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SPECIAL REPORT

Where in Attica?

Revisiting the geographical allocation of Attica’s shipping neighborhoods

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Maritime Numbers

**US$300.7 bn**
the total exposure to shipping by the top 40 Banks, according to Petrofin Research.

**1,775.0 Mt**
the global demand for steel expected in 2019.

**119**
the number of piracy and armed robbery against ships incidents reported to the IMB Piracy Reporting Centre (IMB PRC) in 2019.

**US$19.52 bn**
the value of the Greek-owned LNG fleet.

**40%**
the percentage of electricity production that came from renewable sources of energy in the UK in Q3 of 2019.

**US$10 bn**
the amount Japan is planning to invest in LNG projects.

**73**
the number of ships sent for scrapping to South Asian beaches in Q3 2019.

**2.3 million sqm**
the size of the new logistics zone launched in Saudi Arabia.
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On the seafront

This month’s top news from naftikachronika.gr

**European Shipping Week to take place in February 2020**

Europe’s shipowners will once again join forces with the major European Bodies and Institutions in order to place shipping and maritime at the top of the agenda during European Shipping Week. It has been decided to bring the week forward to February next year to coincide more closely with Brussels-based activities by the European Parliament, Council, and the European Commission.

The Croatian Government, representing a nation with a strong maritime heritage, will hold the Council Presidency at the time of ESW2020.

Leaders in global shipping will join representatives from maritime stakeholders across Europe during the week in attending a multitude of events, which will examine both Europe’s strength on the global maritime stage and how regulators and industry can work hand-in-hand to turn the forthcoming challenges into opportunities for the EU.

According to the European Community Shipowners’ Associations, the challenges and opportunities posed by climate change and decarbonisation, the global competitiveness of the European shipping industry, the current threats to the multilateral trading system, the fast pace of change brought about by digitalisation and innovation, as well as the social aspects of the industry such as the promotion of diversity and gender equality will form the main themes of the week.

The initiative, started in 2015 by the European Community Shipowners’ Associations (ECSA), is once again run by a Steering Group made up of Europe’s main shipping organizations as well as the European Commission and Shipping Innovation.
Maritime piracy incidents down in Q3, yet Gulf of Guinea remains a hot spot

The International Chamber of Commerce International Maritime Bureau’s (IMB) report for the third quarter of 2019 demonstrates fewer incidents of piracy and armed robbery against ships than the first nine months of 2018.

119 incidents of Piracy and Armed Robbery Against Ships have been reported to the IMB Piracy Reporting Centre (IMB PRC) in 2019, compared to 156 incidents for the same period in 2018. Overall, the 2019 incidents include 95 vessels boarded, 10 vessels fired upon, 10 attempted attacks, and four vessels hijacked. The number of crew taken hostage through the first nine months has declined from 112 in 2018 to 49 in 2019.

While the overall number of incidents has dropped, incidents involving guns and knives remain consistent. There have been 24 knife-related and 35 gun-related incidents reported in 2019, compared to 25 and 37 for the first nine months of 2018. These statistics confirm IMB’s concerns over continued threats to the safety and security of seafarers.

The Gulf of Guinea remains a high-risk area for piracy and armed robbery. The region accounts for 86% of crew taken hostage, and nearly 82% of crew kidnappings globally.

European Community Shipowners’ Associations (ECSA) called upon the European policymakers to adopt a number of measures outlined in its recently adopted position paper so that vessels and crew can operate in a safe and secure environment.

“The perilous circumstances in the Gulf of Guinea raise alarm bells for the safety and security of seafarers sailing through that area. The threats are also putting at risk trade and development both in the region and globally. It is time EU Member States step up their efforts to strengthen maritime security in the Gulf!”, commented Martin Dorsman, ECSA’s Secretary General.

Global bank finance stands at the lowest level of the last 12 years

Petrofin Research presented its latest Global Bank ship finance research for the 11th year running. According to the research, the growth of the global fleet continues to be funded from non-banking sources. For example, during 2018, Chinese leasing to shipping stood at $51.3bn, compared to $47bn in 2017.
Another interesting finding is that $44.3bn has been knocked off the portfolios of the top 40 banks over the last year and global bank finance stands at the lowest level of the last 12 years. Over the last year, the consistent downward trend of European banks has continued, marking a 14% drop in exposure, whilst the US has posted an increase of 5% to their albeit still modest portfolio.

Compared to 2010, the European share of the global ship finance market has dropped from 83% to 58.7%. Far Eastern share stood at 34.8% in 2018 compared to 35.07% in 2017, still representing a significant rise since 2010 of approx. 140%. Regarding the American banks, they now occupy 6.48% of the market.

Putting the European bank global shipfinance portfolios under the microscope Petrofin research observes that Scandinavian banks also decreased their exposure and the German banks continue their steep fall. France shows a modest increase, due to BNP’s unwavering confidence in the sector. Greece is resuming ship finance with increased confidence combined with a reduction of non performing loans and an improved outlook for the Greek economy and its financial standing.

All in all, global ship lending by the top 40 shipping banks has fallen almost 35% since 2011. Although leasing has not replaced bank finance, it has gained both in popularity and volume and is often, especially for the medium to small owners, the only available and affordable source of finance.

Looking into the future, Petrofin Research anticipates continued growth by leasing companies. The same should be said of investment and family offices, which have grown enormously over the last decade, most of which, however, focus primarily on the equity side of the business, whilst the remainder focus on the ship finance side.

**Sulphur Cap 2020: stakeholders prepare for a sea of change from 1 January 2020**

From 1 January 2020, sulphur oxide emissions from ships will be reduced considerably under a forthcoming International Maritime Organization (IMO) rule. This will have significant benefits for human health and the environment – but also represents a challenge for the industry. The preparedness of all stakeholders for this significant change - as well as its challenges - were highlighted during a Symposium on IMO 2020 and Alternative Fuels, held at IMO, on Thursday 17 and Friday 18 October. The symposium brought together a range of speakers, including those from Member Governments, as well as from shipping, refineries, fuel oil suppliers, and legal professionals.

“Collaboration among key stakeholders is essential for the smooth landing of IMO 2020,” IMO Secretary-General Kitack Lim said, opening the symposium, which was attended by over 300 delegates. He highlighted the tremendous amount of work undertaken to prepare for IMO 2020 by all stakeholders, since the 2020 date was confirmed in 2016, including a series of guidance and guidelines for shipowners as well as flag and port States.

From 1 January 2020, the “IMO 2020” rule means that the limit for sulphur in fuel oil used on board ships operating outside designated emission control areas will be reduced to 0.50% m/m (mass by mass) – while in designated emission control areas (ECAs) the limit will remain at 0.10%. The current limit is 3.50%, so the change is significant and - for most ships – will mean a switch to new types of compliant fuel oils, so-called very low sulphur fuel oil (VLSFO), or marine gas/diesel oil. The VLSFO blends are new to the market.

Member States speaking at the symposium, including representatives from Denmark, Japan, the Marshall Islands, and Singapore, said that they were ready as flag and port States to implement and enforce the sulphur 2020 limit. Stakeholder meetings were a feature in many countries, bringing together industry and government officials to ensure preparedness.

In terms of supply of the new fuel oil needed to meet the 2020 limit, representatives from IPIECA, representing the oil and gas industry, and IBIA, representing the bunker industry, confirmed that supply of the low sulphur fuel oil was expected to be readily available in most locations and is already available in some. Many ships will be looking to load compliant fuel oil well before the end of 2019. However, there was an expectation of price volatility, and supply and demand would have to find a new balance that could take time – especially given that this involves many different actors, from refiners and bunker suppliers to ships and the shipping industry.

“It is all going to be about market dynamics - but supply and demand will get in balance. It will not be an easy transition, but we will get there,” said Eddy van Bouwel, Chair, marine fuels committee, IPIECA.

Speakers touched on the challenges new blends of fuel oil might bring, including potential quality issues providing challenges, in particular to the ship’s engineers, and the need for preparedness was reiterated, including crew training and reviewing clauses in charter parties.

Simon Bennett, Deputy Secretary-General of the International Chamber of Shipping (ICS), said that the shipowner organisation was confident that IMO 2020 will be a success. “However, the
huge enormity of such a regulatory game changer has never been attempted before and needs to be understood by all stakeholders.”

A representative from the International Standardization Organization (ISO) outlined the recently-issued standard, ISO/PAS 23263:2019, which addresses quality considerations that apply to marine fuels in view of the implementation of the sulphur 2020 limit and the range of marine fuels that will be placed on the market in response.

Other speakers explained how scrubbers (which will be installed on around 4,000 ships) and - to a lesser extent – LNG, are being used to meet the sulphur 2020 limit as well as the potential to reduce other emissions from ships. Summing up the first day, IMO’s Hiroyuki Yamada, Director of Marine Environment Division, reiterated the importance of cooperation among all stakeholders and encouraged Member Governments, shipping, refinery, fuel oil supply, and relevant industries, as well as charterers, to finalize their preparations for IMO 2020. IMO will make every effort to support the consistent implementation of IMO 2020 on the Sulphur limit.

These are the world’s 10 most competitive economies

Since 1979, the World Economic Forum has been taking the temperature of long-term economic growth and productivity in its Global Competitiveness Report. What is economic competitiveness? The World Economic Forum, which has been measuring countries’ competitiveness since 1979, defines it as: “the set of institutions, policies, and factors that determine the level of productivity of a country.” Other definitions exist, but all generally include the word “productivity.” The 2019 edition covers 141 economies, accounting for 99% of the world’s GDP – and finds that a decade on from the global financial crisis, most economies are still stuck in a cycle of low productivity growth.

The Global Competitiveness Report is a tool to help governments, the private sector, and civil society work together to boost productivity and generate prosperity. Comparative analysis between countries allows leaders to gauge areas that need strengthening and build a coordinated response. It also helps identify best practices around the world.

The Global Competitive Index forms the basis of the report. It measures performance according to 114 indicators that influence a nation’s productivity.

Countries’ scores are based primarily on quantitative findings from internationally recognized agencies such as the International Monetary Fund and World Health Organization, with the addition of qualitative assessments from economic and social specialists and senior corporate executives.

Singapore tops the rankings this year, with 84.8 out of 100. It has improved in all but two pillars since last year. It comes first for infrastructure, health, and its labour market, and second for institutions, financial system, and product market. But it scores 124th on the Freedom of Press Index and, as the report notes, “in order to become a global innovation hub, Singapore will need to promote entrepreneurship and further improve its skills base.”

The US remains the most competitive large economy in the world, coming in at second place. But within the product market pillar, domestic competition has dropped six points since 2018, while trade openness is more than four points lower.

Hong Kong has climbed four places to third this year – and it ranks first on four pillars, the most of any economy. On both health and macro-economic stability, it has near-perfect scores of 100, and tops the product market and financial system rankings. However, the report notes its “biggest weakness is undoubtedly its limited capability to innovate,” the pillar on which it comes 26th. Up two places from last year, the Netherlands has overtaken Germany as Europe’s most competitive economy, scoring 82.4. It scores highly for macro-economic stability, infrastructure and business dynamism, but comes 24th for ICT adoption, showing it has more to do to fully harness the opportunities afforded by the Fourth Industrial Revolution.

Switzerland drops one place to fifth this year, but performs highly in the human capital pillars of health (5th) and skills (1st). It’s the best in the world for employability of graduates and on-the-job and vocational training.

Japan ranks third in the East Asia and Pacific region, and sixth overall, down one place from 2018. It scores highly for health (1st) and infrastructure (5th) and benefits from large domestic and export markets (4th for market size).

In part due to dropping one point on its overall score, Germany slips four places to rank seventh this year. In more than half (53) of the 103 indicators, it has lost points but gained ground in 18. It’s still the world’s best innovator, but surprisingly,
ON THE SEAFRONT

it falls below the OECD average for ICT adoption, with less than 1% of people subscribed to fibre-optic broadband.

Sweden is the fourth most competitive economy in Europe, and eighth overall. It has a consistently stable economy, a high rate of ICT adoption, and is innovative: scoring highly within the innovation ecosystem pillars of innovation capability (5th) and business dynamism (6th).

The UK comes ninth this year, down one space from last year. Like most of the top 10, its biggest strength is macro-economic stability. It has a highly educated workforce (11th for skills), but its rate of ICT adoption (31st) is low by OECD standards – and it comes 29th for digital skills among its workforce.

In 10th place again, Denmark has improved its performance this year in 10 of the 12 pillars, with its financial system and institutions recording the most progress.

**Tokyo MOU accepted Panama as the 21st member Authority**

The Port State Control Committee, the governing body under the Memorandum of Understanding on Port State Control in the Asia-Pacific Region (Tokyo MOU), held its 30th meeting in Majuro, Marshall Islands, from 14 to 17 October 2019.

Having completed a three-year term as a Co-operating Member Authority, Panama applied for full membership of the Tokyo MOU. The Committee considered the application by Panama and the report of a fact finding mission, which confirmed full compliance with the qualitative membership criteria by Panama. In accordance with the provisions of the Memorandum, the Committee unanimously agreed to accept Panama as the 21st member Authority. The Committee considered and adopted amendments to the Memorandum relating to full membership of Panama.

The 30th meeting of the Port State Control Committee was attended by the member Authorities of Australia, Canada, Chile, China, Fiji, Hong Kong (China), Japan, Republic of Korea, Malaysia, Marshall Islands, New Zealand, Papua New Guinea, Russian Federation, Singapore, Thailand and Viet Nam; a co-operating member Authority of Panama; and observers of Macao (China), the United States Coast Guard, the Black Sea MOU (represented by Russian Federation), the Caribbean MOU (represented by Cayman Islands), the Indian Ocean MOU (represented by Australia), the Paris MoU (represented by Canada) and the Viña del Mar Agreement (represented by Chile). The member Authorities of Indonesia, Peru, Philippines, Vanuatu; a co-operating member Authority of Mexico and observers of the Democratic People’s Republic of Korea, Samoa, Solomon Islands, Tonga, the Abuja MOU, the Riyadh MOU, ILO and IMO were unable to attend.
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της οικονομίας και συμβάλλει στην ενεργειακή ασφάλεια της χώρας.
Με την αξιοποιίστι και το κύρος του πηγέτη, που βλέπει πάντα μπροστά.
Vessel operating costs expected to rise in 2019 and 2020

International accountant and shipping adviser BDO says total operating costs in the shipping industry are expected to rise by 2.5% in 2019 and by 2.7% in 2020. Responses to the firm's latest annual Future Operating Costs Survey revealed that insurance is the cost category likely to increase most significantly in both 2019 and 2020. In the case of protection and indemnity insurance, the predicted increase is 2.0% for each of the years under review, while hull and machinery insurance costs are expected to rise by 1.9% in both 2019 and 2020.

The cost of both dry docking and of repairs and maintenance is expected to increase by 1.8% in 2019 and by 1.9% in 2020, while expenditure on crew wages is predicted to rise by 1.9% in 2019 and by 1.8% in 2020. Other crew costs are expected to increase by 1.8% and 1.7% respectively.

The predicted overall cost increases for 2019 were highest in the container ship sector, where they averaged 3.7. Predicted cost increases in the bulk carrier market in 2019, meanwhile, were 2.3%, as opposed to 2.5% in the tanker market and 2.6% in the offshore sector.

A slightly different picture emerges in respect of 2020, where the highest operating cost increases are those amounting to 3.8% which are expected in the offshore sector. Operating costs for container ships, meanwhile, are expected to rise by 3.0% in 2020, and for bulk carriers and tankers by 2.7% and 2.1% respectively.

The cost of regulatory compliance was high on the list of concerns cited by respondents to the survey. One respondent said 2020 is “all about environmental regulations and the demand for – and cost of – fuel.” Elsewhere it was noted, the shipping market “will be dominated by the cost of new regulations, not least that relating to compliance with the IMO Sulphur 2020 regulation”. Overall, 25% of respondents (up from the figure of 23% recorded in last year’s survey) identified the cost of new regulation as the most influential factor likely to affect operating costs over the next 12 months.

Crew costs were the other factor uppermost in the minds of respondents. “Manning will continue to be a painful area for ship operators,” said one commentator. Another respondent observed that rising wage costs now represent a real threat to business models.

The cost and availability of finance was another issue raised by a number of respondents, one of whom said, “finance – or a lack thereof – is driving consolidation as part of a trend towards creating mega-companies”.

Richard Greiner, Partner, Shipping & Transport at BDO, says: “One year ago, overall expectations of operating cost increases for 2019 averaged 3.1%. The fall now to an estimated 2.5% must be regarded at first blush as good news. But this must be tempered by the knowledge that some significant items of big-ticket expenditure – notably those relating to the cost of complying with new regulations - are waiting in the wings. It is clear that shipping is well aware of the need to achieve regulatory compliance on a scale not previously envisaged or encountered by previous generations of the industry.

“Shipping faces some major challenges over the next two years as it seeks to position itself as an environmentally-aware, technically-savvy industry. It must expect fluctuations in the level of operating costs caused by a variety of factors ranging from movements in oil prices to shifts in levels of manpower, from fluctuations in the value of the dollar to the ramifications of geopolitical developments around the world.”

He concludes: “One thing is clear. The cost of operating effectively and profitably in the modern shipping industry must be met chiefly by revenues generated from day-to-day operations. Shipping remains an optimistic industry but, if the evidence of the freight markets is to be believed, it may not be charging enough for the unique service that it provides.”
Speed reduction is the most powerful and practical way to reduce CO₂ emissions

In an interview to Naftika Chronika, Mr. George Prokopiou shares his views on the current challenges in the shipping industry, the concept of horsepower reduction and scrubbers, the vessel of the future, the politics behind the decision-making process in the shipping industry, as well as the recent developments and opportunities in the freight market.
According to your opinion, what is the single most important challenge or threat facing the shipping industry in the years to come, if you had to name just one?

There are many different changes and challenges ahead for the shipping industry, and it is very difficult to name just one. Volatility and unpredictability are inherent in almost every business, including shipping. In a global industry such as shipping, you have to anticipate all the major changes that are likely to affect world trade.

Of course, I understand that with your question, you are referring to the technical evolution of ship designs and ship engines, but the truth is there are many unknown and unpredictable factors ahead. I am more concerned about what is feasible today, and I leave the rest in the hands of scientists - or even self-proclaimed futurologists. What is actually important is what is happening today. There is a huge difference between the desirable and the feasible. People tend to focus on the desirable, and that is why we hear a lot of stories about ships that will operate on batteries, sails, hydrogen, ammonia, etc. I do not believe that my generation, or even your generation, will see these technologies implemented in deep sea shipping - even though, someday, they might become operational for coastal shipping.

To sum up, I am mainly worried about the perception of the public, which expects the industry to turn the desirable into feasible in a short space of time.

Do current IMO regulations adequately address the root causes of climate change?

First of all, we shipowners care a lot about the environment. It is our priority to pass on to the younger generation a world that is better than the one we found. The environment is our number one priority.

I remember the Glyfada seafront when I was young. Glyfada is very different today, due to many factors, other than shipping. Of all transportation industries, shipping is the most efficient and the cheapest mode for transporting goods. Today, it will cost you less to ship a ton of iron ore from Brazil to China than to transport a ton of coal from my office to my house, which is less than one kilometer away. That speaks for itself.

Of course, we, as the shipping industry, have to improve even more - provided, however, that technology can deliver what is required. Installing a refinery on every ship is not the appropriate solution. Refineries should focus on finding or developing the best possible and most environmentally friendly fuel. Concerning the reduction of emissions, as I have said in the past, regulators cannot strike at the donkey (refineries), so they hit the saddle (shipping).

Unfortunately, as shipowners, we are fragmented. I am always surprised to see the ignorance of shipowners on significant issues that affect our industry. We should not focus on short-sighted solutions when it would be best to focus on the bigger picture.

Anyway, we have to try. I am a practical person, and I always focus on the feasible, not on the desirable. At this moment, the desirable is not possible.

Slow steam, or speed optimization, if you prefer, is a controversial topic that has sparked off heated debates and conflicting opinions in the ship owning community. What are the main arguments of those who consider limiting speed as the only possible way to reduce GHG emissions?

Limiting speed is not a matter of taste. In mathematics and science, one plus one equals two. Slow steaming, speed optimization, or horsepower reduction - no matter what you call it, a ship needs energy to move, which it derives from the fuel it burns. Whether you call it a speed reduction or horsepower reduction, there is no real difference - we are talking about the same thing. To increase or maintain the speed of a ship, you need horsepower.

As you know, I am a proponent of horsepower reduction, which in the past three years has sparked off heated debates in the shipping industry.

A big containership is designed to sail at a speed of 21.5 knots at full cargo, and it consumes from 120 to 130 tons of bunker fuel per day. If the same ship sails at 10.5 knots, it will consume 25 to 28 tons of bunker fuel per day. With reduced speed, to perform the same transport workload, the market will need two identical ships. That means that the two ships combined will consume about 56 tons of bunker fuel, instead of 120 tons. You do not need to be a rocket scientist to understand that pollution reduction is directly proportional to fuel savings.

We should focus on how we can save our planet, instead of trying to find ways to make more money.
And the truth is, I cannot see a reason why the VLCCs should be designed for optimum performance at 16.1 knots. The optimum speed could be much lower, 10 knots, let’s say. As an industry, we could overshoot all set targets with this reduction.

I understand that slow steaming will cause delays in the delivery of cargoes. Normally, the longer the merchandise stays onboard the ship, the more likely it is that the trader will lose interest on the retained capital, and as a result, the shipper may sustain losses. But profit and loss and protecting the environment are two entirely different things. It goes without saying that we should focus on how we can save our planet, instead of trying to find ways to make more money.

Concerning horsepower reduction, very recently, I had a meeting with Hyundai, as we are one of their biggest clients. During our conversation, I brought up the issue of horsepower reduction as a solution for existing and new ships. As a follow up to our discussion, they sent me a three-page report which states that based on previous research, they have concluded that reducing the speed of ships is indeed the most effective and practical way to reduce CO₂ emissions, with the current technology in the market. Let us not forget that Hyundai is one of the biggest shipyards in the world.

Obviously, in new ships, you have to use - when and where available - a less polluting fuel, which for the moment is natural gas. After all, we have long experience with dual-fuel engines. With the combination of low polluting fuels and reduced speed, we might be able to achieve the 2050 goals. But still, I cannot see any good reason why we should wait until 2050 when we can reduce emissions tomorrow. And in this way, we would reduce not only sulphur components, but also NOₓ, SOₓ, CO₂, and particulates emissions.

Additionally, horsepower reduction is very easily monitored and controlled as a measure by all means. The engine makers can reduce the governor’s setting for maximum speed by 50% of the horsepower, with an option to unlock full speed by entering a password provided by the manufacturers in cases of emergency.

