

FUJAIRAH SPECIAL REPORT

IMB

2020

SEEKING BEACONS IN THE MIST

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EXECUTIVE SUMMARY...

INSIGHTS FROM A ROUNDTABLE HELD IN ABU DHABI IN LATE-2018 UNDER THE CHATHAM HOUSE RULE

WHAT DO WE KNOW? THAT THE International Maritime Organization (IMO) will not push back the start date of 1 January 2020 for the 0.5% sulfur limit on bunker fuel, down from 3.5% today. And that vessels found carrying bunker fuel over 0.5% sulfur without appropriate permits will have their insurance voided. We know that the four main post-2020 bunkering options are low sulfur fuel oil (LSFO), scrubbers, liquefied natural gas (LNG) and non-compliance (not necessarily an option, but one that some stakeholders quietly say they are considering.) We also know that every part of the value chain needs to adjust, that no one is immune to major change; refiners, shippers, storage companies, port authorities, national oil companies, international oil companies, traders, end users and others. The ripple effect goes on.

SEA OF GUESSWORK
The other details? They are still floating in the ethereal of ambiguity, knocking between one game of finger-pointing to another. The main question marks circle over how compliance will be enforced, whether there will be a grace period as the industry adapts and the supply-demand balance of new fuel blends, scrubbers and LNG.

With 12 months to go, the black hole of confusion is just as black as it was last year, just now the rays of hope that clarity will prevail have been largely doused. This does not bode well for a regulatory decision that Wood Mackenzie estimates could increase global bunker fuel costs by \$60 billion a year from 2020 in a full compliance scenario.

This guessing game also derails confidence around how the market will react to other inevitable changes as momentum behind the Paris Agreement's targets builds. How the risk-reward equation stacks up for IMO 2020 is just a prelude to the next round of regulations that will likely pop up in the 2020s as environmental concerns intensify. The market is frustrated, investors are hesitant and the IMO is under a critical spotlight. What's next?

0.1%
Ensuring the exact composition of new fuel blends between ports around the globe is a major sticking point.

A cargo carrying fuel with a 0.1% discrepancy will be deemed non-compliant, even if it is an honest mistake. Shipowners want – and need – assurance. Pinning down one defined specification is complicated by different fuel blends, different vessel types (bunkers, barges, cruise ships, for example), while some ports have little or no access to blending facilities. Some blenders will look to fuel oil-based products, others to distillate-based products. Consequently, port authorities supplying

2025
The IMO was considering a later start date of 2025; much preferred by the majority of the market. But immediate improvements in maritime-based pollution are critical.

1st
Who will make the first move, who will spearhead change? For now, the floor remains quiet. The idea of a first mover advantage has been replaced with one of frustration; one part of the value chain cannot make critical decisions without knowing what supply-demand balances lie higher up and vice versa. A stalemate ensues.

70%
High sulfur fuel oil (HSFO) was used for approximately 70% of the world's bunker fuel in 2016, so the adjustment to 0.5% sulfur requires a dramatic shift in the balance of fuels – and fast.

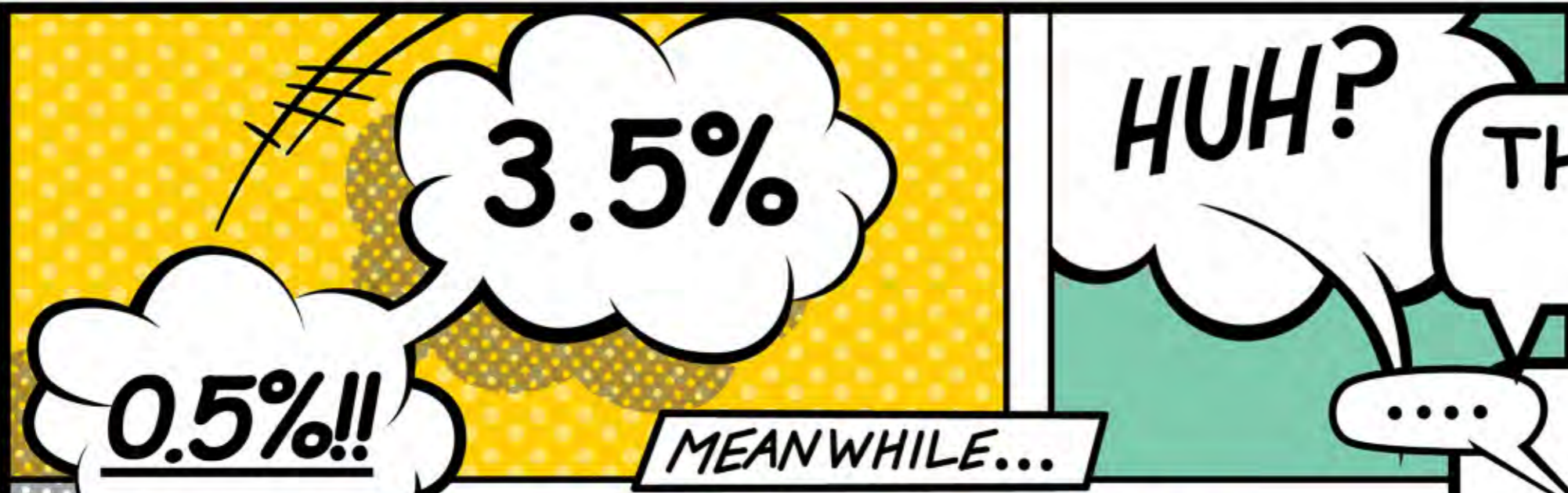
\$3m
Installing scrubbers on ships is being seen as the most viable short-term solution for IMO 2020, but it comes with a hefty price tag - \$3 million. Still, this is much cheaper than installing a new coker at a refinery for \$5 million to \$10 million.

