

BUNKERSPOT

MORE QUESTIONS THAN ANSWERS?

**SURVEYING THE
KEY BUNKER
TRENDS**

INSIDE:

**ETHICS AND TRANSPARENCY
TRAINING FOR NEW FUELS
INTERVIEW: HARTREE MARINE
MARKET FOCUS: NORWAY**

Answering the call

2021 was another challenging year for the shipping and bunkering industries – and everyone else – with the battle to contain the coronavirus and also respond to the call for decarbonisation. So once again we invited industry players and associations, NGOs, commentators and technical experts to answer the key questions and give their views on the current state of the industry

Two spectres loomed large over both 2020 and 2021: COVID-19 and Carbon.

It seems that the coronavirus will still be with us in 2022 and maybe even beyond, as new variants threaten to spark infection surges – but at some point, the tide will turn and the pandemic will be reined in.

Climate change, however, is a problem that threatens to spiral out of control unless action is taken now and the momentum maintained for decades to come.

In 2021, the world's political leaders had their opportunity at the United Nations 26th Climate Change Conference (COP26) in Glasgow to hammer out some solid agreements on climate action. And when the politicians had done talking, the shipping community had its chance to 'walk the talk' at the 77th meeting of the International Maritime Organization's (IMO) Marine Environment Protection Committee (MEPC 77).

But did either of these gatherings really achieve anything tangible that will help us build a zero-emission shipping industry?

And while the talk on CO₂ targets continues, did 2021 see much practical progress being made by the shipping industry – and its technology/energy providers – on new fuels and energy efficiency technologies?

On a more positive note, many shipping sectors bounced back in 2021. Although it was a bad year for oil shipping freight rates, container volumes in many ports were coming back to pre-COVID levels and the cruise industry made a cautious global restart after the pandemic-induced hiatus.

DECARBONISATION

We began our survey by tackling decarbonisation head-on. Judging by the responses, it seems that this something that many believe our politicians and leaders are still failing to do.

1 Do you believe that, taken together, COP26 and MEPC 77 represented significant progress for maritime decarbonisation?

This was the big question, and unsurprisingly it drew by far the biggest response. Quite a few of our respondents answered 'Yes', but in the main they did so with reservations, as they clearly felt that there is still much to be done.

Gavin Allwright of the International Windship Association (IWSA) personified this position, with his detailed answer: 'While the headline COP26 and MEPC 77 outcomes on decarbonisation failed to raise the decarbonisation ambition in many people's eyes, there were however some significant contributions to move towards maritime decarbonisation. The industry needs to be moving quickly on multiple fronts simultaneously, while also maintaining a safety first, thorough testing regime and a robust regulatory and financial framework for new untested fuels and technologies to not only be brought to market but disseminated and scaled extensively worldwide. This will be a very challenging balancing act and many players in the industry are stepping out in front of regulation and implementing change, and COP26 reflected that. There were quite a number of announcements and building momentum within the industry when it comes to net-zero/zero pledges, calls for lifting the initial IMO strategy ambition.

'COP26 announcements that will directly affect maritime included a general call to bring down (and ultimately eliminate) fossil fuel subsidies and this was further compounded by the Global Methane Pledge with its 30% reduction well-to-wake for LNG by 2030 [supported by 100 countries]. There was the Call to Action for Shipping Decarbonisation which called for IMO to adopt Zero CO₂ by 2050 [200 corporations] which has added quite a bit of pressure on IMO to deliver on those higher ambition goals. This message was taken further by industries and nations not prepared to wait for regulators by the Declaration on Zero Emission Shipping by 2050 [14 countries]; the Clydebank Declaration, forming green corridors between ports [20+ coun-

tries] which could be very impactful in the delivery of initial low carbon fuel infrastructure/supply; and the First Movers Coalition, which saw low emissions purchasing commitments [US & WEF + 30 large corporations].

'In addition, the lead up to COP26 saw the development of the Glasgow Financial Alliance for Net-Zero (GFANZ) with pledges by financial institutions for transitioning to net-zero portfolios by 2050 with more than \$130 trillion in assets under management [with 450 firms from 45 nations = 40% of total finance committing by COP26]. One further announcement was for the establishment of the Just Transition Maritime Task Force to ensure decarbonisation also benefits seafarers. These are of course declarations of intent and will require concerted action and delivery, but a decarbonisation framework (along with progress at IMO, the EU ETS and 'Fit for 55 package and existing industry initiatives) is starting to take shape.'