I really hope manufacturers will eventually manage to build engines that will burn ammonia, which is carbon-free. But from what I know, ammonia is also one of the most toxic and inflammable compounds, and due to the lack of technology, distribution networks, etc. the industry will need at least 30 to 40 years before it can use ammonia as a marine fuel.

We have more than 120 ships in the water, and we have not ordered a single scrubber.
Why do you think speed reduction – which is simple and immediate - has not yet been implemented by all stakeholders?

As you already know, wherever there are three Greeks, there are four opinions. We are always wondering, “Whose idea was this?” Well, I am not in favor of such discussions. I do not really care who had the idea: if it is a good idea, we should implement it. The only thing I care about is the environment.

Members of the international ship-owning community insist that many regulations are imposed due to the pressure exerted by various lobbies representing shipyards, manufacturers, and other stakeholders, whereas the voice of ship managers is not heard objectively by the international and regional legislators. Do you share this opinion?

I would say that people are biased because of their own small interests. There are certainly more organized lobbies than shipowners, but the real pressure comes from politicians. We, as shipowners, do not have strong electoral power, and politicians try to please their voters by victimizing shipowners who, as they say, “pollute the world.” Politics is quite complicated.

Additionally, we all have personal interests. Some shipowners claim that their new ships will be penalized by a universal implementation of speed reduction, which favours older vessels. These claims are wrong. By implementing a horsepower reduction, the new and modern engines keep their competitive advantage. That is why I emphasize horsepower reduction or limitation. In this way, everybody will be penalized equally.

Are you concerned that scrubbers might create a two-tier market?

No, I do not believe that scrubbers will create a two-tier market. The truth is that the decision on whether to fit a scrubber onboard a ship or not is not an environmental decision, but primarily a financial one. In my opinion, as in the official opinion of China, Germany, and other countries, scrubbers may harm the environment just as much. By fitting scrubbers, we send the emissions in wash water directly into the seas. But everyone is still keeping this issue under the carpet.

In my opinion, within the first few months of 2020, there will be high volatility. But after 6 to 10 months, it will be more difficult to find high sulphur fuel, as it will represent only 10% of the consumption of all ships. After all, refineries are already investing in modifying their installations to produce low sulphur fuel oil to serve their clientele. The current barges, bunkering vessels, etc. will not be able to serve ships for both low and high sulphur fuel oil.

Today, some owners who are placing orders for newbuilding vessels do not include scrubbers in their specifications. I guess they think that low sulphur oil will be available, cheap, and competitive, and thus, there is no need to fit a small refinery onboard.

We have more than 120 ships in the water, and we have not ordered a single scrubber. We have decided that we will go ahead with compliant fuel.

How do you envisage the vessel of the near future? Should we expect major innovations in the ocean-going fleet by 2025?

Every ship built is better than the previous one as technology advances. Within a period of 12 years, we took delivery of 123 newbuildings. I do not think that any other company, private or public, can match this record. On average, for five years, we had a ship delivered every 22 days.

Before envisaging the vessel of the future, one must decide what kind of vessel one will order within the next few months. Who knows what ships will be like five years from now? That decision lies with the engine builders, the shipbuilders, and the legislative bodies.

In my opinion, it is of the utmost importance that as an industry, we set the allowable amount of emissions per ton-mile of cargo transported per ship category. Once we establish this index, we may ask ship designers and engine build-

With the combination of low polluting fuels and reduced speed, we might be able to achieve the 2050 goals.
ers to improve their designs to meet certain goals.

With regards to the reduction of emissions, the industry can improve itself in many different ways: by finding alternative types of fuels, re-adjusting the standardized size of vessels to achieve economies of scale, optimizing the lines of the hull, the propeller, and the engine curve, etc. We will most probably need a combination of the above to meet future targets.

In any case, the most urgent priority for the shipping industry should be to set specific and measurable targets, just like the automobile industry, which sets emissions reduction targets based on consumed fuel over distance travelled.

Instead of focusing only on improving consumption, we must also focus on reducing emissions, which boils down to very similar results. However, we must take into account that in the real world, ship sizes are standardized for the benefit of the shipping industry and traders. ULCCs and very large Panamaxes have failed in this respect. After their construction, their size was considered unsuitable by all interested parties. That is the commercial reality. Ships were standardized for ports, berths, storage units, etc. to be able to serve them. It takes a great deal of effort to change the already standardized size of vessels. It is not something that can be done from one day to the next.

What are your thoughts on the tanker freight rates? Are you optimistic, taking into account the recent hike of the market due to the US sanctions?

Every excess brings another excess. First of all, what happened in mid-October was quite spectacular. The market had gone from USD40,000 to USD300,000 per day, but only theoretically. Now the market has bounced back to USD140,000 dollars. Of course, from the charterers’ side, everyone is happy. The truth is that during all these years, we have been subsidizing the transportation of traders. Of course, our number one priority is to cover our running costs and the interests of our loans, but then there is amortization: every day, your ship is getting older. It is of great importance for shipowners to take into account the depreciation of their asset.

Over the past 11 years, we had less than 18 months of profitable markets. But this is what it is. One has to be prepared not only for good but for bad markets as well. Normally, a good market is the exception, not the rule. Of course, headline news always focuses on extreme situations. When a dog bites a man, the story will not be in the news because it happens often. But if a man bites a dog, that becomes headline news.

Additionally, if you have a big fleet, you need at least six months of good markets to have a significant impact on the profitability of the company as a whole.

Will traditional, small to medium-sized shipping companies survive in the near future?

Over the years, I have come to realize that the recipe for success is to be very honest towards everybody and to provide the best possible services. Once you have these two prerequisites, you will be successful in the end - no matter the size of your company. There will always be good and bad markets ahead. We all started as small companies, and we eventually became big. Nobody started as a big company. Do you know how someone can make a small fortune? They have to start by having a big fortune! Look at nature; she is self-sustaining and does not depend on external influences. If you are capable of making or keeping a fortune, it means you have the necessary skills. On the other hand, there is luck, which accounts for almost 80% of the final results. And even though the ability to seize opportunities also requires great skill, good luck is always necessary.

1. The interview was conducted on Thursday, October 17, 2019.
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The current concerns and future aspirations of independent bulk carrier owners

In a challenging and uncertain external environment for the global shipping industry, INTERCARGO held its Annual General Meeting and Executive and Technical Committees’ meetings in Athens on 3 and 4 October 2019. The meetings were presided over by Chairman Dimitrios J. Fafalios, Vice Chairman Jay K Pillai, Vice Chairman Spyros Tarasis, Technical Committee Chairman Tom Keenan, and Secretary General Dr. Kostas G. Gkonis.

Once again, the IMO 2020 Sulphur Cap was undoubtedly the dominant topic of discussion. Mr. Dimitrios Fafalios re-iterated the uncertainty and volatility that “the workhorse of the world trade,” namely dry bulk shipping, is facing as only two months remain until the 1st of January. The INTERCARGO Chairman also referred to the necessity of bringing all these uncertainties over the availability and safety of compliant fuels to the attention of the regulators, “who are essentially regulating the owners and not the bunker suppliers, the charterers and the refineries.” He added that “Our job is to enable regulators to better understand how the industry functions as we are not regulated in the most effective way.”

Asked about the necessity of cooperation between the shipping industry and the aviation industry so as to make the transport sector more proactive, Mr. Fafalios argued that while at Brussels level this collaboration is possible and essential, collaboration with an industry that stands back is difficult and that there has to be respect towards each other. INTERCARGO’s Executive and Technical Committees also discussed proposing certain short-term measures relating to the IMO’s 2030 GHG reduction target, to ensure that whatever solutions are found are practical for the dry bulk sector and that they do not create a two-tier market or market distortions.
Mr. Jay K Pillai stressed that “as we move towards IMO 2020, which is the biggest regulatory challenge of the 21st century, the greatest risk is consistent availability of the compliant low sulphur fuel oil.” Mr. Pillai also noted that besides the price of LSFO, which is still unknown for the majority of ports, the two greatest concerns for the users are the stability and compatibility of the new fuels. “IMO has pushed the industry to innovate, and shipowners are ready to invest provided that the technology, the engine designs, and the fuels are available,” he stated.

From his side, Mr. Spyros Tarasis noted that “shipping is responsible for 2.5% of global sulphur emissions, but due to the new regulations, it is responsible for $12 billion worth of business which is built around it as well.” Mr. Tarasis stressed that shipping has changed, and has been transformed into an asset game, and added that “we are the regulated parties, but we have not been helped by the classification societies, the engine manufacturers, the shipbuilders.” The safe carriage of cargoes and the investigation of bulk carrier casualties were both broached by Mr. Tom Keenan, who noted that the shipping industry was actually working together with other industries and added that there had been a lot of progress on the ship owning community side regarding the ships’ design. Fuel availability is also an area of deep concern because, as he commented, “when we plan voyages, we have to confirm that ports supply LSFO.”

Secretary General Dr Kostas G. Gkonis said, “The Association’s Membership has practically doubled over the last three years. INTERCARGO now represents at least a quarter of the global dry bulk fleet offering a quality badge widely recognized by the industry.” INTERCARGO will be holding its next semi-annual meetings in Singapore in March 2020.
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- Over 150 successful installations of MGO Cooling Units and stand-alone MGO Coolers

Our brand new standardized MGO Cooling Units.
Environmental regulations as a means of reducing the shipping industry’s contribution to climate change are currently monopolizing the interest of the shipping community.

With the implementation of the 2020 Sulphur Cap just around the corner, we asked distinguished members of the Greek shipping industry with professional experience in marine technology to share their thoughts on issues such as the contribution of global shipping to climate change, speed restrictions and/or a carbon tax on ships as measures to reduce GHG emissions, the commercial viability of alternative fuels such as batteries, hydrogen, and ammonia as a way to decarbonize the sector by 2050, and the requirements for creating a sustainable, “green shipping” industry going forward.

*The views and opinions of the interviewees are presented in two sections in alphabetical order, according to the company name.

Edited by
Charis Pappas
I believe zero emissions will be legislated shortly after 2050

Shipping experts claim that only by implementing speed reduction measures will the shipping industry be effective in reducing GHG emissions. Do you agree with this view?

IMO has already proposed a package of short-term measures to reduce greenhouse gases. Speed or, to put it correctly, power reduction is only one of the measures that have been proposed. The two main issues related to speed or power reduction are:

a. It may prove difficult to police the speed or power reduction.

b. Charterers and shippers may not be willing to accept a longer delivery time or to expose a valuable cargo to a longer time at sea.

On the other hand, speed or power reduction is easy to apply and can stay as a measure for as long as we need it.

You have mentioned in the past that achieving the 2030 and 2050 objectives requires a radical redesign of ships. How do you envisage the vessels of tomorrow? In your view, when can we expect to see a commercially viable, zero-emissions ship design?

I expect to see larger ships with dimensions that will allow an improvement of the current hull forms say by a maximum of 10%. At the same time, larger deadweight means lower carbon intensity. The use of hydrogen as a zero-emissions fuel is already being discussed. I think zero emissions will be legislated shortly after 2050, provided that no new theory related to the climate change is developed.

Some specialists claim the shipping industry is experiencing a period of intense political and technological turbulence. New environmental regulations and the resultant breakthrough technologies create uncertainty— if not frustration— among the more conservative players of the industry. In this turbulent environment, which shipping companies will succeed in meeting the challenges ahead? In which areas of knowledge and technology should they invest?

The issue is not to be more or less conservative than somebody else. It is a fact that the cost of building new technology ships will be much higher than what we see today. At the same time, the cost of fuel will go up. Shipowners should not be asked to bear the cost of zero-GHG emissions alone. Governments, financial institutions, fuel suppliers, and charterers should be asked to participate in a discussion that will determine the final allocation of additional costs.

There is an ongoing debate regarding best practices in attracting and retaining talent in the shipping industry. Do you believe the shipping industry has made the necessary effort to improve the public image of shipping and thus attract talented youths?

Shipping is the leading industry in our country in terms of technology and rewards. It is a difficult job, but it provides great job satisfaction. No day is the same as the previous one. I feel that a campaign should be organized to promote what shipping has to offer to young people.

What are the main reasons that lead major Greek shipping companies like Maran Gas Maritime Inc. to invest heavily in Greek officers today?

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Pushing ahead with regulations can be constructive

Basil Sakellis,
Managing Director,
Alassia New Ships Management, Inc.

The desulphurization of marine fuels or ship exhausts is monopolizing the interest of the maritime media today, and for good reason. One month ahead of January 2020, what are your thoughts and expectations given the most recent data and information available?

Contrary to the view shared by many people that regulation should follow technological evolution, I believe that pushing ahead with regulations can be constructive, as regulations create the impetus in the market to develop technically, operationally, but also financially and commercially viable ways for adhering to such worthy (for example, environmental) regulations. However, for this to be the case, firstly all the stakeholders should shoulder their fair share of the responsibility in each case, and secondly, the review/design/consultation period needs to be long and broad enough to ensure that all aspects are considered and all voices heard so that once a decision is made, it can be final.

In the case of IMO 2020, since the options are either to burn compliant fuel or to install scrubbers, the available compliant fuels need to be technically and operationally safe and available worldwide, while the choice of some to install scrubbers should be respected.

Now, while all of us are sensitive to environmental regulations and in principle agree that they are in the right direction, I believe that decisions on how to adhere to such regulations are driven more by technical and commercial considerations and less so by environmental considerations. As regards the IMO 2020 regulation, those of us who have chosen to invest in scrubbers did so because we believe we can make a return by burning cheaper fuels and because we think that the technical risks with scrubbers (e.g. pipe corrosion caused by sea wash water) are lower than those of compliant fuel (e.g. stability of blended fuels, compatibility between different fuels, compatibility of compliant fuels with existing main engines).

Having said that, our vessels fitted with Alfa Laval scrubbers can achieve 0.025% sulphur content in exhaust gases (or even less), in other words, more than 20 times better than the 0.5% limit set by the IMO. In addition, since heavy fuel oil is a by-product of oil refining, scrubber fitted ships that are allowed to continue burning this fuel will be contributing positively to the environment as, otherwise, this fuel would have no other significant use and would, therefore, need to be disposed of somehow. Therefore, whether intentionally or inadvertently, we are doing our bit for the environment.

Some specialists claim that at an IMO level, carbon could be taxed but not banned until there is an alternative option. Do you agree with this idea?

I think the 2030 and 2050 decarbonization targets are correct. But I do not think taxing carbon emissions in the interim is correct. This is because: (1) shipping relies solely on its own means, whereas land-based businesses can sometimes also rely on subsidies, (2) shipping, in general, has become very regulated and this trend is only expected to continue, (3) ships are oftentimes chartered for long periods of time, therefore, their carbon footprint is dictated by charterers and not owners, and (4) medium-sized private companies which are mostly family businesses are the backbone of the ship-owning part of the value chain. These companies have traditionally been very nimble and adaptable, but long-term, if regulations continue to apply not only to newbuildings but also to existing ships, then adhering to new regulations may become too onerous for such independent companies to cope with. Therefore, I think that such regulations should apply to new building vessels only and that a long enough period of time should be given before existing vessels are banned.

Furthermore, I believe educating public opinion about shipping is necessary. More people are alive today than have ever lived in the world in the history of mankind, and urbanisation and the proliferation of the use of technology in our daily lives have increased dramatically. These are major factors which have led to the current state the environment is in, while shipping contributes only marginally to this state, as it contributes 2-3% of GHG emissions (the same as Germany) while it represents more than 90% of the global commercial transportation sector, with the remainder of the transportation sector contributing in excess of 10% of GHG emissions. Therefore, the public needs to be told that the shipping industry, which has facilitated globalization and thus the advancement of mankind’s everyday life (the transportation cost is minimal in the entire supply chain) without depending on subsidies, is willing to reduce its carbon footprint even though such footprint is relatively not so high, for now at least.
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Stamatis Bourboulis, General Manager, Euronav Ship Management (Hellas) Ltd.

Some specialists claim that at an IMO level, carbon could be taxed but not banned until there is an alternative option. Do you agree with this idea?

In order to achieve the goal of the IMO strategy, which is to reduce the Greenhouse Gas (GHG) emissions of shipping by 50% by 2050 compared to 2008, it is undoubtedly necessary to urge for research and development in alternative fuels that would complement and eventually replace fossil fuels.

There are, of course, a number of ways for this to happen, and one of these would be to set some targets for banning the use of fossil fuels (carbon fuels such as biofuels could still exist). However, this would create a great deal of uncertainty as to whether the alternative solutions would be ready in all respects at the time of change, creating confusion on a much bigger scale than what we are currently facing with the IMO 2020 ban of high sulphur fuels.

Imposing a carbon tax, on the other hand, will increase the competitiveness of the alternative options and incentivize relevant investments while at the same time it will allow the use of fossil fuels to continue since, as it emerges from many studies, they will be necessary for covering the global energy needs for a considerable time.

The funds collected by taxing carbon may also be directed towards developing alternative fuels and means of propulsion.

Furthermore, by not banning the use of fossil fuels, the development of carbon capture and storage or reuse technologies can also be stimulated by offering another path to GHG reduction.

For the above reasons, I believe that banning fossil fuels is not the appropriate solution for going forward.

A quick method to reduce or lock in current GHG reduced emissions is to apply speed restrictions to ships, but some have proposed main engine power restrictions instead. Which method do you believe is more appropriate?

According to a recent report by Clarksons, despite a 60% increase in world fleet capacity, the GHG emissions from shipping are now 18% less than in 2008. Several factors have contributed to this, including the building of more efficient ships, but the main factor, as you point out in the question, is speed reduction. This proved to be quite effective in reducing GHG emissions when it happened primarily for commercial reasons mainly after 2011, and it may definitely be one of the so-called short-term measures for reaching the IMO target of reducing carbon intensity by 40% in 2030.

It will be unfair, however, to introduce absolute speed limits to ships, as the more efficient ships will be unnecessarily penalized because they will emit much less CO₂ when sailing at the same speed as the others.

When it comes to encouraging efficiency improvement, instead of a speed limit, an emissions index for existing ships (as is the case with the Energy Efficiency Design Index for ships built after 2013) would be more effective in reducing the main engine's power and thus the ship's speed only when the target needs to be achieved. This restriction will be necessary to a greater extent for the less efficient ships, making this measure more effective and fairer as an approach.
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Planning further ahead, which fuel do you believe will provide a realistic option for ships towards 2050, batteries or hydrogen and ammonia?

The shipping industry is called upon to achieve the IMO targets for 2030 and 2050 with a 40% and 50% reduction in carbon intensity, respectively, compared to the 2008 limit. It is obvious that these targets cannot be achieved through the conventional methods of ship-design and the use of fossil fuels.

For this purpose, it is necessary to use alternative fuels with reduced or zero-carbon. The first priority for the first decade until 2030 will be the use of LNG and LPG as alternative fuels since the M/Es that use this type of alternative fuels have been tested for approximately 2.5 million hours. However, by using these alternative fuels only, the shipping industry cannot even achieve the first phase target of 2030, namely the reduction of GHG emissions by 40%. Therefore, it is necessary to support the development of zero-carbon fuels such as ammonia, hydrogen or fuel cells.

Unfortunately, R&D on these fuels is still at an infant stage. The first ammonia M/E is expected to be tested after three years. The main problem with this alternative fuel is it produces a high percentage of NOx, and therefore special selective catalytic reduction units are required.

On the other hand, the low energy efficiency of the specific alternative fuel compared to MGO, along with the toxicity of the product, make its use less attractive at the present stage. Hydrogen, even though it has excellent energy efficiency, requires a huge storage volume, which makes its use inefficient. The same is true for fuel cells as far as the required storage volume is concerned. It is estimated that ammonia will represent 25% of the maritime fuel mix by 2050, while hydrogen will represent 1%.

A quick method to reduce or lock in current GHG reduced emissions is to apply speed restrictions to ships, but some have proposed main engine power restrictions instead. Which method do you believe is more appropriate?

Restricting the mechanical power of the M/E either with a mechanical cut device or electronic control on the governor of the M/E is the best way to control the speed at which a vessel can operate. I believe that the operational profile of each shipping sector can be identified based on statistical data that will be collected for the previous five years. In this way, the optimum speed for the vessels of a specific sector can be identified. Upon identification of the optimum speed, we can determine the power that each vessel needs to achieve this speed. This is an objective way to minimize emissions. On the one hand, we specify the optimum speed by using statistical data, but on the other hand, the vessel is given the opportunity to increase the power when needed in emergency situations.

Restricting the mechanical power of the M/E using either a mechanical cut device or electronic control on the governor of the M/E is the best way to control the speed at which a vessel can operate.

Applying a power reduction along with the use of an alternative fuel like LNG is expected to help towards achieving the 40% reduction in carbon intensity by 2030. It is our belief that if the mechanical power reduction is applied in the context of an Energy Efficiency Index to all existing vessels, then chances are the target of reducing GHG emissions by 40% will be met.
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Nuclear energy, already used in military vessels and icebreakers, is a zero-carbon solution but unfortunately comes with high environmental disaster risk. It is impossible to predict today which alternative fuels will be realistic options in 30 years. The only safe prediction is that the life cycle of a vessel ordered today may be cut short due to the uncompetitiveness of its propulsion and machinery energy profile.

Concurrently, efforts are being made to increase the overall energy efficiency of the industry by adopting various measures. There are a variety of potential solutions under discussion and development, such as optimized hydrodynamic design, advanced waste heat recovery technologies, and optimized logistics to increase vessel utilization, including the latest proposal backed by the Union of Greek Shipowners to limit the main engine power of ships. This proposal, although short term in nature, will help reduce GHG emissions. Energy efficiency improvements have contributed to the reduction in energy usage per tonne-mile and will continue to play an important role in the industry’s effort to reach the IMO’s ambitious targets.

The challenge for the shipping industry is steep, but it must be addressed. It will take a concerted and organized effort, coordinated by the IMO, by all parties involved, ship and engine designers, engine manufacturers, shipyards, refineries, and investors, assisted and supported by international institutions to meet the IMO’s targets in a sustainable and cost-effective way. Shipping is committed to the effort to stop climate change, but it is not alone. As of 2012, shipping was responsible for only 2.4% of global GHG emissions. Other sectors, such as the power generation, aviation, and car industries, should also contribute to the effort by developing solutions suitable to their requirements.

However, the shipping community must be mindful not to put the cart ahead of the horse. The required changes are structural and need proper planning and time. Incentive mechanisms are necessary to support and boost the adoption of new technologies, but not before these technologies are developed and tested. Carbon cannot be banned as long as there is no alternative. It could be taxed to fund the necessary research, as is the case in the car industry and under consideration for the aviation industry, but in the end, the cost will be passed on to the consumer. We cannot predict what the world will look like in 2050. It is not unlikely that in 30 years, unlimited clean energy generated by nuclear fusion, the Holy Grail of energy, will be a reality. However, right now, shipping must contribute to the international goal of stopping climate change so that our children can inherit a cleaner home.
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The most transparent option for the enforcement of carbon tax is a simple add-on charge to the cost of fuel

Some specialists claim that at an IMO level, carbon could be taxed but not banned until there is an alternative option. Do you agree with this idea?