TICK TOCK, TICK TOCK: LESS THAN 12 MONTHS UNTIL IMO 2020 STARTS! WHO IS GOING TO CALL QUILTS ON THE GAME OF FINGER-POINTING AND LEAD THE CHARGE TOWARDS CLARITY?"

fuels must have up to six types of blends in order to guarantee compliant fuel. This is a major undertaking, both logistically and economically. And even then, contamination could be a huge problem. Comparatively, HSFO was a standard fuel composition worldwide.

GEOGRAPHIC PUZZLE
No country is immune from IMO 2020, but some are faring better than others. Some stakeholders suggest that compliance in the Middle East may be more challenging due to a lack of refineries with the required facilities to quickly and affordably produce enough LSFO. Solutions could include importing light and sweet crudes from the US and West and East Africa. Or to blend 10% HSFO with 90% gasoil, giving a 0.5% specification, for example. The UAE's Port of Fujairah, the world's second largest bunkering hub with 18 million barrels of product in storage, could be well-placed to facilitate this. The port would need to invest in expanding storage facilities and enhancing its crude blending options. Progress is also underway in the world's other major bunkering hubs of Singapore and Rotterdam. Singapore has extended the mandatory use of mass-flow-meters to bunker barges that fuel large ships in a bid to enhance transparency as per IMO 2020. In Rotterdam, Gunvor are considering adding a fuel upgrading unit to help meet LSFO compliance, for example.

GLOBAL POLICE FORCE?
Many feel enforcement of IMO 2020 should be in the hands of the flag states, while others argue there are too many loopholes once ships leave port. Major ports are expected to be absolute in imposing compliance, with a global carriage ban on HSFO bunkers coming into force in March 2020, for example. Some ports are especially proactive. Singapore, the world's largest bunkering hub, and Rotterdam will not pass ships unless they have scrubbers installed. The reality is that 80% of demand for bunkers comes from major players like Exxon and Shell – companies that won't risk their reputation with non-compliance. But all these options still do not answer the key question: who is responsible, where does the buck stop, who makes the ultimate decision? ■



**THE TRANSITION
TO IMO 2020**

**& THE IMPACT ON
PORT OF FUJAIRAH**



Q&A between John Stewart (JS), Principal Analyst, WoodMackenzie and Gulf Intelligence (GI)

JS: The Wood Mackenzie view is that come 2020, we don't see the world being fully compliant with the IMO 2020 regulations. We will see 80% compliance on the 0.5% sulfur emissions target. Places like South America, parts of Southeast Asia and the Middle East to a certain extent, will have limitations to comply due to infrastructure on the supply side.

There are three tangible options to comply with the new specification. Either install scrubbing technology on vessels to take the exhaust gas emissions down to 0.5%; switch to a lower sulfur fuel or distillate marine gas oil; or switch to LNG which has large growth potential. A fourth and final option of course is to do nothing. In parts of the world, that might actually happen despite the reputational damage that might follow.

We think there will be around 1,000 scrubbers on vessels worldwide by 2020 – that is out of a global vessel market of 55,000 so not a large penetration rate. Those 1,000 scrubbers will represent around 5% of global marine fuel demand globally. Come 2025, we are likely to see this number at 5,000 vessels and that's just based on the type of vessels that are going to be installing scrubbers with economic paybacks i.e. those that have long distances to cover and will therefore be burning lots of fuel.