As one would expect, Allwright flagged up that MEPC 77 considered a new EEDI/EEXI guidance submission for wind propulsion and adopted that as part of the new Guidance on Treatment of Innovative Energy Efficiency Technologies for Calculation and Verification of the Attained EEDI and EEXI.

Allwright noted: 'The Committee approved MEPC.1/Circular 896 providing updated guidance to manufacturers, shipbuilders, shipowners and other verifying parties relating to



Diane Gilpin

'The industry, it seems, has embraced the climate challenge but badly needs regulations to shape its commercial response'

Diane Gilpin
Smart Green Shipping Alliance

'The questions that are holding up adoption of the industry proposed IMRF will also be key for the wider MBM debate. How and by whom will the funds be collected? And how will those be evenly/equitably distributed?'

Gavin Allwright
International Windship Association

the application of EEDI and EEXI methodologies to innovative energy efficiency technologies. The circular provides a method of categorisation for different energy efficiency technologies, including a significant update for wind-assisted propulsion systems. While this guidance update is significant this is a

living document and measures will be reviewed and updated as their impact is further assessed and additional reference vessel data become available.'

Another strong advocate for wind propulsion, **Diane Gilpin** of the Smart Green Shipping Alliance, called for 'urgent action' to back up the talk: 'COP26 catalysed global attention on the climate

emergency and Glasgow saw more senior maritime leaders present at a climate conference than at previous COPs. The industry, it seems, has embraced the climate challenge but badly needs regulations to shape its commercial response. MEPC 77, coming hard on the heels of COP26, underlined the discrepancy between the determination of two UN bodies to focus on urgent action. MEPC 77's delaying tactics attracted universal condemnation from all quarters of industry.

'With upcoming CII and EEXI regulations looming large the industry badly needs short term emissions reductions solutions. Most of the conversation focuses on so-called "sus-

tainable” alternative fuels which are years away from global roll-out and adoption and can’t help address 2023 compliance concerns.

‘Wind-assist is a key, close to market solution for providing auxiliary 100% renewable power that along with energy efficiency solutions can make immediate and significant emissions reductions through retrofit. At COP26 it was recognised that funding for this valuable technology was woefully inadequate because the finance industry is not set-up to support early-stage technologies, even when the market demand is strong and there is consensus that we are facing a climate emergency.’

Madadh MacLaine from the Zero Emissions Ship Technology Association (ZESTAs) was stoic, but also pressing for future action: ‘A lot of people are saying that this was a missed opportunity, but, heh, what did they expect? I’m sorry, but getting any sort of an agreement on an international level is already a massive achievement. We got an agreement on coal (not that anybody is using this on ships anymore) and we need to celebrate the small wins. What COP26 did do is create a platform for communication on what’s possible in shipping. The ZESTAs *Ship Zero – Charging to True Zero* workshop demonstrated a plethora of market ready ZE technologies. Financiers and ship owners at the workshop went away with new ideas on what they will invest in through the coming decade. The International Chamber of Shipping event, although it was pretty much the same old format of listening to middle aged white males state their opinions, the opinions being stated have shifted

Chris Chatterton of the Methanol Institute spoke for many when he said that: ‘The answer to this question isn’t really a case of yes or no. Taken together it seems that the attention level on shipping increased again at COP26 while the IMO stuck to its process rather than embrace the same sort of “net zero” messaging that was popular in Glasgow. In the short term, shipping is in a situation where a handful of industry groups and some operators are likely go further and faster than IMO in reducing carbon and incentivising cleaner shipping. The IMO’s slow pace also gives more weight to regional regulations, particularly within the European Union but potentially in other areas too.

‘A “net zero” shipping industry is of course desirable, but we are still on the journey to getting carbon down in a sustained way, one in which the impact of all greenhouse gases in marine fuel are measured on a well-to-wake basis. The IMO is already considering lifecycle assessment of the GHG impact of marine fuels and has agreed to look again at the carbon emission limits it has already approved from 2023.

‘To some that may not sound like a lot, but the efficiency gains the industry needs to make will require a combination of new fuels, standards and new operating methods; some would say that will achieve more than slogans that make good headlines while lacking a regulatory grounding.’

Simon Bennett of the

\$5 billion IMO Research and Development Fund which will be vital to rapidly accelerate the introduction of the zero-carbon technologies and fuels, though in co-operation with governments the industry will continue to urge for approval at MEPC 78.’