At present, for the majority of the global fleet, there is no practical alternative to carbon-based fuels being consumed at sea and, therefore, banning is a non-starter assuming that humanity wishes to maintain economic growth and not regress to the Dark Ages.

IMO’s GHG targets are a positive step towards incentivising innovation within the industry, but a clearly prescribed regulatory framework is required. A carbon tax may potentially become an inevitable step to encourage the industry to address climate change. It is essential that any such tax be applied to all players for the industry to remain competitive and fair for all. It is also important for the industry to invest in the future, and one way to do this is to channel revenues from any such tax into R&D to address decarbonisation in shipping.

Consumers ashore must also fully understand that they will bear the cost of any future carbon tax proposed to reduce GHG emissions, as shipping companies, importers, and retailers will eventually pass down the increases.

An equally important question is who should be responsible for paying the tax/levy. In theory, this could be done “upstream” at the point of fuel suppliers, or “downstream” at the point of the shipping company/operator. I strongly suggest that the most transparent/less-bureaucratic option is to enforce any such levy as a simple add-on charge to the cost of fuel (rather than creating artificial emission trading-scheme markets or developing purpose-built offsetting projects with questionable results).

The carbon tax could be set high enough to ensure an incentive to take emission-reducing operational measures in the short term and make zero-carbon technologies increasingly competitive in the long run. The price level at which a levy would be effective partially depends on cost differences between renewable options for marine fuels and prices for incumbent fossil fuels. Revenues from the tax could go towards a special purpose fund promoting further R&D to improve the best available technologies and operational practices and bringing them into the mainstream for all the stakeholders’ benefit. The IMO has already set a precedent for a multilateral fund with the International Oil Pollution Compensation Funds.

A fast method to reduce or lock in current GHG emissions is to apply speed restrictions on ships. Others have proposed main engine power restrictions instead. Which method do you believe is more appropriate?

In 2018, IMO adopted an initial strategy on the reduction of GHG emissions from ships, setting out a vision that confirms
IMO’s commitment to reducing emissions and to phasing them out as soon as possible. The initial GHG strategy adopted by IMO includes a range of candidate short-term measures including: “consider and analyse the use of speed optimization and speed reduction as a measure, taking into account safety issues, distance travelled, distortion of the market or trade and that such measure does not impact on shipping’s capability to serve remote geographic areas”.

Slow steaming has already resulted in a significant reduction in GHGs emissions and air pollution since the start of the economic crisis in 2010. Speed restriction in the road and rail sectors is commonplace – mainly for safety but also for environmental reasons (atmospheric and noise pollution). Moreover, it is clearly demonstrated that regulated slow steaming reduces not only CO2 but also SOx, NOx, Particulate Matter emissions, and even underwater radiated noise pollution dramatically.

Certain studies indicate that a 10% reduction in average fleet speed would result in approximately 20% true GHG emission savings.

The two current options to achieve consistently lower speeds are either to apply maximum sector-specific speed limits or to set main engine power restrictions (as a proportion of maximum engine rating).

Both options would reduce overall GHG and could be policed adequately (e.g., by AIS tracking) to ensure a level playing field globally. However, I am more in favour of limiting main engine power due to it being easily achievable (by simply limiting the engine governor performance) and allowing for more energy-efficient vessel designs to maintain their advantage over other vessels. In practice, a 30% limitation of the maximum engine power could result in average speeds dropping by around 2 knots and proportionate emission reductions.

Of course, safeguards should be put in place, allowing the temporary suspension of any such limits (e.g., trading in pirate risk areas, assisting in Search and Rescue operations, avoiding critical weather conditions, etc.).

When the issue of regulated slow steaming was raised at the IMO in 2010, the idea was dismissed with very little discussion. Yet slow steaming has proven itself to be the ONLY effective measure that has actually delivered significant in-sector emission reductions over the past decade.

It is not my intention to suggest that regulated slow steaming is the silver bullet for addressing shipping’s long-term climate impact. However, until technological developments (e.g., carbon-free fuels, etc.) have identified a permanent solution, a range of readily available practical efficiency and market-based initiatives can easily be adopted (e.g., improved port logistics, acceptance of virtual notice of arrival, etc.). Therefore, I suggest that this most simple and obvious of measures for reducing emissions should be given immediate, proper, and detailed consideration at the IMO MEPC deliberations in March 2020. Time is of the essence before forces outside of shipping take knee-jerk decisions solely for short-term political benefit.

A carbon tax may potentially become an inevitable step to encourage the industry to address climate change.
We cannot compare a car with an ocean-going vessel

Diamantis Andriotis,
CEO,
Stealth Maritime Corporation SA.

Planning further ahead, which fuel do you believe will provide a realistic option for ships towards 2050, batteries, or hydrogen and ammonia?

I would say that my ability to predict the future is no better than anyone else’s. Having said that, about 40 years ago, there were science-fiction movies showing flying cars, teletransportation and space colonization in our time. Yet we are still relying on traditional technologies, and as far as shipping is concerned, the vast majority of ocean-going vessels are equipped with diesel engines which although optimized over the years, have the same fundamental features as they did 100 years ago.

When considering the fuel or technology of the future, one should keep in mind what the ultimate goal is. It is acknowledged that recent developments are focusing on reducing emissions. However, the reduction of emissions produced by vessels is only one side of the coin. If a new fuel or technology reduces or even eliminates ship-side emissions but increases shore-side emissions, is it acceptable?

Moreover, although the environmental footprint is agreed to be the primary concern, one should also consider cost and efficiency.

In the last ten years, we have seen a revolution towards purely electric cars that offer remarkable performance and decent range. However, can we compare a car with an ocean-going vessel? I would say no. Taking the most efficient battery used by the most well-known electric car maker, it is estimated that its energy density is 24 times smaller than HFO. Moreover, the cost of batteries is extremely high, and my rough estimate is that for an Aframax to make a 30-day voyage, the batteries to store the energy would cost about 1.5-2 billion dollars!

Even if one could afford the enormous cost of batteries and assuming that the environmental footprint to manufacture these batteries would not be prohibitive, we have to consider how they would be charged. So far, for a small ferry making a 20-minute passage, the charging time is about 10 minutes. Does this mean that for a 30-day voyage, a charging time of 15 days will be needed? I don’t really know what progress will be made and how fast-charging will be improved, but I guess that over the next 30 years technology will improve. However, will it possible to achieve a 90% improvement so that we can have them recharged within a typical port stay? Who knows...

For hydrogen and ammonia, the considerations are similar; carrying and handling them onboard carries an added risk, whereas batteries and electric power are considered of lower risk and complexity.

To summarize, I believe that, in 30 years from now, we may see fully electric medium-range commercial vessels if we can manage: to produce electric power with low environmental footprint; considerably to improve battery energy density; and drastically to reduce both battery production and land-based electricity unit cost.

The EU is spending billions of euros in financing innovation in the maritime industry to achieve sustainable, "green growth." Towards which maritime and ship technologies will the new European Commission direct research and innovation funding?

The shipping industry handles about 90% of world trade but produces a smaller percentage of the total GHG emissions released worldwide compared to other forms of transport. Over the last two decades, there have been significant improvements in engine efficiency and hull design, as well as an increase in the carrying capacity of vessels, which have boosted their overall efficiency. In our era, shipping continues to be the most efficient form of commercial transport, having the lowest CO₂ emissions per tonne/mile.

As far as I am concerned, the EU has to direct R&D funding towards the improvement of the full shipping cycle. Ships and their engines are already efficient enough, but what is the total environmental footprint of a vessel from construction to operation and finally demolition?

My personal view is that we have to find ways to extend the useful life of vessels by making their design modular and easier to modify. This way, you can have a ship whose efficiency can continuously be improved, while "green growth" will be more sustainable since you will not be required to build a new vessel and to demolish an old one. Materials technology should enable us to have better corrosion protection, and advanced structure analytics should enable us to build vessels with an even longer fatigue life. Then it will be up to us to improve and change auxiliary equipment and engines in order to always keep the ship efficient.
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Nobody should be able to buy the right to harm the environment in the long run

At this point, it is hard to predict what the predominant fuel will be in 2050, mainly because what we know today will not be the case in 20 or 30 years from now.

The world is facing two contradictory needs; the need for economies to grow and the need to reduce GHG emissions.

The road to 2050 will see new technologies finding their way into ships, often combined with each other or with existing solutions. What we envisage is that there will not be a disruption through a technological breakthrough but more of a controlled transition to the new technologies and fuel options.

LNG, for example, will be a facilitator to this transition. Natural gas is gaining ground as a fuel supported by broad-based demand, plentiful low-cost supplies, and the increasing availability of gas globally, aided by the growing supplies of liquefied natural gas.

The technology for producing propulsion and electrical power from LNG has changed dramatically in the last ten years, and today the efficiency and the emissions of Internal Combustion Engines are second to none. In the past five years, we have seen the leading shipyards developing designs for LNG fuel on conventional ships and securing orders from the early adopters. 2019 is a record year with 75 deliveries of LNG fueled vessels (LNGCs excluded) while another 130 vessels have already been ordered for deliveries spreading until 2026. Ammonia is also gaining increasing attention as a green future fuel since:

- it can be produced from 100% renewable sources of energy
- it produces zero CO2 emissions when burned
- has a high Technology Readiness Level (TRL) and can be used as fuel for existing internal combustion engines with some limited modifications
- it is easy to store (-33°C or 20°C at 9 bar) compared with -163°C for LNG and -253°C for Hydrogen
- there is industrial experience with ammonia (world production at 180m Tons) as it is used in ships already as a refrigerant.

The main challenges with ammonia are that its toxic nature necessitates the development of failproof storage and handling systems before it can be widely used and that when ammonia is combusted, the combustion produces a flame with a relatively low propagation speed. This low combustion rate of ammonia causes combustion to be inconsistent under low engine load and/or high engine speed operating conditions. Most prototype engines that use ammonia as engine fuel typically require a combustion promoter (i.e., a second fuel such as gasoline, hydrogen, diesel, etc.) for ignition, operation at low engine loads and/or high engine speed. In addition, it has a lower energy density value (MJ/L) than LNG, LPG Ethanol, and Methanol, requiring larger storage space.

Batteries as a prime energy source have made significant headway in the automotive industry as against alternative fuels; however, marine requirements are very different, and the technology of batteries is just not there yet to offer a viable
solution for deep-sea vessels. The main challenge with batteries is their very low energy density. The leading manufacturers of marine batteries can reach 0.33 MJ/L compared to 35 MJ/L for HFO and 22 MJ/L for LNG. In practice, this means that to replace a 1000m3 HFO tank, it would take 100,000m3 of batteries. Even if one could afford to install the Tesla Model 3 batteries, one would need to find 14,000m3 of storage space.

In conclusion, we expect that for another decade at least, LSFO and MGO will be the fuel of choice with LNG and ammonia leading the way up to 2050.

Some specialists claim that at an IMO level, carbon could be taxed but not banned until there is an alternative option. Do you agree with this idea?

There is a lot of debate globally on the best way to incentivize the reduction of carbon and GHG. A straight-out ban on carbon is simply not possible now and will not be for a few more decades. Tax or cap and trade systems, if carefully designed, can be powerful tools for governments to drive carbon emissions reduction. A successful regime should be designed so as to continually incentivize the shipping industry to pursue the utilization of greener technologies and fuels. If this is combined with a policy to promote the use of cleaner fuels and abatement or capture technologies through R&D programs and subsidizing the industries producing green solutions, it is very likely to succeed. The combination shall be such that the option to keep polluting will be the most expensive one and set barriers to prevent the rollover of the cost down the supply chain. Nobody should be able to buy the right to harm the environment in the long run as this will work in favor of big companies that can afford the carbon tax, and will push smaller owners to extinction.

Experts around the globe support putting a price on carbon to achieve the required emission reductions. There will undoubtedly be strong opposition from large corporations, which will take a big hit in their P&L by the introduction of such a tax. It will take a steel will and meticulous planning to make it work.

At present, there is no clear scientific path to zero emissions

Panos Kourkountis, Technical Director, SEA Traders S.A.

The EU is spending billions of euros in financing innovation in the maritime industry to achieve sustainable, “green growth.” Towards which maritime and ship technologies will the new European Commission direct research and innovation funding?

Environmental issues are a priority for EU policymakers. They address the concerns of Europeans but also consider business opportunities that may assist different economies. The impact of shipping on the environment has attracted the attention and become a priority for industries outside shipping as well. Nowadays, even financial institutions and banks express opinions on the environmental regulations of shipping.

The plan of the EU to tax ship emissions in order to finance R&D has a clear financial impact but ambiguous and unknown environmental benefits. At present, there is no clear scientific path to zero emissions, and the EU has no right to exclude different ideas from its choice of technological direction. It is uncertain that the technology financed by taxing ships will be applicable to new ships. It is also uncertain whether it will produce the desired environmental results. Financing R&D through the taxation of shipping will certainly be good for other industries, including builders and makers who will have access to these funds and will harvest earnings from the commercial application of the developed technologies.

Zero emissions in shipping may be achieved only by revolutionary technology beyond the existing concepts. Unfortunately, we cannot finance the invention of something we do not even know exists.
A fast method to reduce or lock in current GHG emissions is to apply speed restrictions to ships, but some have proposed main engine power restrictions instead. Which method do you believe is more appropriate?

Slow steaming is by far the most effective measure to reduce CO2 and all other emissions from ships. It can be achieved by imposing a limit on speed, power, or consumption. Limiting speed is the simplest method. It does not require any modification on board and can be implemented immediately. Policing is easy and may be done through AIS. This is a fair method because all ships of the same type will have the same maximum speed and operational restrictions. ECO designs have an advantage as their hull and engine are optimized for lower speeds, and they consume less fuel than older ships.

A power limit can be imposed either as a percentage of installed power or as an absolute power cap related to DWT. A power limit cannot be imposed immediately, as it requires further research to determine the limit for each engine, the modifications for installing limiters and override devices, class approval, and surveys. Policing is not easy as the available power will be below the minimum power requirements, and the use of override devices will be at the master's discretion. The major issue with a power limit is that it imposes different maximum speeds and operational restrictions on ships of the same type and size.

If the power limit is a percentage of the maximum power, older ships with excessive power and high maximum speed will still have enough power to continue business as usual, while the eco designs with marginal power as per EEDI requirements will have insufficient power and face a serious competitive disadvantage. Applying a 50% power limit on a VLCC built in 2010 with installed power of 31,640Kw means the remaining power will be 15,820Kw, and it will be able to operate at 13.2kn, while a VLCC built in 2020 in compliance with EEDI with installed power of 22,710Kw will have available only 11,355Kw and a maximum speed of 12.0kn after the power limit is imposed. This is unfair for a modern ECO ship.

If the power limit is an absolute cap related to DWTs, then the eco designs will have a negligible power reduction while older ships will suffer a major power reduction and consequently will only operate at very low speed.

In conclusion, a power limit as a percentage of installed power is advantageous to older ships and penalizes eco designs. On the other hand, a power limit as an absolute cap gives a significant advantage to ECO designs and penalizes older ships. In this respect, slow steaming by imposing a speed limit is fair and, therefore, preferable. Regardless of the method proposed for slow steaming, the environmental benefits are similar and very efficient. It is very encouraging that slow steaming by one or the other method is gaining popularity and has been accepted by those who just a few months ago were strongly against the idea. It remains to be seen whether IMO flag states will appreciate the significant environmental benefits and agree to a fair implementation of slow steaming.
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Evangelos Sfakiotakis, Technical Manager, TMS Tankers Ltd.

The desulphurization of marine fuels or ship exhausts is monopolizing the interest of the maritime media today, and for good reason. One month ahead of January 2020, what are your thoughts and expectations given the most recent data and information available?

As the date of entry into force of the new global sulphur cap is fast approaching, shipping companies are taking all the actions included in their implementation plan based on the alternative compliance method chosen by their owners.

For various reasons unrelated to this discussion, the majority of owners have already chosen to comply by switching to compliant fuel grades of 0.5% sulphur content. Although concerns about the limited availability of compliant fuel were expressed even within the IMO in the previous months, this seems not to be the case anymore. From November 2019 already, very low sulphur fuel oil (VLSFO) is widely available in all major ports of Northern Europe, the Mediterranean, Middle East & Africa, Far East, South Pacific, and America. Only two key ports, serving vessels in long transit voyages, namely Cape Town and Suez, have not yet confirmed availability.

Having secured VLSFO availability, the operators are focusing on preparing the bunker tanks to receive the compliant fuel. Manual tank cleaning was initially considered as the best method, now the use of chemical additives is selected as well, especially for deep bunker tanks. Lately, many Technical Departments choose not to proceed to any action other than properly draining the tanks, following the findings in the tanks cleaned so far. In any case, this procedure is part of the ship-specific implementation plan set for each vessel.

While tank preparation is progressing, tank segregation is equally essential. With the multitude of fuels being launched, which have a wide range of density and viscosity, the risk of compatibility...
after March 1st becomes critical. IMO deferred the decision on practical matters such as the permission to carry onboard a grade such as needed for commissioning immediately after installation and prior to certification, etc., to the next PPR meeting, scheduled for February 2020. Many owners are indeed nervous because of the uncertainties caused by the lack of a detailed legislation framework, but the same happened with all similar breakthroughs in the past, too.

Moreover, up to now, operating the installed scrubbers, on many occasions, has not been trouble-free. Apart from the numerous instrumentation failures reported, many systems failed to satisfy the imposed air and/or effluent water limitations for prolonged periods, due to either inherent design issues, insufficient engineering studies, or wrong installation practices.

It should be admitted that the boom in demand for scrubbing systems led to a situation where many manufacturers grabbed the opportunity to market systems at competitive prices, which, however, were not adequately tested. In the same way, the work-load for the engineering companies increased geometrically, and systemic design errors were reported in many repeated projects, while the yards gained the necessary experience only after completing a significant number of installations.

Once the installation and operational issues related to scrubbers are dealt with, the main challenges in the near future are considered to be training crews to operate and troubleshoot the multi-failures reported and, definitely, training the Port State Control Officers, who are responsible for ensuring that the legislation is properly implemented.

As expected, the authorities in Northern Europe and the US Coast Guard have taken the lead and are preparing for the new era. Within the shipping community, however, there is skepticism about whether the authorities in the rest of the world will be adequately informed and prepared to inspect and verify vessel compliance by January 1st, 2020.

With the above thoughts in mind, it becomes obvious that the coordination and synergies between all the stakeholders involved, i.e., the shipping companies, administrations, Port State Controls, and the IMO need to be intensified. The Greek Shipping community can definitely take the lead.

The majority of owners have already chosen to comply by switching to compliant fuel grades of 0.5% sulphur content.
Almost everyone related to shipping knows by now that come January 2020, ships must consume only fuel oil with a maximum sulphur content of 0.5% (unless they are equipped with scrubbers). This sulphur content of 0.5% is for fuels consumed in the open sea, while the limit for ECAs remains at 0.1% (namely, mandatory use of Marine Gas Oil – MGO or ULSFO within the ECAs).

Lately, in the marine press, concerns are being raised regarding the safety of the intended new fuels, while the President of the Union of Greek shipowners has been engaged for some time now in an awareness crusade for the industry. Unfortunately, the concerns are very valid, and the reasons for concern are several. IMO can only legislate with regard to ships. However, this is a regulation that should be directed primarily to fuel suppliers and refineries (over which, unfortunately, IMO has no jurisdiction). So, for these entities, IMO can only issue non-mandatory guidelines, in the hope that all stakeholders will abide by them.

For the new fuels, there is no suitable ISO standard. The organization has issued a public advisory notice, but this is too general and, certainly, not a standard. Until a new suitable ISO standard is issued (which may be years away), only the latest ISO 8217:2017 edition should be used and not any prior to 2017 edition. The reason is that the 2017 edition includes several useful requirements, such as the minimum acceptable viscosity, cold flow properties, inappropriate contaminants, etc.

The previous studies that were submitted to IMO on the subject of 2020 regulation were divided, but in general two main problems were highlighted: a) the strong possibility that not enough compliant fuel will be available by the 2020 deadline, due to the many years and huge investment required by refineries to adjust their production and b) the quality of the compliant fuels may be problematic. Nevertheless, IMO’s decision was purely political and did not consider the realities of the data (like some other prior IMO decisions). Plagued by the Ballast Water Management delays, IMO wanted to show that it can act decisively and without time delays. And, thus, the industry will be faced with new fuels of questionable safety and quality and with no ISO Standard, at least in the first years of application.

Let us examine the two main expected problems (availability and quality) in some more detail.

The issue of insufficient availability is simple: If at the intended bunkering port there is no compliant fuel, the ship can bunker non-compliant fuel (with sulphur content over 0.5%) and use it until the next intended port. There, on arrival, it must bunker and use compliant fuel and deliver to shore any non-compliant fuel remaining onboard. All this, provided of course that the next port can offer compliant fuel and has reception service for the non-compliant fuel. If there is compliant fuel but no reception service, the vessel must keep the non-compliant fuel onboard until the next opportunity to deliver it ashore but is not allowed to consume it. IMO has issued detailed guidelines for the procedures and paperwork to be followed in case of non-availability (FONAR - Fuel Oil Non-Availability Report). IMO has also issued relevant detailed guidelines to the Port Authorities, making avoidance of the regulation nearly impossible. Advice: In case of non-availability of compliant fuel, the ship should bunker only enough quantity of non-compliant fuel to reach the next port; otherwise, any remaining quantity will stay onboard until a suitable reception service is found. In other words, as long as in a given
port, there is availability of compliant fuel, the ship cannot consume any prior non-compliant fuel, even if it was bunkered using FONAR at a previous port.

The problem with possible bad quality is more composite since there are many different ways that a fuel supplier can “make” compliant fuel. The safest way for the ship would be to order and bunker MDO (Marine Diesel Oil) of max 0.5% sulphur which is a fuel grade well known and tested. However, after the formation of the various ECAs around the world, MDO is not available in the market, having been replaced by the ECA-compliant MGO (Marine Gas Oil). It is doubtful that sufficient MDO will re-appear in the marine fuel market, but that would be the safest form of compliant fuel. The second safest - but more expensive- compliant solution is the use of MGO (of 0.1% sulphur), which, however, requires care due to its low viscosity causing wear of the fuel pumps, as well as stuck pumps due to running dry. It is expected that despite the higher price, MGO demand will be high, especially in the first months of application of the new rule, and thus MGO shortages are a real possibility. And so, the majority of ships will be required to consume compliant fuels -other than MGO. These VLSFO (Very Low Sulphur Fuel Oils) will be basically of two types: a) blends of MGO or other distillates and heavy fuel oil to reach the 0.5% sulphur limit and b) de-sulphurized heavy fuel oil. Both above types of compliant fuels are problematic. Blends with a high distillate ratio may be unstable, separating or stratifying into muddy compounds. This instability can be triggered by various factors such as comingling with (even very small) quantities of other fuels (e.g., tank unpumpables) or storing them at the “wrong” temperature. There is also concern not only about the quantity of distillate to be used in the blend but also that the type of distillate used by some smaller traders will not be suitable (e.g., naphtha, kerosene, etc.)

