

Rolls-Royce To Provide Green Technology For Polar Cruises

The Norwegian explorer cruise line, Hurtigruten, is to build two new expedition ships using a new and environmentally sustainable hybrid technology from Rolls-Royce making fully electric propulsion on a passenger ship possible.



The Rolls-Royce designed MS Roald Amundsen and MS Fridtjof Nansen, about to be constructed at Kleven Yard in Norway, will be packed with innovative Rolls-Royce technology.

In addition to the hybrid power solution, the vessels will have the latest automation and control systems, including the Rolls-Royce Unified Bridge, the first delivery of two azipull propellers using permanent magnet technology, two large tunnel thrusters, stabilisers, four Bergen B33:45 engines, winches and power electric systems.

Mikael Makinen, Rolls-Royce, President - Marine, said: "The two new explorer cruise vessels for Hurtigruten represent somewhat of a dream project for us; delivering our latest technology innovations into beautifully designed and fit-for-purpose vessels."

The hybrid technology for MS Roald Amundsen and MS Fridtjof Nansen is planned for delivery in two phases. In phase one, auxiliary battery power will provide large reductions in fuel consumption related to "peak shaving". This solution is to be installed on the first expeditionary ship ready for delivery in 2018. For phase two, larger batteries will be installed, enabling the possibility of fully electric sailing across longer distances and over longer

(contd. on page 2)

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Highlights

	Page
Rolls-Royce To Provide Green Technology For Polar Cruises	1
From the Editor's Desk	3
Dry-Bulk Shipping Owners Get Reprieve as Rates Rebound	4
Address by the Secretary General, IMO	5
Understanding Components and Design of Exhaust Gas System of Main Engine On Ship	7
Fuel Switching Fix Leads to Engine Room Fire	9
Ballast Water Treatment Issues Remain Unresolved	10
IMO Sets Up Website for Kids	12
Royal Navy patrol boat chased a research vessel out of waters	13
Dangerous Waters in the Strait of Bab el-Mandeb	14
Boat Sinks off Indonesia Killing at least 18	15
New Zealand Accepts First U.S. Warship in Thirty Years	16
Passenger Ship Safety Level To Be Considered By IMO	17
Sri Lanka To Negotiate \$125 Mln Chinese Firm Seeks For Port Delay	19
Sri Lanka To Negotiate \$125 Mln Chinese Firm Seeks For Port Delay	20
The Urgent Need of Proper Vocational Guidance for Maritime Careers	22

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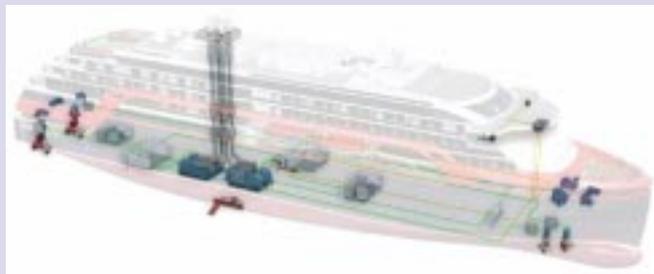
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periods of time. This will be used when sailing into fjords, at port and in vulnerable areas allowing silent and emission free sailing. Rolls-Royce aims to install this new technology in ship number two, which is scheduled for delivery in 2019. The goal of Hurtigruten is also to refurbish ship number one with the same technology.



Daniel Skjeldam, CEO of Hurtigruten, said: "The future of shipping is, without a doubt, silent and emission free. We will use our new expeditionary ships as groundbreakers for this new technology and show the world that hybrid propulsion on large ships is possible, today."

The decision to invest in a hybrid solution is an important milestone in Hurtigruten's goal of sailing fully electric expeditionary ships in the Arctic and Antarctic.

Hybrid technology, in combination with the construction of the hull and effective use of electricity on board, will reduce the fuel consumption by approximately 20% and CO2 emissions from the ships by 20%. This amounts to more than 3000 metric tons of CO2 per year.

"A passenger ship requires enormous amounts of energy to operate, and so far, there have been no technologies able to fulfil the requirements of a fully electric Hurtigruten ship. Hurtigruten's new ships will probably be the first in the world," said Daniel Skjeldam.

Another innovation to be installed on MS Roald Amundsen and MS Fridtjof Nansen is main propulsion thrusters that use integrated permanent magnet (PM) technology instead of being powered by separate propulsion motors. Over the last two years, Rolls-Royce has launched a range of propulsion and deck machinery driven by PM technology. From 2017 a new azipull model will be on offer, and this is the product specified as the main propeller units on board Hurtigruten.

Azipull thrusters with pulling propeller and streamlined underwater skeg have proved highly popular propulsion units since they were introduced in 2003. Over four hundred and fifty units have been manufactured by Rolls-Royce (in Ulsteinvik, Norway) to date. With the introduction of electric drive through the use of permanent magnets, a proven Rolls-Royce technology is ensured a prolonged life, according to Knut Eilert Røsvik, Rolls-Royce, Senior Vice President - Propulsion: "We expect to see a shift from mechanical to electrical propulsion systems, and we are well positioned for this

shift. We have invested in PM technology for more than ten years, and already have a lot of experience with it."

The PM motor provides a very high efficiency over a wide speed range and reduces the space required in the thruster room. The propulsion system is well qualified for ships with ice class demand. Combined with the proven high propulsive and hydrodynamic efficiency of the azipull, this will be a winning combination.

Four Bergen B33:45 engines in combination with the use of batteries, comprise the cornerstones of the innovative hybrid solution onboard these Hurtigruten vessels. Since its launch in 2014, this medium speed engine has been chosen by a variety of owners and yards for a range of ship designs, with 50 engines now delivered or on order.

The engine offers 20% increased power compared to its predecessor, delivering the same output with fewer cylinders. This lowers the costs through the engine's lifecycle, and also allows for smaller machine rooms on board. The engine meets the international environment requirements for IMO NOx Tier III with support from a Selective Catalytic Reduction (SCR) system.

The vessels will have the latest automation and control systems, including the Rolls-Royce Unified Bridge. Ship control systems have developed fast over the last decade and the number of screens, wires handlers and equipment needed by onboard operators has increased in parallel. Rolls-Royce has addressed this and developed common control systems and a new Unified Bridge solution to clean up the clutter and design more user-friendly bridge and control stations for the crew. Ultimately, the result is a safer and more efficient working environment.

The Unified Bridge represents a complete redesign of the ship bridge environment, including consoles, levers and software interfaces.

The announcement of full details of the equipment to be supplied by Rolls-Royce follows the news on 18 July 2016 that Rolls-Royce had signed a contract with Kleven for design and ship equipment for the Hurtigruten vessels.

Full Rolls-Royce scope of supply:

- Main Generating Sets: Four Bergen B33:45, each with scrubber system for removal of NOx
- Battery system
- Propulsion system comprising two Azimuth Thrusters - Azipull, with permanent magnet motor, and two tunnel thrusters.
- Remote control system
- Stabilisers, type Aquarius 100
- Dynamic positioning system, DP0

(contd. on page 4)

From the Editor's Desk



Peace Hero: *Peace demands the most heroic labour and the most difficult sacrifice. It demands greater heroism than war. It demands greater fidelity to the truth and a much more perfect purity of conscience.*
– **Thomas Merton**

“Patience is not an absence of action; rather it is timing. It waits on the right time to act.”

– **Fulton J. Sheen**

Gratitude unlocks the fullness of life. It turns what we have into enough, and more. It turns denial into acceptance, chaos to order, confusion to clarity. It can turn a meal into a feast, a house into a home, a stranger into a friend. – **Melody Beattie**

CORRUPTION is in some way or other, is marching with a pursuit to selfishness, not mere to achieve, but to amass money /wealth, by unfair means, beyond proper source of earnings. **you need to be in the right state of mind.** **Breach of safety** within ships is a very real concept. Unfortunately it happens, if not regularly, then a lot more frequently than it should, with the more famous cases being recorded in history as devastating tragedies. What is more disturbing about these tragedies is that not only could they have been prevented to begin with, but they could have been greatly minimized if not for the lack of complete awareness in safety strategies and techniques that need to be implemented in order to eliminate them altogether. Ships must be prepared to face harsh reality and arm themselves with the tools they need to save lives and diminish damage, for with no plan of action, there is only one inevitable outcome. Fortunately, maximizing safety in ships can not only be achieved effectively but actually increases overall performance whilst reducing external cost but for all preparedness with commitment, accountability and responsibility. Brings to realization of the **“conscious and the unconscious mind”** to **keep you in the right state of mind, for effectiveness and optimization of ships operations and management.** Three Minds: Consciousness, Subconscious, and Unconscious. A lot of different literature uses different terms. Which one is which? Which one is correct? Are they the same or different? What is the difference between the subconscious mind and the unconscious mind? Even some experts in the field of psychology struggle with defining the terms and they are often, mistakenly, used interchangeably. **The mind could be divided into three systems: the conscious mind, the subconscious mind, and the unconscious mind.** The **consciousness mind** is your awareness at the present moment. You are aware of something on the outside as well as some specific mental functions happening on the inside. For example, you are aware of your environment, your breathing, or the chair that you are sitting on. **The subconscious mind** or the preconscious mind consists of accessible information. You can become aware of this information once you direct your attention to it. Think of this as memory recall. You walk down the street to your house without consciously needing to be alert to your surroundings. You can talk on the cell phone and still arrive home safely. You can easily bring to consciousness the subconscious information about the path to your home. You can also easily remember phone numbers that you frequently use. It is possible that some of what might be perceived to be unconscious becomes subconscious, and then conscious (e.g. a long-forgotten childhood memory suddenly emerges after decades). We can assume that some unconscious memories need a strong, specific trigger to bring them to consciousness; whereas, a subconscious memory can be brought to consciousness more easily. The unconscious mind, consisting of the primitive, instinctual wishes as well as the information that we cannot access. Although our behaviors might indicate the unconscious forces that drive them, we don't have easy access to the information stored in the unconscious mind. During our childhood, we acquired countless memories and experiences that formed who we are today. However, we cannot recall most of those memories. They are unconscious forces (beliefs, patterns, subjective maps of reality) that drive our behaviors.

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(contd. from page 2)

- ACON Integrated Automation System, including Acon Connect and Acon Energy.
- Unified Bridge including chairs, consoles and auxiliary bridge control
- Mooring winches and cable lifter units of electric frequency converter.
- Rolls-Royce Power Electric System, technology including generators, motors, switchboards and a Power Management System
- Design, basic design and detailed engineering

Dry-Bulk Shipping Owners Get Relieve as Rates Rebound

The darkest days may be over for the dry-bulk shipping companies that transport the raw materials of global trade.

After a deep slump in freight rates pushed many of the world's biggest dry-bulk shipping companies deeply into the red and some smaller ones out of business, a recent surge in freight rates has owners rejoicing.

The Baltic Dry Index, which measures the cost of moving commodities like coal, grain and iron ore, is hovering at a two-year high of 1,232 points after hitting its lowest level ever at 292 in February. At its peak, before the 2008 financial crisis, the index had reached 11,000 points.