Sticking with the industry associations, IBIA’s **Unni Einemo** predicted that the IMO will adopt ‘significantly stronger GHG reduction ambitions’ in the future – and also outlined which policy tools would be needed to make progress: ‘It doesn’t seem as if the “official” COP26 outcome marked progress for maritime decarbonisation, however there were maritime side-events and commitments made by some countries (e.g. the Clydebank Declaration) demonstrating the readiness among several countries and industry participants to act, and supporting more ambitious targets. There seems to have been positive momentum during COP26, with a large number of countries, maritime organisations and companies getting behind calls for net zero shipping by 2050.

‘MEPC 77 may have seemed a bit of an anti-climax after what looked like a momentum toward greater ambitions at COP26, but there were some positive achievements, and groundwork was laid for further progress

on legislative tools to actually deliver effective reductions in greenhouse gas (GHG) emissions.

‘It now looks almost certain that the IMO will soon adopt significantly stronger GHG reduction ambitions. There were seven proposals to MEPC 77 calling for the IMO to embrace a net zero emissions target by 2050, co-sponsored by a

large number of member states. These proposals all called for carbon neutral shipping by 2050, but their approach was different. The proposal to adopt an MEPC Resolution on “zero emissions shipping by 2050” received significant support, but others preferred to focus instead on achieving this goal when working on the revision of the IMO’s GHG Strategy, which needs to be agreed and adopted no later than 2023.

‘MEPC 77 held extensive discussions on a number of proposals for further mid-term GHG reduction measures, including market-based measures, and although no new measures were agreed at MEPC 77, we see that the momentum is building.

‘IBIA has participated in all the IMO meetings where policy and regulatory tools to cut GHG emissions from international shipping have been discussed, observing closely to



Chris Chatterton

‘The efficiency gains the industry needs to make will require a combination of new fuels, standards and new operating methods’

Chris Chatterton
The Methanol Institute

drastically, with statements like “what is the point of green methanol? We’re just releasing more CO₂ into the atmosphere and calling it green” and the SG of the ITF questioning the implications of a toxic event with ammonia with the legal responsibility falling on crews. Not to mention the Clydebank declaration with the idea of green corridors (we’ll need to see what this really means) So [in answer to the question] in terms of communications and bringing attention to the issues of GHGs from shipping, great, unprecedented. In terms of actual commitments from countries, heh ho.’

International Chamber of Shipping (ICS) was encouraged by COP26, but felt the momentum was not maintained at the IMO meeting: ‘While governments at COP26, and the major industry summit hosted by ICS in Glasgow, made the direction of travel clearer, including the need for shipping to decarbonise completely and as soon as possible – in practice no later than 2050 – the same governments failed to deliver at MEPC 77. It was almost as if COP26 never happened. Particularly disappointing was the lack of time provided to make progress on the approval of the

assess the impact on the marine fuels sector. IBIA delivered a statement to MEPC 77, outlining our views on what is needed from the IMO to help the market to respond with fuels and technology solutions, and ensure that the fuels and technologies on offer are technically feasible, safe to use and truly sustainable.

'In brief, continued Einemo, 'IBIA would like to see a holistic approach, taking full well to wake lifecycle emissions into account; anything else would discourage or even eliminate several options that are carbon neutral when considering full lifecycle emissions. We therefore need a workable lifecycle assessment methodology and associated certification schemes, preferably a methodology that will apply a single and consistent international approach to determine the lifecycle analysis of fuels supplied to ships.

'We also need to stimulate innovation, and demand for alternative fuels. For this we will likely need a substantial price on carbon and CO₂ equivalents to effectuate real change through market-based measures.

'IBIA told MEPC 77 that the proposals for a gradual phasing in of a GHG intensity limit have great potential to stimulate demand for zero and low carbon fuels. We already have a track record for this approach with the phasing in of sulphur limits in MARPOL Annex VI for a growing number of ECAs, and most recently the IMO 2020 regulation. A gradual phase-in of a low GHG intensity limit could be a very effective tool to ensure predictable levels of demand, which the supply side would respond to. We saw the market respond effectively to reduced sulphur limits with supply and technology to meet demand; the same principle could be applied to GHG intensity limits.

'Another positive development at MEPC 77 was the adoption of a resolution for voluntary measures to reduce black carbon emissions from ships operating in or near the Arctic. Although not a gas, black carbon (BC) is a potent short-lived contributor to climate warming, particularly harmful when deposited on snow and ice. IBIA played a positive part in adapting the wording of the proposed resolution to overcome objections raised by a handful of member states.'

