly Digest**, based at **Southampton SOLENT University**, provides a regular flow of maritime news and analysis, of significance in a global context. Topics covered include shipping fleets and management, seaborne trade, ports, shipbuilding, ship recycling, maritime policy and regulations, and seafarers' labour.*

## **Contents**

- (1) Prominent features of liquefied natural gas (LNG) trade progress**
- (2) Downside potential of a global trade war**
- (3) Significance of energy efficiency in shipping**
- (4) Ship recycling and the European Union's regulations**
- (5) Towards global agreement reducing maritime greenhouse gas emissions**
- (6) Global trade growth faster than world economic growth**
- (7) China developing autonomous ships**
- (8) Meeting the sulphur emission rules: shipowners in a quandary**

## **Editorial comments**

- Introduction of **additional tariffs on US imports** is potentially an unfavourable influence on the global shipping industry. Although the effect may not be especially severe initially a cumulatively larger impact could ensue, if the dispute escalates and a number of other countries respond with counter-measures (item 2).
- Several options are available for **compliance with the new sulphur emissions regulations** due to take effect two years ahead, but shipowners face difficult decisions on what action will prove most cost-effective (item 8). Buying cleaner-burning conventional fuel, or fitting equipment to clean the dirty exhaust gases, both involve complex calculations with uncertain outcomes.
- Progress towards agreement on **reducing maritime greenhouse gas emissions** is evolving. At an IMO meeting scheduled for next month an initial strategy is expected to be agreed, including possible measures to tackle emissions in the near term and targets for the longer term (item 5).
- Clean energy is a topic relevant to global seaborne trade analysis as well as ship propulsion. Rapid growth in **LNG (liquefied natural gas) trade** looks set to continue in the years ahead, aided by vessels - floating storage and regasification units, or FSRU's – which facilitate imports in countries where land-based regasification terminals are absent or inadequate (item 1).
- The European Union introduced its own **rules on ship recycling** while awaiting implementation of the Hong Kong Convention agreed earlier at IMO level. This month, in a momentous court action, a shipping company which had been prosecuted was found guilty (item 4).

(1) Clarksons Research, 16 March 2018

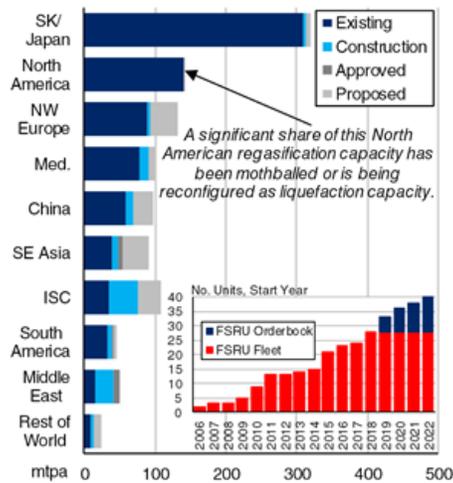
## Fluid Dynamics: LNG And The Shifting Global Energy Mix

Fluid dynamics is the study of non-solid matter: that which is mutable, volatile and mercurial! The analogies with the complex world of gas and seaborne LNG trade are obvious. But just as fluid dynamics is a framework for analysing the maelstrom of physical reality, so too can the gas trade be viewed through various helpful frameworks, for example that of the changing global energy mix.

### Graph of the Week

#### In Full Flow: The Global LNG Regas Sector And FSRUs

The graph shows the distribution of global nameplate LNG regasification capacity by area, split by status. Regasification infrastructure includes both onshore and offshore terminals. The inset graph illustrates the development over time of the floating storage and regasification unit (FSRU) fleet, which consists of a small number of dedicated FSRUs as well as LNG carriers with regasification capabilities. Further information and analysis relating to the LNG sector can be found in the *LNG Trade & Transport* report, available on the *Shipping Intelligence Network*.



Source : Clarksons Research

### A Gaseous State (Of Affairs)

Natural gas is utilised in developed and developing countries in a range of contexts such as residential heating, industry (for example glass, cement, fertilisers) and, increasingly, in power generation. Gas is seen as a less polluting 'bridging fuel' to a lower carbon future, hence in part the consensus view that – even as total world energy demand continues to grow – the share accounted for by gas will continue to rise in coming years and decades, building on recent historical trends.