For the second type of compliant fuels (the de-sulphurized fuel oils), the prior experience of the early ULSFO (Ultra Low Sulphur Fuel Oils), when the ECAs were first enacted, was not very positive leading many companies to specify only MGO use within ECAs. ULSF oils were often unstable, and their mixing was not allowed even with the same USFO of the same supplier at the same port but bunkered with a few days difference! It is, however, claimed that, at least the oil majors, have improved the stability and quality of their ULSFO’s and so it is expected that their new VLSFO oils will be safe. Nevertheless, the first months of their use in 2020 will reveal any issues.

Practical Problems and Recommendations.

Up to now, Chief Engineers and engine-room personnel were familiar with two basic fuel grades: MGO or MDO and IFO-380 or IFO-180, where their handling (e.g., storage, purifying, injection temperatures) was always same and known. Unfortunately, things will now be totally different. Table 1 shows various available compliant VLSFO having huge viscosity differences and counter-intuitive pour point degrees and temperature requirements. What used to be logical or common knowledge for engineers, i.e., that high viscosity means high temperature requirements and vice-versa, IS NOT VALID anymore! For example, we see at the table a near IFO-380 fuel (Singapore 337.7) having a pour point of 9 degrees C and “thin” fuels of viscosity 35 (Russia, Houston) having a pour point of 24 C, i.e., probably requiring heating at the storage tanks. Viscosity is no longer an indication of proper handling temperatures. Instead, the supplier must provide beforehand or during the bunkering stem (order) the required handling temperatures (storage – transfer – purifying - injection) as well as the pour point and the cold filter plugging point. This supplier’s information should be for the specific fuel batch that the ship will receive – not just from a generic prior analysis. And, as we already mentioned, it can now be understood why the fuel should comply with ALL the requirements of the 2017 edition of ISO 8217 and not prior to 2017 editions, which among others, do not provide cold flow properties. Unfortunately, at the time of this writing, only one fuel oil major has confirmed that its 2020 compliant fuels will conform to ISO 8217:2017 edition. All other majors and big local suppliers continue to remain silent and avoid the subject.

Table 2 is another example of “viscosity means nothing.” The rule of thumb used to say that fuels should be stored at a temperature of about 10 degrees C above their pour point. This is not valid for samples C, D, and E, and it could be problematic if the rule was applied to these fuels. Instead, sample C requires 26 degrees above pour point, and E requires 20 degrees. In addition, we note that for Sample D, the purifying entrance temperature should be 40 C, but the injection temperature 28 C! In other words, for this fuel to be consumed safely, the ship must be equipped with fuel coolers! It is doubtful that most VLSFO suppliers will be providing true and accurate fuel handling temperatures well ahead of time so that the crew can be properly prepared. Thus, reliance on a fuel testing service becomes important, meaning any newly bunkered fuel should not be used until the results of the fuel sample analysis are known, including cold flow properties. This further requires the taking of a truly representative drip sample at the ship’s manifold, something that may seem like science fiction in the era of delivered sealed Marpol samples by most suppliers.

However, both suppliers and crews’ practices must change for safe transition into this new regulation. In the absence of any reliable information, the received fuel should be stored at a temperature at least as high as the delivered (bunkered) temperature. It should be noted that even “distillate” fuels may be paraffinic in nature and thus may become “waxx” if left to cool in the storage tanks below a certain threshold temperature (which may be unknown and may be quite high). Thus, the rule “I store the fuel at least at the temperature I received it” should be followed in all cases until the results of sample analyses are known. Once the fuel becomes “waxy,” no amount of heating can return it to a liquid state. Most fuel oil testing services have already
announced that their analysis results will include the key handling temperatures (storage, purifying, and injection); however, for many fuels, especially paraffinic ones, the information will come too late. The supplier must advise the recommended storage temperature beforehand.

With the increased use of MGO and “thin” VLSFO, the use of fuel coolers (not necessarily freon chillers) becomes necessary to avoid heated distillates resulting in dry running and freezing of high-pressure pumps. After 2020 some fuels will require heating, some not, and some both heating (e.g., for purifying) and cooling (e.g., for injection). Table 3 shows indicative temperatures as a temporary guide until the actual analysis results are known.

With the sulphur content reduction in the fuel, the cylinder oil type must change to a lower TBN (Total Base Number) grade. For ships being in ECAs only occasionally, a 40 TBN grade is recommended by most engine makers (with 20 TBN main engine crankcase oil and diesel generators’ oil). For exclusive use of MGO, 25 TBN cylinder oil is recommended; however, considering the possibility of reduced MGO availability due to high demand, it may be preferable to operate on 40 TBN anyway. It is preferable to have excess alkalinity in the cylinder rather than excess acidity. In addition, the cylinder oil feed rate must also be adjusted. With lower TBN, in general, the feed rate should increase; however, this is specific for each engine depending not only on its type but also its age and prior maintenance - or lack thereof. Engine makers urge that for proper cylinder oil TBN and feed rate determination, the under piston-cylinder oil leaks should be analysed on a regular basis (twice weekly at the start of the oil type switch) so that a) the remaining TBN is determined (i.e., after combustion) and b) the iron content in the oil is found (indicative of excessive cylinder wear). Based on these two values, the engine should operate within the maker’s acceptable region. Otherwise (e.g., with too much or too little leftover TBN), undue wear and, eventually, engine damage will occur.

Unfortunately, the new 2020 regulation, in addition to increased fuel costs, entails many additional costs for the ship’s operator, such as fuel and lubricant analyzes, in an effort to prevent disruptions and damage. In addition, retrofitting may be required to install new equipment such as fuel coolers and additional steam condensers to handle excessive steam when the fuel is not to be heated. It is everyone’s hope that the concerns may prove excessive; however, ship operators from their side should do what is possible and foreseeable to keep operating safely. Importantly, however, the fuel suppliers should also face their obligations and supply stable and safe fuels, ISO 8217:2017 compliant, as well as provide their fuel’s pertinent and accurate handling information to the ship operators.
Innovation has made D. KORONAKIS S.A. one of the leading rope manufacturers worldwide

Mr. Konstantinos Koronakis lists the critical factors that have led D. KORONAKIS S.A. to become one of the leading rope manufacturers worldwide, and talks about the challenges and opportunities ahead for a 100% family-owned manufacturer of marine equipment. He also describes the role of innovation in the management and development of products and thus, in the success of the company.

Mr. Konstantinos Koronakis, CEO & Managing Director of D. KORONAKIS S.A., talks to Naftika Chronika

D. KORONAKIS S.A. is a thriving family concern. Can traditional family-owned companies such as yours survive in this era of fierce competition from international conglomerates and non-European subsidized technology and manufacturing giants?

D. KORONAKIS S.A. was founded in 1967 by Dimitris Koronakis and Eleni Koronakis. Today, 52 years later, the company continues to be 100% family-owned and to serve the needs of the global shipping industry within a very competitive and
demanding business environment. Keeping an innovative approach in construction, combined with continuous investments in top raw materials and latest technology machinery, has made the company one of the leading rope manufacturers worldwide. Our ropes have proven their top quality and technical superiority. Customer satisfaction is the key to our success.

What are the most important advantages (and drawbacks) for a Greek company that manufactures products for the international shipping industry today? Do Greek shipping companies support your commitment to quality and innovation?

The company’s expansion was based on three main pillars:
• A conservative financial strategy
• An aggressive export-oriented sales strategy
• A commitment to Research & Development investments

The financial policy of the company includes owner’s equity-financed investments, a zero-debt policy, cash payments to suppliers guaranteeing the lowest prices, and finally, tight cost control.

From the very beginning, our international orientation has helped us in developing a strong network of stock points all over the world. Serving company clients on short notice in most major ports of the world has been critical to the success of the company. It helped D. KORONAKIS S.A. to develop from a product-oriented supplier to a customer service provider by building an effective team of after-sales people.

Greek Shipping companies have traditionally supported our effort to expand in the global market and establish our brands universally. We have worked on this for more than 50 years, and our long-lasting relationship with these companies has mutual benefits for both sides.

Greek Shipping companies have traditionally supported our effort to expand in the global market and establish our brands universally.

How can Europe address the issue of unfair trading practices, especially by Asian companies, reported nowadays?

We are traditionally focused on quality products and support our customers by providing them with intensive after-sales service. We conduct educational sessions for our clients, which include the handling, treatment, and maintenance of ropes. Additionally, we perform a sequent update with new market standards and trends. We are considered universally among the most reliable suppliers, offering premium products worldwide. Our strong name and the trust placed in us by our clients are our main assets in coping with the unfair market trading practices reported nowadays. We have the authorities’ support in this direction, but usually their reaction is short-termed and of limited efficiency.

Which D. Koronakis SA’s projects are you most proud of?

D. KORONAKIS has focused its marketing strategy on top quality materials and cutting-edge technology products that meet the most demanding safety standards, ensure maximum service life, and comply with all environmental requirements.
Responding to market needs, our business, in addition to its existing test bench of 500 T, has installed in its factory in Thiva a new horizontal test bench of up to 600 T pulling capacity and 40 meters net length, which is fully compliant with the new OCIMF MEG4 recommendations. This new test bench not only upscales existing testing capacity but further to its conventional use, has the potential to be simulated in extreme real-life working conditions due to its innovative construction and assembling. This feature makes this testing bench one of a kind and is in line with our consistent effort to support and fulfill our customers’ needs in the best manner by offering them outstanding, high-quality ropes.

D. KORONAKIS S.A. is focusing intently on green energy as it considers it crucial for the industry’s sustainability. A new innovative environmental project between D. KORONAKIS S.A. and MYTILINEOS GROUP is already in place and being developed further. We are also very proud of the green energy upgrade of the D. KORONAKIS SA site infrastructure in Thiva, i.e., its electrification by two photovoltaic sites (of 1 MWp total capacity).

For the time being, 3,378 photovoltaic panels have been installed and have covered a roof area of 5,600 m². The execution of the project and park electrification were completed in less than 40 days. As such, 20% of the total energy of the D. KORONAKIS S.A. plant is currently covered by solar power with zero environmental footprint, and an annual energy saving of 1.3 GWh.

D. KORONAKIS S.A. continues to support its environmental practices by expanding the photovoltaic site through a net metering process and doubling the capacity of the photovoltaic system in the next two months. We believe that green energy and commitment to environmental issues will have a major effect on our industry and the environment.

Last but not least, we recently proceeded with the acquisition of the “Xanthi Cables” plant and incorporated its production under the name of “D. KORONAKIS S.A.” launching a new business activity. We plan to focus on all commercial building wires, which the factory produced for many years, as well as utilities’ cables of low and medium voltage such as telecommunication cables, on which the company had extensive expertise. Additionally, we will be providing aerial conductors of up to 400 kV for covering all transmission-line needs.

Finally, considering the existence of a well-developed network of stock points worldwide, our business plans to design and produce marine cables. The production of cables is estimated to begin within the first month of next year.
Let us introduce you to a sea of opportunities
A Guide for Overhauling Main Engines During Dry Docking

As most shipping companies will admit, dry-docking is one of the most challenging procedures as it is an orchestrated project involving numerous stakeholders such as the ship manager, classification society, flag state, shipyard, repair teams, various subcontractors, specialists, consultants, and others! Managing the time and costs associated with such a project can cause a headache, as both factors need to be considered in relation to the quality of the end result.

An article by Vassiliki Lagonika, Dry Dock Engineer and Technical Instructor at MAN Energy Solutions Hellas

For a shipping company’s technical engineer to lead this project successfully, he needs to be prepared well in advance, starting with a solid specification of the works to be done. And if there is one phrase that captures the essence of dry docking, it would be “plan, plan, plan, and plan some more!”

As safety comes first, he needs to ensure that the dry-dock takes place in a safe environment for all stakeholders involved, by coordinating different repair teams with different backgrounds working in different areas of the vessel to make sure that safety procedures are constantly followed and that no individual is in danger.

Last but not least, he ought to ensure that stakeholders strictly follow the environmental legislation, which includes both managing waste and avoiding every possible pollution threat.

**ME-C/B Electro-Hydraulic components**

During the dry dock, there are many concerns. For example, when it comes to ME-C/B Electro-Hydraulic components, MAN Energy Solutions recommends giving special attention to the following precautions:

To have a clear picture of the pre-dismantling condition and operation functionality of the equipment, a functionality test of each component through the ECS is recommended. This takes place before the dismantling, and while the engine’s main LO pumps are still running.

**Hydraulic system enemies**

Dirt is the greatest enemy of hydraulic systems...
since, depending on its nature and composition, it generates wear and thus shortens service life. Where does the dirt come from? We distinguish between two essential sources of dirt:

- contamination occurring during assembly – assembly dirt
- contamination occurring during operation – operating dirt

Fluid cleanliness is of primary importance to hydraulic systems because the risks associated with contaminants vary: from parts malfunction and wear and tear in components, to longer response times of the system’s key parts, valves to cite an example, among many others. Therefore, before any other engine components are dismantled, it is recommended to first dismantle the hydraulic components (i.e., FIVAs, FO Pressure Boosters, Accumulators, Exhaust Actuators, and Lubricators). Particular attention must be given to the wrapping protection of this equipment (non-raw material clean clothing & nylon end wrapping) for both the equipment itself and the hydraulic blocks and pumps.

It is also recommended that all the components be opened for overhaul overboard in the clean environment of a workshop. Special attention must be given to the boxing transportation of the hydraulic equipment since dry-vibration can be fatal for the hydraulic parts. After positioning the components on their working position and before the engine is in a ready-to-test position, it is essential to confirm the high level of the LO in the sump tank (at least 90% of the total level) in order to avoid an air-pocket. When all flow lines are available again, all the lines must be air bled.

Air bubbles in working fluids greatly influence the performance of hydraulic systems and may cause major problems, such as bulk modulus change, cavitation and aeration, degradation of lubrication, noise generation, oil temperature rise, and deterioration of fluid quality. Thus, it is vital to eliminate the bubbles from the fluid, which occasionally end up in hydraulic pack seizures, to preserve quality system performance.

Upon completion of the project, sea trials are carried out to confirm the operation of all ship’s machinery. The typical trials and measurements conducted during the sea trials are balancing the engine, testing on different loads, performing adjustments & evaluation, and finally TDC calibration with at least 50% of MCR load. On completion of the sea trials, the vessel is commissioned back into service.
Although the shipping market historically follows the classic economic theory (i.e. that demand and supply codetermine the activity of the industry), the profitability of global shipping is prescribed by freight rates pressured by the supply of vessels. The plunge of freight rates across all segments in the past years was the outcome of the over-capacity of newly acquired vessels ordered previously in the days of prosperity. Ironically, despite the warnings of those with better knowledge of the fundamentals behind market collapses, some ship-owners failed to limit themselves and followed their instinct instead, thus ordering new-buildings when the market was up. Whether the lessons were learned remains to be seen. The supply of vessels in the coming years is of paramount importance in all future forecasts in this analysis.

In this context, SEA Europe’s “Market Forecast Report 2019,” which focusses on newbuilding and vessel scrapping activity projections, sheds more light on this much-discussed yet foggy area of shipping forecasts and projections. All forecasts below refer to newbuilding requirements, and not to demand growth, and take into consideration the average age of a segment’s fleet and the rate of vessel scrapping.

**Growth, stability, or caution?**

**SEA Europe’s 2020 projections on the supply of vessels**

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**Bulk Carriers**

2019 started off on a weaker note for the bulk carrier sector, and as the full impact of the Vale tailings dam collapse has yet to become clear, the short-term outlook is uncertain, although some improvement from the current seasonal lows is expected. In its report, SEA Europe estimates that global seaborne dry bulk trade is projected to grow by 2.2% in terms of tonnes and by 2.5% in tonne-miles this year. While bulker fleet capacity is projected to grow by less than 2.0% in 2019, active supply growth could be limited by vessel time-out-of-service for scrubber retrofit, which
is currently estimated to absorb 0.5% of bulkier fleet capacity throughout 2019. Looking at 2020, dry bulk trade is projected to grow by 2.2% (3.2% in tonnes-miles). With fleet growth expected to be limited to below 1%, an improvement in the market balance is possible, while ‘wildcards’ relating to the IMO 2020 sulphur cap could have a positive impact, by including new contracts to replace obsolete unprofitable units, including time-out-of-service for retrofitted modern units to be able to continue using FO, slower operating speeds, and increased recycling. Regarding the issue of gas emissions, there are indeed some other uncertainties. Shipowners are waiting to see what will happen in 2020, so they will initially use low sulphur content fuel (assuming that there will be enough low-sulphur fuel in 2020 to meet demand). On the other hand, there is a growing number of shipowners that may employ slow steaming or speed optimization, reducing the speed by a few knots to compensate for the higher fuel costs. This will result in a reduction in the available bulk carrier tonne-mile capacity, according to the report. Another factor to consider is that by 2020, almost 20% of the existing fleet will be over 15 years of age and will become likely candidates for scrapping due to the expensive regulatory environment, the evolution of the BDI, and higher scrap prices.

Containerships

While supply growth outpaced that of demand in 2018, the outlook for 2019-20 remains cautiously positive in the ‘base case.’ With fleet growth expected to moderate significantly in 2019-20, and ‘base case’ trade growth set to remain fairly healthy, the sector fundamentals are set to return to a period of rebalancing, and there is the potential for progress in the freight and charter markets. However, significant demand-side risks continue to build up. These include the trends in China, the ongoing US-China trade tension, and the challenges in some emerging economies. In 2019 and 2020 trade growth on the Asia-Europe route is projected to remain relatively moderate at 2.8% each year, with economic risks building up in a number of European economies, including the UK, German, and Italian economies. Box trade growth on the Transpacific is expected to slow to 2.2% in 2019 and 2.8% in 2020 in the ‘base case,’ although significant uncertainty remains over the outcome of the US-China trade negotiations, with a clear potential for a ‘low case’ outcome. Meanwhile, the delivery of large containerships is set to continue in 2019 and 2020 (albeit at a slightly slower pace than in 2018), with fleet capacity in the 12,000+TEU sector projected to expand by 12% and 13% respectively in this period. In full-year 2019 and 2020, SEA Europe projects that deliveries are set to moderate while recycling activity will accelerate. The fleet capacity increase is projected to slow to 2.8% in 2019 and 3.3% in 2020. In its long-term forecast, SEA Europe projected an average 3% increase.

Oil and chemical tankers

According to the SEA Europe “Market Forecast Report 2019,” the oil-tanker fleet requirement is expected to expand at a rate of 1.0% per year in terms of dwt - in contrast to the previous decade when the tanker fleet grew at a rate of close to 5% per year in terms of dwt. According to this forecast, in the period 2018-2040, the requirement for oil-tanker newbuildings will average 222 units per year, 27 dwt per annum, and 7.8 million CGT per annum.

LNG & LPG Carriers

Until 2040, the forecast estimates a 5.2% growth per annum in seaborne LNG trade. Between 2012-2016, the LNG carrier fleet grew more than the seaborne gas trade, generating fleet overcapacity. The 2040 projection shows that due to this overcapacity, the LNG tanker fleet will grow less than seaborne LNG trade. But the report’s forecast predicts a dramatic increase in the growth of the LNG tanker fleet after 2020. In the period 2018-2040, LNG carrier newbuilding requirements, according to SEA Europe’s projections, have a mean of 39 units p.a., 3.5 million dwt p.a., and 1.9 million of CGT p.a.

Summary

The speed of change, the convergence of sciences, and advanced robotics on the one hand, and on the other, stringent environmental rules driven by societal and policy expectations that shipping will reduce its environmental footprint in the coming years and decades will continue to be key drivers for fleet replacement investments. The unstable geopolitical situation, the slowing pace of overall seaborne trade growth, and general global economic uncertainties are also impacting the forecasts. Looking at the individual segments, the above forecast results can be summarized as follows:

The outlook for the container market remains cautiously positive in a “base case” scenario. However, demand-side risks continue to build up. These include the trends in China, the ongoing US-China trade tension, and the challenges in some emerging economies. For bulk carriers, the outlook for seaborne trade growth remains difficult, and newbuilding interest is expected to remain subdued in the short term, hence this market segment is likely to remain under pressure for some time yet. Regarding tankers, the report notes that due to persisting overcapacity, the fleet will grow less than seaborne trade up to 2040. A dramatic increase in the growth of the LNG tanker fleet is expected after 2020. The above projections are based on Sea Europe’s “Market Forecast Report 2019”

Source: SEA Europe
Sovcomflot (SCF Group) reported a significant turnaround in first-half performance, which according to the company, reflects the success of its industrial projects and the improved market conditions. On 23 May 2019, the Board of Directors approved the company’s strategy up to 2025, aimed at further consolidating the company’s position in tech-intensive business segments and increasing its fleet’s share in servicing large-scale energy projects.

Commenting on the results, Sergey Frank, President and CEO of PAO Sovcomflot, said:

“The company achieved significant growth in the first half of 2019 compared to the same period in 2018, exceeding our budget plans. The successful operation of SCF’s vessels serving industrial oil and gas projects, together with the growth of revenues from fleet operations in the conventional tanker market segments (oil and petroleum products), reflected certain improvements in the freight market, although spot rates did not reach their historical averages. Based on the supply-demand ratio forecasts for tanker tonnage, and taking into account the seasonality factor, we remain cautiously optimistic about the results for the second half of the year, as well as the prospects for 2020”.

Nikolay Kolesnikov, Executive Vice President and Chief Financial Officer of PAO Sovcomflot, also commented, noting that:

“In the first half of 2019, Sovcomflot achieved steady financial results across all business segments, reflecting the underlying strength of our business model and the improved operating conditions in the conventional tanker markets during the period. The liquidity position remains strong, and the contracted capex program has been fully funded. Future contracted revenues at the end of the period totaled USD 8.1 billion, providing good visibility and stability of future earnings and cash flows. In May, the international ratings agency Fitch upgraded the Group’s corporate credit rating to BB+, with a stable outlook, reflecting its confidence in our business and strengthening of Sovcomflot’s credit metrics, Moody’s and Standard and Poor’s also affirmed their credit ratings”.