Although much of the recovery is tied to end-year seasonal factors like China's replenishing of coal and iron ore supplies in addition to bumper U.S. grain exports, shipping executives expect a slow but steady recovery will continue through the second quarter of next year.

"The market has turned from really awful, to just awful," said Robert Bugbee, president of Scorpio Bulk Inc., the biggest New York-listed bulk carrier by market value. "It's got a way to go for a full recovery, but it looks like we may have gone past the bottom."

Scorpio, which now operates 41 ships, sold around 20 of its biggest vessels at a sharp discount late last year to maintain financial viability after charter rates tanked to less than half of break-even levels.

The firm's shares were trading off 3 cents apiece at \$5.47 at midday Wednesday.

Dry-bulk shippers were hurt after China, the world's biggest commodities importer, began shifting away from heavy industry as the main growth driver. Like Scorpio, other big players shrank their fleets in the face of losses while some smaller operators went bankrupt. At the same time, banks turned off access to ship-financing in the face of rising nonperforming loans.

Harry Vafias, whose family runs eight ships, said the market recovery is due to a halt in new orders of ships, a jump in ship scrapping and declining shipbuilding capacity by Asian yards as they shrink to survive the industry down-cycle.

"The election of Donald Trump is also lifting spirits," Mr. Vafias said. "The U.S. must import large quantities of iron ore and cement if the new administration is to carry out its mega-infrastructure campaign promises."

Among President-elect Trump's campaign promises was to invest \$1 trillion in infrastructure to jump-start job growth and economic activity.

Brokers in Singapore said they see increased demand for commodities like grains, lumber, cement, coal, and copper. One broker, who arranges charters for big operators in Asia and Europe, said rates are improving across the board. "Commodities are back in play after two miserable years," he said.

Scorpio's Mr. Bugbee said charter rates have risen to between \$9,000 and \$11,000 a day, up from as low as \$3,500 a day in the first quarter of this year. The break-even, point for its Kamsarmax vessels that each move an average of 85,000 metric tons of cargo is around \$8,000 a day.

"Next year there are strong indications we will cover costs and also make some money," Mr. Bugbee said. "The market is fundamentally improving and barring a severe disruption to the world economy, it should be plain sailing from the second quarter onwards."

But some analysts warn that bursts of optimism in the past have enticed owners to order new vessels worsening an overcapacity of tonnage in the water that they see as the main culprit behind the industry's woes.

"The owners are often their own worst enemies with mindless orders at the first signs of recovery," said Basil Karatzas, founder of Karatzas Marine Advisors & Co. "Hopefully the present rally will not derail the market where operators will again forget the fundamentals, stop scrapping and start buying."

In Global Shipping

The Halifax Port Authority has commenced a significant master planning exercise to prepare for the arrival of 'ultra-class' containerized vessels of over 10,000 TEU; large scale industrial mega projects; increasing larger cruise vessels; and how the Halifax Seaport District can complement the urban growth and revitalization currently underway in downtown Halifax and Dartmouth.

WSP/Parsons Brinckerhoff Engineering Services, one of the world's leading port development consultancy firms, has been hired to lead the master planning exercise. Aggressive timelines are being set. The exercise will prepare the Port of Halifax for the next five to 10 years.

The Halifax Port Authority is working with partners including Halifax Regional Municipality and CN to identify alternative means of reducing the amount of container truck traffic in downtown Halifax.

By working together, we will develop the best scenario for the Port and our city.

ADDRESS BY THE SECRETARY-GENERAL AT THE OPENING OF THE NINETY-SEVENTH SESSION OF THE MARITIME SAFETY COMMITTEE

21 to 25 November 2016

Good morning, Mr. Chair, distinguished delegates,

It is a great pleasure for me to welcome you to the ninety-seventh session of the Maritime Safety Committee. I extend a particular welcome to those of you who are attending the Committee for the first time.

Allow me first to comment briefly on general matters of importance to the work of this Organization. Our traditional World Maritime Day celebration took place here, in our headquarters building, on 29 September. We have used every opportunity throughout this year to widen awareness of the chosen theme "Shipping: Indispensable to the world", and the annual parallel event, held in Istanbul, Turkey from 4 to 6 November. For 2017, we will build on this theme by focussing on the linkage between ships, ports and people.

Shipping today transports more than 80 per cent of global trade to peoples and communities all over the world. It provides a dependable, low-cost means of transporting goods globally, facilitating commerce and helping to create prosperity among nations and peoples. A safe, secure and efficient international shipping industry is indispensable to the modern world - and this is provided by the measures and standards developed and maintained by this Organization.

But today I also want to look beyond IMO's day-to-day functions and talk to you about what the future might hold for the Organization - in particular, about its place in a more cohesive and connected scheme of global ocean governance.

Today, we live in a global society which is supported by a global economy. The potential benefits are clear: growth can be accelerated and prosperity more widespread; skills and technology can be more evenly dispersed, and both individuals and countries can take advantage of previously unimagined economic opportunities.

The broader challenge we all face is how to ensure future growth can be achieved sustainably; how to ensure that globalization becomes a positive force for all the world's people, and not for just a privileged few.

So, beyond its traditional regulatory function, how does IMO fit into this broader picture? As part of the United Nations family, IMO is actively supporting the 2030 Agenda for Sustainable Development that world leaders pledged to support last year.

I have said many times that shipping and related maritime activities are essential components of future sustainable

growth for the earth's 7 billion-plus inhabitants. But the search for growth in this sector - blue growth - is a balancing act. The overall health of the seas and oceans themselves is clearly a cause for concern.

As a maritime community, we need to ensure that growth is coordinated and planned, with input from all relevant stakeholders, and that opportunities for synergies are identified and taken, while at the same time act proactively to ensure that safety, security and protection of the environment.

In the meantime, IMO Member States must strive to better implement the measures that we have already agreed. At a time of economic downturn and instability, it is critical that Member Governments and industry resist the temptation to cut corners to save money at the expense of safety, security and the marine environment. Looking at the progress made so far in the Organization, we have to be proud.

In the course of the weekend, some news came to my attention on the collision, in the English Channel, between the Hong Kong, China flagged general cargo ship *Saga Sky* and a barge. I would like to express my deep sense of relief concerning the rather fortunate ending of this event. The professionalism of the seafarers and the rescue services involved are highly commendable.

Mr. Chair, distinguished delegates,

Once again, I am addressing a packed meeting that will see intense activity over the next five days. A total of 111 documents have been submitted under the 22 items on the agenda for this session.

Mr. Chair, Distinguished Delegates,

I would like to highlight, some key issues amongst the various agenda items of MSC 97. As regards the implementation of the goal-based standards for new ship construction of bulk carriers and oil tankers, it is fundamental to emphasize that your Committee's unanimous confirmation that the information provided by the submitters (12 IACS member recognized organizations) demonstrated that their rules conform to the GBS standards. The completion of this initial verification process now provides a genuine link between the classification and statutory processes and this is a significant development in the IMO rule making process which is the culmination of huge efforts by all stakeholders of the Organization over a period of more than a decade.

After this significant achievement, your Committee has now to focus on developing amendments to the GBS Verification Guidelines based on the experience gained during the initial verification audits, not forgetting that the Secretariat is arranging the verification audit for the rectification of non-conformities stemming from the initial verification audit for submission and consideration at MSC 98.

With regard to the carriage of more than 12 industrial personnel on board vessels engaged on international voyages, your Committee at its last session, bearing in mind an urgent need to ensure the safe and efficient transfer of technicians serving and servicing installations in the growing offshore alternative energy sectors, agreed that a new chapter to SOLAS, supported by a new code, should be developed to address this issue. Furthermore, MSC 96 recognizing that until the proposed new code was developed there was a need for an interim solution. After taking into account the complex nature of the legal issues involved, MSC 96 requested the Secretariat to provide legal advice on this matter. To this end, your Committee will consider the legal advice with a view to finalize the interim solution along with the detailed roadmap for developing the proposed code and I am confident that your Committee will resolve this important matter to the satisfaction of all the stakeholders involved.

Turning to maritime security and related matters, we note with concern recent reports of attacks on warships and the m.v. Galicia Spirit in the Bab Al Mandab. We appreciate that an investigation is under way but I must stress that it is important that the facts be established as quickly as possible so that the ongoing threat to shipping can be properly assessed and proportionate responses taken. In the meantime, I would remind flag States of their obligations to conduct threat assessments and set security levels for ships in accordance with SOLAS chapter XI-2 and the ISPS Code. Both the m.v. Galicia Spirit incident and the recent attempted piracy attack on the m.v. CPO Korea off the coast of Somalia are strong reminders of the need for diligent application of IMO guidance and best management practices; and for the presence of warships to protect shipping.

Your Committee will continue its work on progressing the important and timely issue of protecting the maritime transport network from cyber threats, consider implications of floating armouries as well as receiving updates on piracy and armed robbery against ships, and unsafe mixed migration by sea.

I would once again take this opportunity to emphasize the importance of analyzing statistics related to maritime casualties and incidents, caused by various factors. To this end, I feel that it is appropriate that the Organization deals

proactively with safety issues, based on the analysis of maritime casualties and incidents statistics.

Furthermore, at your last session, the Committee generally agreed to improve the dissemination of lessons learned from marine casualties, with a view of establishing an effective linkage between casualty investigation and seafarers training, and instructed the III and HTW sub-committees to further consider the matter. At this session, you will also consider the proposal on enhancement of the function of the GISIS module on marine casualties and incidents which I am sure that will get its due consideration.

Your Committee will also consider the reports of four sub-committees. These sub-committees have worked in accordance with your instructions and the results of their deliberations are the outcome of their hard work. To this end, I would like to convey my appreciation to all the delegates who attend these meetings. Furthermore, you have many more important issues before you this week, such as the Amendments to mandatory instruments; and Formal safety assessment.

It remains for me to give my best wishes to your Chair, Mr. Brad Groves of Australia, for the task ahead in tackling the agenda of this session and finding the appropriate balance between competing demands so that the Committee may reach the best and most widely acceptable outcomes.

The Secretariat, including Mr. Mahapatra, Director of the Maritime Safety Division and the relevant staff, will discharge our duties and responsibilities in supporting both the Chair and the work of the meeting to the best of our abilities.

Mr. Chair, distinguished delegates,

Before I conclude, I regret to inform your Committee of the demise of Captain John Briggs of Australia. Capt. Briggs was a long standing delegate and the Chair of the Drafting Committee during the 1995 STCW Conference. He was also the Chair of the first panel of competent persons established to evaluate the information communicated by a STCW Party to demonstrate compliance with the relevant provisions of the STCW Convention. I would request the delegation of Australia to convey the condolences of the Committee and the Secretariat to his bereaved family.

With this, I wish you every success in your deliberations and look forward to welcoming you all to the Bravery Awards ceremony and to the drinks reception after close of business today.

Thank you.