Indeed, global gas demand, which has grown at a fairly firm CAGR of 2.4% since the start of the millennium, is projected to reach 370bn cfd in 2018, accounting for around 25% of total primary energy consumption globally, up from 23% in 2000. At the same time, while pipelines remain important, LNG has become increasingly favoured as a way to move 'stranded' gas to markets. Seaborne LNG trade grew at a robust CAGR of 6.4% in 2000-17, and is projected to breeze past the 300 mtpa mark in 2018, with global LNG imports projected to equate to 12% of gas consumption, up from 6% in 2000. Against this backdrop, the LNG carrier fleet has grown from 90 units at start 2000 to 516 (with 114 on order) at start March 2018.

### A Fluid Situation

Although LNG can be a relatively supply-driven sector (see SIW 1,265 and 1,285), demand and regasification trends are still important. As the graph suggests, global nameplate regas capacity exceeds 800 mtpa (though with the ongoing shale gas revolution, many US terminals are to be reconfigured for exports). South Korea and Japan account for c.40% of capacity, reflecting their long-standing reliance on LNG (especially in Japan after Fukushima). NW Europe and the Mediterranean together account for 20%, with up to 63 mtpa of capacity planned too. However, the main sources of regas growth look to be developing economies east of Suez.

### A Solid Outlook?

Roughly 115 mtpa of regas infrastructure is under construction, of which the ISC, SE Asia, China and the Middle East account for 75%. The emergence of FSRUs (see inset) seems to be a key enabler of LNG import growth, providing a relatively cheaper and more flexible (via seasonal redeployment) regas

solution than standard onshore terminals. Some 22% of existing LNG import capacity in these areas uses FSRUs, versus 40% of under construction and 60% of potential capacity. Various African and Latin American countries are also looking at FSRUs to import LNG for the first time, potentially further aiding shifts in the global energy mix.

So changing energy dynamics driven by economic and environmental factors look encouraging for the LNG sector. But seaborne LNG trade is also clearly a significant factor enabling the shift in the energy mix. Once again, shipping and energy trends go hand in hand.

Source: Clarksons

+++++

(2) BIMCO, 22 March 2018

## **A Trade War Is Harmful To Us All And Clearly Bad For Global Shipping**

On 1 March 2018, the American President pushed through a metals tariff plan, that puts 25% tariff on imports of steel and a 10% tariff on imports of aluminium. They are set to enter into force on 23 March 2018.

The Trump administration seems positive towards protectionism and that picture unfortunately became clear when the pro-trade US President Donald Trump's chief economic adviser Gary Cohn resigned on 6 March because of the tariffs imposed on steel and aluminium. The tariffs on steel and aluminium will have a limited impact on most international bulk trades. Nevertheless, they could trigger something bigger that would negatively impact global shipping in a much wider way including container shipping trades.

Since 2009, implementation of trade-restrictive measures amongst global trading partners has become more widespread according to World Trade Organisation (WTO). Fortunately, trade-facilitating measures have kept up well to limit some of the damage done. Just yesterday, the African Continental Free Trade Area (ACFTA) proved to be the latest of its kind. Above all, transparency and predictability in trade policy remain vital for all actors in the global economy as the WTO puts it.

BIMCO's Chief Shipping Analyst Peter Sand comments: "Free trade provides prosperity and peace. It's a fundamental principle to cherish and safeguard. All trade-restrictive measures are in principle bad for shipping.

Open economies are all better off from trading, as they make use of their resources in the most optimal way. The result of a trade war is more expensive goods of lower quality and little variety. This goes for all products and commodities."

Steel and aluminium tariffs may be 'dish of the day' and the impact on shipping is still unknown, but soon major trade action against China is also likely to come from the US. Despite the fact that there is good reason – violation of intellectual property rights – the result is the same. It is damaging for the involved countries.

The US is running large trade deficits with the EU as well as China. In addition to significant trade deficits in goods with Mexico, Japan and Canada. But starting a trade war is the wrong way to handle the situation.

### **Now what?**

In a trade war, combatants retaliate against one another. While doing so, they often set aside normal business procedures.

As steel and aluminium import barriers are set by the US, trading partners like the EU, Japan and China, may set their own import barriers against e.g. agricultural products (soybean, corn, wheat) in general or more politically targeted products like the European Commission going for Kentucky bourbon, Harley-Davidson motorcycles and Levi's jeans – all hitting Trump's constituency.

The international atmosphere is full of threats of retaliation and it appears likely that major trading partners with the US like the EU and China will hit back to draw a line in the sand for the US Administration and President Trump.

"Overall we are seeing more trade-restrictive measures introduced. Some more high profile than others. This is a worrying trend that limits demand for shipping globally.