Sovcomflot’s fleet includes 146 vessels with a total deadweight of over 12.8 million tonnes. More than 80 vessels have an ice class. Sovcomflot is involved in servicing large oil and gas projects in Russia and around the world: Sakhalin-1; Sakhalin-2; Varandey; Prirazlomnoye; Novy Port; Yamal LNG, and Tangguh (Indonesia).
Panama Canal Closes 2019 Fiscal Year with Record Tonnage

The Panama Canal has closed the 2019 fiscal year (FY19) with a record tonnage of 469 million Panama Canal tons (PC/UMS), a 6.2 percent increase compared to FY2018. With this figure, the waterway exceeds the 450.7 million PC/UMS tons projection for FY2019, as well as the record tonnage of 442 million PC/UMS tons registered in the previous fiscal year.

During FY19, transits for the liquefied natural gas (LNG) and liquefied petroleum gas (LPG) segments rose by 37.6 and 6.9 percent, respectively, representing the largest gain across all segments. Additional segments with significant transit increased included crude product tankers with a 5.6 percent increase and vehicle carrier/RoRo with a 5.5 percent increase, compared to the previous fiscal year.

In terms of tonnage, the container segment continued to dominate with 164.87 million PC/UMS tons during FY 2019, of which 126.2 million PC/UMS tons transited through the Neopanamax Locks. Leading segments also include bulk carriers at 76.5 million PC/UMS tons, vehicle carrier Ro/Ro at 53.1 million PC/UMS tons, chemical tankers at 44.3 million PC/UMS tons, LNG vessels at 43 million PC/UMS tons, LPG vessels at 37.8 million PC/UMS tons, crude product tankers at 22.6 million PC/UMS tons and passenger vessels at 9.9 million PC/UMS tons.

The main routes using the Panama Canal by cargo tonnage in FY19 include between the U.S. East Coast and Asia, followed by the U.S. East Coast and the West Coast of South America, Europe and the West Coast of South America, the U.S. East Coast and the West Coast of Central America, and the U.S. intercoastal route.

The main users of the waterway during FY19 were the United States, China, Japan, Chile and Mexico.

IBM Boards the Mayflower Autonomous Ship Project

IBM announced on October 16 that it has joined a global consortium of partners, led by marine research organization ProMare, that are building an unmanned, fully-autonomous ship that will cross the Atlantic on the fourth centenary of the original Mayflower voyage in September 2020.

The Mayflower Autonomous Ship (MAS) will use IBM’s Power servers, AI, cloud, and edge computing technologies to navigate autonomously and avoid ocean hazards as it makes its way from Plymouth, England to Plymouth, Massachusetts. If successful, it will be one of the first self-navigating, full-sized vessels to cross the Atlantic Ocean and will open the door on a new era of autonomous research ships.

"Putting a research ship to sea can cost tens of thousands of dollars or pounds a day and is limited by how much time people can spend onboard – a prohibitive factor for many of today’s marine scientific missions," said Brett Phaneuf, a Founding Board Member of ProMare and Co-Director of the Mayflower Autonomous Ship project (together with fellow Board Member Fredrik Soreide). "With this project, we are pioneering a

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Andy Stanford-Clark, Chief Technology Officer, IBM UK & Ireland, added: “IBM helped put man on the moon and is excited by the challenge of using advanced technologies to cross and research our deepest oceans. By providing the brains for the Mayflower Autonomous Ship, we are pushing the boundaries of science and autonomous technologies to address critical environmental issues.” The vessel will carry three research pods containing an array of sensors and scientific instrumentation that scientists will use to advance understanding in a number of vital areas such as maritime cybersecurity, marine mammal monitoring, sea level mapping, and ocean plastics. The work will be coordinated by the University of Plymouth, UK, who are at the forefront of marine and maritime research, with support from IBM and ProMare.

Low Sulfur Marine Fuel Market on the rise

Total has signed a shareholders’ agreement with Chinese state-owned Zhejiang Energy Group (ZEG), to create a joint venture company dedicated to the supply and delivery of marine fuels in the region of Zhoushan, China. The agreement, signed on the side-lines of the IPEC conference in Zhoushan, follows a Memorandum of Understanding concluded by Total and ZEG in April 2019 to explore opportunities in the supply and distribution of energy in China. Total China Investment (TCI) will hold a 49% share in the new company, while Zhejiang Zheneng Petroleum New Energy (ZZPNE) will hold the remaining. Zhoushan region covers both Ningbo and Shanghai ports, the busiest shipping hub in the world in terms of cargo tonnage. By combining ZEG’s historical anchoring in the energy business in the region and Total’s longstanding expertise in the trading and marketing of international bunkers, the new company aims to actively contribute to the development of this fast-growing market.

“This new partnership is fully aligned with our strategy to support and supply our shipping customers wherever they go,” declared Philippe Charleux, Senior Vice-President Lubricants & Specialties of Total. “Providing them with low sulphur fuels fully compliant with IMO regulation in China will further contribute to the transition towards a sustainable shipping industry.”

The creation of the new company ensures the continuity of Total’s business development strategy initiated almost 40 years ago in China.

Successful outcome for the biggest initial public offering (IPO) ever

Saudi Aramco’s initial public offering (IPO), which, according to many, is the largest in history, had a successful outcome. As reported on the Saudi Arabian television network Al Arabiya and Bloomberg Channel, the oil giant will start trading its shares on the Saudi stock exchange on December 11th. Saudi Arabia’s Capital Markets Authority and the company itself announced that Saudi Aramco officially launched its initial public offering (IPO) on Sunday, November 3rd. “Today is a profoundly important day for the kingdom of Saudi Arabia,” Aramco Chairman Yasir al-Rumayyan said at a press conference.

Saudi Aramco, the most profitable company in the world, has had its eyes fixed on entering the stock exchange for almost four years now to raise significant funds to end the reliance of the kingdom on oil exports. The Saudi Kingdom’s goal is to raise $100bn by offering 5% of Aramco’s shares on the stock exchange. It is noted that Saudi Aramco’s entry into the Saudi capital market could be the first step in a two-stage IPO, including an offering on a bigger market, such as the London or New York stock exchanges. In any case, Saudi Aramco’s controversial increase in capital share is coming to an end.
Seagoing vessels of any tonnage engaged in foreign trade and vessels under construction are eligible for registration in the Republic of the Marshall Islands (RMI). Applications for vessels of 15 years of age or older should be submitted with a Status Report of the vessel’s Statutory Survey and Certification and a copy of its latest intermediary or Special Survey Report. Ownership of RMI registered vessels must be through an RMI business entity, however foreign entities can also be accepted, as long as they are registered as foreign maritime entities in the RMI.

The benefits of vessel registration under the RMI flag do not stop once the registration process is completed. The RMI Registry’s decentralized network of 28 worldwide offices ensures a high level of responsiveness to clients and industry stakeholders.

The backbone of the RMI Registry is truly the experienced maritime personnel who provide a range of maritime services to shipowners and operators wherever they are based and/or trading. The RMI maintains its White List status on the Paris and Tokyo Memorandums of Understanding (MoUs) and has been included on the United States Coast Guard (USCG) Qualship 21 roster for 15 consecutive years, which is unprecedented.
Ankara is not afraid of the US (when discussing its relations with Iran)

Speaking to reporters, Turkish President Tayyip Erdogan stated that it was impossible for Turkey to stop buying oil and natural gas from Iran, despite the threat of US sanctions, and added that trade between the two countries would continue. Erdogan implied that Turkey was not afraid of possible US sanctions over its trade with Iran, and added that Ankara did not want to sever its cooperation with Tehran.

The Iranian News Agency Tasnim reports that under the terms of the long-term supply contracts signed by Ankara and Tehran before the new round of US sanctions against Tehran, Turkey was set to buy 9.5 billion cubic meters of gas over the period up to 2026.

According to a press statement made last September, the 27th Iran-Turkey Joint Economic Commission (JEC) meeting, which took place in Ankara, highlighted the extensive talks between the two sides on ways to strengthen the East-West transit route.

During these meetings, much emphasis was placed on establishing and strengthening the Afghanistan-Iran-Turkey transit corridor, the possibility of establishing a Turkey-Iran-Qatar transit corridor, and implementing the agreement on the Islamabad-Tehran-Istanbul (ITI) corridor. Iran and Turkey have also agreed to launch direct train services between Tehran and Ankara. Iran’s Deputy Minister of Roads and Urban Development Saeed Rasooli announced in early June that in addition to the Tehran-Ankara and Tehran-Van trains, tourist trains would operate between the two neighboring countries.

According to Tasnim News Agency, Tehran and Ankara have set a $30-billion annual trade target, signing several agreements to enhance cooperation in various areas. Turkey is one of Iran’s major trading partners in the region, which, due to a fresh wave of US anti-Iran sanctions, has come under pressure from Washington to stop working with Tehran.

New US sanctions against Cuba

On Friday, 18th October, the United States intensified its pressure on Cuba by imposing sanctions against Cuba’s vital tourism sector, which restrict Cuba’s access to commercial aircraft. The US Commerce Department announced it will revoke existing licenses for aircraft leases to Cuban airlines and reject future applications for aircraft leases.

This measure may make it difficult for Cuba to meet the growing demand due to the rapid growth of its tourism sector, which is a major source of revenue for the country. Washington, which has imposed a financial embargo on Cuba since 1962, is doing everything it can to force Havana to withdraw its support for the government of Venezuelan President Nicolas Maduro, whom the United States wants to see removed from power. “This action by the Commerce..."
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Department sends another clear message to the Cuban regime – that they must immediately cease their destructive behavior at home and abroad," U.S. Commerce Secretary Wilbur Ross said in a statement. Washington also announced it will expand sanctions to include more foreign goods containing U.S. content and impose additional sanctions on exports to Cuba. Cuban President Miguel Diaz Canel has denounced the new sanctions on Twitter, describing them as "additional economic blockade measures evidencing moral bankruptcy of an internationally isolated policy promoted by a corrupted government." In June, US President Donald Trump, who has tightened sanctions against Cuba since coming to power, announced a ban on American cruise ships stopping in the country.

Narendra Modi - Xi Jinping meet to patch-up differences

China and India are seeking to bridge the gap between them in an attempt to implement a “win-win” plan. An article on Asia Times reports that Indian Prime Minister Narendra Modi and Chinese President Xi Jinping held informal talks in mid-October to revive relations between the two countries, setting the stage for a "new era." An Indian government official recently noted that his country would welcome an alliance with the US, but first and foremost it had to protect its interests, thus making an indirect reference to the criticism of the Modi - Jinping meeting by the US government. Furthermore, Delhi has doubts about the purity of the US’s motives in reproaching India and suspects it was due to the trade war raging between Washington and Beijing. The US government hopes to sell weapon systems to India to counter the “Chinese threat.” However, such a move will automatically mean that India will be spending significant sums on its defense rather than on supporting the country’s economic growth, which has slowed to 5% this year from 7% in 2018. China was not India’s first choice, but the reluctance of “western countries” to expand trade is pushing Delhi to work with the "Chinese communist regime.”

Iran discovers new oilfield with 53 billion barrels

According to the Iranian News Agency Shana, Iranian President Hassan Rouhani announced the discovery of a new oilfield in the south-western province of Khuzestan. Speaking in the southern province of Yazd, Dr. Rouhani said that the field’s reserves were estimated to contain 53 billion barrels of oil in place. The Iranian President added that the field will generate 53 billion barrels of crude oil and could boost the country’s 150 billion barrel reserves by a third. Iran currently possesses the earth’s fourth-largest proven deposits of crude oil and the world’s second-largest deposits of natural gas. The new oilfield, which is close to the borders with Iraq and in close proximity to the Gulf, could eventually become Iran’s second-largest producing field.
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EU investment budget for 2020 must focus on the Europe of tomorrow

Budget MEPs want the EU to rise to the climate challenge, help the young, and strengthen the economy, in a vote last September on their position on the 2020 EU budget. The Budgets Committee has boosted many programs and projects which contribute to fighting climate change, such as the Connecting Europe Facility (investments into transport and energy infrastructure), climate-related research in the Horizon 2020 program, environmental programs, as well as those that benefit non-EU countries. The aim is to deliver on the pledge of 20% of EU investment for climate change action in the 2014-2020 Multiannual Financial Framework (MFF). The Committee’s other major additions to the Commission’s draft budget concern the Youth Employment Initiative (+€363.3 million, raising the total for 2020 to €480 million), support for Erasmus+, for SMEs, for research and innovation in areas such as digital and health, and for future-oriented technologies. Rapporteur Monika Hohlmeier, a German MEP, said: “Two billion Euro for climate on top - today’s vote has shown that the European Parliament managed to put the climate at the heart of the EU 2020 budget negotiations. We are committed to delivering on what heads of states promised at the climate conference in New York: action to mitigate global warming and to protect our environment by pushing investments for green technologies and environmentally-friendly innovation.”

On Tuesday 1 October, the Budgets Committee voted through a budget totaling €171.3 billion in commitments, which is €3 billion more than the original European Commission proposal (€168.3 billion in commitments). About 93% of the EU budget funds real activities on the ground in EU countries and beyond. It goes to citizens, regions, cities, farmers, researchers, students, NGOs, and businesses. The EU budget is unique. Unlike national budgets, which are used in large part for providing public services and funding social security systems, the EU budget is primarily an investment budget, and, unlike national budgets, the EU Budget cannot run a deficit.

Oil and Gas Climate Initiative sets sights on carbon capture

The Oil and Gas Climate Initiative (OGCI), a group of leading energy companies, recently introduced new measures to address climate challenges at its fifth annual conference in New York and said it was making progress curbing methane emissions. Among the new efforts is one to spur large-scale investments in carbon capture use and storage (CCUS) systems, with an early goal of doubling the amount of carbon currently stored globally before 2030. CCUS is a central part of efforts to achieve net zero emissions. “We are committed to helping to meet society’s lower carbon goals while reliably meeting the energy needs of billions of people for decades to come and leading at the cutting edge of technology,” said Saudi Aramco chief technology officer Ahmad O. Al-Khowaiter, who participated in working sessions at the event. “Our involvement with the OGCI demonstrates this commitment.” OGCI also reported that its members are committed to reducing the amount of methane and carbon emissions in their upstream oil and gas operations, and supporting appropriate governmental policies that assign a value to carbon as a way to lower emissions. Members have already reduced their collective methane intensity by 9% and are on track to meet a cumulative 20% reduction by 2025, the group said. OGCI is now
working on a target to reduce its collective average carbon intensity as well. Reducing carbon intensity involves actions such as improving energy efficiency, minimizing flaring, upgrading facilities, and co-generation. OGCI members have set up a venture capital fund with more than $1 billion that has invested in startup companies that are developing, scaling, and deploying technologies that reduce greenhouse gas emissions. It has made seven new investments in the past year in companies with impactful technologies that span the energy value chain. Fifteen companies are in the portfolio.

OGCI is also starting a Kickstarter crowdfunding program to facilitate putting CCUS technologies into operation in industrial hubs in the U.S., U.K., Norway, the Netherlands, and China. More broadly, OGCI is working with 11 countries supporting the Clean Energy Ministerial CCUS initiative to create a global commercial carbon storage industry at the scale needed to meet the goal of the Paris Agreement. OGCI has also joined the Natural Climate Solutions Vision Initiative convened by the World Economic Forum and the World Business Council for Sustainable Development.

Cargill, Maersk Tankers and Mitsui & Co. collaborate to bring cost-effective global GHG reductions

Cargill, Maersk Tankers and Mitsui & Co. have established a strategic collaboration to accelerate the reduction of global greenhouse gases (GHGs) within shipping. All three parties recognize the urgency required to tackle the global issue of climate change and are continually driving progress in their respective lines of business. Today, they are joining forces to accelerate these efforts and propel the maritime industry towards a more sustainable future.

Together, the companies will work towards lowering maritime GHG emissions by fully exploiting existing fuel-saving technologies and exploring new technical solutions. The aim is to prove that it can make economic sense for both owners and charterers if they work more closely together to make vessels more fuel-efficient, thus demonstrating that sustainable shipping can also be commercially viable.

The collaboration, which is closely aligned with the International Maritime Organization’s target for international shipping to cut annual GHG emissions by 50% by 2050, has a long-term objective of providing “over-the-shelf” solutions for maritime industry actors looking to explore new technologies to reduce their emissions.

The environmental priorities of European ports

On October 17, ESPO presented its annual Environmental Report for 2019 at the GreenPort Congress in Oslo. The ESPO Environmental Report includes more than 60 different environmental performance benchmarks, including figures on the green services to shipping (shore-side electricity, LNG, and...
environmentally differentiated port dues) and the Top 10 Environmental Priorities of the European ports.

Air quality continues as the top environmental priority, followed by energy consumption. Air quality has become a key determinant of public “acceptance” of port activity in the years to come. Climate change, included in the Top 10 of the environmental priorities for the first time two years ago, is this year the third top priority after air quality and energy consumption. Almost eight out of ten European ports take climate change into consideration when they develop new infrastructure projects. Furthermore, 62% of ports strengthen the climate resilience of existing infrastructure, and 47% of them have already dealt with operational challenges due to climate change. The relationship with the local community, which is of utmost importance for ports, is in position five this year. The 2019 citizen is stronger, better informed, and more engaged. The local community is the new influencer, and this is also an important reality for ports.

Transparency is clearly a high priority, with 87% of the ports communicating their environmental policy to the stakeholders and 82% of them making it publicly available on their website. With regard to the green services to shipping, more than half of the ports are offering shore-side electricity for ships at berth (OPS), 48% of them providing high voltage electricity for seagoing vessels. One-third of them have made LNG bunkering available, LNG being mainly provided by trucks (90%), and by barges (20%). In parallel, 56% of ports provide environmentally differentiated fees for ships that go beyond regulatory standards, with air emissions, waste, and climate change being the main targets of these discounts.

In addition, 71% of the ports are certified with an environmental standard (ISO, EMAS, EcoPorts’ PERS) increased by 17% since 2013. 82% of ports have set up an environmental monitoring program, waste being the most monitored issue. Aiming to further increase the transparency and accountability of the European port sector and to enhance the relationship of ports with their local communities, ESPO decided to publish the annual Environmental Report of the European port sector as from 2016. The report provides quality data on ports’ environmental performance and is becoming a point of reference for policy-makers and stakeholders, including local communities, civil society, researchers, and industry. 94 ports have been participating in this year’s report.

### PASSENGER SHIPPING

**Homeporting increased by 18% at the port of Piraeus**

One more newly built cruise ship, the "SKY PRINCESS," recently called at the port of Piraeus and was welcomed by representatives of the PPA Management.

"SKY PRINCESS," the newest cruise ship in the world (October 2019), is 330 meters long, weighs 143,000 tons, has a capacity of 3,660 passengers, and has the most modern and innovative facilities in technology and entertainment.

According to statistics for the first nine months of 2019, the cruise sector of the port of Piraeus had an increase of approximately 14.6% compared to 2018, and homeporting (arrivals-departures from the Piraeus port), which has the greatest benefits for the national economy, has also increased by 18.2%. As regards the 2020 and 2021 reservations, it is noted that this positive trend is expected to continue for the Piraeus port.

It is noteworthy that recently (July 2019), the port of Piraeus was awarded by the Mare Nostrum Awards (Medcruise) as the best cruise port for the Eastern Mediterranean region.
Port of Kiel: New cruise passenger record

The visit of the cruise ship “AIDAPRIMA” on Saturday, 12th October, marks the conclusion of the ocean-going cruise liner season in Kiel 2019. The port has been visited this year on 174 separate occasions (2018: 169) by 32 different cruise ships with a total tonnage of 15 million GT. For the first time ever and exceeding the port’s expectations, about 800,000 cruise passengers embarked or left a ship at the terminals in Kiel (+ 33.6 %). The cruise and ferry passengers, as well as the crews, generated a total consumer spending of more than 75 million Euros in Kiel and the region. Dr Dirk Claus, Managing Director at the PORT OF KIEL said: “The Cruise Season 2019 went very well for the port of Kiel. The shipping companies and the port cooperated excellently.” This was all the more important as the new construction of the second terminal building, as well as the festivities marking the Anniversary of German Unification required a temporary adaption of handling processes at the northern Ostseekai berth. Furthermore, the expanded cruise terminal in the Ostuferhafen area which had been inaugurated last April proved successful in increasing the capacity and flexibility of the port. Dirk Claus stated: “Very big ships with more than 4,000 passengers can be handled smoothly at the Ostuferhafen Terminal. Customer satisfaction confirms the facility’s high quality and efficiency.”

“Blue charter”: A joint commitment by cruise companies

On 17th October, 2019, on the occasion of the Blue Maritime Summit Marseille Provence – Cruise Initiatives organized in Marseille by the Marseille Provence Cruise Club, the Costa Cruises, MSC Cruises, Royal Caribbean Cruises Limited and Ponant companies, the Ministry of the Environment, Provence-Alpes-Côte d’Azur Regional Council and the Aix-Marseille-Provence Metropolitan Authority signed the “Blue Charter” for a significant reduction of air pollutants, initiated by the Cruise Club and the Port of Marseille Fos. With the growing awareness at local level regarding air pollutant emissions linked to the shipping industry, cruise companies are undertaking jointly with the major institutions to preserve the quality of the air for Marseille’s inhabitants!

Thanks to the signing of the Blue Charter, a new, key step has been taken in the “Zero-Smoke Port Calls” plan for Marseille, put in place by the Port of Marseille- Fos, Marseille Provence Cruise Club and Provence-Alpes-Côte d’Azur Regional Council. The plan, to be applied at all three of the region’s commercial ports, will see almost €9M invested at Marseille by the Region and the Grand Port Maritime de Marseille with a view to providing shore-to-ship power for vessels at berth by 2024, a first in the Mediterranean. This unique and particularly ambitious initiative has the political backing of the City of Marseille and the Bouches-du-Rhône Departmental Council, as well as support from elected representatives on all political sides.

Four signatory companies central to the development of the cruise business in Marseille, namely Costa Cruises, MSC Cruises, Royal Caribbean Cruises Limited, and Ponant, made firm commitments. Their businesses represent almost 83% of the cruise port calls made at the Port of Marseille’s harbours and 95% of cruise passenger throughput, a figure that testifies to the stated willingness of all stakeholders to work towards a significant reduction of air pollutants.
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Choosing a seafaring career: What are the incentives and new skills required?

This was one of the topics discussed at the Young Executives session during Maritime Cyprus 2019. The format involved a team of about 20 shipping professionals with diverse experience, discussing the topic for about 45 minutes, facilitated by a mentor, and then presenting their findings to the audience. Significantly, the team also consisted of a number of seafarers, current and ex, and female seafarers.