GAC Awarded "Excellence in Break Bulk/ Project Cargo Transport and Handling":

The GAC Group was the joint winner of the "Excellence in Break Bulk/Project Cargo Transport and Handling" Award at the Australian Shipping & Maritime Industry Awards 2016 held at the Dockside Cockle Bay Wharf, Darling Harbour.



The Award recognises GAC's project logistics expertise in moving a 410-tonne acrylic and steel structure measuring 22.5m long for the world's biggest underwater restaurant from New Zealand to Maldives earlier this year.

Per Thörnblom, GAC's Group Project Logistics Manager who planned and oversaw the entire operation, says: "It took us a year to plan the massive move using computer aided drawing or CAD to prepare the structure's journey. This Award is a boost and validation of our hard work, recognising GAC's capabilities in handling out-of-gauge and complex cargoes. We are dedicated to ensuring that our customers' project cargoes are handled professionally and delivered on time to almost anywhere in the world."

The structure was transported eight kilometres by road from the construction company's yard at New Plymouth in New Zealand to Port Taranaki, where it was lifted onto a 200 wheel trailer with the help of four trucks. The road trip to the port started at 11pm, due to local traffic regulations for heavy loads, and 12 hours later, it was lifted onto Jumbo Maritime's vessel, the 'Fairlane', after just half an hour of preparatory procedures and two hours ahead of schedule. Next came the lashings, welding, securing and protection of the load.

With no local pilots available at the remote atoll, Per also acted as a pilot onboard one of the supporting tugs used to guide the Fairlane to the exact discharge location, where the structure was raised out of the hold and on to its underwater pilings. About 15 divers were involved during the final stage to ensure the load is settled safely and accurately.

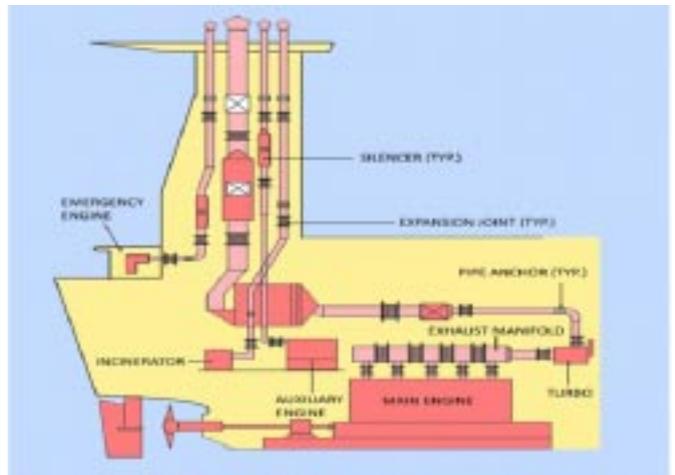
The Award was accepted on behalf of the Group by Gareth Long, GAC Australia's National Operations Manager. Winners of 14 of the awards were selected by

a combination of votes from a judging panel consisting of industry peers and popular vote by readers of Lloyd's List Australia.

Understanding Components and Design of Exhaust Gas System of Main Engine On Ship:

On ships, the work done by marine engines to keep the plant running for propelling a ship requires burning of fuel. The energy converted inside the cylinder of the engine is not 100% efficient conversion as part of it is lost in the form of exhaust gases.

The modern exhaust gas system of marine engines is designed in such a way that the unused gases coming out of the cylinders are further directed to turbocharger and exhaust gas boiler to recover most of the waste energy from the same.



Components for the Exhaust Gas system of Engine:

To utilise the maximum energy from the waste gases, the exhaust gas system of marine engine is provided with the following components:

- Exhaust gas pipes
- Exhaust gas boiler
- Silencer
- Spark arrester
- Expansion joints



Exhaust gas-piping system for marine engine:

The exhaust gas piping system conveys the gas from the outlet of the turbocharger(s) to the atmosphere. For designing the exhaust piping system, following important parameters must be observed:

- The exhaust gas flow rate
- Maximum back force from exhaust piping on turbochargers
- Exhaust gas temperature at turbocharger outlet
- Maximum pressure drop within the exhaust gas system
- Maximum noise level at gas outlet to atmosphere
- Sufficient axial and lateral elongation ability of expansion joints
- Utilisation of the heat energy of the exhaust gas.

The Exhaust gas from the cylinder unit is sent to exhaust gas receiver where the fluctuating pressure generated from different cylinders are equalised. From here, the gases which are at constant pressure are sent to turbocharger where waste heat is recovered to provide additional scavenge air to engine.

The most important thing to consider while designing the exhaust piping system is the back pressure on the turbocharger. The back pressure in the exhaust gas system at specified Maximum Continuous Rating (MCR) of engine depends on the gas velocity, and it is inversely proportional to the pipe diameter to the 4th power. It is general ship practice to avoid excessive pressure loss within the exhaust pipes, the exhaust gas velocity is maintained about 35m/sec to 50m/sec at specified MCR. The other factors which affect the gas pressure are the installation of EGB, Spark arrestor etc. in the path of exhaust gas travel.

At the specified MCR of the engine, the total back pressure in the exhaust gas system after the turbocharger (as indicated by the static pressure measured in the piping after the turbocharger) must not exceed 350 mm WC (0.035 bar). In order to have a back pressure margin

for the final system, it is recommended at the design stage to initially use a value of about 300 mm WC (0.030 bar).

Exhaust gas boiler:

Exhaust gas boiler is considered to be one of the most efficient waste heat recovery system designed for a ship. When the ship's propulsion plant is running at it's rated load, the auxiliary boiler can be switched off as the EGB can generate the required steam for various ship's systems. The exhaust gas passes an exhaust gas boiler, which is usually placed near the engine top or in the funnel.

The efficiency of the EGB will be affected by the pressure loss of the gases across the boiler and the parameters governing the pressure loss (exhaust gas temperature and flow rate) are affected by the ambient conditions. The recommended exhaust pressure loss across the EGB is generally considered as 150 mm WC at specified MCR. If the exhaust system is not provided with additional equipment (spark arrester or silencer), the pressure loss value can be considered little bit higher than the value stated above (150 mm WC at specified MCR).



Silencer

The engine room plays a major role in high Noise levels in the accommodation, which is now moderated under Maritime Labor Convention.

The Exhaust gas piping system are generally close to accommodation hence the reduction of noise form them is important. To get the noise level, it is recorded at a distance of 1m from the exhaust gas pipe outlet edge at an angle of 30° provided the exhaust gas system of the engine are without EGB or silencer.

Silencer is used to reduce the noise level in the exhaust gas manifold and they are generally placed after the EGB. The Conventional silencers consist of absorptive and reactive chambers. They are constructed for a gas velocity of 35m/s and the reactive chamber is only effective at one frequency.

The latest design of silencer consist of three chambers to overcome the limitation (of being effective at one frequency)



The three elements are composed of a reactive element for attenuation of lower frequencies, a resistive element-absorptive silencer to tackle with higher frequencies, and a combination element of both reactive and resistive elements. This set up will reduce the noise effectively without increasing the back pressure on the turbocharger by tuning the elements to match the engine over the noise range.

Spark arrester:

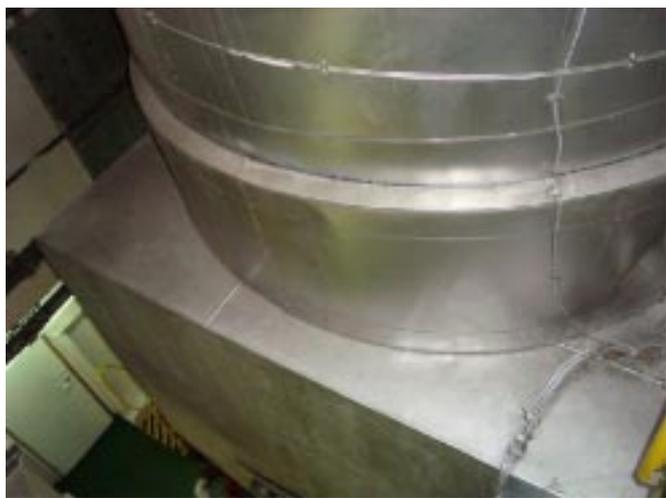
The low load operation of marine engine tends to produce partially burnt carbon deposits and soot with the exhaust gas piping system of engine. As the exhaust gases produced after combustion are rich with oxygen, these partially burnt carbon particles are discharged from the exhaust funnel as highly dangerous spark.

A spark arrester can be fitted in the exhaust piping system to prevent sparks from the exhaust gas being spread over deckhouse. It is placed at the end of the exhaust gas system of the engine.

The new design of spark arrester helps the gases to create rotatory movements by forcing them to pass through fixed number of angled positioned blades. The heavy carbon particles are smoothly collected in the designed soot box, which can be cleaned or drained as required.

They can be combined with silencer as one unit to save space or cost.

The main disadvantage of a spark arrester is considerable pressure drop. For main engine of a ship, it is recommended that the combined pressure loss across the silencer and/or spark arrester should not be allowed to exceed 100 mm WC at specified MCR.



Expansion joints

The Exhaust gas system of engine experiences huge temperature variations. It is not possible to construct the entire exhaust piping system in one single piece hence; multiple sections are joined to complete the system. When the engine is standstill, the temperature of the

exhaust pipe may vary from 10 to 40 deg C (depending upon the surrounding environment or geographical location of the ship) and when the engine is up and running, the exhaust system temperature crosses 200 deg c. This major temperature variation requires need of joints to safely absorb the heat-induced expansions and contractions of pipes and tubing systems.

For this purpose, bellows and expansion joints are used. They are designed accurately to make sure that they are able to withstand the stresses and avoid cracks brought about by the continuous change in the temperature of the system. As per Boyle's Law- When tubing is subjected to high-temperature fluids, pressure also builds up. Expansion joints are needed to bear the extra force that accumulates.

Expansion joints are used in tubing and piping systems and Bellows are generally used to connect exhaust gas pipes to the funnel.

The expansion joints are to be chosen with an elasticity that limits the forces and the moments of the exhaust gas outlet flange of the turbocharger as stated for each of the turbocharger makers.

The Expansion joints are placed at various places spreading it in the exhaust gas piping system of the marine engine.

Above we have discussed the most important components and functions of Exhaust Gas System of Marine Engine on ship. If you feel we have missed something, please feel free to comment.

Fuel Switching Fix Leads to Engine Room

Fire: The NTSB has completed an investigation into an engineering space fire on the container ship Gunde Maersk, and has determined that repairs intended to solve problems with fuel switching were to blame for the blaze.



On November 25, 2015, the Gunde Maersk's three auxiliary generators began to leak fuel when switching over to ultra-low-sulfur diesel.

Fuel leaks are a known problem when switching from HFO to diesel, and the engineering crew set about making repairs. The third engineer and an unlicensed crewmember replaced the O-rings in the fuel supply lines

to the injection pumps on all three auxiliaries, and they completed a brief test after each job. They followed normal written procedures prior to starting work.