From among our NGO respondents, the Environmental Defense Fund's (EDF) **Marie Cabbia Hubatova** judged 2021 a 'productive year for green shipping' and she hoped the trend would continue. 'At the IMO,' said Cabbia Hubatova, 'we didn't get every outcome we were hoping for – but we saw an

unprecedented number of countries support zero emissions shipping by 2050, and we can expect that the maritime decarbonisation debate will dominate any future negotiations. The many declarations and agreements from COP26 also sent a clear message to the

HFW's **Alessio Sbraga** pronounced: 'It is probably fair to say that, taken together, COP26 and MEPC 77 signaled that decarbonisation is now firmly on the commercial agenda of all the major stakeholders in the maritime sector and that represents positive progress. The real

'If I were to highlight one achievement from this past year, it would be the Dhaka-Glasgow declaration by the Climate Vulnerable Forum, which calls for a carbon levy on international shipping'



Marie Cabbia Hubatova

countries in the IMO to revisit the original decarbonisation target and align it with the more ambitious 1.5°C target.

'If I were to highlight one achievement from this past year,' she continued,

'it would be the Dhaka-Glasgow declaration by the Climate Vulnerable Forum (CVF), which calls for a carbon levy on international shipping. Many countries are extremely vulnerable to the adverse impacts of climate change – and this declaration clearly shows the significance of shipping's greenhouse gas emissions to the people in these countries. Moreover, the members of CVF are some of the world's poorest and most climate-impacted countries—who are also economically dependent on international shipping. If they can cope with the impacts of a levy on their economies, I believe that wealthier countries can too.'

Aoife O'Leary – previously a colleague of Cabbia Hubatova at EDF before founding the new advocacy group Opportunity Green last year – also picked out the same 2021 highlight. 'The Dhaka-Glasgow declaration of 55 Climate Vulnerable Countries calling for a carbon levy in line with the Paris 1.5°C degree temperature goal is a game changer,' declared O'Leary. 'It shows just how widespread the support is for real action at the IMO and potentially due to participation and lack of equity issues, the debate in the IMO isn't as fully representative as it should be. This will only gain momentum in 2022 and I think we'll see that change into concrete support for a carbon levy at the IMO.'

The legal experts taking part in this year's survey gave some finely-balanced answers.

question for me is, however, whether *enough* progress was made at the end of the day and this coming year is likely to be pivotal.

'Increased ambition for global decarbonisation targets, investment in alternative fuels and technologies and policies for promoting net-zero emissions in practice dominated COP26 insofar as the maritime sector was concerned. COP26 saw the launch of the Clydebank Declaration of at least six green shipping corridors (i.e. shipping routes for zero-emissions vessels) by 2025. It provided a platform for the First Movers Coalition who obtained tangible commitments from participating names for the purchase of green hydrogen and ammonia to promote further investment in alternative fuel plants. COP26 also saw momentum build behind the call for a revised IMO target of zero GHG emissions from shipping by 2050 so as to better align with the Paris Agreement's goal of limiting global warming to 1.5°C.

'MEPC 77 followed hot on the heels of COP26. Significant deliberations were had over a number of proposals for MBMs, i.e. seeking to impose a levy/tax on CO₂ emissions aimed at generating funds for investment in R&D of net-zero emission fuels and technologies. There was also a general acknowledgement that more is required to achieve tangible progress on decarbonisation, but it was decided that any such decisions over MBMs, funding and strategy revisions would have to be made during 2022.

'Admittedly, MEPC 77 represented an underwhelming climax to the momentum generated at COP26. However, this was not entirely unexpected because it was always going to take time for member states at IMO level to agree on important measures such as these (i.e., the nature, form and granular-

ity of any MBM and on any revisions to IMO's net-zero emission strategy and trajectory) which are of a delicate and political nature.

'The important takeaway is that these issues are now firmly on the IMO's agenda and it must act quickly or risk losing credibility, especially in the wake of the EU's push to become the first net-zero emissions continent by 2050 which (via its Fit for 55 measures) is gaining significant momentum and which has the potential to displace the IMO's central role as the maritime regulator.'

Joseph Malpas – also from HFW – shared the view that hopes were raised at COP26, and then rather bruised at MEPC 77. 'Momentum for maritime decarbonisation seemed to be building at COP26, with discussions centred on accelerating the IMO's decarbonisation target to net zero GHG emissions by 2050,' he recalled. 'Positive emissions reduction initiatives were also announced, such as the First Movers Coalition (involving commitments from participants to purchase green hydrogen and ammonia) and the Clydebank Declaration.'

However, Malpas continued: 'Reality seemed to hit at MEPC 77, with little tangible progress made on many key discussions. For example, final decisions on both the accelerated IMO target tabled at COP26, and also the various proposals for MBMs involving levies on carbon emissions and R&D funds, were deferred until MEPC 80 in spring 2023.'