The team started by sharing the statistics of Cypriot seafarers:
Cyprus has currently 1923 seafarers but more than 90% of them are above 50 years of age. There are only 33 active seafarers below 30 years of age and 96 seafarers between the age of 30 – 40. Out of this, there are only 4 female seafarers. The team suggests that a target of tripling these numbers at all levels within the next 3 years is a good target to aim for. Accordingly, the suggestions presented were as follows:

1. Continue to spread awareness about shipping.

The team lauded the work of the Deputy Ministry of Shipping (DMS), the Cyprus Shipping Chamber (CSC) and the local industry for their efforts to raise awareness. The team recommended continuing this work, with the following additions:

a) Include success stories of Cypriot and Greek seafarers in middle-school history or literature. This will inspire young school students through the availability of role-models.
b) The shipping ministry to conduct workshops for school counsellors, school children and parents to educate them about the shipping industry.
c) Continue to inform the public on the attractive wages, tax benefits, labour and rights protection.
d) Government schemes to enable access to students for water-sports at discounted offers so they develop a love for sea & boats early on.
e) Encourage women seafarers.
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SEAFARING CAREER OUTLOOK

2. Improve success rate of seafarers

The current graduation rate of deck and engineering cadets in the last 10 years is 50%. However, the percentage of cadets achieving Master-Mariner or Chief Engineer license is below 20%. This is a big waste of time and resources for the government, the shipping company and the candidates. The team suggested that:

a) That the DMS and the industry commission a study on the reasons for the dropout rate, and solutions. One of the potential solutions may be enhanced aptitude tests and counselling before entry into maritime academies.
b) Bureaucracy for issuance of certificates to be reduced, such as by digitization.
c) Improve wages for cadets, covering the full sea-time up until watchkeeper’s license.
d) All STCW courses up until watchkeeper’s license to be sponsored by the Government. This could be either a full or part scholarship, or a student-loan.

3. Improve desirability of seafaring

The idea is that greater the desirability of seafaring, greater will be the ability of candidates to overcome the initial challenges of a career at sea.

a) The DMS and industry bodies should continue to lend their voice against career-deterrants such as criminalization of seafarers, piracy and abuse.
b) The industry must avoid ‘dry-ships’ (where alcohol consumption is prohibited) and look at providing ‘family-carriage’ (allowing relatives to travel with crew onboard) for certain ranks.
c) Sea-time on Cyprus flagged ships should serve at least as part-substitute for service in the National Guard.
d) DMS to work with the industry for assured employment schemes.
e) Cadets should not be obliged to pay 9000 euros to be paid to the Greek Government for social security payment.
f) Keep wage and tax structures attractive for seafarers to continue their career path.

4. Sea-Mentor

A serving or ex-seafarer should be appointed as a Mentor for all Cypriot seafarers. The Mentor should have access to the DMS and the CSC. They can provide career guidance, as well as arrange for counselling on certain mental health issues. The Mentor can act as a bridge between seafarers and the industry. They can help seafarers attend seminars when on leave, integration with the society, provide career options in new technologies such as renewable energy and fuel efficiency. They may also be able to assist with job placements.

The Mentor should be available through web, phone and email 24x7x365.

5. Invest in Maritime Education & Training

a) Provide attractive wages to trainers and professors in both academies and in corporate settings. This way, the industry can attract trainers with suitable aptitudes who can inspire seafarers to succeed in their seafaring careers.
b) The DMS/industry should consider the possibility of Cadetships. When a group of cadets complete their first sea-time together, the company and peer-support help them overcome initial anxieties about their careers.
c) Also look at skills-training, especially for positions such as electro-technical officer and welders. They could be also provided career growth options to become officers.
d) Invest in research and training for autonomous ships and ships propelled by renewable energy.

d) Informing the general public on career options for hotel staff, security staff and entertainers.

c) Transparent and organized job placement.

6. Increase focus on cruise, yacht, river, ferries hotel crew

Besides careers as navigating, engineering and electrical officers, there is a big demand for positions in the cruise, yacht and leisure industry. Many river-cruise management companies have local crewing offices in Cyprus which employ staff on Cyprus contracts with paid social insurance which enables claiming unemployment benefits during the winter season when most ships are laid off.

Employment on European river cruises is regulated by EU laws which determine the allocated vacation time per month worked and employees receive vacation regularly during contract. This enables staff to travel home more frequently than on cruise ships – on an average 8 months’ season, crew can receive holiday twice and this is usually paid for by the employer. Hotel staff, security, medical staff, entertainers - all of these can provide a steady source of employment. This should be promoted through:

a) Career fairs and counselling, as earlier recommended, should also include highlighting the positions in the leisure industry.
b) All hospitality schools and colleges should introduce passenger ship modules. These modules are to be taught by industry professionals and aligned with transparent career placement services and job fairs where students can obtain direct feedback from ex or current seafarers.
c) Transparent and organized job placement.
d) Informing the general public on career options for hotel staff, security staff and entertainers.

The above suggestions implemented in tandem can help increase the number of seafarers in Cyprus, and by the same token, the availability of experienced maritime professionals for supporting the Cyprus maritime hub.

The above reported conclusions were provided by the "Pink Team" coached by Captain VS Parani. The "Pink Team" was part of the Young Executives session during Maritime Cyprus 2019.
Σημαία: Ελληνική
Μήκος: 79 μέτρα
Πλάτος: 11,7 μέτρα
Ιπποδύναμη: 1.500 ίπποι
Ταχύτητα: 12 κόμβοι

Σημαία: Ελληνική
Μήκος: 304 μέτρα
Πλάτος: 40 μέτρα
Ιπποδύναμη: 78.000 ίπποι
Ταχύτητα: 25,6 κόμβοι

Σημαία: Μάλτας
Μήκος: 300 μέτρα
Πλάτος: 48 μέτρα
Ιπποδύναμη: 64.505 ίπποι
Ταχύτητα: 22,5 κόμβοι

Σημαία: Ελληνική
Μήκος: 157 μέτρα
Πλάτος: 25 μέτρα
Ιπποδύναμη: 12.000 ίπποι
Ταχύτητα: 18 κόμβοι

Σημαία: Ελληνική
Μήκος: 351 μέτρα
Πλάτος: 43 μέτρα
Ιπποδύναμη: 102.000 ίπποι
Ταχύτητα: 25,5 κόμβοι

Σημαία: Ελληνική
Μήκος: 157 μέτρα
Πλάτος: 25 μέτρα
Ιπποδύναμη: 956 Εμπορευματοκιβώτια
Ταχύτητα: 12 κόμβοι

Σημαία: Ελληνική
Μήκος: 300 μέτρα
Πλάτος: 48 μέτρα
Ιπποδύναμη: 66.893 ίπποι
Ταχύτητα: 23,0 κόμβοι

Σημαία: Μάλτας
Μήκος: 369 μέτρα
Πλάτος: 51 μέτρα
Ιπποδύναμη: 14.524 Εμπορευματοκιβώτια
Ταχύτητα: 25,5 κόμβοι

Σημαία: Μάλτας
Μήκος: 300 μέτρα
Πλάτος: 48 μέτρα
Ιπποδύναμη: 64.505 ίπποι
Ταχύτητα: 22,5 κόμβοι

Σημαία: Μάλτας
Μήκος: 369 μέτρα
Πλάτος: 51 μέτρα
Ιπποδύναμη: 14.524 Εμπορευματοκιβώτια
Ταχύτητα: 23,5 κόμβοι

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At the Gastech trade fair in Houston, DNV GL presented South Korea’s Daewoo Shipbuilding & Marine Engineering Co. Ltd. (DSME) with Approval in Principle (AIPs) certificates for two new 98,000 cubic meter (CBM) ethylene carrier cargo tank designs. In a hand-over ceremony at the DSME booth, Odin Kwon, Chief Technology Officer (CTO) of DSME, received the AIP certificates from Johan Petter Tutturen, DNV GL – Maritime’s Business Director Gas Carriers.

“This is another great milestone in our long-standing relationship with DNV GL, demonstrating DSME’s strong design and innovation capabilities,” said Odin Kwon.

The AIPs were granted for two type-B prismatic cargo tank designs, one made of high manganese steel, the other constructed with 5 percent nickel steel. During the review, DNV GL experts assessed the cargo containment systems, machinery spaces, and accommodation arrangements, as well as the hull girder strength and local scantling amidships. Onboard lifesaving and firefighting systems were also part of the assessment. It was found that the general concepts of both tank designs comply with the DNV GL rules for the classification of ships and that they are in accordance with SOLAS and the IGvC Code (2016 edition).

“We are delighted to have been able to use our extensive experience with gas carriers to support DSME in delivering safe, efficient, and environmentally friendly tank designs for the new generation of VLECs,” said Johan Petter Tutturen. “Increasing oil and gas production from shale deposits is making more ethylene available across the globe, and an increasing number of ship operators are interested in the gas as cargo for gas carriers. DSME’s innovative designs will give the industry new options as it looks to expand this market,” added Tutturen.
OGCI Climate investments leads €8 million investment in Norsepower

Norsepower Oy Ltd., provider of low maintenance, software operated, data verified auxiliary wind energy propulsion systems announced recently that OGCI Climate Investments had led an €8 million investment round in Norsepower, along with current investors, to accelerate Norsepower’s growth on global markets.

The investment enables Norsepower to scale up production at its manufacturing facilities as part of the next phase of commercialization triggered by demand for its renewable wind energy propulsion systems. The increased take-up comes at a time when the international shipping industry looks to offset expensive fuel costs - that are likely to increase following the IMO’s 2020 global sulphur cap - and prepare for IMO GHG emissions targets for 2030 and 2050.

Commenting on the announcement, Tuomas Riski, CEO, Norsepower, said: “We are very excited to be partnering with OGCI Climate Investments on this initiative, which will leverage the expertise and capabilities of both organizations to scale our Rotor Sail Solution. Importantly, this partnership will also allow Norsepower to deliver cleaner solutions for the oil tanker market as it strives to increase sustainability and decarbonize in its role as a critical vehicle for the world economy.”

NYK Conducts World’s First Maritime Autonomous Surface Ships Trial

Iris Leader, a large NYK-operated PCTC having a gross tonnage of 70,826 tons, was navigated day and night using the Sherpa System for Real ship (SSR) navigation system during the period from 14 to 17 September from Xinsha, China, to the port of Nagoya, Japan, and then from the port of Nagoya to the port of Yokohama, Japan, from 19 to 20 September. The ship’s crew performed routine duties during the navigations, which included Japan’s coastal regions but excluded bays. During the trial, the SSR’s performance in actual sea conditions was monitored as it collected information on environmental conditions around the ship from existing navigational devices, calculated collision risk, automatically determined optimal routes and speeds that were safe and economical, and then automatically navigated the ship. Using data and experience gained through this trial but not obtainable through onshore simulators, NYK was able to ensure the feasibility of the SSR and its benefit for safe and optimal operations. This trial was a step toward realizing NYK’s goal of manned autonomous ships.

The world’s first Aframax crude oil tankers (COTs) which apply fuel cells

Samsung Heavy Industries has become the first shipbuilder to develop the world’s first Aframax crude oil tankers (COTs) applying fuel cells to respond to the IMO regulations strictly limiting CO₂ emissions, bringing it one step closer to the eco-friendly vessels market.

SHI announced that it had acquired Approval in Principle (AiP) by DNV GL for its fuel cell-powered A-max COT. AiP, a process that verifies technological features of basic marine designs, enables shipbuilders to receive orders by officially approving their technologies and ships. The newly developed fuel cell-powered COTs, which are environmentally friendly as they replace oil-based power generators with solid oxide fuel cells (SOFCs) using LNG as fuel, have improved energy efficiency and significantly reduced greenhouse gas emissions.

If fuel cells are applied to an A-max COT which traditionally uses 3MW generator engines, GHG emissions decrease by more than 45%, as much as removing about 10,000 combustion-powered cars from the roads worldwide.

Thanks to cooperation with Bloom Energy of the US, which commercialized SOFCs for the first time, the vessels boast high stability. Samsung Heavy Industries developed the core manufacturing processes, including the fueling system and power control system for the fuel cells. It has also become the first shipbuilder to achieve AiP for COTs powered by fuel cells, which have higher volumes compared to traditional engines, by optimally deploying them without changing vessel designs.

Meanwhile, as SOFCs can use hydrogen as a fuel for fuel cells in addition to LNG, it is anticipated that zero-emission hydrogen vessels will be built based on the approved technology. “As regulations to reduce GHG emissions take effect step by step, the introduction of fuel cells to vessels is inevitable. This approval and being the first shipbuilder to secure this marine fuel cell technology illustrates that Samsung Heavy is highly likely to lead the market,” said Kyunghie Kim, Vice President of SHI.

UECC goes for third battery hybrid LNG PCTC

Close on the heels of their call for two new battery hybrid LNG PCTCs, UECC has confirmed an option with China Ship Building Trading Co. Ltd. and Jiangnan Shipyard Group Co. Ltd. for a third battery hybrid LNG vessel, this time slated for UECC’s Atlantic short sea trade.

“This order is another step in our commitment to cleaner shipping,” says Glenn Edvardsen, CEO of UECC. “Our experience with LNG dual-fuel vessels has been good, and we want to keep moving forward to expand our sustainable fleet.”

Already winners, UECC’s two first ECO-class vessels grabbed first and second place in Bremenports’ Greenports Award 2018 for being the cleanest ships calling at one of Europe’s busiest ports. With the addition of battery hybrid technology, the three new ships raise the environmental protection bar even further.

The new orders will push the UECC dual-fuel LNG fleet to five vessels. “When our third battery hybrid LNG PCTC is delivered in 2022, it will usher in a new era for UECC and short sea shipping in Europe,” says Edvardsen. “That will give us a total of five eco-friendly vessels in our fleet. This represents more than 50% of the UECC owned fleet, and no other short sea company, or deep sea for that matter, can demonstrate such a sustainable fleet.”
Atlantic Bulk Carriers Management Ltd. (ABCML): “M/V Desert Grace”

As part of its newbuilding program, Atlantic Bulk Carriers Management Ltd. has recently added one more newly-built bulk carrier vessel to its fleet.
The newbuilt "M/V Desert Grace" was built by Imabari Shipbuilding Co. Ltd, Japan in 2019 and is the second delivery out of 4 sister Ultramax vessels. The vessel has a capacity of 63,553 DWT and is registered under the Marshall Islands flag.

### M/V Desert Grace: ABCML's Ultramax newbuilding

- **Name**: Desert Grace
- **DWT**: 63,553 MT
- **Vessel Type**: Bulk Carrier / Ultramax
- **Total Length**: 199.98 m
- **Year Built**: 2019
- **Breadth**: 199.98 m
- **Shipyard**: Imabari Shipbuilding Co. Ltd.
- **Flag**: Marshall Islands
- **IMO Number**: 9849502
- **Classification**: American Bureau of Shipping (ABS)
Sealink Navigation Ltd: “M/V EVGENIA K”
Continuing its newbuilding program, Sealink Navigation LTD. has recently added to its fleet one more newly built bulk carrier vessel.

The new ECO Ultramax “M/V EVGENIA K” was built by Imabari Shipbuilding Co. Ltd. (Shin Kasa-do dockyard in Japan), has a capacity of 64,000 DWT and is registered under the Marshall Islands flag.

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<td>EVGENIA K</td>
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Market News

ClassNK sets new standards

New initiatives from ClassNK to protect safety and the marine environment

In order to reduce atmospheric pollution caused by sulphur oxides (SOx) and particle matter (PM) found in vessel emissions, enforcement of shipping’s environmental regulations is becoming ever stronger.

However, with Greenhouse Gases now also within the sights of regulators, LNG’s ability to reduce CO2 emissions by 10% to 20% compared to conventional oil fuels bring a new dimension to the future viability of a marine fuel that is already Sulphur-free.

Recently, ClassNK granted Approval in Principle (AIP) based on its Rule Part GF which adopts IGF Code (regulation for ships using low-flashpoint fuels). The development supports various joint projects on the concept design of LNG-fuelled bulk carriers led by companies such as NYK Line/Japan Marine United and Kawasaki Heavy Industries.

But perhaps ClassNK’s most remarkable recent safety initiative, especially for dry cargo ships, is the establishment of ClassNK Archive Center (NKAC). As international regulations are requiring the industry to enhance the safety of highly sensitive design and construction information, ClassNK’s world-first and only viable onshore Archive Center provides an essential service, enabling both shipowners and shipbuilders to comply with new IMO Global Based Standards (GBS) - Ship Construction Files (SCF) and the related industry standard.

The SCF provides the vessel design and construction information needed to ensure the safety of the ship throughout its operational life. According to the SCF guidelines, this information must be stored on board. Other information, including the high-level intellectual property (IP) drawings belonging to the shipyards such as the yard plan, lines and detailed structural calculations, is kept confidential and does not need to be carried on board.

To supplement the regulation, the Industry Standard was also developed by a cross-industry group including the Shipbuilders’ Association of Japan (SAJ) and other organizations such as CANSI, CESA, KOSHIPA, SCA, ICS, INTERCARGO, INTERTANKO, BIMCO, OCIMF and IACS.

As of June 2019, no service other than NKAC has announced the storage of GBS-SCF. Although the necessity to have SCF onboard to improve the safety of ships is unquestionable, at the same time SCF is an intellectual property developed by Shipbuilders. In order to tackle this conflict between the players, ClassNK has utilized innovative and secure cloud-based technology to develop NKAC for the storage and management of SCF and other electronic documents.

ERMA FIRST invests in METIS Cyberspace Technology

ERMA FIRST, the maritime-focused environmental engineering group, announced on October 17 the acquisition of a controlling interest in METIS Cyberspace Technology that was previously owned by the Germanos – led Olympia Group. The innovative METIS platform uses Cloud-based Virtual Personal Assistants that work ceaselessly to provide in-time information, diagnosis and prediction to company personnel through a conversational user interface focused on the requirements...
of shipping companies. In a very short period of time, METIS has attracted an exceptional client list of prominent international shipowners and managers. The team will remain the same as before.

With technology playing an increasingly critical role in every aspect of the industry, both companies recognize that they need to accelerate the development of green digital solutions to ensure they remain in the competitive vanguard.

“We are extremely excited to be joining forces with METIS. We have been admirers of the company since its inception,” said Managing Director of ERMA FIRST Konstantinos Stampedakis and he added, “Our vision for METIS is to allow its team to continue doing what it does so well and to strengthen the company’s ability to provide solutions for smarter, safer, greener and more efficient solutions for the maritime industry”.

“Together, we will produce new products and services, extending the coverage of the ship’s operation towards a more sustainable future. METIS already offers a unique product but has unlimited capabilities that go well beyond performance monitoring.

Our interest in METIS definitely has an eye on the future,” said Eleni Polychronopoulou, Executive Vice President of Environmental Protection Engineering SA. For METIS, Mike Konstantinidis commented “We are delighted to receive the endorsement of ERMA FIRST and become a valuable member of the company. Shipping is on the brink of a new era and, as exciting possibilities arise, we now have a stronger base to explore them together.”

**Orolia Maritime collaborates with SRH MARINE SAIT on a new enavigation security solution**

Orolia Maritime announces it is working in close collaboration with SRH Marine to integrate Orolia Maritime’s M-SecureSync cyber security capabilities into its new automated digital services distribution platform.

Building on its reputation in the maritime market, SRH Marine’s Resilient Navigation solution “SecureNav+” is due to be launched by end of 2019. This new agnostic solution links a vessel’s Very Small Aperture Terminal (VSAT) or Fleet Broadband (FBB), Electronic Chart Display and Information System (ECDIS) and Global Navigation Satellite System (GNSS) receiver, allowing ship owners and operators to use the device as a data bridge to review and update ECDIS data.

With the inclusion of Orolia Maritime’s M-SecureSync capabilities, this combined solution will allow ships sailing paperless to analyse their GNSS source for jamming or spoofing interference, offering ship owners the combined enavigational security of GNSS signal integrity and chart accuracy.

“We are thrilled to be working with SRH Marine,” comments Chris Loizou, Vice President Maritime at Orolia. “This innovative collaboration builds on Orolia Maritime’s strengths in resilient GNSS solutions, offering both vessel and shoreside management a unique enavigational security solution during a period of increased concern over GNSS cyber safety.” SRH Marine Group Chief Operating Officer, Panayiotis Giannoulis, echoes Mr. Loizou’s sentiments, saying, “We’re pleased to be working with Orolia Maritime on this, building on our existing partnership. The SecureNav+ solution will bring more resilient navigation and ensure ship owners have access to the latest enavigation information. The incorporation of M-SecureSync capabilities will give our customers the peace of mind that they are protected by a multi-layered suite of cyber security resilience for threats to critical GNSS signals.”
The team from Intellian explained how the NX Series has the capability to address a very big challenge for maritime satcom at the moment – should ship owners and operators defer their decision to upgrade connectivity and wait to see what new services based on Low Earth Orbit (LEO) and Medium Earth Orbit (MEO) can do for their business.

A core benefit of these expected, new satellite constellations and services is low-latency, which in effect means ships and shore offices can dramatically improve efficiency using real-time applications, giving that directly “plugged in experience”, with the 1st series of constellations fully commercially available at the end of 2021.

The NX Series according to the Intellian team, is fully capable to maximize the GEO constellation for the NOW, using the NX capabilities to be EASIER, FASTER and STRONGER and ready for the future. Intellian has designed its new range of VSAT systems for maximized operation on LEO, MEO and the current Geostationary satellites (GEO).

The benefits are clear; customers can get the best performance on the satellite services available today but save money in the future by not having to replace their antennas should they choose new LEO or MEO services when they are ready. Intellian’s innovative design for the NX Series delivers significant lifecycle savings in many other areas too. Installation is simplified, for instance with a single cable between the antenna and below deck units and the modular design means that spare parts can be shared across the range. This reduces the amount of spare parts stock by 40%.

Tototheo and Intellian introduce a new portfolio of cutting-edge satcom antennas to Greek customers

Tototheo Maritime is a true believer in the evolution of the maritime industry. It has repeatedly demonstrated that technological advancement and increased connectivity on vessels can be regarded as an opportunity for further improvement and optimization, always keeping humans as a focal point. The key to successful implementation of digital tools is maintaining the respect toward what humans bring to the equation.

Being a maritime technology company for 30+ years, allows Tototheo to have a deep understanding of our industry’s needs, a thorough knowledge of the requirements placed upon operators – regulatory, market etc. – and apply these, supporting their customers with their digital journey. The ultimate goal is always to utilize technology in a responsible and sustainable way.

Tototheo Maritime’s Digital Control Room (DCR) encompasses all the above, allowing ship owners and managers to really be in control of the large amounts of data they aggregate daily. The DCR is an innovative Software-as-a-Service platform developed keeping in mind the transition of the shipping industry into the digital era. Through the DCR, Tototheo Maritime addresses the need to keep up with the transformation of our industry in a smart and efficient way. It allows for powerful data management, flexibility to adapt to an ever-changing environment and the vast capability of encompassing various aspects of the maritime ecosystem.