On December 8, a week after the last repair was made, the Gunde Maersk was leaving her berth in Port of Seattle to head to Busan. Minutes after getting under way, the O-ring seal on one of the number 1 auxiliary's fuel supply lines failed, spraying a mist of diesel onto the exhaust side of the engine. The fuel caught flame, setting off the fire alarm and triggering an automatic shutdown of the number 1 auxiliary. Fire dampers closed automatically. By the time a firefighting crew entered the space - 15 minutes after the start of the fire - the blaze was already out.

Another auxiliary generator took up the load, and while the ship did not lose power, the event created an "error in the high voltage electrical system and integrated automation system (IAS), causing a loss of control of the main propulsion engine fuel pumps."

The IAS responded by shutting down the main engine. The crew could not restart it immediately; they anchored and called for tug assistance.

NTSB investigators, working with the Coast Guard, found that the O-ring in the leaky joint had been pushed out to one side when subjected to pressure. They suggested that the likely reason for the failure was improper tightening of the fitting.

In addition, NTSB found that lack of a well-defined testing procedure for the repair may have been a contributing factor.

While the fire was brief, and could have caused more damage than it did, NTSB said that repairs to the engineering space cost nearly \$400,000 dollars - funds that could have been saved, the agency asserts, if a full set of procedures had been defined and followed.

Ballast Water Treatment Issues Remain Unresolved: Last month's IMO Marine Environmental Protection Committee (MEPC) adopted resolution MEPC.253(67) on the review of the guidelines for approval of ballast water management systems (G8) to facilitate entry into force of the Ballast Water Management Convention.

The revised G8 is more prescriptive in some aspects and will require harmonization between administrations to ensure a level playing field for manufacturers and purchasing safety for shipowners.

Validation of limitations

The new G8 has called for validation of treatment systems' operational performance over a wider specified range of temperatures and salinities. Additionally, the determination of potential regrowth and requirements related to holding time has also been included.

However, the IMO has left it to the Administrations to define related test procedure details without providing too much guidance! This may represent a dangerous loophole if interpretations and procedures are not strictly harmonized between administrations.

Validating performance during sea trials is very different to what is required for land-based tests. For example, challenge water condition requirements are 10-100 times more stringent at sea.

The revised G8 test scope supersedes that of the U.S. Coast Guard type approval test program by quite some margin. The rationale behind the determination of the new G8 in validating what may be seen as extreme limitations, at any cost, or in practice, the vendors cost - may be questioned. Type tests are very expensive, and regulators should consider the cost efficiency of additional test requirements - what is the real added value especially if the added scope is bridged differently by the various Administrations.

Equipment Readiness

Equipment readiness evaluation requirements have been introduced to ensure that manufacturers test commercially ready treatment systems and don't use the type approval program as a platform for research and development.

It is now emphasized that the manufacturer or the test facility must specify how to validate the equipment's limitations before testing begins. A key aspect here is to validate disinfection doses required by testing the manufacturer's stated dosage limits.

The readiness evaluation now also includes an assessment of the scaling potential of equipment to cater for larger (or less) ballast water flow rates. The manufacturer is required to identify the most "vulnerable" model from a scaling perspective. This model will then be the subject of testing.

Risk assessments are now required, and identified risk mitigating measures must be implemented.

The control and monitoring system has received more focus. Documentation requirements now include a detailed functional description and a software change handling log.

Testing

Operation of a treatment system during type testing is now required to be conducted independently of the manufacturer. In principle, this should be no different from a manufacturer running the system, given that the Administration is present to verify that the system is operated in accordance with provided instructions.

In relation to shipboard testing, all ballast operations during the test period should be undertaken using the system commissioned for the tests so it is not only run for the official tests only.

Control tank sampling during shipboard testing is no longer a requirement. This is a welcome change for manufacturers who have struggled to keep the ballast piping system clean when running untreated water into and out of control tanks through the same piping as the treated water.

The down side is that testing facilities will never be able to determine the impact of the tank and holding conditions of untreated water versus that of treated water. This will probably also make it impossible to validate hold time, temperature, regrowth and salinity during shipboard testing.

Therefore, the IMO should look into the added value of sampling on shipboard tests and perhaps remove this from the protocol. Such a change would be welcomed by the manufacturers who are struggling with many aspects of shipboard testing including finding shipowners willing to accommodate onboard testing, finding valid challenge water, the logistics associated with the testing and the high financial burden.

Requirements have been introduced to ensure that treatment systems are type tested with one configuration of hardware. Changing major components that could affect efficacy during the testing will result in a need for new testing. This is not new. However, it has probably been practiced differently by different Administrations.

There are several issues here. Should the introduction of, for example, an alternative total residual oxidant sensor or Ultra-Violet sensor require new testing? This is another issue that needs to be harmonized by Administrations.

The use of standard test organisms is now specified to be supplementary to the organism density of the water, to make up for seasonal variations. The proportion that these standard test organisms contribute to the total density of organisms is to be reported and published for transparency. This is probably because the industry has seen tests being run with a very high fraction of standard test organisms, and the general view is that validation based on treatment of natural organisms is more representative.

The source of dissolved organic carbon used during land-based testing has received more attention and must now be reported along with its effect on UV transmittance and oxidant demand.

Sampling and testing

The requirement for three sampling replicates has been changed to one time integrated replicates in line the ETV protocol as applied by the U.S. Coast Guard. There is also a greater focus on assuring a low mortality in the test water independent of the treatment.

Requirements for hazardous gas management have been included. After working with a number of treatment systems that hazardous gas, it has become clear that this

had not previously been covered adequately.

The new G8 introduces design requirements for gas emission handling by requiring, for example, independent shutdown following the detection of failures, redundant detection and dilution equipment. This will result in more attention being paid to systems producing hazardous gas.

The environmental testing to be conducted on treatment systems' electric and electronic components will now follow testing protocols defined by IACS UR E10, Rev.6, October 2014 instead of an IMO G8 unique test program. Off-the-shelf components can now be used without the need for new type approval testing, and this development should be welcomed by equipment manufacturers.

A greater focus has been placed on the output format of the control system monitoring. A typical log has previously consisted of an XLS file with thousands of monitoring values and without a standard output format. In the new G8 a PDF report that describes each ballasting operation is preferred, with specifications for alarms, failures, dose and other general ballasting details such as volume, time and position to make up a simplified electronic ballast water record book.

The logs and treatment settings must be tamperproof. Both the standardized output format and the tamperproof requirement provides an easy and credible way of assessing if the ballast water was treated in accordance with the type approval certificate.

Reporting and type approval certificates

Type approval reports must have greater transparency under the new G8 and should be similar to those written in 46CFR 162.060. In particular, methods of validation, testing and failed or invalid tests must be made clear.

The Gaps

So what is missing? Overseeing a number of ballast water operations using ballast water treatment systems, we have often been astonished at the disproportional focus on the actual treatment system versus the interfaces to the vessels ballast water distribution system (piping) and the training of the crew in light of actually achieving compliance.

Improper operation by crew, for example in achieving the correct sequence of valve alignments, and inadequate consideration of the interfacing piping arrangements in light of vessel draught, tank levels, etc. have jeopardized many of these operations and undoubtedly will do so when the Convention is enforced. It doesn't take much to screw up; assuming the zooplankton concentration of the intake water is 100,000 individuals and that by-pass valves have a 0.1 percent misalignment, it could only take a few seconds of operations before the tank is contaminated.

One would think that this is covered by the Ballast Water Management Plan and would be discovered by the shipboard testing. Unfortunately - they are not. Our

experience is that the Plan is insufficient and does not represent as a practicable tool.

Turning a blind eye to these issues seems irrational given the massive investments made by both manufacturers and regulators in assuring that the actual ballast water treatment system unit functions properly through a very sturdy approval regime.

IMO Sets Up Website for Kids: A new kid-friendly website has been set up by the IMO.

The website includes a specially-commissioned animation showing how IMO works to protect the marine environment and the atmosphere.



By clicking on the colourful links, young people can learn more about IMO's work. Topics include protecting the atmosphere, dealing with waste, clean oceans, invasive species, particularly sensitive sea areas and protecting marine life from noise pollution.

Maritime Safety Committee Meets this Week

IMO's Maritime Safety Committee (MSC) meets this week and will continue discussion of mandatory measures to protect offshore alternative energy technicians as they are transferred to their place of work by sea. The Committee will consider interim measures ahead of the adoption of a proposed new Code.

Other important items on the agenda include the adoption of amendments to SOLAS, including those related to subdivision and damage stability. New STCW training requirements for masters and deck officers on ships operating in Polar Waters and an extension of emergency training for personnel on passenger ships will also be up for adoption. The outcome of work by various technical Sub-Committees will also be considered by the Committee. The session was opened by IMO Secretary-General Kitack Lim and is being chaired by Mr Brad Groves (Australia).

Disposal of Mining Waste at Sea

New work to assess the environmental impacts of wastes from mining operations which have been disposed into the marine environment is set to begin shortly. The work will be undertaken by a dedicated working group, established by the Joint Group of Experts on the Scientific Aspects of Marine Environmental Protection (GESAMP).

GESAMP, which is a UN advisory body, set up the working group when it met for its 43rd annual session, in Nairobi, Kenya (November 14-18).

The move to assess the impacts of mining wastes at sea comes in response to a request from the Parties to the London Convention and Protocol, which regulate the dumping of wastes at sea.

COP22: Pledges for Action, Renewable Energy Uptake:

The U.N. Climate Change Conference came to a close in Marrakech last week after two weeks of negotiations and hundreds of activities and side-events featuring Heads of State and Government, delegations and participants from around the world.

In closing, COP22 President Salaheddine Mezouar said that despite resoundingly delivering on the promise of a COP of "action," we have just started. "We have a year ahead of us in our Presidency to accelerate and achieve even more bold climate action."



Over 40 countries vulnerable to climate change have agreed to use only renewable energy by 2050 including Afghanistan, Haïti, Philippines, Bangladesh, Honduras, Rwanda, Barbados, Kenya, Saint Lucia, Bhutan, Kiribati, Senegal, Burkina Faso, Madagascar, South Sudan, Cambodia, Malawi, Sri Lanka, Comoros, Maldives, Sudan, Costa Rica, Marshall Islands, Tanzania, Democratic Republic of the Congo, Mongolia, Timor-Leste, Dominican Republic, Morocco, Tunisia, Ethiopia, Nepal, Tuvalu, Fiji, Niger, Vanuatu, Ghana, Palau, Vietnam, Grenada, Papua New Guinea, Yemen and Guatemala.

The Marrakech Vision adopted by the Climate Vulnerable Forum breathes new and strong commitment: "We aim to survive and thrive in a world where, as soon as possible and at the latest by 2030 to 2050 the dangers of climate change are kept to an absolute minimum."

The leaders from developing countries united in the Forum are far from being doomsayers, says Sabine Froning, spokeswoman for energy giant Vattenfall. On the contrary, they see many advantages in climate action. Remarkably and contrary to the fears of many actors in industrialized nations, the Marrakech Vision does not consider sustainability as a barrier to economic development but as a motor for strongest possible growth.