There are resistance factors to installing scrubbers, such as whether there will be time to get all the scrubbers installed by January 2020. What happens if you have a receipt that says you bought a scrubber but it's not installed yet? Do you get leasing on the fuel that you burned because you have a scrubber coming six months down the road? There is a lot of uncertainty about how that enforcement transpires.

GI: You mentioned that the Middle East has not got the necessary infrastructure. If we have an overhang of high sulfur supply, there's going to be a market clearing price.

JS: The refining system has certain limitations on its flexibility and how much it can shift one way or another. It can't go overnight from 30% gasoline to 30% diesel. As HSFO pricing starts to fall, the scrubber penetration rate picks up through to 2025. There are many factors on the economics of refineries in the region. HSFO can either go into the power sector if it gets cheap enough or you can look for outlets in other refining systems to take it into their upgrading units. Globally, we think there is enough upgrading capacity to take those barrels. The best thing refiners can do is look at their internal streams and how to blend the fuels to make other specifications. If that

"HOW ROBUST IS THE AVAILABILITY OF SCRUBBERS? SHIPOWNERS NEED TO KNOW THEY HAVE A RELIABLE SUPPLY AND SHIPYARDS NEED TIME FOR INSTALLATION. INFRASTRUCTURE IS AN ISSUE FOR LNG AS WELL. SUCH DYNAMICS NEED TO BE FACTORED INTO FORECASTS."



option has been exhausted and a refiner has produced as much compliant fuel as possible from lower value streams, then look for an outlet to export those barrels somewhere else that has the upgrading capacity, such as in North America and China.

On LNG, the potential growth rate is very high. We see 70% growth through to 2020, but on a volume basis that will only be 40,000 barrels or so of the overall mix. That is very low, so we don't see it having a material impact in our base case. Certainly, there is scope for more growth in LNG with the right investment.

We see full compliance coming in 2025 – only six years away. Most of the switch will be made from an initial shift in the refining system to produce distillate to the levels that it can. And then beyond that, it will really come down to the scrubber penetration rate.

GI: When you invest in a scrubber, it's based on certain assumptions of price and how much LSFO will be available. So, how is a shipping company going to look at this with regards to the size of vessels? If the size of the ship is bigger, the economics are easily justifiable.

JS: Yes, a scrubber makes more sense for larger vessels burning greater amounts of fuel. Some of the smaller product size tankers actually did quite well on a LNG versus scrubbers basis. Many factors feed into the equation. It depends on the route you are taking, the size of the ship, the payback schedule, fuel availability and who is financing the project, for example. As a refiner of HSFO, you could talk to a shipping company and say, we'll give you the fuel oil and help fund some of the capital expenditure for the scrubber if you come to us every time you go into the UAE's

Port of Fujairah. Ideally, port authorities, storage companies and refiners need to talk more as a group instead of working independently, about what the options may be and how to solve these questions in a collaborative fashion. There's opportunity that hasn't fully realized. We're quickly running out of time.

GI: How robust is the availability of scrubbers? Shipowners need to know they have a reliable supply and shipyards need time for installation. Infrastructure is an issue for LNG as well. Such dynamics need to be factored into forecasts.

JS: The numbers that I referred to i.e. 1,000 scrubbers by 2020 and 5,000 scrubbers by 2025, are probably optimistic. Those numbers were compiled at the end of May 2018. I can see those numbers being pulled down in our next update.

"THE IMO SAID THAT VESSELS THAT HAVE BEEN FOUND NON-COMPLIANT WILL BE DECLARED UNSEAWORTHY AND THE MOMENT THIS HAPPENS, THE INSURANCE COVERAGE FOR THE VESSEL BECOMES NULL AND VOID."



GI: If the scrubbers aren't available, how does that impact the whole market for HSFO?

JS: The Middle East region still relies on the net back price from Singapore for the pricing of fuels. So, they are going to need to know how the HSFO market is doing regionally and also what's happening on the distillers' side. There's not really the liquidity on the fuel oil side in the region compared to perhaps some of the other ports. There is liquidity here on the distillate portion of the barrel though and I think we've got 2m b/d of additional refining capacity coming over the next five years. So, there will be additional availability of lower sulfur distillate volumes, which is an opportunity for Fujairah to get a little bit more of a foothold in the global market and to establish itself with a benchmark.

GI: From port authorities' point of view, what will happen to those who are not compliant?