Please note: this publication is intended for academic use only, not for commercial purposes

Even worse for shipping could be short-sighted political positions that may have lasting consequences for everyone involved in global industries like shipping if a largescale trade war emerges”, Peter Sand concludes.

Source: Peter Sand, Chief Shipping Analyst; BIMCO

+++++

(3) IMO, 21 March 2018

## Energy efficiency in shipping – why it matters!

All industries are looking to becoming cleaner, greener and more energy efficient – and shipping is no exception. Improved energy efficiency means less fuel is used, and that means less harmful emissions. The International Maritime Organization (IMO) – the United Nations specialized agency with responsibility for safe, secure and environment-friendly shipping – is leading a European Union funded project designed to help shipping move into a new era of low-carbon operation.

IMO has launched a video outlining how the Global MTCC Network (GMN) initiative is uniting technology centres – Maritime Technology Cooperation Centres (MTCCs) – in targeted regions into a global network. Together, they are promoting technologies and operations to improve energy efficiency in the maritime sector.



“This project is one of the building blocks that will help shipping becoming greener,” says Magda Kopczynska, Director, DG MOVE, European Commission.

Five MTCCs have been established in Africa, Asia, the Caribbean, Latin America and the Pacific. Acting as centres of excellence for their regions, the MTCCs will work with partners to develop technical cooperation, capacity building and technology transfer – sharing the results and their experiences throughout the network to ensure a common approach to a global issue.

Innovative programmes and projects are being developed and carried out by the MTCCs – all designed to promote energy-efficient technologies and operations.

Developing countries and, in particular, Least Developed Countries and Small Island Developing States, will be the main beneficiaries of this ambitious initiative.

For regions particularly vulnerable to the impact of climate change, it’s a chance to get involved in promoting technologies and operations to improve energy efficiency in the maritime sector.

“When we saw this project, we saw it as an opportunity to build partnership throughout the region to mitigate, at least in the maritime sector, the impacts of climate change,” says Vivian Rambarath-Parasram, Head of MTCC-Caribbean.

Estimates say ships’ energy consumption and CO2 emissions could be reduced by up to 75% by applying operational measures and implementing existing technologies. The GMN is on the cutting edge of climate-change mitigation – and, at the same time, opening up a world of opportunities for those who participate in it.

“We’re looking forward to building capacity for not just Kenya but for the African region in general – to reduce greenhouse gas emissions, to improve air quality in our port cities,” says Nancy W. Karigithu, Principal Secretary Maritime and Shipping Affairs, Kenya.

Please note: this publication is intended for academic use only, not for commercial purposes

By promoting technologies and operations to improve energy efficiency in the maritime sector and helping navigate shipping into a low-carbon future, the GMN project is steering a course for a cleaner, greener future.

The GMN project is funded by the European Union and implemented by the International Maritime Organization (IMO).

MTCCs:

- MTCC-Africa, hosted by Jomo Kenyatta University of Agriculture and Technology, Mombasa, Kenya
- MTCC-Asia, hosted by Shanghai Maritime University, China
- MTCC-Caribbean, hosted by University of Trinidad and Tobago, Trinidad and Tobago
- MTCC-Latin America, hosted by International Maritime University of Panama, Panama

MTCC-Pacific, hosted by Pacific Community, Suva, Fiji

Source: IMO

+++++

(4) Hellenic Shipping News, 19 March 2018/ GMS

## A European Road Map Of Ship Recycling

In 2011 the European Union through the European Commission concluded that the regulation of ship recycling activities through the European Regulation on Shipments of Waste (EC) No 1013/2006 was not effective as 91% of the ships that should be controlled by the Regulation during their study period had evaded its provisions (presumably the remaining 9% being mostly small ships and also government owned ships). Europe therefore decided to develop a new regulation specific to ship recycling, which, as explained below, was adopted at the end of 2013 and which will be fully effective by the end of 2018. In view of the above, the recent announcement that the Dutch Public Prosecution Service was bringing criminal charges against the Dutch shipping company Seatrade for violations in 2012 of the Regulation on Shipment of Wastes was unexpected to say the least.

The announcement on 15th March 2018 that the Rotterdam District Court found Seatrade guilty, will be of great concern to the owners of ships (of any flag) that visit European ports near the end of their life. As the regulation of ship recycling is currently going through a transition period in the European Union, the following notes should act as a road map on the applicable requirements now, and after the end of 2018.