The least developed and low- and middle-income developing countries see climate investment as an opportunity, while striving at eliminating high-carbon investments and harmful subsidies, says Froning. Not least they aim at becoming leaders in renewable energy. Among the goals to be achieved at the latest by 2030 to 2050 they state: "We strive to meet 100 percent domestic renewable energy production as rapidly as possible while working to end energy poverty, protect water and food security."

In addition to Marrakech Vision and the Marrakech Action Proclamation For Our Climate And Sustainable Development that was arrived at through the involvement of more than 70 heads of state, the conference produced scores of declarations, initiatives, MoUs and agreements.

Some key achievements include:

- the first meeting of Parties to the Paris Agreement (CMA1), the agreement by Parties to set a fast track for the completion of the Paris Agreement rulebook by 2018,
- the delivery by the U.K. and Australia of the \$100 billion dollar annual climate finance roadmap by 2020,
- the Global Environment Facility (GEF) Capacity-building Initiative for Transparency backed by 11 developed country donors providing \$50 million-worth of funding,
- Parties pledged more than \$81 million to the Adaptation Fund and \$23 million to the Climate Technology Centre and Network,
- the \$500 million Marrakech Investment Committee for Adaptation Fund was launched in partnership with The Lightsmith Group, based in the United States, BeyA Capital, based in Africa, and the Global Environment Facility,
- the NDC Partnership on capacity building was launched as well as the Secretariat in Morocco of the International Climate Change Center of Excellence and Think Tanks for Capacity Building (INCCETT 4CB),
- the Climate Vulnerable Forum declaration calling to limit global temperature rise to as close to 1.5 degrees Celsius as possible,
- the Water for Africa initiative established by the Kingdom of Morocco and supported by the African Development Bank.

U.N. Secretary-General Ban Ki-moon urged companies to further increase their commitment to climate action. "Now it is time to turn words into deeds, to seize the opportunity before us for. We have no time to lose ... that is why Marrakech is critical for strengthening the global climate action agenda, ensuring that we close the gap to meet the below 2 degrees pathway. And that's where business has an enormous role to play."

The U.N. Global Compact released the 2016 Status Report on the Business Contribution to Global Climate Action. The report found that there are now 30 business-led initiatives registered on the U.N.-backed NAZCA climate portal, in total including more than 3,300 companies and organizations. Since COP 21, the number of businesses participating in these initiatives has increased by 17 percent and 27 percent of these business participants have their headquarters in developing or transition economies.

The Kingdom of Morocco also announced its Blue Belt Initiative aimed at building the resilience of coastal communities and promoting sustainable fisheries and aquaculture and the launch of the Adaptation for African Agriculture (AAA) initiative aimed at building resilience among small-holder farmers in Africa by promoting sustainable soil, water and risk management through capacity development, policies and funding mechanisms.

More than 110 Parties have now ratified the Paris Agreement providing a key political signal towards global commitment to climate action.

An important international meeting between 37 National Human Rights Institutions also occurred, focusing on the implementation of the Paris Agreement and the UN 2030 Sustainable Development Goals. An important meeting of labor unions featuring 40 from Africa and the International Trade Union Confederation was also held during COP22.

COP23 will be presided over by Fiji and held in Bonn, Germany in 2017, and COP24 will take place in Poland.

Royal Navy patrol boat chased a research vessel out of waters: A Royal Navy patrol boat chased a research vessel out of waters off Gibraltar by firing a volley of flares.



The Spanish research vessel Angeles Alvarino entered the area several times over the weekend, and the Royal Navy ordered her to leave each time. On Sunday, she did not respond and did not depart when asked, and the patrol vessel HMS Sabre approached and fired warning flares to chase her off.

The Royal Navy said that the Alvarino was attempting to deploy sonar buoys, potentially in an attempt to

support Spanish territorial claims: both Spain and the U.K. claim waters off of Gibraltar as territorial seas. Spain has pushed for a measure of control over Gibraltar as a whole for decades, but Britain says that the enclave's citizens overwhelmingly support its current status.

"The Royal Navy challenges all unlawful maritime incursions into British Gibraltar territorial waters. We back this up by making formal diplomatic protests to the Spanish government," said the UK Ministry of Defense.

Gibraltar chief minister Fabian Picardo supported the Royal Navy's actions. "I congratulate the Royal Navy for the work they have undertaken so far in very challenging circumstances in light of the reckless disregard for safety displayed by the official Spanish vessels involved," he said. "Diplomatic and political action must now support the excellent work undertaken by the navy personnel with limited resources."

This is far from the first time that British and Spanish government vessels have clashed off of Gibraltar. In May, the HMS Sabre chased off a patrol boat of the Guardia Civil when it allegedly tried to interfere with the transit of an American submarine.

Dangerous Waters in the Strait of Bab el-Mandeb:

On October 25, 2016, the Spanish-flagged merchant tanker Galicia Spirit came under fire when a rocket-propelled grenade (RPG) was fired at it from a small speedboat that had interdicted the vessel. The tanker was then attacked with small arms fire. The merchant vessel escaped catastrophic damage, and was able to continue its journey onward. However, only two days later, the liquefied natural gas (LNG) tanker Melati Satu was attacked in the same area, also with RPGs. The Tuvalu-flagged Melati Satu's crew sent out a distress call, were rescued by a Saudi Arabian naval vessel, and were subsequently escorted to safety. Both ships had been traversing the Bab el-Mandeb strait between south-western Yemen and north-eastern Djibouti. This small waterway must be negotiated to access or egress the Egyptian-controlled Suez Canal, which sits at the northern end of the Red Sea.



In a related development, throughout October this year there were several attacks on U.S. warships in or near the Bab el-Mandeb from sites along the Yemeni coastline. The USS Mason and USS Ponce both came under attack by assailants of unconfirmed origin, forcing the warships

to deploy anti-missile countermeasures and prompting U.S. forces to launch cruise missile strikes against targets in Yemen.

The Question of Responsibility

The most prominent non-state armed group (NSAG) operating in Yemeni territory contiguous to the Bab el-Mandeb is the Houthi rebel movement, which is opposed to the internationally recognized government of President Abd Rabbuh Mansur. It is not definitively known whether the speedboats that attacked merchant shipping were rebel forces or pirates. Furthermore, although the attacks on U.S. warships came from rebel-held territory and the U.S. responded by attacking rebel installations, Houthi officials denied involvement. However, Houthi forces had previously claimed responsibility for a October 1, 2016 missile attack on HSV-2 Swift, a United Arab Emirates (UAE)-flagged vessel, which was extensively damaged in the incident, and rendered inoperable. Due to the similarity of the tactics involved, as well as the fact these attacks occurred off the Yemeni coast, Allan & Associates (A2) assesses that Houthi forces were likely responsible for the attacks on vessels in the Bab el-Mandeb strait.

Security Risks: The Threat to Shipping

The attackers' identities are of secondary importance, however, compared to the risk that the attacks themselves represent. The implications of a declining security environment in the Bab el-Mandeb are substantial. The strait is one of a few strategic maritime choke points worldwide, a narrow but vital waterway that sea traffic must be able to navigate for maritime trade to function effectively. The Bab el-Mandeb is, at its narrowest point, only 29km across, and therefore even small craft launched from the Yemeni coast will be able to interdict all traffic passing through it. Almost all maritime trade between Europe and Asia, approximately \$700 billion annually, passes through this narrow waterway. Any security threats in this location would disproportionately affect global maritime trade routes and the security of sea lines of communication. As maritime shipping is approximately 90 percent of how the world's goods are transported, interference at these choke points is a serious threat to international business.

In April 2015, the United States Energy Information Administration estimated that 4.7 million barrels of crude oil and petroleum passed through the strait daily in the previous year. All traffic through the Suez Canal, the quickest route for European shipping to reach Asia, must pass through Bab el-Mandeb to reach the Gulf of Aden, and subsequently the Indian Ocean. In March of this year alone, 1,454,000 metric tons of shipping, carried on 80,495 vessels, transited the Suez Canal. A security threat in the Bab el-Mandeb, therefore, will have serious economic consequences for global trade, and could pose significant problems both for merchant fleets and for the companies that rely on their goods and commodities. Shipping lines must either re-route away from the Red

Sea for Europe-Asia routes, or continue to use the strait at increased cost and risk.

Business Risks: The Dilemma of Re-Routing

The quickest alternative route for European-Asian traffic, circumnavigating Africa via the Cape of Good Hope, would add at least 3,000 nautical miles to shipping. The additional time it will take to cover this route means vessels can fit in fewer trips, and therefore earn less revenue than they could otherwise in the one-year outlook. Although this cost is somewhat offset by the currently low price of crude oil, this still represents a substantial business risk to shipping companies, which could see their revenues and profits decline. Even with low oil prices, additional costs will have to be borne by maritime companies due to wage payments for at-sea staff, and increased distances will increase the amount of shipboard and dockyard maintenance required to keep vessels seaworthy.

However, even if merchant vessels brave the strait, they will still face substantial additional costs. These range from higher insurance premiums, to the cost of close-protection deployments on-board, and possibly additional payments to employees to compensate for the heightened levels of risk. Furthermore, if future attacks manage to cause substantial damage or loss of life on a civilian vessel, maritime logistics operators will be at risk of legal consequences on the grounds of failure to ensure adequate duty-of-care for their crews. Until the situation in the strait normalizes, merchant shipping must cover increased costs regardless of whether they choose to traverse the Bab el-Mandeb.

Ancillary Risks: The Limits of a Naval Response

The economic and security risks to shipping companies are compounded by the difficulty naval forces will have in neutralizing the threat in the Bab el-Mandeb. That said, major naval powers have seriously responded to the escalating threat in the strait. The U.S. Navy has already reinforced its presence in the surrounding area, and it is likely that the U.K. Maritime Component Command, which controls operations in Middle Eastern waters, will deploy additional assets to the region imminently.

The use of speedboats, which are quick, difficult to detect, and hard to interdict, presents challenges to even major naval powers operating in the region. Furthermore, the use of coastal sites to launch attacks on U.S. warships complicates military responses as the extremely poor security environment in southwest Yemen means that small teams could easily strike shipping and disappear before naval units can respond.

If it is confirmed that Houthi rebel forces are behind the incidents, any concerted naval action in the area will face determined resistance. Unlike the Somali pirates of the late 2000s, Houthi fighters are ideologically motivated, trained, battle-hardened, and well-armed. Moreover, they have freedom of movement in areas of south-western

Yemen under their control. While international naval power, supported by air power and special forces, will likely be able to contain the threat, full elimination of Houthi capability is an unrealistic objective without substantially more committed resourcing

Therefore, the difficulties of a naval response preclude an easy solution to the crisis and therefore increase the risk facing civilian merchant shipping operators. This is because it is unlikely a military solution will be sufficient in itself to quickly neutralize the attackers and restore security.