JS: There has been no real transparency on that. Who enforces compliance? Does it fall with individual states or each port authority? Does it go back to the original supplier? Can you chase a refiner because they sold HSFO to a ship or does that get lost in the whole trading cycle? How much is the fine? The framework to implement fines is very difficult to understand. I don't see how that will play out.

GI: We all know there is going to be an increase in price for the compliant fuel that's going to be in use. Irrespective

of who bears the cost, the final price of the commodity in itself is going to have a huge impact especially for developing countries who may not be ready to absorb this additional cost.

JS: If it's an international shipping organization, then maybe they have the ability to absorb that cost. But some countries don't, so then how does the discussion transpire on that basis?

GI: The IMO said that vessels found non-compliant will be declared unseaworthy and the moment this happens, the insurance coverage for the vessel becomes null and void. How is that going to be a factor in terms of ensuring compliance?

JS: You will lose money on a daily basis if your ship can't move from A to B due to insurance coverage. But again, it goes back to the fact that the framework is just not there yet on who is responsible.

GI: What will the impact be on supply in the Fujairah market?

JS: We have looked into the Fujairah market on the supply side and we don't see there being sufficient very low sulfur fuel oil (VLSFO) availability. So, the question

becomes do you start to pull out barrels from other middle distillate grades to comply with the 0.5% legislation? Areas where 0.1% sulfur limits are already in place will do okay, as will other parts of the world that have more sophisticated refining infrastructure.

GI: Fujairah is a big bunker supplier. So, when you say the region will struggle to have the compliant supply, what does that mean for bunker supply companies? Does it mean that their customers might be bunkering somewhere else or will they have to do something else like import the required supply?

JS: Yes, they may need to do that in order to not lose customers. Also, if you are a refining company that has shipping, you probably want to supply your own ships when you can with compliant fuel. Certainly, the risk of loss of market share is there compared to regions like Amsterdam, North West Europe, Singapore and even places like China, which has quite a sophisticated refining system.

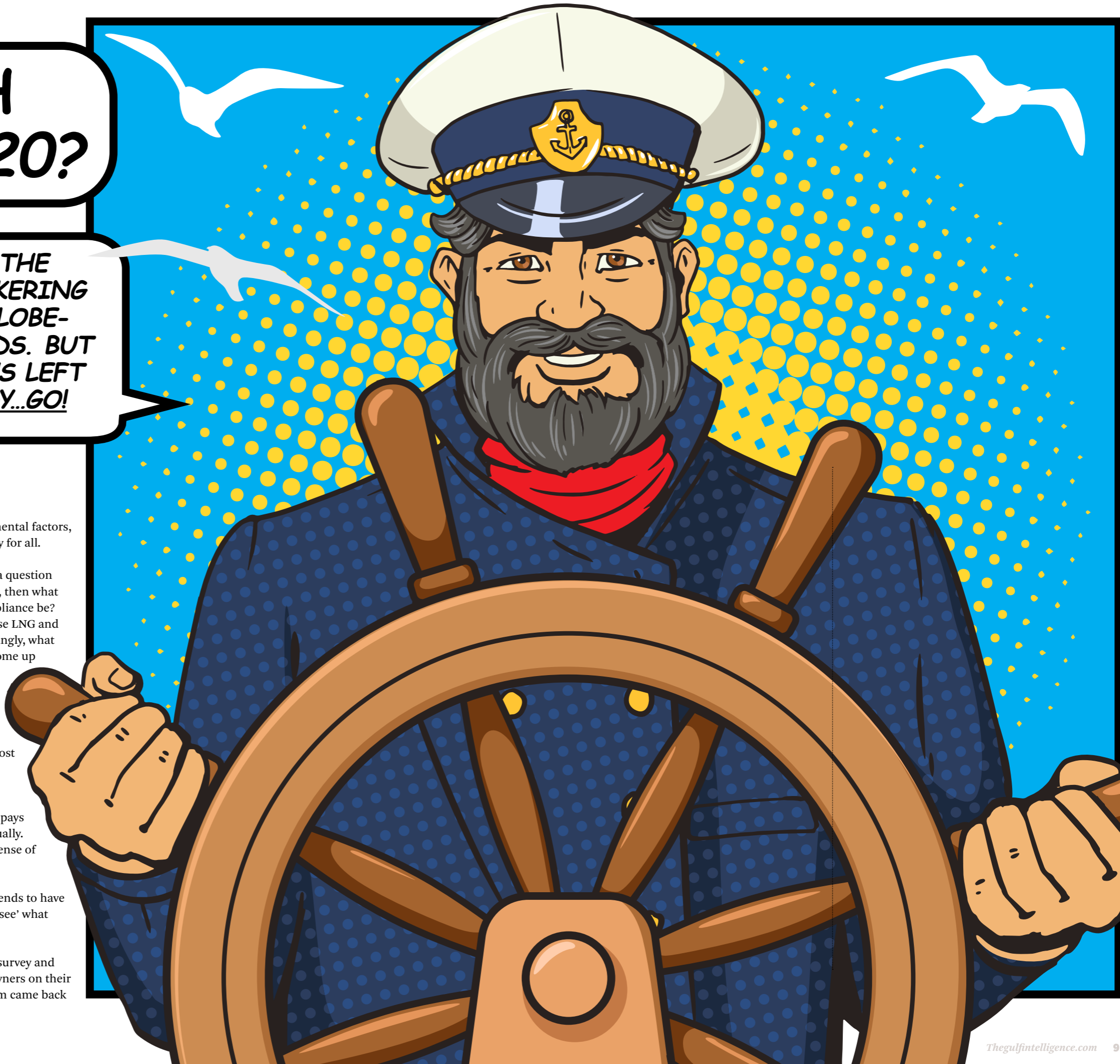
GI: The supply after 2020 will all depend on what kind of spread there is between HSFO and LSFO. If it's high, then the ship owners and the suppliers will have to find different ways to take advantage of that spread. But it's very hard to define right now. Will the spread be \$50 per ton or \$200 per ton? Do you think blending would be an option for Fujairah to overcome the shortfall in refining capacity, given the massive infrastructure and the flexibility available to blend?