'There were some positive developments at MEPC 77, such as a \$400,000 contribution to fund IMO CARES, an initiative aiming to accelerate the development and adoption of green technologies. However, the slow pace of progress at the IMO may only provoke regional actors to deploy their own decarbonisation measures, such as the EU's Fit for 55 initiative involving the inclusion of shipping in its emissions trading system (ETS) and the FuelEU Maritime initiative for reducing the greenhouse gas (GHG) intensity of fuel used on board vessels. This could potentially lead to a multi-layered regulatory

regulatory



Joseph Malpas

landscape that may be challenging for participants in the maritime sector to navigate.'

Nicholas Woo of Birketts said that his own, rather 'subjective' view is that 'decarbonisation in shipping is, at the moment, more of a fad than a reality' – and then he pressed the nuclear button. 'While I can see the need to reduce the world's carbon footprint,' said Woo, 'shipping faces significant challenges towards this. I think that the only serious way to decarbonise shipping is if vessels are eventually nuclear powered.'

'There is a new start-up called Oklo in Silicon Valley, who are devising small nuclear reactors (about the size of a house) capable of generating 1.5 MW of electricity. Research needs to be looked into whether small nuclear reactors are capable of being put onboard vessels. We know the technology already exists since they have been onboard naval vessels for years.'

Steve Simms of Simms Showers argued that: 'The benefit of COP26 and MEPC 77 was to continue to develop a vocabulary about decarbonisation – and for MEPC 77 of course in the marine industry particularly. You have to look back to the history of adoption of 0.50% and 0.10% sulphur fuel, and LNG, to see that there is a similar progression of vocabulary on decarbonisation. Already, it's the industry's primary focus; [but] within two-three years it will be the leading consideration of new vessel build-ings and how and what marine fuel is sold.'

Among the consultants taking part in this year's survey, Shipping Strategy's **Mark Williams** judged that, taken together, COP26 and MEPC 77 showed that 'there is the will to do more to decarbonise' – adding that: 'The real motivation in the end will be commercial – when charterers insist on low carbon shipping – but regulators can play their part by supporting initiatives.'

In a joint response, Ricardo's **Graeme MacLean** and **Tim Scarbrough** said: 'Following the progressive measures announced by the EU in July as part of the Fit for 55 package, we feel that the momentum on maritime decarbonisation was not sustained across 2021. At COP26, the most significant announcements were with only Green Corridors being announced under the Clydebank Declaration, signed by 22 countries, and Declaration on Zero Emission Shipping by 2050 signed by only 14 coun-

tries. This was followed by the IMO only agreeing to look at decarbonisation targets at MEPC 80 in 2023. We would have hoped to see the IMO either bringing forward the date for a revised ambition level or beginning to discuss reaching net zero, rather than 50% emissions reduction.'

Drewry's **Rahul Sharan** felt that COP26 and MEPC 77 will have a 'credible impact' in the long term – and he believed that 'the shipping world has already begun thinking in the guided direction'.

Drawing on his decades of experience, industry doyen **Nigel Draffin** recognised that fine words at headline conferences have to be backed up with painstakingly detailed work

behind the scenes. 'Progress was made at IMO towards the medium and long term GHG reduction,' said Draffin, 'but the complexity of the issues and the constraints of the nature of the agenda and the limited time (due to the remote meeting environment) meant that much of the work remains to be progressed by the intersessional working groups and subsequent MEPC 78 meeting. COP26 had, understandably, a broader focus and, due to the core difference between UN practice and the need for IMO to work at a ship and "flag state" level, means that there was little concrete progress on the maritime sector at COP26.'

Adrian Tolson of BLUE Insight said that, on the whole, progress was made in 2021, but it was 'a close call'. He also gave some historical context to his answer: 'I was struck by the fact that COP21 in 2015, which produced the Paris Climate Agreement, basically was treated as a non-event in the shipping and bunkering industries. Equally so six years ago we barely heard the term GHG spoken at MEPC – it was all about sulphur – and now GHG wins all word repetition prizes. Our industry was fully engaged with both COP26 and MEPC 77, knowing for better or worse that what happens there will impact us in the near future and define future regulations. So, for sure these meetings have our attention and engagement, and this is massive progress. Our industry will remain massively dependent on fossil fuels for a very long time. That cannot change. Lowering GHG emissions by whatever means will never be fast enough or please extreme positions – but there is acceptance, awareness and willingness to act that makes me feel very positive.'