Security Recommendations for Merchant Shipping

A2 recommends that maritime logistics and security managers consider the southern Red Sea and Gulf of Aden a high-threat area until the situation stabilizes, and this should be immediately communicated to relevant bridge officers. Shipping that continues to ply this route in the interim should undertake mitigatory strategies.

This includes increasing ship speed, when possible traversing only during daylight hours, enhancing all watchkeeping procedures, and ensuring damage-control crews are kept on stand-by. Contact with international naval forces in the area should be maintained at all times. Maritime security officers should be considered while close to Yemeni waters. Security officers could be taken on-board at Egypt, Madagascar, the Maldives, or Oman depending on shipping route, to keep costs minimal. Maritime operators should also ensure ship crews are trained on actions to take in the event of coming under RPG or small-arms fire.

Slow vessels with low freeboards which lack the ability to evade potential attack should consider re-routing. This will include small pleasure craft as private individuals are very unlikely to have the training or resources to mitigate the potential threat. Due to the additional transportation time involved with this approach, render re-routing a last-resort measure, however.

A2 reminds managers considering deploying armed security personnel to obey all relevant national legislation pertaining to the ownership and use of weapons by civilians in order to avoid potential legal reprisals from national coastguard and law enforcement agencies.

Conclusion

The situation in the strait is likely to escalate, leaving both naval and civilian vessels at risk. The seriousness of this is compounded by the trouble naval forces will have in effectively responding to the asymmetric threat. Shipping companies therefore must make a cost-benefit analysis between continuing to use the strait or re-routing around the African coastline and consider the risks of each approach. A2 recommends maritime logistics entities consider the above security advice, and prepare for further deterioration in the security environment of the Bab el-Mandeb.

New Zealand Accepts First U.S. Warship in Thirty Years:

The Royal New Zealand Navy is celebrating 75 years with an International Naval Review in Auckland harbour which has hosted the first U.S. warship to visit New Zealand in over 30 years.

The arrival of the destroyer USS Sampson last week ends a military stalemate between the countries after New Zealand banned a U.S. destroyer in 1985.

The U.S. has not officially confirmed or denied if its ships have nuclear capabilities, so New Zealand imposed a blanket ban. However, Prime Minister John Key has stated that he is confident that the USS Sampson is not nuclear powered or carrying nuclear weapons.

The United States and Australia viewed the ban as a breach of the three-way ANZUS treaty, and in 1986 the U.S. suspended treaty obligations to New Zealand.



Despite the ban, the nations have remained allies. New Zealand supported the U.S.-led war on terror in Afghanistan and has sent soldiers to help train Iraq's armed forces.

En route to Auckland, USS Sampson diverted to Kaikoura in New Zealand after the area was hit by a 7.8-magnitude earthquake last week. About 20 members of USS Sampson's crew assisted with mechanical engineering, electrical engineering, damage control, and medical treatment.

Naval Ships from 15 Nations

The New Zealand Navy's International Naval Review, running from November 16 to 22 November, has seen the arrival of naval ships from 15 countries. These include Singapore's the RSS Resolution, Japan's JDS Takanami, South Korea's Rok Chungbuk, Australia's HMAS Dechaineux, Indonesia's KRI Banda Aceh, China's CNS Yancheng, and India's INS Sumitra.

Naval Beginnings

On October 1, 1941, His Majesty King George VI approved the designation "Royal New Zealand Navy" for the regular element of the New Zealand Naval Forces.

The British Royal Navy originally provided security for the colony of New Zealand, but in 1846, the settlers bought



their first gunboat. Later, the Waikato Flotilla operated from 1860 to 1865, and at the same time a Naval Artillery Volunteer corps was established to provide harbour defence. In 1884, the government purchased four new spar torpedo boats, and in 1887 it funded ships of the Australasian Auxiliary Squadron.

Before establishment of the Navy, the people of New Zealand paid for the construction of the battlecruiser HMS New Zealand, which served with distinction at the Battle of Jutland.

The Naval Defence Act 1913 formally established the New Zealand Naval Forces, and the old RN cruiser HMS Philomel was the first to be commissioned into it. From 1921, the forces were known as the New Zealand Division of the Royal Navy, operating two cruisers and a minesweeper.

When Britain went to war against Germany in 1939, New Zealand also declared war. In recognition of the fact that the naval force was now largely self-sufficient and independent of the Royal Navy, the New Zealand Division of the Royal Navy became the Royal New Zealand Navy (RNZN), the prefix "royal" being granted by King George VI (as King in right of New Zealand) on October 1, 1941. Ships were then prefixed with HMNZS (His/Her Majesty's New Zealand Ship).

Maersk Line Named "World's Best Organization For Employee Development":

Maersk Line was named the world's #1 organisation for employee development in the Association for Talent Development's (ATD) 2016 BEST Awards - the talent development industry's most rigorous and coveted recognition - at a ceremony held in Washington, D.C. on 5 October. Central to the win was Maersk Line senior leaders' commitment to people development and a strong partnership between Human Resources, global functions and project teams in building specialisation and functional excellence to drive Maersk Line's strategy. This includes, among others, building and implementing leadership development, digitisation, commercial excellence, customer service and sales excellence programmes.



"It is a great honour to be considered best-in-class at developing our people, who are the reason why we remain an industry leader," says Ulf Hahnemann, Chief Human Resources Officer. "We are now more than ever committed to continue our world-class approach to talent development."

This is the second consecutive win for the company, having placed fourth in the 2015 BEST Awards. This year, Maersk Line competed against nearly 150 companies from 13 countries.

Prior to the ceremony, Maersk Line and 36 other winning organisations were invited to share their best practices with other training and talent development practitioners at the "Learn from the BEST" conference.

The BEST Awards recognise organisations that demonstrate enterprise-wide success through talent development. "Creating innovative, vibrant learning cultures and developing talent in ways that clearly contribute to strategic business goals, are hallmarks of ATD BEST winners," says Tony Bingham, ATD President and CEO. "They get it. Leaders in these organisations value the impact that talent development achieves, because they know that having a knowledgeable and skilled workforce drives success."

Every organisation submitted quantitative and qualitative information to ATD about their talent development practices and programs. Applications were assessed in a blind review by members of the BEST Awards advisory committee, a select group of experts in the field.

Passenger Ship Safety Level To Be Considered By IMO: Which safety level should be established for small passenger ships and what is it technically possible to acquire? These are some of the items on next week's IMO agenda.

$R = 0.000088 * N + 0.7488$ or $R = 0.0719 * \ln N + 0.291?$

At the 97th session of the Maritime Safety Committee (MSC), the IMO is to take a final position on the choice between these two formulas.

The formulas are part of the basis for calculating how a passenger ship must be constructed in order to have



a sufficient tolerance in case of damage that results in a hole in the hull.

Director Per Sønderstrup from the Danish Maritime Authority:

"The formulas reflect that the IMO no longer adopts very detailed regulations that state exact technical solutions based on traditions and experiences gained back in time when ships were coal-fired. Today, the IMO has the ambition of adopting regulations based, inter alia, on research and physical principles and making it possible to construct new solutions that have not been seen before. Denmark supports this since we are working actively to make regulation goal-based and function-based rather than to promote technology-neutral regulation and innovation, thus giving Blue Denmark the best possibilities of using its competences in global competition."

Denmark advocates achieving as high a safety level as technically possible, and what is to be considered in the IMO is exactly about what is technically possible when room must still be available on board for goods and passengers and when the ship is, for example, to enter existing ferry berths. Agreement is expected about one or the other formula during the weekend once the arguments have been debated.

Search And Rescue 'Heroes' Announced At First IMRF International Awards Event:

Stories of dedication, selflessness, innovation, courage and bravery dominated the events held in Washington D.C., USA and Lisbon, Portugal yesterday when the winners of the International Maritime Rescue Federation's (IMRF) H.E.R.O (Honouring Excellence in Rescue Operations) Awards were announced. The H.E.R.O. Awards have been developed in cooperation with IMRF partner McMurdo, a global leader of emergency readiness and response solutions, and draw attention to the life-saving work done in Search and Rescue (SAR) across the world.

The categories for the awards include team, individual, innovation and technology and the first H.E.R.O. Award for outstanding service to maritime search and rescue - 'The Vladimir Maksimov Award', sponsored by Inmarsat

- a tribute to the Inmarsat former Director of SOLAS Services, who died earlier this year. In recognition of his considerable contribution to search and rescue, Vladimir also posthumously received a lifetime achievement award.

The winners announced last night are from Morocco, Mohammed Drissi, and 'The Vladimir Maksimov Award'; from France, Captain Herve LEPAGE for the individual award; from Greece, Proactiva Open Arms for the team award and the UK and Ireland's Royal National Lifeboat Institution's (RNLI) James Benson and Bournemouth University for the technology award.

Said Bruce Reid, CEO, IMRF: "We have all been impressed and humbled by the quality of the nominations for these awards. We congratulate the winners and thank all the nominees for their selfless commitment to saving lives across the world. 10s of 1,000s of people are rescued every year, the awards are our way of saying thanks to everyone involved in the SAR."

Mohammed Drissi first became aware of search and rescue in 1996 when his 148m RORO (Roll-on/roll-off) ship rescued 12 people that had been aboard a small wooden vessel that was in distress in rough seas. This was his very first search and rescue mission and it would not be his last...it inspired him to learn more.

After joining the Moroccan Ministry of Fisheries in 1998 he soon became a SAR regional coordinator and by 2000 he was overseeing the development of the Moroccan SAR services as part of RMRCC Rabat. To this day he continues to dedicate himself to search and rescue as the Regional Coordinator for IMO for the Rabat SAR region. This region links 6 countries and he works across the borders and boundaries demonstrating true leadership in guiding the SAR development across the Regions of Africa. This is just a small glimpse at the influence that Mohammed has had on search and rescue and over 20 years after his first encounter with search and rescue he is still sharing his experience and knowledge with the search and rescue community.

Captain Hervé LEPAGE, Master of CMA CGM ROSSINI and crew won their individual contribution award for the skilled search and rescue of the crew of the upturned catamaran Llama Lo off the South African Wild Coast on the 18th October, 2015. Hervé Lepage is master of the 277-meter (910 foot) French registered container carrier CMA CGM Rossini, and was involved in the search for Jean Sitruk, 65, and Kyle Castelyn, 20, after their capsized catamaran Llama Lo was found 50 miles off the Wild Coast, on South Africa's south eastern shores.

Jean, from Lyon, France, and his crewman Kyle, from Strand, Cape Town, were on passage from the Maldives. The yacht was on autopilot, making 12-13 knots in rough seas. Both men were down below when, with a loud bang, the yacht momentarily stopped and then swung hard to port. Kyle saw a whale on their port side and water was flooding into the hull through a 70 centimetre

(28 inch) hole. After watching the container ship for more than two hours slowly coming towards them Captain Lepage sailed the Rossini up to the little yacht tender, leaving Kyle and Jean only a few metres to paddle to the side of the ship.