JS: I've yet to see a consistent LSFO spec that everyone can or has to comply to. Picking up a variable sulfur fuel oil in Singapore might not be the same as the one you pick up in China or Fujairah and compatibility might be an issue with blending. There are existing players and infrastructure in Fujairah and that is a platform for growth. The blending site is a good opportunity. But again, it goes back to the point of transparent communication between suppliers, consumers and storage companies. We are not where we need to be on that basis. ■

*Edited transcript

FUJAIRAH BEYOND 2020?

IMO 2020 COULD PROPEL THE WORLD'S 2ND LARGEST BUNKERING HUB'S REPUTATION AS A GLOBE-LEADING ENERGY CROSSROADS. BUT THERE ARE JUST 12 MONTHS LEFT TO PREPARE. READY, STEADY...GO!



Q&A between Gulf Intelligence and a panel of Experts that included:

- William List, Operations Director, Fujairah Oil Tanker Terminal
- Johnny Stewart, Principal Analyst, Wood Mackenzie

Q: Will the Port of Fujairah leverage IMO 2020 as another step in the ladder to greater influence on the global energy stage? Or will it stand by while others strengthen their grip? Which stakeholders should take the lead in setting the compliance and enforcement roadmap for IMO 2020: ports, refiners, shippers, insurance companies?

A: When it comes to enforcing compliance, the ports will have to do this. But how? We can only build on the documentation regarding where the product comes from, what the specifications are, quality certificates and so on.

Q: I suppose the expectation would be that you are the representation of the government. Is that realistic?

A: The UAE is a signatory to IMO. We sit on the IMO table. We have representatives there. The federal government will 100% follow what the IMO says.

A: It should not only be the responsibility of ports. This regulation

came because of environmental factors, so it's a joint responsibility for all.

A: Non-compliance is not a question here. We'll have to comply, then what will the next steps of compliance be? The next regulation? If I use LNG and I fix my machinery accordingly, what other regulations might come up afterwards? How much am I going to spend on scrubbers or on new customized refineries? Will bunkers be available? Eventually of course, the cost of any of this will move to the customer or end user.

Q: Of course, the end user pays for every regulation eventually. Are shippers accepting a sense of responsibility?

A: The shipping industry tends to have a culture of 'let's wait and see' what happens.

A: I concur. I conducted a survey and reached out to 626 ship owners on their next steps and 52% of them came back

and said they were not yet in a position to answer.

A: We also don't know how much the penalty will be for non-compliance. How will I find low sulfur? If I want to fit a scrubber, are there enough dry docks? How much will it cost? I'd be more than happy to fit the scrubber if a company as big as Vitol, for example, would close a contract with me for five years and give me the capital to do so.

A: The bottom line is that LSFO is not available in high quantities everywhere. It is available in certain places, such as the US coastline and certain places around Europe. But it's not generally available globally. Even if some refineries announce that they will invest in cracking to produce LSFO, it will cost and the residual value will be problematic in certain areas. So, we are then left with installing scrubbers, yet most ports don't have a reception facility for this, including the UAE.