Working for MAN Energy Solutions, **Kjeld Aabo** knows better than most how much effort and investment is going into devel-



Tim Scarbrough

oping new marine engines and fuel technologies – but he told us: ‘I do believe that there needs to be some kind of carbon tax for fossil fuels before anything can happen and actions can make a difference for the environment. And it cannot go fast enough.’

question, **Cabbia Hubatova** was one of the most enthusiastic, arguing: ‘I think there is a consensus that decarbonising shipping will rely on an MBM to drive the transition. We’re hearing this a lot from industry stakeholders. We saw some proposals in MEPC meet-

tions and commercial stakeholders alike for effective global regulations to not only generate the necessary funds to facilitate investment in net-zero emissions fuels and technology, but also to bring forward the timeframe of the energy transition to 2050, there is nowhere for the IMO to hide, and difficult decisions have to be made. The EU’s Fit For 55 measures (which seek to incorporate the maritime sector in the European Trading System for the first time with effect from 1 January 2023) only make such a decision inevitable. So I fully expect that the IMO will be forced to roll out an MBM, although it is not clear when this is likely to be.’

‘A lot of drop-in carbon free/neutral fuels will be used and the drop-in part will slowly be more and more of the total fuel energy utilised’

Kjeld Aabo
MAN Energy Solutions



Kjeld Aabo

Our final answer to this first question comes from a representative of the bunker supply community, Bunker Holding’s **Christoffer Berg Lassen**. ‘We had expected to see more ambitious climate initiatives and targets to support decarbonisation of the maritime industry as a result of the recent COP26 and MEPC 77 meetings. COP26 did not contain many concrete initiatives aimed at shipping, however, it undoubtedly added to the political pressure on the maritime industry to decarbonise fully and faster.’

‘We had hoped for a more concrete outcome of the MEPC 77, as we believe the maritime industry needs much clearer guidelines and global market-based measures to enable and stimulate decarbonisation of international shipping within the set timeline.’

ings last year and I am confident there will be many more in the future. I expect a big debate about not only the design, but also the actual carbon price. Agreeing on a solution will require many countries to leave their comfort zone. For the IMO to adopt a MBM, it will have to be carefully designed to avoid a disproportionately negative impact on disadvantaged countries (especially least-developed countries and countries that are geographically far from their trade partners). In my opinion, the tool is likely to be a carbon levy – covering not just CO₂ but also emissions of other critical GHGs like methane. The money collected should be used partially to compensate for disproportional impacts and support the deployment of zero-carbon shipping projects both on sea and land.’

Sbraga was also forthright: ‘I firmly believe that an MBM / a global levy or tax on CO₂ emissions from ships will be introduced – it is simply a question of:

1. Which form is it likely to take and what is the carbon levy per tonne of CO₂ emitted likely to be?
2. When, can or should this come into force?
3. Which body should enforce this?

‘It would be sensible to have these MBMs enforced on a global basis as soon as possible and the price per tonne of CO₂ emitted should be sufficient to speed up the energy transition to achieve net-zero emissions by 2050.’

‘With significant pressure now being exerted by industry associa-

Malpas was in broad agreement with his HFW colleague, and also flagged up the significance of developments at the EU level: ‘Given the IMO’s deferral of final decisions on proposals for MBMs, such as the proposal for a levy-based International Maritime Research Fund (IMRF), to MEPC 80 in spring 2023, it seems unlikely

that we will see any MBMs at the global level for several years, given the timeframes involved in the IMO legislative progress.’

However, Malpas, continued: ‘What could be more likely in the nearer future are MBMs at the regional level, such as the EU’s Fit for 55 measures, which might entail the inclusion of shipping in the EU’s ETS, the FuelEU Maritime initiative for the reduction of the GHG intensity of fuel used on board vessels, and also increased taxation on GHG-emitting fuels under the proposed Energy Taxation Directive. Under the original proposals put forward by the European Commission, the EU measures were to come into force from 2023 onwards, but as they are still going through the EU’s legislative process (involving reviews by both the European Parliament and European Council), this could be subject to change. That said, whilst the inclusion of emissions from the shipping industry under the EU ETS was originally proposed to happen on an incremental basis, with “full” inclusion only happening from 2028 onwards, there have been recent calls to accelerate this process so that “full” inclusion occurs from 2025 onwards instead.’

‘Other countries may also follow the EU’s lead in terms of regional MBMs – for example, the UK, the USA and China have all reportedly been looking at including emissions from



Alessio Sbraga

2 One of the subjects raised at both COP26 and MEPC 77 was the issue of ‘carbon taxes’ and/or MBMs to stimulate the energy transition. Do you expect to see measures introduced in the marine sector soon?