The Proactiva Open Arms Team won the team award for the traumatic rescue of several hundred victims of people smuggling whose vessel broke apart in the sea off Lesbos with considerable loss of life. The team found hundreds of people in the water, some holding together around large pieces of wood that had once been part of their boat, and saved as many of them as possible. A huge, old wooden boat fishing boat, so overcrowded the upper deck had collapsed, had capsized near the border line between Turkey and the north of Lesvos.

More than 350 people fell into the water between huge pieces of the broken boat. That day the sea was rough and it soon became apparent that they would be the only team able to make a safe approach to the victims. They had to choose among hundreds of people who would be rescued first, sometimes taking children from the arms of their mothers. One of the most dangerous parts of the rescue was the transfer to Hellenic Coast Guard and Frontex vessels.

James Benson with the RNLI and Bournemouth University design department, who won the technology award, have worked together to develop an original and innovative design by James. The "Bottle Buoy" is aimed at low resource communities and is a minimum cost flotation device that can be used as public rescue equipment and swimming instruction. The device is simple and allows 3 soft drink/water bottles to be attached to a central hub and produce around 60N of Buoyancy.

Discarded plastic drinks bottles are now in abundance in many low resource environments. Instructions and a simple template have been developed to allow the bottle buoy to be produced in the local community using items that could be found easily. Production development and use testing has been undertaken in Bangladesh in partnership with the "Seasafe lifeguard service" in Cox's Bazar and Bournemouth University's Faculty of Science and Technology. The Bottle Buoy is now in use in Bangladesh and will undergo further testing before a final resource manual is made open source.

A local award was presented to The Maritime Rescue Coordination Centre - MRCC Lisboa & MRCC Delgada in Lisbon. Portugal has the largest SAR Region of the entire European continent. For a small sized country such as Portugal, this represents a responsibility across an area sixty-two times larger than the mainland, comprising more than 5 million square kilometres. Both centres are responsible for coordinating the search and rescue at sea in the SAR Regions of Lisboa and Santa Maria. In 2015, the Portuguese SAR Service (MRCC Lisboa and Delgada) registered a total of 636 SAR events that resulted in 501

lives saved. This operational result was achieved with a high overall success rate of 97%, as defined by the IMO formulas for efficacy rate of rescue at sea.

The judges also made Special Commendation Awards to the NGOs acting in the Mediterranean and to The Italian Coastguard & MRCC in Rome for their life saving work for refugees and migrants in the Mediterranean and the Aegean.

The H.E.R.O. Awards 2016 recognise actions that took place, or were completed, in the period 1st July 2015 to 30th June 2016. No applications were accepted for events or actions that fall outside this period.

Sri Lanka To Negotiate \$125 Mln Chinese Firm Seeks For Port Delay:

Sri Lankan Prime Minister Ranil Wickremesinghe is heading to Beijing on Wednesday to negotiate a \$125 million penalty that a Chinese state firm is seeking from Sri Lanka for suspending work on a big port development project.

Sri Lanka ordered a review of the \$1.4 billion Colombo port city project last year, citing irregularities in the award of the contract to state-owned China Communication Construction Company (CCCC) by a previous government.



Last month, the Sri Lankan government, facing a difficult economy, ordered the Chinese firm to resume work on the port city, the island nation's single biggest foreign investment project, that includes apartments, shopping malls and marinas near the capital, Colombo.

But CCCC, which had estimated that the shutdown would result in losses of more than \$380,000 a day, has sought compensation of \$125 million, said Patali Champika Ranawaka, a minister in the Sri Lankan government.

"We can't pay, we are going to negotiate," he said.

Wickremesinghe who began a four-day visit to China to rebuild investor confidence will be discussing the compensation demand with government leaders along with a mechanism to ease the debt burden, possibly by rescheduling loans, Ranawaka said.

Sri Lankan government data shows Sri Lanka has to pay about \$8 billion to China in loans, a government minister told parliament last month.

Asian giants India and China are vying for influence in Sri Lanka. China has built roads and ports on the island

that India has long seen as its area of influence.

Sri Lanka has sought to balance ties with China and India under President Maithripala Sirisena.

Both Sirisena and Wickremesinghe have visited India seeking investment, but the pace of Indian activity on projects is slow, offering China a chance to gain ground.

"Sri Lanka has been moving towards the middle after criticising China," said Sasha Riser-Kositsky, Eurasia Group's South Asia analyst.

Ahead of his visit, Wickremesinghe said Colombo wanted to build long-term economic and investment relations with China.

The flagship Colombo port city project would be given special status as a unique financial district with its own tax laws, he told China's official Xinhua news agency.

The two sides were also in talks on setting up a special economic zone in Hambantota in the south where China has already built a sea port and airport, he said.

When asked about the disagreements between the two countries since Sri Lanka's new government took over, Chinese foreign ministry spokesman Lu Kang said it was natural for countries, even good friends, to have differences on certain bilateral projects at certain times.

"This does not impact upon the generally friendly relationship between China and Sri Lanka nor their determination to keep deepening these ties," Lu said.

InterManager: We Must Future Proof Our Industry:

InterManager, the third party and in-house ship management association, has urged the maritime industry not to neglect its duty in ensuring a sustainable future. Speaking at CrewConnect Global, InterManager's President Bjørn Jebsen and Secretary-General Capt Kuba Szymanski spoke of the necessity of working closely with key decision makers to maintain a resilient industry.



Addressing delegates during his session, Mr Jebsen said: "If we look at the overall shipping industry we can assume that the world fleet will continue to grow, which means an increased requirement for skilled and competent seafarers. This may present itself with a few problems, though. With the downturn in the industry, shipping companies are cutting costs and may not make the required investment in manpower for the future.

"This is being seen through maritime schools, which are struggling to provide the education to give young people

the training they need to develop the skills and competence our industry requires. We must work together to address a maritime education system that is struggling to meet even the existing requirements."

The notion of ensuring a sustainable future was further heightened by Capt Kuba Szymanski, who chaired a panel on the findings of Project MARTHA; a fatigue study coordinated between InterManager and other industry bodies. "We cannot ignore the findings, so what ship managers do next is crucial; whether that be reducing bureaucracy or listening to vessel's staff comments and suggestions," Capt Szymanski said.

"If fatigue is not addressed soon, seafaring could be in jeopardy of becoming an out-of-touch profession. That is why it is vital the whole industry works together, starting today," he added.

LNG marine fuels are gaining market share as emissions' and costs' benefits are hard to ignore says Titan LNG:

The recent decision by the IMO to limit the amount of sulphur emissions from vessels is bound to have a significant effect in the shipping market, as it will reduce the global sulphur cap to 0.5% from 2020 onwards. As such, alternative fuels, such as LNG are bound for a take off in the years to come, with industry players ready to implement the changes needed in order to achieve the goals set. Mr. Schaap, Commercial Director Marine, Titan LNG, discussed with us the possible implications, noting that LNG as a marine fuel is a leading solution at the moment, as it makes sense both in environmental terms, as it grants compliance to the new rules, as well as from a business' point of view.

Titan LNG recently announced a new LNG delivery solution for the safe delivery of LNG to both sea-going and river barges in ports in the ARA (Amsterdam - Rotterdam - Antwerp) region.



Can you tell us more about it and how has it been received by the market so far?

The Titan LNG Flex-Fueler is the first LNG bunkering pontoon in North West Europe. The solution will enable the safe delivery of LNG to both sea-going and river barges in ports in the ARA (Amsterdam -

Rotterdam - Antwerp) region, which is Europe's largest bunkering hub. It has been designed to be extremely flexible, as it can supply inland waterway vessels from a fixed location, but can also be navigated to larger sea-going vessels and safely supply LNG while cargo is being loaded or unloaded. In addition, the Titan LNG Flex-Fueler is currently more economical than conventional LNG

bunker barge delivery due to its low operational and capital expenditure (CAPEX and OPEX) requirements.

The Titan LNG Flex-Fueler has received much applause from the market as an innovative delivery solution. Preliminary feedback from customers, fellow competitors, ports, equipment suppliers, and class societies has validated the original scope of the project, to provide the "missing link" that the market has been waiting for. We are confident that our solution will be instrumental to enabling safe, economical and speedy LNG delivery in the ARA region.

What are your future plans for this new delivery solution of LNG fuel to the marine industry? Do you see this as a "pilot" to expand in other regions as well? Is this feasible?

The official launch of the Titan LNG Flex-Fueler bunkering pontoon is in Q1 2018. In the meantime, we are continuing to work with several industry stakeholders, including ports, ship owners, operators, and class societies to further develop the design and classification. The hope is to be able to duplicate the current model for various regions and ports. There certainly seems to be an appetite from the market, as we have received several enquiries in relation to the capacity and capability of the pontoon to function in other ports. Notwithstanding the fact that every port is unique, a key requirement for the pontoon to function at an optimal level is sheltered waters, as it needs to be able to quickly, easily, and safely manoeuvre. Therefore, if there's a consistent calm sea, it's certainly possible to duplicate it into other ports.

Titan LNG is among the leading companies in LNG bunkering services in the north west Europe. According to your opinion, which will be the main future hubs for LNG bunkering globally? For instance, just this week, it was announced that Lithuania will also perform LNG bunkering operations from its LNG terminal.

There is no denying that several future hubs for LNG bunkering are emerging. One need only look at recent news that follows the busiest trade routes in the world to see that initiatives are being announced which open up longer trade patterns for LNG fuelled vessels - whether they are in Singapore, or in the Mediterranean, or around Fujairah. There's also a lot of buzz around LNG bunkering hubs. Unsurprisingly, the US is pushing ahead as expected, and Europe although not necessarily paving the way, is developing steadily. What is very exciting is that the scope of the project goes from very small (e.g. tugs) to very big vessels (e.g. cruise vessels), reaffirming the need for a flexible solution that can be deployed in various locations.

LNG has been touted by well-established maritime leaders, like DNV GL and others, as the fuel of the future for the business. Which are the main benefits when it comes to its use as fuel for ships?

The main benefits of LNG as a marine fuel are two-fold

- there's the environmental and the business case. Ship owners and operators are under increasing pressure to comply with evolving legislation, which seeks to ensure the shipping industry plays its part in reducing greenhouse gas emissions. Just last week, the IMO's Maritime Environmental Protection Committee ruled in favour of global regulations to limit the amount of sulphur emissions from vessels. The regulation which will come into force from 2020 has significant implications for the industry, reducing the global sulphur cap to 0.5%. The committee also ruled in favour of the establishment of a North Sea and Baltic Sea nitrogen oxide (NOx) emission control area (ECA), or NECA for vessels built from 01st January 2021 onwards. LNG will therefore play a key role in assisting owners and operators in complying with ever tightening environmental regulations. We strongly believe in LNG's potential as a 'future fuel' as it is less costly than traditional marine fuels, and offers significantly lower emissions of nitrogen oxide, sulphur, and particulate matter. Progressive owners and operators are already taking the necessary steps to future-proof their vessels, and as the business case for LNG as a marine fuel continues to improve, it's becoming an increasingly attractive solution for the long term.