Q: Will destination ports change because of the possibility of the sporadic availability of marine gas oil (MGO)?

A: We have to look at all the pieces of the puzzle: supply of LSFO, MGO, shippers, terminals and ports. With terminals, we can look at what infrastructure is suitable enough to store these kinds of 'future' fuels. I think the Port of Fujairah in particular has done enough to have the suitable infrastructure in place. The biggest hurdle in the whole situation is fuel supply. Ultimately, you can only enforce implementation if you have the right fuels available, so I think the major part that has to be played is by the refiners to make sure LSFO or MGO is available. Otherwise, shippers will pay the brunt of the cost. A scrubber has an investment of around \$3 million and it will take a year before you can get one installed. In the US, many refineries have actually upgraded their systems for hydro cracking in order to have the low sulfur available. And in this region, I understand Kuwait's Al-Zour refinery (615,000 b/d when it is expected to come online this year) is going to produce a lot of LSFO. Still, there won't be a dearth of supply here. The key is the availability of the right fuels while the other pieces of the puzzle still all play their part.

Q: Would you consider asking every storage company in your ecosystem to deliver a IMO 2020 preparation plan on what they intend to do?

A: The main challenges will happen during the first six to nine months of 2020. After that, things should settle down. Nobody wants to make major investments that could be redundant nine months

9

It could take until September 2020 for compliance efforts to bear fruit - nine months after the start date. Thereafter, processes should be smoother.

30%

Transparency is the greatest leverage in enabling IMO 2020 to help create a Fujairah/regional independent oil products benchmark, according to nearly a third of respondents to a GIQ Industry Survey last year.

56%

More than half of the GIQ Industry Survey respondents said port authorities should take the lead in creating a IMO 2020 roadmap. Shippers (28%) and refiners (16%) took second and third place in the hierarchy of responsibility.

80%

A large majority of demand for bunkering fuel comes from major players, such as Exxon and Shell. Such companies will not risk their reputation with non-compliance.

1,000

Approximately 1,000 vessels worldwide will have scrubbers installed by 2020, estimates Wood Mackenzie. This is out of a global vessel market of 55,000.

down the road. Having information on how ship owners and customers are going to manage their business is important as it means the port can act accordingly.

A: We have already started to fit scrubbers. We did a huge volume of research on the best possible option. We also reinvented the wheel so that we would not have to cut the ship to install the scrubber, which otherwise can be complicated. On the point made about the Port of Fujairah requesting a preparation plan for IMO 2020, I don't think this needs to come from its stakeholders.

Q: What does the Port of Fujairah need to do in order to seize the opportunity to go on the front foot rather than wait to see?

A: IMO 2020 is more of an opportunity than a risk for Fujairah. For example, we have the capacity for blending. But again, the more information we can gather upfront, the better we can set out to meet the demands of 2020. The most important thing from our stakeholders is clarity. A lot of people are talking about MGO as the new fuel of choice, but is it going to be available?

Q: Will LNG become a bunker fuel sooner than expected as a result of IMO 2020?

A: It will take a while for LNG, at least more than five years. First of all, LNG takes a lot of bunker space. Where and how can it be stored? Do we have the right crew to take care of this substance as it can be quite hazardous? Ship owners currently do not have the facilities or liquidity. We don't even know who's going to be inspecting and implementing rules and regulations. As a vessel, I might pick up fuel with 0.5% sulfur in one port but another port may not have it. So, I'll then need two products in my tanks and have to invest more in purifiers, for example. There has been no preparation for this whole process by any of the parties. An extension to the IMO 2020 start date is required, because nothing is clear. No one knows who, where or how to start.

A: There are two stakeholders across the globe. One is the user (shipping companies) and the other is the supplier (refiners). But business models for refiners differ across countries, so it's a bit of a 'chicken and egg' scenario. One doesn't want to invest without knowing what the other is going to do. In this kind of situation, who is the central authority to take charge, give incentives and charge penalties across the globe? Do you actually go and consult each and every refiner and each and every shipper?

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Q: You can wait or you can set the compass. Singapore has, for example, made it a requirement that every stakeholder company that operates in their space must submit their plan and preparation for IMO 2020 by the end of this year.

A: In the short run, scrubbers will be faster and cost less than changing the refinery slate, which can take up to four years and cost several million US dollars. Fujairah doesn't have sufficient refineries, so it will depend on how efficiently it will be able to source LSFO. This will be one of the port's main challenges when it comes to competing with the other markets, such as Singapore where there are certainly sufficient refineries. But Fujairah's location linking the Middle East to the Far East will also give players an advantage to capitalize on. Long-term, they can look to establish a refinery with a strategic investor as a buyer.