Simms again offered a Yes and No answer, explaining: ‘Carbon taxes, no – because the marine fuel industry is already responding to the economic benefits of offering transitional fuels. There regularly are reported investments in R&D and also market initiatives by banks, insurers and shippers that show that the investments are well placed.’

‘MBMs giving further incentive for investment, yes – such as subsidies or tax credits for production of biofuels and carbon capture.’

‘It’s also not clear that the developments will adversely affect maritime and port workers. Instead, they may create new and potentially higher-paying jobs. There’s been no indication, for example, that lower sulphur content fuels or LNG has done anything but create greater employment opportunity.’

From the many who answered Yes to this

the shipping industry in their own national emissions trading systems, although the timeframes for that are unclear.'

Draffin agreed that the drive for MBMs will be led by the EU. However, he added that: 'Although other countries made declarations of intent on their long-term targets, there seems little global support for any substantial imposition of market based measures at this time – but this will change.'

O'Leary also saw the EU as being in the vanguard – and hoped that this regional initiative would spark global change. 'There is no doubt that the EU is bringing shipping into the Emissions Trading System so regardless of anything else, this is guaranteed,' she maintained, adding: 'Action at the EU level is important and timely, but it would be even better if that ambition could be matched at the IMO level. Luckily in the past, action at the EU level, or indeed, individual country level (like the US), has translated into increased ambition at the IMO level. I look forward to this happening on carbon pricing as well.'

Xeneta's **Peter Sand** also noted the pressure building in the European political system. 'The EU is moving forward,' said Sand, 'and while that is imperfect for a global industry to have regional regulation of this global issues, it's no surprise that the EU Commission is pushing ahead.'

MacLean and **Scarborough** were well-placed to give some insight on the developments in Europe: 'We have worked with the European Commission to undertake the analysis supporting their proposals to bring maritime into the EU Emissions Trading System, which was part of the Fit for 55 package released in July 2021. Therefore, we expect to see Market Based Measures applied to shipping emissions in Europe first. Having seen the effect of local measures bringing forward global measures in other markets, and indeed in the case of MRV being introduced in Europe first, we expect maritime emissions MBMs to follow a similar path.'

Williams gave us a likely timeframe – and an interesting suggestion on where the money raised by carbon taxes may end up: 'The EU's ETS opens for business for shipping in January 2023, albeit in a staggered four-year phase-in. The IMO will follow suit by 2025. Ship operators will find a way via charterparties to pass on the CO₂ costs to charterers. They in turn will prefer to charter low-emission ships, creating a two-tier market and accelerating the removal of older, more polluting ships from the market. The revenues from taxes will be spent on paying all the administrators running the taxation system.'

Gilpin believed that: 'The EU Emissions

'My main desire is to see these levies alter purchasing and investment behaviour, and if I were ruling the world then some considerable portion would be used to encourage infrastructure development in low carbon fuels'

Adrian Tolson,
BLUE Insight



Adrian Tolson

Trading System will create a value for carbon.' And she also foresaw a rather more positive role for the monies collected: 'Any revenues from carbon taxes should be hypothecated to projects that address the climate/nature emergency and underpin a just transition.'

Tolson was another who expected to see regional initiatives driving global progress: 'We will have the ETS next year and I feel we will see some low level of levy imposed by IMO to fund research in the not too distant future. We need more MBMs, etc., but I think this can only happen on a national or regional level. I do not believe that we will see a significant carbon tax on bunker prices globally. I do believe in the power of the consumer working in combination with the power of some governments to demand reduction of GHG – this will change fuel consumption habits and force investment.'

Tolson also had some suggestions on where the money from levies or funds could be used: 'My main desire is to see these levies alter purchasing and investment behaviour, and if I were ruling the world then some considerable portion would be used to encourage infrastructure development in low carbon fuels.'

While **Chatterton** noted that the EC is pressing ahead, he pointed out that things move slower on the global stage: 'Within the IMO process we don't expect a carbon tax to be on the horizon any time soon, for a combination of political and technical reasons. IMO is a global organisation and agreement for a measure like this would be difficult in theory and practice. However, there will be a carbon price, thanks to the EU's Emissions Trading

System, and it will be a useful measure to judge whether the cost of carbon is enough to encourage the shift to cleaner fuels. If a series of parallel trading systems can be established then a fungible, global carbon price could emerge, again, the EU process will be a useful test of its impact on shipping.

'A market-based measure like a bunker fuel levy makes a lot of sense provided it is charged, collected and deployed in a way that promotes the research, development and deployment of a new fuel infrastructure. That means upstream, downstream and mid-stream so the bill will be large; public sector investment won't cover it. The whole mari-

time industry needs to show it is prepared to fund a greener future.'