On the 30th December 2013 the European Union brought into force the "European Regulation on Ship Recycling (EU) No 1257/2013". The provisions of the Regulation did not take effect immediately, but instead the Regulation specifies a schedule of application, whereby the first version of the European List of approved yards would be published by the European Commission not later than December 31, 2016. Thereafter, EU flagged ships will have to: have an Inventory of Hazardous Materials; be surveyed; be certificated; and be recycled in accordance with the new Regulation, from the earlier of the following two dates (termed as "the date of application"):

(a) six months after the European List of approved yards reaches a 2 combined capacity of 2.5 million LDT; or

(b) the end of December 2018. From the date of application European flagged ships will be excluded from the scope of the "European Regulation on Shipments of Waste (EC) No 1013/2006", whereas non-European flagged ships departing from European Union ports and destined for recycling will continue to be subject to the Waste Shipment Regulation, which forbids their export to developing countries (defined as non-OECD countries).

Furthermore, all ships visiting European Union ports, regardless of their flag, will be required from December 2020, to be provided with inventories of hazardous materials (IHMs). The European Commission, as the authority that implements (and interprets) European legislation, satisfied its obligation under the new Regulation to publish its List of approved yards by the end of 2016, although the first List included only yards located in European Union countries (18 yards in 10 EU countries, with maximum annual recycling capacity of 303,065 LDT). These yards however are unlikely destinations for ocean going commercial ships. At that time, the European Commission had delayed issuing the formal invitation for non-EU yards to apply for inclusion in the List of approved yards.

Applications were received around the middle of 2016 from two yards in the U.S., four yards in China, seven yards in Turkey and nine yards in India, of a combined maximum annual capacity of around 2.5 million LDT. Due to further delays in the approval process, by the beginning of 2018 none of the non-EU applicant yards had been inspected or approved by the Commission. In view of the above it is a fair guess that the date of application of the Regulation will be the end of December 2018, and not earlier, as it is improbable that the European Commission will approve yards of 2.5 million LDT capacity by the middle of 2018.

Requirements before the date of application:

(1) A ship of any flag departing on a voyage to a recycling yard from a port of a EU Member State is subject to the European Waste Shipments Regulation, which forbids its export to non-OECD countries. As Turkey is the only OECD country amongst the major recycling countries this means that, practically, a ship departing for recycling from a European Union port will have to be recycled in Turkey. Furthermore, the Waste Shipments Regulation prescribes the “prior informed consent” procedure that must be followed, and which involves paperwork between: “the exporter” (a representative of the owner of the ship); the relevant departments of the Ministries of Environment of the exporting and importing States; “the importer” (recycler); plus the authorities of any transit States (for example, of a third country whose port(s) the ship visits on its way to Turkey).

(2) A ship of any flag departing on a voyage to a recycling yard from a port that is not in the EU, or where the decision to send the ship for recycling is taken when the ship is in international waters, is not subject to the European Waste Shipments Regulation.

Requirements after the date of application:

(1) A ship flying an EU flag will be subject to the European Ship Recycling Regulation, which requires that it will be recycled only in a yard that appears in the European List of approved yards, as published by the European Commission. The port of departure of the last voyage of a EU-flag ship, or its location at the time the decision was made to recycle it, will have no relevance.

(2) A non-EU flag ship departing on a voyage to a recycling yard from a port of a EU Member State will continue to be subject to the European Waste Shipments Regulation, which forbids its export to non-OECD countries (see case (1) under “Requirements before the date of application”).

(3) A non-EU flag ship departing on a voyage to a recycling yard from a port that is not in the EU, or where the decision to send the ship for recycling is taken when the ship is in international waters, is not going to be subject to European legislation.

Source: GMS, By Dr. Nikos Mikelis

+++++

(5) Hellenic Shipping News, 16 March 2018/ International Centre for Trade & Sustainable Development

## **IMO Gears Up to Set Climate-Related Targets for Shipping Sector**

Ahead of the 72nd session of the International Maritime Organization (IMO)'s Marine Environment Protection Committee (MEPC 72), set to take place in London from 9-13 April, delegates are seeking to build consensus in negotiations for a draft text towards a global agreement to reduce maritime greenhouse gas (GHG) emissions.

The Committee is expected to agree on an initial strategy in April, including a list of possible measures to tackle shipping-related emissions in the near term and targets for longer-term sector-wide decarbonisation, with a final plan due to be elaborated by 2023. Delegates will be tasked with deciding on a timeline for implementation and settling on a baseline year to chart changes in emission levels over time.