Q: The UAE is a signatory of the IMO. Is there anybody coordinating with the Port of Fujairah? It is after all one of many ports in the UAE. Are you part of a commission that gets together every month to plan for IMO? Is there a collective that gets together to discuss these issues?

4,450

As to be expected, forecasts for scrubber installations vary. Goldman Sachs said the bullish associated economics could see 3,125 scrubbers installed by 2020 and 4,450 scrubbers by 2022.

95%

Compliance is unlikely to reach 100% in 2020, according to Goldman Sachs. The company's 80% base case of compliance in 2020 will gradually rise to 95% globally by 2024.

A: Yes, we are part of a collective committee and we meet. And yes, there's a representative for the UAE who presents the country at the IMO.

Q: Is the guidance from the Department of Transport at the federal level that the ports should not be a policeman of this rule?

A: There is no policing required. Under the IMO regulation, as soon as it is implemented, all ships have to clarify whether they are going to have scrubbers or comply with the fuel. On that set date, there will be no fuel allowed to a ship that has a 3.5% sulfur content. If so, it has to prove it has a scrubber and IMO will be notified by the society of charter ships. The Port of Fujairah is going to be critical and it will continue to grow. The main questions are whether all the LSFO supply from the region's refining can bunker in Fujairah and whether the port will be able to expand its facilities to cope with the demand. Will port guidelines within the federal UAE become more fluid to undertake this new change? Change in management is huge. You need a think-tank process to make sure all parties concerned are on the same page. Fujairah is on the right track.

A: We should also look at how much producers like ADNOC and others across the GCC can supplement the amount of LSFO that is required in Fujairah. Plus, if you actually want to facilitate LNG bunkering, it does not necessarily need to be in Fujairah. It could be in a location like Jebel Ali, where there is already a floating storage and regasification unit (FSRU) for LNG. Perhaps they are well placed to start LNG bunkering, even if in small quantities? Instead of saying that the Port of Fujairah should account for much of the required initiative, we must ask how requirements can be met as a country, as a region. Coordinating roles are needed rather than over-stretched watchdogs.

A: It seems that there are a lot of indirect players that haven't been mentioned here, such as insurance companies. Unlike other regulations, these guys actually end up putting a lot of pressure on the game. They say that if you don't comply, we're not going to insure or fund you.

Q: *It's unlikely that ships will be insured if they're not compliant to the 0.5% sulfur limit this time next year. I imagine that it would be quite a straightforward view. Looking at another angle, the IMO rule was essentially brought in for coastal communities and environments, yet ships are mostly burning fuel on the high seas. When it comes to enforcing compliance, is there a risk of double play as ships traverse between coastal seas and high seas?*

A: The shipping industry is a chain and the weakest point is the ship – the middleman. A vessel can take clean bunker fuel from Fujairah and she then goes to a port that has no bunker fuel. She can sit there for 20 to 25 days and then have to take off-spec bunker fuel. Then, she obviously risks her machinery and also might be fined because she doesn't have a scrubber. Equally, when she's on the high seas, how do we know she's really burning LSFO? There are still so many questions. What exactly do we want from IMO 2020? What's the benefit?

A: IMO has declared the regulation, but without guidance on who should go first, who should take the lead. There are no milestones.

Q: *Would you charter a ship that isn't complying with IMO 2020?*

A: We are investing in testing scrubbers on some ships to see how they run. We're fortunate enough to know where we're shipping to, so we have to look at that and make sure that they pick up the right product enroute. Anybody choosing not to comply is making a bad decision – insurance and corporate risks are high. Everybody should take

"ANYBODY CHOOSING NOT TO COMPLY IS MAKING A BAD DECISION – INSURANCE AND CORPORATE RISKS ARE HIGH."

0.1%

Sulfur content limits in some coastal waters - Northwest Europe, US, Canada and some Caribbean islands - were reduced from 1.5% to 1% in July 2010, Goldman Sachs detailed. The limits were reduced again to 0.1% in January 2015. IMO 2020 aims to unite these reductions in sulfur, and others, under one global umbrella with the 2020 ruling.

2m b/d

The approximate growth in the Middle East's refining volume up to 2025; good timing with efforts to boost LSFO supplies to support IMO compliance.