Just a few days ago, a network of ports from Antwerp and Rotterdam to Singapore and Zeebrugge was formed to develop the world's first set of harmonized LNG Bunkering standards. How do you evaluate this initiative in terms of your business?

Global standards are certainly beneficial with regards to ensuring a harmonised approach to LNG Bunkering. We welcome the efforts of the Society for Gas as a Marine Fuel (SGMF) for example, who are working towards standardising and streamlining the bunkering procedures for transferring bunkers, including custody transfer, emergency shutdown systems (ESD), and other safety checks and parameters. We are very much looking forward to actively participating in standardising these procedures, once we have our pontoon on the water. This is one of the key reasons we are currently testing the market with our solution, to ensure that we have the maximum flexibility and capability to deliver LNG to the array of vessels which are currently being built or are already operating on LNG.

However, it is worth noting that while global standards are helpful, operators must ultimately ensure that they adhere to local practices, rules, and regulations. They must ensure that infrastructure is compliant with local legislation, and that this may at times require changes from port to port.

Do you think it will help grow shipowners' confidence in using LNG for their vessels?

Global standards are far more effective and easier to enforce once adapted for local suitability. But experience also plays an important role in buoying confidence and

common practice will prove more compelling than rules "from above". However, what we believe will have a far more tangible effect, is positive 'word-of-mouth' recommendations from operators currently trialling LNG as a marine fuel, to reassure the market that it's simply 'business as usual' and reiterate that the business case is continuously improving.

Which are the main hurdles to a wider adoption of LNG as fuel for the maritime industry?

There are more and more LNG powered vessels in operation, which not only demonstrates that experience is maturing, but that the barriers to uptake are coming down. The cruise sector, as an example, has seen several recent announcements of various key operators endorsing the suitability of LNG as a marine fuel. To support wider adoption, it will be important that first movers from every segment of the industry are vocal about the benefits of LNG as a marine fuel.

Do you think that this will be the long-term solution for shipping fuels, at least for next two decades, or will conventional bunker fuels, even in high-sulphur form, be the prevailing fuelling solution for many more years?

LNG will undoubtedly play a crucial role in the future fuel mix, particularly for those vessels that are continuously trading in environmentally sensitive areas or in environmentally controlled areas. Given the recent IMO decision to enforce a 0.5% global sulphur cap from 2020, we will see a dramatic shift in the conventional fuel landscape, with heavy fuel oil and gas oil being heavily impacted. This will drive significant changes in the various product streams, but it's perhaps too soon to stipulate exactly what that will look like.

What is certain however, is that LNG will have a percentage of the market, although it may not be more than 10% at any time soon. Hastening the speed of LNG uptake requires a positive combination of evolving legislation and regulation, a continuous favourable business case for LNG as a marine fuel, and an evolving supply chain. As they are all linked, if everything goes to plan, the rise of LNG as a marine fuel will be quick. But equally, if one of them falls behind, this will inevitably have a negative impact on the wider adoption of LNG as a marine fuel. For now, all three areas are looking very positive.

Which shipping segment is more aggressively exploring LNG as a viable alternative (i.e. cruises, tankers, dry bulk, container etc.)?

We've seen first movers in almost every shipping segment, which is very positive news as it demonstrates that LNG is suitable as a marine fuel for a large variety of vessels. However, we've definitely seen some front runners, for instance in the cruise and tanker segments respectively, as well as some dredgers. For tankers, the main advantage is that ships can place LNG storage tanks

on deck, meaning they don't necessarily lose cargo space - a key consideration that is often raised as an obstacle for considering LNG as a marine fuel. There will be more and more incentives for operators as ports and governments look to develop a more sustainable way of operating within port parameters, either in the form of tax reductions for example, or gradually awarding contracts to operators with the lowest emissions profiles.

Harmony of the Seas death: One person killed and four injured after accident on world's biggest cruise liner:

A Harmony of the Seas crew member died and four others have been injured after a lifeboat fell off the world's biggest cruise ship. The record-breaking ship, which is operated by Royal Caribbean, is docked in the French port of Marseilles. One person is dead and four are injured, including two whose lives are in danger," a spokesman for the fire service told the AFP news agency. Five crew were onboard the lifeboat taking part in a safety drill when it "became detached" from the ship.



A spokesperson for Royal Caribbean said in a statement: "We are sorry to share the sad news that a crew member aboard Harmony of the Seas has died of injuries suffered during a lifeboat drill conducted while docked at the port of Marseilles, France. "Four other crew members received medical treatment in the same incident. We are keeping our colleagues and their families in our thoughts and prayers."

The liner only had its maiden voyage on 29 May. Built by shipbuilders STX France, it is the widest ever cruise ship at a maximum of 66m across and is 50m longer than the Eiffel Tower at 362m. Using its 16 decks, it can carry more than 6,700 passengers and 2,300 crew.

The Urgent Need of Proper Vocational Guidance for Maritime Careers:

Corporate-style management of maritime institutions and e-governance of flag state offices are not alien concepts. With new trends emerging in Maritime training, a lot needs to be done with the youngsters in India, at the induction level itself, to make them aware, about the true requirements of maritime careers and life aboard merchant navy vessels. A proper vocational guidance would help students to confirm, whether they have the



right aptitude and attitude for a particular maritime job, so as to have successful shipping careers. There is a common complaint from shipping companies, that the new maritime entrants are just not the right material for shipping. This is also borne out by the high attrition rate - the number of fresh entrants getting disillusioned about maritime careers, and eventually quitting shipping. The reason we are not able to retain people in the shipping industry is not the fault of the job itself, but more in the faulty method and manner of selection of students for various maritime careers. A properly planned vocational guidance can help a lot to resolve this issue. Prospective students, who seek to make their careers in the Merchant Navy, must have the necessary skill sets, in order to survive in the market place, over the long term. Today, the Maritime industry is going through a sea change, just as the rest of the industries worldwide. There is a new economic order, defined by new technology and globalization. Properly managed vocational guidance centers at least in the Metro cities, are vital, to face this challenge.

Joining the merchant navy is not a question of coining attention-catching slogans, such as 'Join the Merchant Navy and see the World' or 'Join Merchant and become a Millionaire'. These are, in fact, quite misleading. They give the impression, that a person joining is merely interested in travelling worldwide like a tourist, instead of doing a technical and highly qualified job or following a respectable maritime career. Such advertisements project entirely the wrong picture and attract the wrong set of people. Young students must know about the right things about the Merchant Navy before joining the field.

What is needed is a proper set-up to pick the right people from the sea of prospective candidates. Students seeking maritime careers must be capable of finding out whether they have the required aptitude or not. We need a center manned by competent staff, which will not only guide new entrants with vocational guidance, but will also assess their skills, capabilities and actual suitability, for the various maritime careers on board ship. Merely having people, knowing all the rules and regulations and the details of the maritime training courses offered, to convey the information to the students, whenever needed, is not at all the idea. This type, the so-called "counselling centers", already exists. Existing Counselling centers have

proved to be absolutely ineffective, since these places don't have the means to monitor and assess students, for aptitude as well as attitude, during practical work required for maritime careers.

Just passing IIT style Entrance examinations, where students have to answer several questions in certain time frame, is the most useless and unsuitable sort of system, especially for a practical profession like the Merchant Navy. Such method is only suitable for creating bureaucrats, who have no place among the highly qualified staff, required on modern merchant vessels. Lately, there has also been a flood of 'DG approved' private maritime training institutions, created in the wake of the so-called liberalization many of which are not even efficiently monitored, let alone properly controlled. Besides being labelled as 'money-making' institutions, they have succeeded in giving a bad name to the well-run maritime institutes, in particular, and the entire shipping industry, in general.

A focused and committed body, staffed by dedicated mariners, drawn from the shipping industry itself, could do a much better job at vocational guidance and monitoring maritime institutes, than the present overlapping of various Government agencies, which have proved inadequate in the task of watching over these private institutes. Possibly due to shortage of manpower and inadequate facilities, there is precious little of organised monitoring, leading to an obvious end result - a complete mess of the whole issue. Why this was not thought of, right in the beginning, is difficult to say. Probably, there may have been a fear, that corporatism of this would lead to a conflict of interests.

Misleading Ads to attract students should be banned

We must understand one thing that even any senior mariner, heading this office, is not going to be able to solve all the problems at once, like waving a magic wand. This would simply be a more focused attempt, to tackle the problem in a far more logical fashion, than what is presently being done, which is obviously not good enough. A proper plan to impart vocational guidance to new students seeking maritime careers is definitely an urgent need of the shipping industry.

Note: *This viewpoint could be considered as a fresh effort, to properly guide new entrants, seeking to make their maritime careers, in the Merchant Navy. This will also ensure that our existing Maritime institutes could get a more suitable quality of personnel to train.*

Understanding Conventions, Protocols & Amendments:

Conventions, protocols, and amendments are terms that are extensively in the shipping industry. Each and every aspect of shipping industry is related to some kind of conventions, protocols, and amendments. In this article we will try and understand differences between conventions, protocols, and amendments.

Conventions: International conventions are agreed when a number of countries, which are members of the IMO, feel that there is a need for a convention. Such countries meet together, usually at the invitation of the International Maritime Organization (IMO), and discuss about various proposals and finally come to an agreement which is recorded in the form of a Final Act of Conference.

Regulations are generally technical provisions of the convention.

Protocol : When a major amendment is to be incorporated on regulations of the convention, a protocol is called among the countries, who are signatory of the original convention when it was signed and approved. E.g. for MARPOL 73/78, the year 1973 in which the act was passed was the convention and in 1978 what was passed was the protocol.

Amendments: The regulations enforced by the conventions are required to be amended frequently from time to time to keep pace with the rapid evolving technology in the shipping world. Amendments of the convention can be made by either of the following methods described below:

- A) **After consideration within IMO:** Amendments proposed by the contracting government of the IMO are circulated at least for six months before consideration by the relevant committee. It is only after this that the amendments are adopted. Amendments come into action after being accepted by two-third majority of the contracting governments present and their voting.
- B) **Amendment by Conference:** A conference of the contracting government of the IMO is called when a contracting government requests for holding of a conference and at least one third of the contracting government agrees to hold the conference. Amendments are adopted when it is accepted by two-third majority of the contracting government present and their votes.



Nature itself is the best physician. - Hippocrates

“MARINE WAVES”

(International Maritime Newsletter)

CHENNAI – 600 090, INDIA.

Ph: +91-44-42018982

REGISTERED OFFICE

Edited and Published at

M107/5, Kalakshetra Colony, 29th Cross Street, Besant Nagar, Chennai - 600 090, INDIA.

Ph : +91-44-42018982

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“Maritime Group” knows as to what we are, not forgetting that we are here to share our valued flow of thoughts, inter-changed with quality of expression exchanged, is to arrive at a QUALITY consensus, since “MARINE NEEDS A MULTI-DISCIPLINARY APPROACH - Do something instead of killing time or else, time will be killing you.”

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