The international shipping sector is responsible for about 2.5 percent of global greenhouse gas emissions and rising. Carbon emissions from shipping are projected to be two to five times higher in 2050 than they were in 1990, according to EU estimates. Shipping emissions, like international aviation, are not covered under the UN's Paris Agreement on Climate Change.

Previously, during its 70th MEPC session in October 2016, IMO members agreed on a roadmap towards reducing GHG emissions from maritime transport, tasking a dedicated working group with defining a

strategy over a string of intersessional meetings. The working group is scheduled to convene for its third session from 3-6 April, the week preceding MEPC 72, in order to finalise a draft text mapping out an initial IMO GHG strategy.

### **Country positions**

As countries seek to arrive at a common strategy on GHG emissions reductions, bridging differing levels of ambition across the UN shipping agency's 173 country membership remains a priority.

The Marshall Islands, the second largest shipping registry globally, have been joined by a group of other Pacific Island states as well as New Zealand in pushing for a fully decarbonised shipping sector as soon as 2050.

"It is clear to everyone that before specific measures to reduce emissions are adopted, any disproportionate negative impacts will have to be identified and addressed," said David Paul, Minister of Environment for the Marshall Islands, according to comments reported by Climate Home. "So there is simply no excuse for countries to stand in the way of an ambitious outcome from the IMO in April. Those of us that are truly committed to climate won't accept anything less."

On the other hand, countries pushing for a less ambitious plan have cited concerns about insufficient data, as well as fears about transport cost increases negatively impacting their companies and dampening competitiveness.

A joint submission from Brazil, India, Argentina, and Saudi Arabia proposes a looser timeline for the vision to cut shipping-driven GHG emissions, replacing an earlier target to reach a zero carbon shipping sector by 2075 with a less specific commitment for phasing out emissions "as soon as possible, but no later than in the second half of this century."

EU foreign ministers encouraged the IMO to pursue "swift and appropriate additional actions" for emissions reduction, according to a statement released by the Council of the EU on 26 February. Doing so, they said, would be needed "in order for international shipping to contribute its fair share to the fight against climate change," as an industry key to global mitigation efforts. They also called for outreach activities to build political momentum in the lead-up to MEPC 72.

An IMO plan to cut emissions "should be underpinned by an adequate emission reduction objective, consistent with the temperature goals of the Paris Agreement, including a list of candidate short, mid, and long-term measures equally applicable to all ships," according to the statement.

The EU has announced its intention to integrate shipping into its emissions trading scheme by 2023 if significant advances are not made at the IMO, specifically through the creation of a fund to support maritime emissions reduction measures. Ship owners would either need to contribute to the fund or buy credits under the EU emissions trading scheme. (See Bridges Weekly, 16 February 2017)

### **Enhancing data collection**

In related news, amendments to the International Convention for the Prevention of Pollution from Ships (MARPOL) entered into force on 1 March, enacting a mandatory data collection system aimed at facilitating IMO monitoring of the energy efficiency of ships. The new regulations require ships to collect data on fuel consumption, distance traversed, and number of "services hours" at sea, as well as on design cargo capacity, beginning from 1 January 2019. (See BioRes, 29 April 2016)

The requirements apply to vessels of 5,000 gross tonnage and above, covering 85 percent of carbon emissions from international shipping.

The reporting system aims to ensure improved transparency, which would help inform MEPC policy decisions on measures to address shipping-related GHG emissions and boost energy efficiency. The data will be collated for annual reporting to the flag state and transferred to an IMO Ship Fuel Oil Consumption Database. The IMO will use this as a basis for summarising results to the MEPC.

According to an IMO press briefing, "the data collected under the mandatory reporting system will help inform the MEPC when it comes to adopting a revised strategy in 2023."

The new rules build on earlier commitments taken in the MEPC to reduce the carbon footprint of the shipping sector. In 2011, the IMO adopted a scheme of mandatory requirements intended to improve the energy efficiency of shipping vessels, the first binding global effort to reduce emissions from an international industry sector. (See Bridges Weekly, 20 July 2011)

By 2025 new ships built will be a projected 30 percent more energy efficient than those built in 2014, according to IMO estimates. The MEPC 72 agenda features an item scoping out further technical and operational measures for enhancing the energy efficiency of international shipping.

In the fifth session of the IMO Sub-Committee on Pollution Prevention and Response (PPR), held in February, members also agreed to a reporting protocol for voluntary measurements to gather black

carbon data as well as on methods for data collection for use both by countries and international organisations. The reporting would feed into the UN body's work assessing the impact of shipping-related emissions of black carbon on the Arctic, a climate pollutant produced by incomplete combustion of carbon-based fuels.