14

Perhaps the market's surprise at the IMO 2020 ruling is the biggest surprise? The journey to reduce sulfur in fuels started fourteen years ago in 2005, with the IMO tightening the sulfur cap to today's 3.5% limit in 2008. Plans to lower the sulfur limits have since been on the table and arguably, the writing was reaffirmed on the wall when the Paris Agreement was borne in the French capital in 2015.

some responsibility for compliance but the buck has to stop with someone. If a ship doesn't have a scrubber on it, who's going to make sure that it's not loading? Someone's got to make the ultimate choice. I haven't seen any clarity on that.

A: One of the things we're out to establish is the change in the supply chain and who's changing with it. The industry as a whole needs to get together and start thinking about that. Everybody's waiting for someone to make the first move and the first decision. I welcome ports to start bringing in a broader audience. This needs massive coordination. I welcome the opportunity to sit down with the Port of Fujairah and the Port of Singapore and elsewhere to talk about the change in process and how we can make it as smooth and transparent as possible.

A: There is definitely a 'wait and see' attitude. As a trader, we would primarily be responsible for getting the supplies. We will source LSFO on the market if it's available, but if you then start to talk about spreads between HSFO and MGO, it could be \$300, for example. So, I'm telling vessel owners they have to pay that just to be compliant. It's not ideal. Scrubbers are the best solution, but you also have the cost of that. Whether that investment pays off when newer regulations inevitably come forward is a different question.

A: I am more positive. The energy majors and main container owners are going to be compliant. The industry as a whole is. The question is more focused on what route will they choose. The uptake for scrubbers won't be substantial up to 2025, as a maximum 25% of fuel will be consumed by ships with scrubbers and 32% will use LNG by 2025. Some innovative solutions have been created on how to store very large volumes of LNG and new vessels are being built to ensure the right type of ship is available if a strategy does include LNG bunkering. The question here? How fast this will happen.

MGO and LSFO will be very expensive, yet 90% of ship owners must tread this route for compliance. There will be a big battle on who pays that bill. The same applies to what the ship owners have to absorb and don't have to absorb. For a port to be in a position to handle all these scenarios is fantastic. Lessons can be learned from the Port of Rotterdam, which will have seven bunker vessels loading LNG and handling of LSFO and HSFO. They have the whole nexus planned out. Jacksonville, Florida, is another one to watch. It had virtually no bunkering up until this year with respect to LNG and very little traditional bunkering. But in the space of four years, it will have three liquefaction plants, albeit on a small scale. That's fast work! They will have a bunker barge in place and they're delivering bunkers not only to container vessels for Puerto Rican trade, but the cruise vessels will also begin using these. Carnival, the leader of cruise companies, has chosen to use LNG on their new builds sailing into the Caribbean market. You need to look at your own market, your own demand, your own ship types and also look at the combination of ports in this region to find the best solution.

A: If IMO is really considering the environment, then the organization must extend the start date

78%

Younger shipping fleets will have an advantage over older fleets as more expensive bunker fuel options and scrubber installations become commonplace, according to the majority of GIQ Industry Survey respondents.

to 2025 to ensure there are enough docks, scrubbers, LSFO supplies and so on to reach compliance. But if the intention is to push vessels out of the market in a bid to rebalance supply-demand, then the ticking clock for the 1 January 2020 will work.

A: If you look at the oil majors and big companies, they will produce IMO compliance fuels. Of course there will be 20% that probably will take a while before they get to that stage and cost will be a major factor. But this will eventually be passed onto the customer.

A: IMO 2020 is a bump in the road that we will all get over. There are a lot of opportunities for Fujairah to expand its bunkering market and we should embrace 2020. Going forward, the industry will be self-regulated; it's not going to be one particular regulator overseeing everything. And the LSFO fuel will ultimately become available. If IMO comes forward and gives more guidelines as to how this should all be managed, then a lot of this fear would dissipate. ■

**Edited transcript of a roundtable held under the Chatham House Rule.*

"THERE HAS BEEN NO PREPARATION BY ANY OF THE PARTIES. AN EXTENSION TO THE IMO 2020 START DATE IS REQUIRED, BECAUSE NOTHING IS CLEAR. NO ONE KNOWS WHO, WHERE OR HOW TO START."



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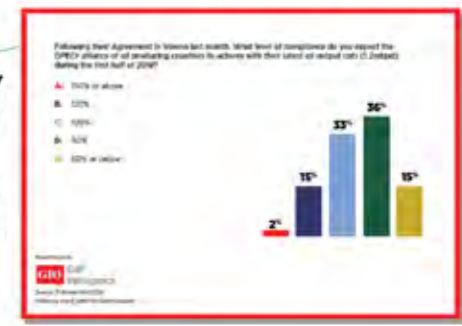
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