Tototheo’s portfolio is rich in innovative solutions from advanced firewall, application hosting, connectivity, cyber security and much more, all specifically created for the maritime industry. For many years now, Tototheo Maritime has remained at the forefront of technological development in shipping, providing bespoke, scalable solutions to address the evolving needs of its customers and of the industry itself.

Long-term maritime satellite communications partners Tototheo and Intellian introduced a new portfolio of cutting-edge satcom antennas to Greek customers at a partner event in Athens on October 23rd.

The event attracted a diverse audience, all keen to hear about Intellian’s new full range of VSAT systems and what they can do to make satcom easier and lower-cost. The launch of the Intellian NX Series – featuring Ku/Ka-band VSAT and Global Xpress antennas from 85cm to 1.5 metres – didn’t disappoint in both of these areas.
Servicing by the OEM saves money and secures asset value

By John Carnall,
Senior Vice President, Global Lifecycle Support, MacGregor

Effective, expert maintenance, provided as part of a longer-term service commitment between OEM and customer, ensures optimum reliability, on-time responses, cost savings and effective risk management.

In the last ten years, reported shipping incidents have increased by 33%, with the same percentage caused by machinery damage or failure. In many cases, these incidents could have been avoided through periodic visual inspection, but the prolonged industry downturn has meant that maintenance budget cuts have run so deep that even these have been impacted.

Every equipment supplier in the market is aware of the difficulties facing the industry and recognises that cost control has become a main driver in the maintenance sector. However, saving money does not mean stopping maintenance activity; it means doing it right first time and avoiding costly repeat work.

With raised levels of cost-awareness, it is even more important that shipowners, charterers and fleet managers look to original equipment manufacturers (OEMs), such as MacGregor, for their maintenance and technical support requirements. Effective maintenance practices minimise failure and incident related risks, with insurance companies better able to manage and substantiate a claim if they are able to demonstrate that proper maintenance had been undertaken.

It is generally accepted that effective maintenance practices positively support commercial operations, so OEMs need to help customers with making the right service support choices in an environment of constrained budgets.

Close is good, even closer is better

Whilst good maintenance practices positively support business operations, you have to start by being close-by. My belief is that the closer you are to a customer, the better you support them. One of the goals at MacGregor has been to strengthen our global footprint and we currently have 50 service offices in 32 countries. This is core to our service commitment and based on regional hubs which support the local offices.

It is all about speed and responsiveness, as equipment that is not working is not earning money. This is a key benefit of the hubs as they bring integrated support capabilities together in one location, enhancing the ability to better serve our customers.

The changing service landscape

Optimal equipment reliability and availability is the priority. To support effective dry-docking activities, we have developed a planning tool based on each vessel’s unique IMO number. All MacGregor customers are contacted up to 18 months before the docking is due to arrange an advance equipment inspection, followed by the provision of a condition report and recommendations. This enables parts to be ordered in sufficient time and required work to be undertaken in alignment with the dry-docking schedule.

Effective service support relies on two-way communication

Saving costs does not mean cutting down on maintenance activities; it means being focused on doing it the right way. When we are able to have an effective dialogue with customers, jointly plan required work and then carry it out as agreed, we are the best at what we do and can deliver the world-class operational support that is expected of MacGregor.
Η Polembros είναι μια από τις κορυφαίες εταιρίες διαχείρισης πλοίων με περισσότερα από 40 χρόνια εμπειρία στην μεταφορά πετρελαίου και χύδην ξηρού φορτίου και απολύτη αφοσίωση στην ασφάλεια και την αποτελεσματικότητα.

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Seaven Tanker Management became the first company worldwide under 10,000 DWT to be certified by Green Award Foundation.

Seaven Tanker Management celebrated its induction into the Green Award Foundation, during a ceremony at its new training center on the 4th of July 2019.

Seaven (Tanker Management Inc. & Dry Management Inc.) was established in 2003 under the name EVIA PETROL. From the outset, the emphasis has been on modernity, quality and safe operations. To achieve this end, the founders recruited an experienced management team from the shipping industry. Seaven currently operates a fleet of seven small/medium sized Hellenic flagged modern oil/chemical tankers and two cement carriers, able to discharge either pneumatic or mechanically.

Green Award was established in 1994 as a non-profit, independent, international foundation, acting as a quality mark by auditing and certifying companies and vessels that go above and beyond industry standards in terms of safety, quality and environmental performance.

Seaven, sharing foundation’s core values, commenced the efforts to become certified, in 2017, when Green Award Foundation tonnage threshold was above Seaven’s vessels DWT and the request had to be discussed at the board of experts. At the end of 2017, Jan Fransen, Executive Director of the Green Award Foundation, brought the good news. Green Award Board approved the proposal to lower the Green Award threshold for tankers to 2,000 DWT.

Details were discussed and Seaven’s application followed a few days later. 2018 was for Seaven a year of tentative preparations, in order to identify gaps and rectify them. Seaven was preparing to become a worthy Green Award member. In November 2018, the Office Audit was materialized; a challenging audit with a positive outcome, for both parties. The first vessel, “EVIAPETROL V” was inspected, in March 2019, with a positive result.

Green Award was for Seaven a milestone, after having achieved to be certified for ISO 9001 & 18001, in 2017, while environmental sensitivity had already been awarded with ISO 14001, since 2005. Another step on the course set for complete transformation.

Seaven’s target is to transform into a great company, pioneer, benchmark and pilot for the other companies. A target achieved since Seaven is the first and only company in the world, with vessels under 10,000 DWT, certified by Green Award Foundation.

Jan Fransen, Executive Director of the Green Award Foundation, formally handed over the Green Award plaque to the Principals of Seaven, Stratos and Nikolas Tsalamanios.

Jan Fransen, Executive Director of Green Award Foundation said that: “Green Award is proud to welcome new companies motivated to make a step forward to go above and beyond the minimum required to set an example for safer and greener shipping. These small scale tankers of below 10,000 dwt participating and aiming to become and remain frontrunners is a milestone for Green Award and it is our role to continue supporting and guiding them.”

Stratos and Nikolas Tsalamanios said that “At Seaven, we aim to promote shipping sustainability, through our everyday Operations and we work together towards a safe and clean shipping where our vessels can safely and efficiently operate. The Green Award is a milestone for our company and, at the same time, it comes as a result of our marine and shore personnel striving for safety and excellence.”
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The planet signals red alert

The issue of climate change is increasingly being raised at international fora and has become the subject of discussions between social partners and climate change-related organizations that agonize over the future of the generations to come. It is no coincidence that on Friday, September 20, hundreds of thousands of students flooded the streets of London, New York, Perth, Paris, and other cities across the world to express their anguish over the sustainability of the planet as they see catastrophe approaching.

This summer was one of the darkest for the environment and climate change. It is estimated that the raging fires in Alaska, Greenland, and Siberia released more CO₂ into the atmosphere in June than in the past eight Junes combined. On the other hand, one of the biggest environmental disasters in recent years, the fires in the Amazon rainforest, the 'natural lungs of the earth,' should cause great alarm. As French President Emmanuel Macron said characteristically, "Our house is burning. Literally. The Amazon rainforest - the lungs which produce 20% of our planet's oxygen - is on fire. It is an international crisis."

The first Pan-Hellenic survey on this thorny issue that is critical for the planet and human survival was presented on Wednesday 18 September at the Bank of Greece General Assembly Hall, revealing some very interesting findings. The nation-wide survey on climate change adaptation is part of the EU's LIFE-IP AdaptInGR Integrated Project.

The conclusion drawn from this extensive opinion survey is that the public views climate change as a major problem and is universally in favor of mitigation measures such as installing renewable energy sources in public buildings, banning disposable plastics, eliminating emissions by 2050 - European Union policy - and the mandatory adoption of bioclimatic architecture. The vast majority of the public accepts the proposals for

By Giannis Theodoropoulos
a new tax policy that will redistribute burdens taking into account environmental impact. Finally, a smaller majority of large city residents are positive towards tolls to the city center. A brief survey review shows that climate change seems to constitute the second most serious problem for Greek citizens, after the country’s economic situation, indicating that they recognize the environmental challenges of tomorrow. Another interesting element is the lack of information on issues related to climate change, even though the majority of the participants in the Greek survey consider it a serious problem with far-reaching implications. With regard to the 15-17-year age group - tomorrow’s driving force behind the Greek economy, and in this case, shipping - their responses indicate there is definitely scope for enhancing the school’s role in climate change awareness. However, what inspires optimism is the fact that volunteering is the only area where young people aged 15-17 significantly outperform the entire survey sample, which shows that the young are not left untouched by the rapid climate change. It appears that despite their adverse effects, which are often reproduced by the media, the internet and social media play an essential role in monitoring climate change issues and thus in raising the awareness of Generation Z or the iGeneration (as they are called due to their use of Apple technologies). The survey shows considerable geographical differentiation, with some regions not sufficiently aware of the risks to which they are vulnerable. It is significant that the inhabitants of the North Aegean islands, which traditionally produce seafarers, consider the climate change taking place to be a major issue. It appears, therefore, that Greeks living close to the sea are more aware of the increasing impact of climate change, possibly because it is affecting their daily lives more than it does the lives of urban dwellers. If nothing else, this is a positive development as the future protagonists of Greek shipping will (in theory) be more aware of marine environment protection issues.
Finally, as it emerges from the survey, this critical issue no longer has a political identity or signature. It is noteworthy that 41% of the participants refuse to position themselves ideologically or think there is no room for partisan politics when dealing with climate change. Of particular interest is the fact that the remaining 59% of Greeks place themselves ideologically almost evenly among the right, left and center.

However, what measures are people willing to take to reduce greenhouse gas emissions and help mitigate climate change? The most prevalent are recycling/re-use of objects and the energy efficiency upgrade of their homes.

At the survey presentation, Mrs. Lydia Carra, President of the HELLENIC SOCIETY for the Environment and Culture, commented that: "The results of the Pan-Hellenic Survey map current public attitudes by Region and age group, and will be a useful policymaking tool for the Ministry and every Municipality, Region or central government body involved in climate change adaptation. The Government is called upon to carry out the enormous task of rebuilding the country’s economy - something we all want - while also dealing with new Climate Change developments."

In his address, Mr. Theodoros Mitrakos, Deputy Governor of the Bank of Greece, stated that: "The Bank of Greece is one of the first central banks to become actively involved in the issue of climate change, by setting up the Climate Change Impact Assessment Committee (CCISC) in 2009. Since then, the Bank of Greece has been active in addressing the critical issue of climate change adaptation, with the aim of strengthening the country’s adaptation capacity by participating in the LIFE -IP program, which is currently the leading adaptation project in our country."

The presentation of the survey results ended with a speech by Mr. Kostis Hatzidakis, Minister of Environment and Energy, who emphasized that tackling climate change requires immediate action and cooperation between central and local government, the academic community, the market, and civil society. Mr. Hatzidakis pointed out that "we cannot adopt piecemeal measures nor move without coordination" and that "we are all in the same boat, and the enormity of the challenge ahead should unite us." Finally, the Minister spoke about the four “green” priorities of the government, which are the issues of managing waste, reducing the use of plastic, delignification, and the “Save Energy at Home” program, which is broadly welcomed by Greek citizens.
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Energy and Natural Resources

U.S. Energy Information Administration projects nearly 50% increase in world energy usage by 2050

In its International Energy Outlook 2019 (IEO2019), the U.S. Energy Information Administration (EIA) projects that world energy consumption will grow by nearly 50% between 2018 and 2050. The EIA projects most of this growth will come from regions where the consumption of energy is driven by strong economic growth, particularly in non-OECD Asia. IEO2019 contains energy consumption projections for 16 regions of the world.

“Energy consumption was greater in Asia than in any other region in 2018, and we project that consumption will almost double between 2018 and 2050, making Asia both the largest and fastest-growing region in the world for energy consumption,” according to Linda Capuano, EIA Administrator. “This long-term trend of Asian energy consumption to support growing economies strongly influences the extraction, refining, and transport of oil, natural gas, and other fuels.”

According to the EIA’s IEO2019 projection, the industrial sector, which includes mining, manufacturing, agriculture, and construction, accounts for more than 50% of global end-use energy consumption between 2018 and 2050. Economic activity for energy-intensive manufacturing, which includes the production of iron and steel, food, paper, refined oil products, non-metallic minerals, aluminum, and basic chemicals, is increasingly concentrated in

Edited by:
Giannis
Theodoropoulos
fast-growing economies of Asia. The EIA projects India and China will account for more than half of global output from energy-intensive manufacturing between 2018 and 2050.

**Johan Sverdrup, the North Sea giant, is on stream**

On 5 October Equinor and the Johan Sverdrup partnership consisting of Lundin Norway, Petoro, Aker BP and Total, started production from the giant field in the North Sea, more than two months ahead of and NOK 40 billion below the original estimates in the Plan for development and operation.

“Johan Sverdrup coming on stream is a momentous occasion for Equinor, our partners and suppliers. At peak, this field will account for around one-third of all oil production in Norway and deliver very valuable barrels with record low emissions. Johan Sverdrup is expected to generate income from production of more than NOK 1400 billion, of which more than NOK 900 billion to the Norwegian state and society,” says Eldar Sætre, president and CEO of Equinor.

Johan Sverdrup has expected recoverable reserves of 2.7 billion barrels of oil equivalent, and the full field can produce up to 660,000 barrels of oil per day at peak. Powered with electricity from shore, the field has record-low CO2 emissions of well-below 1 kg per barrel.

The break-even price for the full-field development is less than USD 20 per barrel. After reaching plateau for the first phase, anticipated during the summer of 2020, expected operating costs are below USD 2 per barrel. The operator also expects cash flow from operations of around USD 50 per barrel in 2020, based on a real oil price of USD 70 per barrel, partly as a result of the phasing of tax payments in the ramp-up phase.

**Europe’s gas demand set to grow as Dutch giant folds**

Europe’s energy landscape will change completely once the Dutch shut down the largest gas field on the continent years ahead of schedule, according to Rystad Energy.

The Netherlands recently announced that production at Groningen – Europe’s largest gas field – will be halted in 2022, eight years earlier than initially planned. However, despite the ambitious target of decommissioning the field by 2022, Rystad Energy expects that there could be some residual production from Groningen up to 2030 as it is technically challenging to shut down production completely in such a short timeframe.

The drastic drop in output from Groningen will redefine the European energy landscape. The field, which had a rebound in production at the start of this century, reaching 57 billion cubic meters (Bcm) in 2013, was for decades the central cog in northwest Europe’s gas system.

“The phase-out of this giant field will force Europe to expand its gas imports at an even quicker pace. We can already see this drastic shift taking place in the Netherlands, which is in the midst of the transition from being a net gas exporter to a net importer,” says Carlos Torres-Diaz, head of gas markets research at Rystad Energy.

In Europe, more supply from alternative sources will be needed as domestic production declines, and demand continues to increase. The continent has ambitious plans to decommission coal and nuclear power generation, and this could lead to higher gas demand, especially in the medium term. Renewable energy sources should replace some of the lost power capacity, but due to the low capacity factors of these technologies and their intermittency, the power system will rely strongly on gas power to provide security of supply. Consequently, Rystad Energy forecasts that gas-for-power demand in Europe will continue to increase until 2025 and then gradually decrease as renewables gain momentum.

The Netherlands has formally set an ambitious goal that 83% of total power generation is to be sourced from solar and wind by 2040. Such a transition to renewables means that the need for gas-power could reach a peak in 2020 and start a gradual decline earlier than in the rest of Europe. This will lead to a 32% drop in total gas demand in the country over the next two decades, from around 37 Bcm in 2019 to 25 Bcm by 2040.

“More pipeline and LNG imports will be needed in the Netherlands to replace declining production from Groningen. Dutch exports to neighboring countries are also expected to drop, making the whole region more dependent on LNG imports to meet its demand,” Torres-Diaz added.

**Chevron to Boost Production at St. Malo Field in the Gulf of Mexico**

Chevron Corporation announced on September 19th the sanction of a waterflood project in the St. Malo field. This application of enabling technology is expected to increase recovery and advance Chevron’s strategy of maximizing the company’s existing resources in the Gulf of Mexico.

“The St. Malo field is a world-class asset that is positioned for highly economic brownfield development,” said Steve Green, President of Chevron North America Exploration and Production. “With our leading technology, experienced workforce, and broad portfolio, we’re delivering value in the Gulf of Mexico.”
Rosneft Discovers New Field Offshore Sakhalin

As part of its exploration campaign, Rosneft Oil Company has successfully completed the drilling of the first prospecting and appraisal well at the Vostochno-Pribrezhny license block on the shelf of Sakhalin Island, resulting in the discovery of a new oil field. The well was drilled by Rosneft’s own drilling contractor RN-Burenie in accordance with the planned dates and all safety and environmental protection standards.

As a result of drilling, the measured depth was 3,047 metres; the vertical deviation was 1,450 metres. A well design that provided for drilling two holes with S-shaped paths was developed for optimal discovery of all intended targets in the course of drilling in difficult geological conditions. A set of geophysical studies in the open hole confirmed the oil saturation of productive formations. Preparations are now underway to test the well in casing. According to preliminary estimates, the reserves are up to 2 million tonnes of oil, which will be included in the State balance sheet in 2019.

In the course of further development of the project, decisions will be made on the timing of the commissioning of the new field. The first well drilled in the licensed area at the moment confirms the forecast made earlier by the Company’s geologists for the resource potential of the entire area of 11 million tonnes of oil equivalent.

Rosneft Oil Company possesses licenses for the exploration of 55 offshore sites in Russia. The Okhotsk Sea shelf is a priority for the Company. More than 20 years ago, Rosneft was the first company to start the development of the transition zone on Sakhalin Island with the use of an extended-reach well. The main oil and gas production projects of the Company on the Russian continental shelf are located here: Sakhalin-1 (as part of the international consortium), the Northern Tip of Chayvo license, the Odoptu-Sea field (the Northern Dome), and the Lebedinskoye field.

Total expands its strategic partnership with Adani to supply and market natural gas in India

As part of its strategy to develop new gas markets, Total, the world’s second-largest LNG player, expands its partnership with the Adani Group, the largest energy and infrastructure conglomerate in India, to contribute to the development of the Indian natural gas market.

The Indian natural gas market represents a substantial growth perspective. It is currently only 7% of the energy consumption but has grown over the last three years by more than 5% per annum, supported by an active policy of the Indian Government that aims to diversify its energy mix and develop domestic use of gas in cities and as fuel for vehicles. India has set the ambitious target of increasing the share of natural gas in its energy mix to 15% by 2030.

The partnership between Adani (50%) and Total (50%) includes several assets across the gas value chain, notably two imports and regasification LNG terminals: Dhamra in East India and potentially Mundra in the West, as well as Adani Gas Limited, one of the 4 main distributors of city gas in India of which Adani holds 74.8% and of which Total will acquire 37.4%.

Adani Gas Limited aims to expand its distribution of gas in the next ten years through its 38 concessions covering 7.5% of the Indian population, and market natural gas to industrial, commercial and domestic customers, targeting 6 million homes as well as through 1,500 retail outlets of natural gas for vehicles.

As part of this partnership, Total will bring its LNG and retail expertise and will supply LNG to Adani Gas Limited. Total and Adani will also establish a joint venture to market LNG in India and Bangladesh.

The waterflood project is Chevron’s first in the deepwater Wilcox trend and is expected to contribute an estimated ultimate recovery of more than 175 million barrels of oil equivalent. It will include two new production wells, three new injector wells, and topsides injection equipment to the Jack/St. Malo floating production unit, allowing us to extend the life of the field.

Located approximately 280 miles south of New Orleans, La., the St. Malo field has an estimated remaining production life of 30 years.
EXCELLENCE IN OIL TRANSPORTATION
New Routes out of Athens this winter

As of this winter, Air China will be increasing its direct services between Beijing and Athens from two to three per week in order to meet growing travel demand, especially from China, as announced during a recent Press event co-organized on the occasion of the carrier’s second anniversary since the launch of direct flights between the two cities last September.

Cyprus Airways will be resuming the Paphos to Athens service. As of this December, the Cypriot airline will be the only carrier serving this route and will be operating direct flights 3 times weekly on Airbus A319 aircraft.

Saudi Arabian Airlines will commence direct flights from the city-port of Jeddah to Athens as of this winter. The four new flights per week will replace flights from Riyadh to Athens.

Lauda and WizzAir are launching new daily services from Athens to Vienna. Lauda will be operating these flights using Airbus A320 aircraft, while WizzAir will use Airbus A321neo aircraft.

Ethiopian Airlines is resuming its direct flights to Athens after an 18-year absence. The airline will be flying directly to Athens flights on 787 Dreamliners three times per week. The new Ethiopian Airlines flights will also connect Athens to Moscow, Russia.

European Commission and European Investment Bank launched the “European Drone Investment - Advisory Platform”

The European Commission and the European Investment Bank (EIB) recently announced the launch of a “European Drone Investment - Advisory Platform” to support innovation and investment in drones. Drones – or unmanned aircraft - are widely regarded as having a major role to play in the future of aviation. The initiative aims to improve access to EU support in this field and to develop a better understanding of the market to improve investment beyond 2021.

Transport Commissioner Violeta Bulc said: “Drones offer huge potential for many eco-
economic sectors. Based on the Commission’s initiative, the EU has recently established rules on requirements for drones and drone operations providing a stable legal framework. Now, together with EIB, we want to go one step further by supporting additional investment and ensuring European leadership in innovative technology and smart applications at the service of people and business.”

“We are excited to support the European Commission in this initiative. New clean, digital, and automated technologies, such as drones, are profoundly changing transport as we know it,” said Mr. Václav Mšák, Vice-President at the EIB. “The technology is developing at an incredibly fast pace. Nowadays, unmanned aircraft can monitor traffic, carry out infrastructure inspections, manage crowds, and offer smart mobility solutions, thus adding a new dimension to the way we currently live and travel.

The scope of the future investment may range from drones’ infrastructure including commercial drone activities, multimodal platforms for parcel delivery, to drones’ take-off/landing zones, and other Urban Air Mobility related projects. Existing EU financing options are already available in the current financial framework, notably via the Investment Plan for Europe, Horizon 2020, and Connecting Europe Facility. The launch of the platform is followed by a study to be managed by the European Investment Advisory Hub (EIAH) that assesses the market potential and investment needs across the EU Member States. The results will highlight the possible future mechanisms of support that may be integrated into future EU Multiannual Financial Framework (MFF) programmes.

The new EU rules on technical requirements for drones and drone operation constitute the foundation of one of the largest drone markets in the world. Further legislative works are underway, including so-called “European standard scenarios” for drone operations that will facilitate commercial drone operations, without prior authorisations. The European Commission is also developing a framework for the provision of U-space services, which aims to enable complex drone operations with a high degree of automation. Finally, a systematic review of all existing EU aviation rules is progressing to identify the necessary changes to improve applicability to drone operations in the ‘certified’ category, similar to what exists in manned aviation.