### **Seventy Years of IMO**

Last week, a ceremony was held at IMO Headquarters in London to celebrate the 70th anniversary of the adoption of the IMO Convention, attended by government representatives, international organisations, non-governmental organisations, and IMO Secretariat officials.

"We are celebrating 70 years of achievement, in which the truly vital industry of shipping has become safer, cleaner and greener, thanks to the work of IMO. We are also looking ahead to the exciting new challenges on the horizon," said IMO Secretary-General Kitack Lim, according to an IMO press briefing. ICTSD reporting; "Brazil fights emissions cap for shipping, citing cost concerns," CLIMATE HOME, 8 March 2018; "Argentina, Brazil, India, and Saudi Arabia row back on shipping's climate targets," SPLASH 247 NEWS, 12 March 2018; "Climate change: Is shipping finally on board?" OECD OBSERVER, December 2017; "MARPOL amendments enter into force," TANKER OPERATOR, 9 March 2018. Source: ICTSD

+++++

(6) Hellenic Shipping News, 19 March 2018/ Financial Tribune

## **Global Trade Surpasses World Economic Growth**

The volume of global trade grew faster than the world economy in 2017 for the first time in six years, as rising demand for semiconductors added fuel to the industry's far-reaching supply chains, thereby ending a period in which global trade lagged economic growth.

The CPB Netherlands Bureau for Economic Policy Analysis found that total trade volume climbed 4.5% last year, three percentage points higher than in 2016 for the largest increase since 2011. The bureau said 2017 "turned out to be a remarkably good year for world trade" when it announced the figures in late February, Nikkei reported.

The global economy, on the other hand, expanded by 3%. Trade volume in Asia jumped 8.6%, accounting for much of the global gains. Several developed economies also saw faster growth rates in 2017 than the year before, for example, Japan rebounded to 3.1% from negative territory.

Exports are rising thanks mostly to a global economic recovery, growth in China and higher demand for semiconductors, according to a report by Mitsubishi UFJ Morgan Stanley Securities.

"Trade in developed economies largely depends on economic conditions, but semiconductors bolstered trade volume in emerging economies in 2017," said Hiroshi Miyazaki, a senior economist at the brokerage.

The semiconductor industry relies on a complex supply chain spanning the planet. Many "fables" American chipmakers like Qualcomm and Apple design their products at home, then outsource production to China. Much of the chip making and testing equipment comes from Japan, while the finished products are placed into smartphones and other electronic devices in South Korea and Taiwan. Japan's exports to China as well as to Asia in general topped records in value terms during 2017. About 40% of the increases since the end of 2012 have come from the information technology sector, and over 80% of that from chip making equipment, Japan's Cabinet Office says.

Trade continues to grow in 2018. The number of shipping containers processed monthly worldwide rose 1.9% on the month in January, the steepest increase in 14 months, according to data compiled by Germany's DIW Berlin and other organizations. The figure often serves as an indicator for global trade trends.

The International Monetary Fund in January also reported greater economic growth and trade volume for 2017 than it projected previously. The IMF predicted that trade volume will grow faster than the global economy through 2019.

### **Rise of Smartphones**

But the semiconductor industry faces greater uncertainties, with declining sales of Chinese smartphones and a cut in iPhone X production. The prices of NAND flash memory used in smartphones are falling as demand slows." Chip sales began increasing around 2014 on demand tied to the 'internet of things' and

in-car devices,” said Takayuki Miyajima, a senior economist at Mizuho Research Institute. “Demand grew even further as the economy strengthened starting in the latter half of 2016.”

Yet that economic growth could stop underpinning demand soon, Miyajima warned. “Smartphones have become widespread in cities in emerging economies,” he said.

Other analysts are more optimistic. “Even if smartphone-related demand peaks out, we can expect an explosive demand for data processing in areas like artificial intelligence, the internet of things and self-driving cars,” Sony Financial Holdings economist Hiroshi Watanabe said.

Global trade lagged the world economy following the 2008 financial crisis partly because China began to make more products at home and reduce imports, the Bank of Japan said. Beijing pays even more attention to its key industries now under the country’s “Made in China 2025” initiative, which could end up squeezing global trade.

“China considers its dependence on semiconductor imports in particular to be a national security issue, and the government is providing assistance to boost domestic production,” said an analyst at Meiji Yasuda Life Insurance.

#### **Trade War**

But protectionist policies by the US, like the steel (25%) and aluminum (10%) tariffs planned by President Donald Trump, cast a shadow on global trade as well.

Trump’s decision to impose tariffs on imported steel and aluminum has prompted a stampede by foreign countries and companies and their American partners pressing for exemptions and exclusions that could be worth billions of dollars in trade.

Yasutoshi Nagai, chief economist at Daiwa Securities, said: “Even though the US tariffs on their own may have a limited impact, global economic growth will slow should US trigger a trade war with China or the European Union.”

Source: Financial Tribune

+++++

(7) Hellenic Shipping News, 19 March 2018/ Forbes

## **China Is Developing Ships To Cover The Globe Without Captains**

China ranks as the world’s third largest marine shipping country with a chance to become the world’s most dominant one by 2030. Even as commodity shipments have slipped with the slowdown in Chinese economic growth, container traffic from China to Europe and the U.S. west coast were picking up in 2016, market research firm IHS Maritime & Trade says.

But someday you might not see any captains. Instead, remote-controlled ghost ships would send containers around the world and even work for the Chinese navy , according to news reports and the views of analysts.

That’s because China is rigorously grooming an autonomous fleet, something like giant drones of the sea. This year it started building a huge “test field” for autonomous ships off the South China Sea coast of Guangdong province, according to this World Maritime News report. The 771.6-square-kilometer Wanshan Marine Test Field, hailed as a first of its kind in Asia, was set up to become the world’s largest field anywhere over the next three to five years, the report says.

The field will allow testing of technology that lets a captain-less ship steer and avoid obstacles, Chinese news website China.org.cn said in February. Advances from the test site will also set standards for the industry nationwide, state-run China Daily online said in February.

#### **Commercial use**

Autonomous ships can save money otherwise spent to hire captains and support people, a report by the Technical University of Denmark says. In any country, it’s industry that usually pushes for this technology, says Robert Murrett, a public administration and international affairs professor at Syracuse University in the United States.

In China, a logistics firm under the Hainan province-based conglomerate HNA Group has set up an unmanned cargo ship “development alliance” to advance autonomous shipping, World Maritime News

says. China's state-owned marine freight line Cosco Shipping in November received its first ship equipped with technology for remote or autonomous monitoring, according to a report by Lloyd's Register. A team from China showed the world's fastest unmanned ship, the Tianxing-1, in December at the China Marine Economy Expo near the Chinese test site, China Daily says. The 12.2-meter-long vessel can move up to 93 kph and displace 7.5 metric tons.

#### **Military dimension**

Autonomous ship technology can quickly move from one use to another, including into a country's navy, Murrett says. The U.S. Navy in 2016 christened its autonomous ship the Sea Hunter as part of an anti-submarine program. China isn't saying it would pass its autonomous technology from the marine test site to the People's Liberation Army's naval unit, but maritime and aerospace discoveries in the country often cross the civilian-military line.

The test field sits in the vast South China Sea, site of a maritime sovereignty dispute involving Beijing and four Southeast Asian governments. China had irked other claimants by landfilling disputed islets for military use before tempering that expansion last year. Now other countries may worry about China's technological leads over the waterway prized for fish and fossil fuels.

Zhuhai-based ship developer Yunzhou-Tech is working on some of the autonomous ships, says Yun Sun, East Asia Program senior associate at the Stimson Center think tank in the United States. In 2016 it started working with a Chinese government technology center on a joint lab set up to perfect ships for the South China Sea ships, Sun notes.

"It is suspected that China will use these vessels to patrol the maritime areas under and beyond its control," Sun says.

#### **Europe in the lead**

China is just catching up for now, however. The world's first autonomous ship will set sail in Norway this year to make deliveries between towns along the Scandinavian country's rugged coasts, per this news report.

European developers are working on technology that would make captain-less ships common by 2030, per this industry news report. Maritime engineering firm MacGregor and engine maker Rolls-Royce signed a memorandum of understanding last year to explore ways that autonomous technology could help ship navigation and cargo systems on container ships, MacGregor's Finland-based parent company Cargotec Corp. said in a statement.

All "high-tech" countries are trying to use autonomous shipping, Murrett says. "I wouldn't want to single out China, because there are other countries," he said. "They have a lot of competition."

Source: Forbes

+++++

(8) Hellenic Shipping News, 21 March 2018/ Wall Street Journal

## **Ship Owners' Multibillion-Dollar Quandary: Buy Cleaner Fuel or a Fuel Cleaner?**

The owners of 60,000 cargo ships are bracing for tighter emissions rules that are forcing them to make a multibillion-dollar choice: Start buying cleaner-burning fuel or invest in a device that treats the ship's exhaust before letting it out.