**Etihad and Air Arabia join hands to launch Abu Dhabi’s first low-cost carrier**

Etihad Aviation Group and Air Arabia today announced on October 16 the signing of an agreement to launch ‘Air Arabia Abu Dhabi,’ the capital’s first low-cost carrier.

Etihad and Air Arabia will establish an independent joint venture company that will operate as a low-cost passenger airline with its hub in Abu Dhabi International Airport. The new carrier will complement Etihad Airways’ services from Abu Dhabi and will cater to the growing low-cost travel market segment in the region.

Tony Douglas, Group Chief Executive Officer, Etihad Aviation Group, said: “Abu Dhabi is a thriving cultural hub with a clear economic vision built on sustainability and diversification. With the emirate’s diverse attractions and hospitality offerings, travel and tourism play a vital role in the economic growth of the capital and the UAE. By partnering with Air Arabia and launching Abu Dhabi’s first low-cost carrier, we are serving this long-term vision”.

Adel Al Ali, Group Chief Executive Officer, Air Arabia, said: “Home to the first low-cost carrier in the MENA region, the UAE has developed over the years to become a world-leading travel and tourism hub. We are thrilled to partner with Etihad to establish Air Arabia Abu Dhabi that will further serve the growing low-cost travel segment locally and regionally while capitalising on the expertise that Air Arabia and Etihad will be providing”.

Based in Abu Dhabi, the new company will adopt the low-cost business model. Its board of directors, consisting of members nominated by Etihad and Air Arabia, will steer the company’s independent strategy and business mandate.

**Virgin Atlantic eyes Heathrow expansion**

Virgin Atlantic is set to challenge IAG’s dominance at London Heathrow, as the airline unveiled plans to significantly increase its long-haul route network and launch a new comprehensive network of domestic and European routes when the airport expands. The new route maps illustrate how the airline’s flying programme could grow to deliver a step-change in choice for customers, but only if the Government reforms the way new Heathrow
slots are allocated to enable the creation of a second flag carrier at the airport.
The plans represent a fourfold increase in Virgin Atlantic’s current international network and include exciting unserved destinations such as Kolkata (India), Jakarta (Indonesia), and Panama City (Panama), where currently passengers cannot travel non-stop. In total, Virgin Atlantic plans to serve 103 domestic, European and long-haul destinations, up from 19 long haul destinations in 2020. Of the 84 new destinations planned:
- 12 are domestic, including Belfast, Glasgow, and Manchester,
- 37 are European, including Barcelona, Dublin, and Madrid, and
- 35 are global, including Buenos Aires, Tokyo, and Santiago.
The Government’s Aviation Strategy Green Paper has set as its primary objective to facilitate effective competition between airlines through the allocation of additional Heathrow capacity, something that will benefit consumers by providing them with more choice and lower fares. The rules governing the allocation of new slots are currently being reviewed by the Government. Virgin Atlantic warns that the new take-off and landing slots must be allocated in a way that enables the development of a second flag carrier with the necessary scale to compete effectively with IAG. Ministers are being urged to grasp this once in a generation opportunity to shake up the Heathrow market so that British passengers and trade can benefit from two flag carriers competing hard for their custom.

According to the Virgin Group, IAG currently dominates Heathrow Airport, controlling more than half of the total capacity. A new report published in early October found one in four passengers flying from the airport — 18.5 million people — have no choice but to fly with that airline group. The report also concluded that these passengers may be paying up to 10% more in air fares as a consequence. Virgin Atlantic intends to compete on 25 routes where there is an IAG monopoly.

Shai Weiss, CEO Virgin Atlantic, commented: “Air passengers need a choice and Virgin Atlantic is ready to deliver when Heathrow expands. Heathrow has been dominated by one airline group for far too long. The third runway is a once in a lifetime opportunity to change the status quo and create a second flag carrier. This would lower fares and give a real choice to passengers, as well as giving Britain a real opportunity to boost its trade and investment links around the world. Changing the way take-off and landing slots are allocated for this unique and vital increase in capacity at the nation’s hub airport will create the right conditions for competition and innovation to thrive.”

### Air France introduces new cadet pilot recruitment campaign

Air France is launching a new cadet pilot training campaign. Successful candidates will receive a comprehensive training programme entirely financed by the company. The selected candidates will join the 200 or so cadets already undergoing training at one of three partner flight training schools – the French National School of Civil Aviation, the EPAG flight school, and the L3HARRIS Academy. After completing a 24-month training course, they will join the group as first officers on Air France’s Airbus A320 or Transavia’s Boeing 737. Admission to the cadet programme is subject to conditions: candidates must have baccalauréat level qualifications but do not require any previous flight experience. The programme is designed to inspire candidates from all backgrounds by promoting the career opportunities offered by the airline pilot profession. With 14% of female cadets in the previous year’s programme versus 9% of female pilots at the company, the cadet programme encourages women to access technical professions and illustrates Air France’s commitment to equal employment opportunities.

### Lufthansa to support Slovenian air traffic

After the collapse of Adria Airways, the Slovenian Flag Carrier, the Lufthansa Group has announced that Lufthansa Group Airlines will be connecting the Zurich, Munich, and Frankfurt hubs with the Slovenian capital Ljubljana.

From its hub in Frankfurt, Lufthansa will operate twice a day, offering 14 weekly connections to Ljubljana, starting in the winter schedule. The Lufthansa hub in Munich will follow by providing daily connections beginning on 1 November. SWISS will also be operating a daily connection with the start of the winter schedule. Austrian Airlines will also offer its passengers up to three daily connections from Vienna to Klagenfurt as an alternative to the termination of Adria Airways flight operations to Ljubljana.

With these new flights, the Lufthansa Group will connect passengers from all over the world to Slovenia and at the same time, open the gateway for travellers from the Slovenian capital to take advantage of the Lufthansa Group worldwide network. Adria Airways was a member of Lufthansa’s Star Alliance.
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The event opened with moving renditions of the anthems of the United States and Greece by the Children’s Choir of the American community Schools in Athens. Peter Economides, renowned brand strategist, acted as Master of Ceremonies. More than 1,100 guests, primarily from the shipping industry, enjoyed the evening, honoring the shipping companies, their vessels and crews which represent Greece’s maritime heritage. An evening of entertainment, information and inspiration. An invitation for all to move forward, working for the future. The future of Greece after ten years of crisis. The future of shipping as it faces new challenges in a rapidly changing world. The future of education as we prepare a new generation to take its place in this world. The future of safety at sea. The future of the planet in the face of increasing environmental threats. The future of our children. The incoming President of the Propeller Club, Costis J. Frangoulis, honoured the outgoing President, and now Vice-President of the International Propeller Club, Mr. George Xiradakis with the title of President Emeritus. Mr. Frangoulis talked about the future of the Club. He shared the vision of the new Board for a Propeller Club with even larger membership, with a presence in more Greek ports, with the ability to raise even more funds in order to give back to Greek society. As he stated characteristically, “Together with this remarkable Board of Governors, we will

The Amver Awards Ceremony

The Amver Awards Dinner, organized by The International Propeller Club of the United States, Port of Piraeus, in collaboration with the US Embassy in Greece and the United States Coast Guard, took place on Friday, November 1st, 2019.
This year’s awards

**AMVER AWARDS**
This year’s Amver Awards honored 217 Greek companies and their 2,009 ships that volunteered for the Amver program for more than 128 days a year. It is worth noting that Greece, this year, achieved true distinction as the first country to earn more than 2,000 Amver Awards with a total of 2,009. An impressive success to be proud of, a true demonstration of Greece’s leading position in the global maritime community.

**RESCUE AWARDS**
This year six Greek vessels received the Special Rescue Award for rescue operations, saving lives at sea.

- **M / V FOXTROT**
  Load Line Marine SA

- **M / V FRIO MOGAMI**
  Laskaridis Shipping Co. Ltd.

- **M / V NESTOR**
  Laskaridis Shipping Co. Ltd.

- **M / V SWAN CHACABUCO**
  Chartworld Shipping Co.

- **C / V VENETIKO**
  V.Ships

- **M / V VIRTUOUS STRIKER**
  Enterprises Shipping & Trading SA

**FIDELITY AWARDS**
Three Greek companies with the most vessels on the Amver system during the past decade were honored with the Fidelity Awards.

- **Tsakos Group of Companies**
- **Danaos Shipping Co. Ltd.**
- **Minerva Marine**

The event was honored by the presence, among others, of the Ambassador of the United States to Greece and Honorary President of the Propeller Club, Port of Piraeus, the Honorable Geoffrey R. Pyatt, thanked the previous and new Presidents of the Propeller Club. He emphasized that it was only with the support of the club and the shipping industry, that the Amver system could achieve global success. He also cited some new initiatives, such as the student exchange program between Suny State University of New York and the Hydra Merchant Marine Academy, just one of the many examples of the continuously strengthened ties between the United States and Greece.

Peter Economides spoke about the need to work for the future with optimism, confidence, inspiration, dedication and daring. He spoke about the need to move beyond Corporate Social Responsibility, to embrace Corporate Social Leadership, to show society the way forward, to create the future. He also spoke about the importance of Greek shipping and his belief that Greece should become the thought leader for global shipping.
Serving the world seaborne trade since 1948 and for many years to come

MDM
MARAN DRY MANAGEMENT INC.

Where Tradition meets Innovation in Harmony
Where in Attica?

Revisiting the geographical allocation of Attica’s shipping neighborhoods

Scientific Editor:
Prof. Ioannis Theotokas

Analysis and Documentation:
Giannis Theodoropoulos
BECAUSE WE JUST KEEP SHIPS MOVING

Marine Chemicals & Equipment
Gases & Refrigerants
Fire, Rescue & Safety Services
Greek-owned and Greek-controlled ship management companies continue to be at the top and to play a leading role in the international shipping arena. Since the 1960s, Athens, and most importantly, Piraeus have gradually become leading maritime centers, particularly in recent years. Although most ship management companies in the 1960s and 1970s were located around the Port of Piraeus, in the last 30 years the need for bigger office space and the traffic congestion around Greece’s main port have led to a dispersion of companies in the north and south of the city and on centrally located highways. The personal preferences of each shipowner, the opportunities offered by communication technologies, and other factors that each business considers to be important, undoubtedly play a vital role in this trend.

Hence, although in the 20th century the main shipping activity centre was Piraeus, new areas and districts have attracted the interest of owners and entrepreneurs, thus creating a new maritime landscape across the Attica Basin. This research aims at recording the geographical allocation of ship-management companies in Attica today, and at providing certain data on their business activity.

Although this is not the first or the only study on Greek ship-management companies, it is different in that it focuses on the somewhat newly-formed ‘shipping’ neighborhoods of the Attica region, and it aims to continue to review on a regular and periodic basis the geographical distribution of shipping and ship-management companies in Athens, Piraeus, and their suburbs.

This research is based on data derived from the 62nd Greek Shipping Directory* and focuses exclusively on the geographical allocation of shipping and ship-management companies and not companies within the wider maritime cluster in Attica.

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* The 62nd Greek Shipping Directory essentially contains data on the activity of shipping companies in 2018. As a result, there may be some variation between the data obtained from the Directory and the data at the time of the survey.
An up to date pathfinder’s map of Attica's shipping entrepreneurship

548 management-companies with ocean-going fleets are located in the Attica Basin, of which 41.97% (230/548) are located in Piraeus and 19.9% (109/548) in the Southern Suburbs (Glyfada, Voula, Vouliagmeni, Helliniko, Varkiza, Ano Glyfada, Alimos, Argyroupoli, Vari, Paleo Faliro). The companies located in the Southern Suburbs manage a total of 1,115 ships, i.e., 22.3% of the total number of ships (1,115/4,989) managed by the companies in Attica. Although approximately 42% (230) of the companies are concentrated in Piraeus, they manage 30.4% (1,571/4,989) of the total fleet, as shown in Graph 2.

Correspondingly, 13.5% (74/548) of the ship-management companies are located in the Northern Suburbs (Kifissia, Marousi, Chalandri, Agia Paraskevi, Vrilissia, Nea Erythrea, Neo Psychiko, Lykovrisi) – this, however, does not take into account the Kifissias Avenue Axis, which is presented separately. 6.93% of the managing companies (i.e., 38 companies) are located on the Syngrou Avenue Axis, while the corresponding percentage for Kifissias Avenue reaches 9.49% (52 companies). It is noteworthy that the companies on these two axes operate 705 ships and 587 ships, respectively. Percentage-wise these numbers represent 14.1% and 11.7% of the managed ocean-going fleet, respectively. It seems, then, that the Syngrou Avenue Axis hosts mostly companies with larger fleets (in terms of vessel numbers).

12 companies are located along the banks of Kifissos and represent 2.19% of the total number of managing companies, while the number of those located in the Greater Athens Area (Ampelokipoi, Kolonaki, Athens Centre) is 29, which represents 5.29% of the total. Finally, the percentage of ship-management companies in both Western (Elefsina, Magoula, Mandra, Aspropyrgos) and Eastern (Paiania, Koropi, Lavrio) Attica is 0.36% (2).
Note: The absolute number of ship-management companies that correspond to each percentage is in brackets.
Graph 2.

Geographical distribution of the Greek and Greek-controlled fleet managed by ship-management companies in Attica’s districts and suburbs

Where is the Greek and Greek-controlled fleet managed from?

Note:
The absolute number of vessels that correspond to each percentage is in brackets.
THE GREEK REGISTRY

Graph 3.

Geographical distribution of the Greek-flagged fleet by management-company location in Attica

Where is the Greek-flagged fleet managed from?

Note:
The absolute number of vessels that correspond to each percentage is in brackets
THE TANKER FLEET

Graph 4.

Geographical distribution of the Greek and Greek controlled tanker fleet by management- company location in Attica

Where is the Greek and Greek controlled tanker fleet managed from?

Piraeus
Northern Suburbs
Southern Suburbs
Syngrou Avenue
Greater Athens Area
Kifissias Avenue
Kifissos

Notes:
1. The absolute number of tankers that correspond to each percentage is in brackets
2. Tankers include crude oil tankers, oil/chemical tankers, oil/product tankers, etc.
GEOGRAPHICAL DISTRIBUTION
OF SHIP-MANAGEMENT COMPANIES
BASED ON:

The number of vessels managed

The vast majority of companies with ocean-going ships, namely 290 out of the 548 companies (53%), manage small fleets of 1 to 4 ships\(^1\), indicating that shipping companies with small fleets are the backbone of Greek shipping. Correspondingly, 171 companies (31%) manage fleets of 5 to 15 ships, while the remaining 16% (87 companies) manage large fleets of 16 or more ships.

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\(^1\) In the relevant literature, and in studies such as the Petrofin study, companies that manage from 1 to 4 ships are considered small.
Graph 5.

Geographical distribution of large ship-management companies in Attica

In which Attica district or suburb are the larger ship-management (in terms of vessel numbers) companies located?

Note:
The absolute number of ship-management companies that correspond to each percentage is in brackets.
Of the medium-sized companies (5-15 ships), which number 171 in total, 38.0% (65 companies) are in Piraeus, 18.2% (31 companies) in the Southern Suburbs, 15.2% (26 companies) in the Northern Suburbs, 12.3% (21 companies) on the Kifissias Avenue Axis, 7.0% (12 companies) on the Syngrou Axis, 6.4% (11 companies) in Central Athens and 2.9% (five companies) along Kifissos.

Graph 6.

Geographical distribution of medium-sized ship-management companies in Attica

In which Attica district or suburb are the medium-sized ship-management (in terms of vessel numbers) companies located?

Note: The absolute number of ship-management companies that correspond to each percentage is in brackets.
As for the small companies, 49.3% (143/290) are located in Piraeus, 20% (58/290) in the Southern Suburbs, 11% (32/290) in the Northern Suburbs, 7.6% (22/290) on the Axis of Kifissias Avenue, 3.8% (11/290) on the Axis of Syngrou Avenue, 5.2% (15/290) in Central Athens, 1.7% (5/290) along the Kifissos Axis, while the remaining 1.4% (4/290) are located in East and West Attica.

**Graph 7.**

Geographical distribution of small ship-management companies in Attica

In which Attica district or suburb are the smaller ship-management (according to number of vessels) companies located?

```
[Diagram]
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It is characteristic that as the analysis progresses from large to smaller companies (in terms of vessel numbers), it emerges that in Piraeus, there is a greater presence of smaller-sized companies. Indicatively, 25.3% (22) of the companies in Piraeus are large companies, whereas the number of medium-sized companies moves to 38% (65) and reaches 49.3% (143) for small companies. It can, therefore, be concluded that small companies seek to be close to their immediate partners (suppliers, etc.) in order to achieve external economies, which does not appear to be a priority for larger companies.
The fleet diversification in Attica

In their vast majority, Greek-owned shipping companies operate fleets with one type of ship. This report focuses on management companies and not groups, as recorded in the Greek Shipping Directory. It is possible that in some cases companies with specialized fleet to be part of a shipowning group. However, for reasons of consistency, the research uses the taxonomy of the source in which it is based. More specifically, 80.4% (441/548) of them specialize in the management of one ship type. In contrast, 19.6% (107/548 companies) manage diversified fleets.

The majority of companies with diversified fleets, namely 40.2% of them (43/107), are based in Piraeus, while 24.3% (26/107) are located in the Southern Suburbs and 14% (15/107) in the Northern Suburbs, as shown in Graph 8. Of the 107 companies with diversified fleet, 10 are located on the Axis of Kifissias Avenue while five are located in the Greater Athens Area, and five on the Axis of Syngrou Avenue. Finally, three companies (2.8%) are dispersed between East Attica and the Kifissos River.

Graph 8.

Geographical distribution of ship-management companies with diversified fleets in Attica

Note: The absolute number of ship-management companies that correspond to each percentage is in brackets.
TYPES OF VESSELS MANAGED BY COMPANIES IN ATTICA’S DISTRICTS AND SUBURBS

Graph 9.

Types of ocean-going vessels managed by companies located in Piraeus

<table>
<thead>
<tr>
<th>Type of Vessel</th>
<th>Percentage</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bulk Carriers</td>
<td>23% (52)</td>
<td></td>
</tr>
<tr>
<td>Tankers</td>
<td>11% (23)</td>
<td></td>
</tr>
<tr>
<td>Containerships</td>
<td>10% (20)</td>
<td></td>
</tr>
<tr>
<td>LNG/LPG Carriers</td>
<td>5.2% (10)</td>
<td></td>
</tr>
<tr>
<td>General Cargo Carriers</td>
<td>5.0% (10)</td>
<td></td>
</tr>
<tr>
<td>Diversified Fleet</td>
<td>4.0% (8)</td>
<td></td>
</tr>
<tr>
<td>Vehicle Carriers</td>
<td>0.9% (2)</td>
<td></td>
</tr>
</tbody>
</table>

Notes:
1. The absolute number of ship-management companies that correspond to each percentage is in brackets
2. Tankers include crude oil tankers, oil/chemical tankers, oil/product tankers, etc.

Graph 10.

Types of ocean-going vessels managed by companies located in the Southern Suburbs

<table>
<thead>
<tr>
<th>Type of Vessel</th>
<th>Percentage</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bulk Carriers</td>
<td>23.9% (26)</td>
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</tr>
<tr>
<td>Tankers</td>
<td>19.8% (22)</td>
<td></td>
</tr>
<tr>
<td>Containerships</td>
<td>16.5% (18)</td>
<td></td>
</tr>
<tr>
<td>LNG/LPG Carriers</td>
<td>7.3% (8)</td>
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</tr>
<tr>
<td>General Cargo Carriers</td>
<td>6.5% (7)</td>
<td></td>
</tr>
<tr>
<td>Diversified fleet</td>
<td>5.8% (6)</td>
<td></td>
</tr>
</tbody>
</table>

Notes:
1. The absolute number of ship-management companies that correspond to each percentage is in brackets
2. Tankers include crude oil tankers, oil/chemical tankers, oil/product tankers, etc.
Graph 11.

Types of ocean-going vessels managed by companies located in the *Northern Suburbs*

Notes:
1. The absolute number of ship-management companies that correspond to each percentage is in brackets
2. Tankers include crude oil tankers, oil/chemical tankers, oil/product tankers, etc.

Graph 12.

Types of ocean-going vessels managed by companies located on *Kifissias Avenue*

Notes:
1. The absolute number of ship-management companies that correspond to each percentage is in brackets
2. Tankers include crude oil tankers, oil/chemical tankers, oil/product tankers, etc.
Graph 13.

Types of ocean-going vessels managed by companies located on Syngrou Avenue

Notes:
1. The absolute number of ship-management companies that correspond to each percentage is in brackets
2. Tankers include crude oil tankers, oil/chemical tankers, oil/product tankers, etc.

Graph 14.

Types of ocean-going vessels managed by companies located in the Greater Athens Area

Notes:
1. The absolute number of ship-management companies that correspond to each percentage is in brackets
2. Tankers include crude oil tankers, oil/chemical tankers, oil/product tankers, etc.
As is reasonable, in all 7 geographical areas, the majority of ship-management companies choose to manage bulk carriers. More specifically, the highest preference rate for tankers (26.3%) among the 7 geographical areas was observed on the Axis of Syngrou Avenue, followed by Piraeus (22.6%). Another interesting point is that the companies in the Southern Suburbs show a higher degree of managed fleet diversification than the companies in any other geographical area of Athens.
IN PLACE
OF A SUMMARY

From the preceding analysis, we can draw the following very important conclusions:

• As a municipality, Piraeus remains the backbone of ship-management in Greece, with a little under 1 in 2 management companies situated close to the country’s largest port.

• A little less than one fifth (19.9%, or 109 companies) of ship-management companies are located in the Southern Suburbs (mainly in Voula, Glyfada, and Vouliagmeni).

• On the Syngrou Avenue and the Kifissias Avenue axes combined, there is a significant concentration of ship management companies, i.e. 90 companies representing 16.4% of the total number, and for this reason, they are analyzed separately.

• Although the number of ship-management companies located on the axis of Syngrou Avenue manage the fourth largest number of ships compared to other areas in the Attica Basin, these companies manage most of the ships flying the Greek flag.

• There is a relatively balanced dispersion of the tanker fleet managed by companies on the geographical axes of the Southern Suburbs, Piraeus, and Syngrou Avenue. The management companies in the Southern Suburbs operate 408 tankers versus 403 in Piraeus and 357 in Syngrou Avenue.

• Almost 1 in 2 companies (49.3%) operating from 1 to 4 ships are located in Piraeus. On the other hand, companies managing more than 15 ships present a more balanced picture: 25.3% of them are located in Piraeus, 23% in the Southern Suburbs, 18.4% in the Northern Suburbs and 17.2% on the Syngrou Avenue axis.
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