It isn't an easy call. Retrofitting a vessel with a sulfur-trapping exhaust system called a "scrubber" costs as much as \$10 million a ship, while cleaner fuels are about 55% more expensive than the ones shipping operators use now. Whether it makes sense to install scrubbers and absorb a bigger financial hit upfront depends on whether scrubbers will be adequate to meet even stricter pollution caps expected in the future and the availability and cost of cleaner fuels. Both factors are difficult to gauge.

Scrubbers involve "a complicated and expensive installation of \$5 to \$10 million per ship and the benefit to the environment is still not clear," said Soren Toft, chief operating officer at Maersk Line, the world's biggest container operator. "It's like installing small refineries in approximately 60,000 vessels and it's not a very sensible way of doing things."

The deliberations stem from new caps on sulfur emissions, by global regulator International Maritime Organization, that will go into effect in January 2020.

Please note: this publication is intended for academic use only, not for commercial purposes

Ships contribute about 13% of total sulfur-dioxide emissions, according to the IMO, by burning heavy fuel with a 3.5% sulfur content. That is more than 2,000 times the level allowed for cars on U.S. highways. The pollution from burning high-sulfur fuel causes respiratory ailments and can aggravate heart disease, according to the World Health Organization.

The new cap on a fuel's sulfur content will be 0.5% and the change will cost the industry around \$40 billion, according to maritime executives. Higher fuel costs lead to increased freight rates, which are passed on to consumers.

Refineries say they will have enough cleaner fuel blends to meet demand, but many ship owners are opting not to wait and see. Scrubber manufacturers expect orders to total between \$6 billion and \$18 billion by 2026, from less than \$300 million last year and just a few million in 2016.

The lion's share will go to big players such as Finland's Wärtsilä, Sweden's Alfa Laval Co. and Norway's Yara Marine Technologies.

Yara said it had more than 400 scrubber inquiries last year, up from 100 in 2016; inquiries exceeded 100 in the first two months of 2018. "Shipping is waking up to fundamental change," said Thomas Koniordos, Yara's senior vice president for environmental solutions. He declined to say how many orders Yara has in place.

A study commissioned by the IMO says around 6.7% of the global commercial fleet, or around 4,000 ships, will be using scrubbers after 2020.

Executives at shipyards in China and Korea, where around 1,500 vessels of all types are being built or retrofitted to comply with the new rules, say about a quarter are fitted with scrubbers. Another 65% are built to use cleaner fuel blends and the remainder are built for other options, including liquefied natural gas.

A scrubber resembles a mini refinery plant. Exhaust from the engine goes through the unit where it is mixed with water, which dissolves sulfur oxides before the treated fumes exit through the ship's funnels. The used water is then released into the sea or cleaned up and re-used, depending on the system.

Adopters absorb a big financial hit. Miami-based Carnival Corp., the world's biggest cruise-ship operator, said it has invested \$400 million to install scrubbers in 82 of its 102 ships. Sweden's Stena Line, one of Europe's largest ferry operators, serving northern Europe's low-sulfur zone, in 2014 said it had to shed about 30% of its workforce to pay for scrubbers.

Scrubber-industry executives say despite the high upfront cost, the devices substantially cut operating expenses.

Peter Leifland, Alfa Laval's executive vice president, said a very large crude carrier, or VLCC, would spend \$9 million a year using low sulfur fuel mixes, but a \$3.7 million scrubber system would cut the annual fuel cost to \$7 million plus an annual service fee of up to \$75,000.

"The payback time is around two years, which is quite short, considering the scrubbers will last for the ship's lifetime" he said.

VLCCs have an average lifetime of around 20 years.

Shipyards in China and Korea, where the bulk of new VLCCs are built, said 35 of the roughly 50 such vessels ordered last year will have scrubbers.

Maersk Line, a subsidiary of Danish shipping giant A.P. Moller-Maersk AS, says it is keeping its options open, but adds that using cleaner fuels is the preferred choice for much of its fleet, expecting the cost to gradually decline as refiners increase output.

Maersk, with a fleet of more than 770 vessels, initially expects the cleaner fuels will add around \$2 billion to its average \$3.3 billion annual fuel bill. Executives said the onus should be on refineries, not ship owners, to deal with the fuel issue, although scrubbers may be an option some of its ships.

Source: Wall Street Journal

+++++