Aabo (who flagged up the carbon tax issues in his answer to our first question) said: 'The green fuels need a good business case, or the fossil fuels have to be made restricted

in another different way.

Everyone likes to be green but no one can do

it alone. The EU is now starting up in parallel but I do believe that, in this competitive maritime market, international regulations and not local regulation is needed in the long term. So IMO will have to start working more intensely on a carbon tax system.'

Allwright also called for action on carbon taxes – and believed that the momentum is building: 'The issue of market-based measures when it comes to carbon taxes/levy is rising up the agenda and most stakeholders in the industry agree that it is either desirable or at least inevitable. Without the introduction of some form of carbon pricing internationally, it is hard to see how an urgent, deep, affordable and equitable transition to low carbon or zero-emissions operations can be delivered.'

'The timing of introducing such an international levy is a very difficult forecast to make, as is the likely carbon price level. There is a growing appetite within the industry, but there are significant questions remaining. A hypothecated or ring-fenced levy would seem to make the most sense if the primary reasoning behind the levy is to turbo charge the decarbonisation process. Just as the Norwegian NOx fund functioned, where the majority of proceeds are returned to the industry in way of support for installations of decarbonisation technologies, energy efficiency measures and alternative fuel development, thus creating a virtuous cycle. Equally important is that this type of non-extractive levy would smooth the pathway

to adoption of the levy where it is seen as a means of facilitating decarbonisation rather than simply adding costs. There is also a clear argument for part of these funds being made available to ensure a “Just Transition”, with LDC and SIDs requiring substantial support and ocean impact mitigation.’

However, Allwright noted that: ‘The questions that are holding up adoption of the industry proposed IMRF will also be key for the wider MBM debate. How and by whom will the funds be collected? and how will those be evenly/equitably distributed? Why should poorer, climate impacted states pay an equal amount, especially when currency inequity means the burden is multiplied many times? and where will most of the funds be spent? Developed regions are likely to secure the lion’s share of fuel and technology developments and markets.’

‘I would think that the IMRF will likely be adopted in some form, but probably not until the inclusion of shipping into the EU ETS comes into effect and raises the bar and pressure on IMO action. The IMRF structure may well serve as the pilot for a more extensive levy, however the scaling of that from a \$2/ton fuel R&D levy collecting \$500 million per year to a potentially \$150-300/ton collecting up to \$100 billion per year will be quite a challenge.’

The ICS has been one of the key actors on this issue, so **Bennett** had a clear view: ‘The unilateral extension of the EU ETS to shipping seems very likely to go ahead, although it might possibly take longer to get full agreement on all of the details in Europe than the European Commission would like.’

‘Whether or not IMO can make progress on a global MBM for shipping is a different question, but ICS has come forward with a detailed proposal for a carbon levy which, with political will from IMO Member States, could potentially be implemented as early as 2025.’

‘As to how the monies collected should be spent, ICS believes that the major-

ity the funds should be used to support in-sector decarbonisation efforts, in particular the roll out of the new bunkering infrastructure that will be needed in ports worldwide, although ICS is willing to give consideration from the request from climate vulnerable nations for some of the money to be used for out-of-sector adaptation purposes.’

Einemo’s roles at IBIA include representing the association at IMO, which gives her a good insider’s perspective. ‘Support for market-based measures is building at the IMO as it is widely understood that MBMs will be needed for several purposes,’ she reported. ‘These include narrowing the price gap between traditional fossil fuels and sustainable alternatives. We’ll likely see support for R&D funding, either through a small specific levy as per the specific proposal to establish a maritime R&D board, or from funds raised by MBMs. Crucially, funds will need to be allocated to mitigate potential negative impacts on vulnerable states caused by potential cost increases due to climate change policies and by climate change, to get MBMs approved and adopted at the IMO.’

‘Meanwhile, the EU seems intent on moving ahead of the IMO in imposing as part of its Fit for 55 package, meaning we could see a regional MBM soon if shipping is included in the EU ETS as proposed.’

Again, we will give the last word on this question to Bunker Holdings’ **Lassen**, who reasoned: ‘Some form of market-based measures or carbon tax seem to be gaining consensus. Nevertheless, judging from the outcome of the recent MEPC 77, it might still take years to reach an agreement on the optimal model to drive decarbonisation

in shipping. We hope that this agreement will be reached sooner rather than later, and believe it is unlikely that we will arrive to 2030 without a clear framework for this. Yet, we would be cautious on assuming that this can be agreed, leg-

islated, and entered into force within the next five years. The industry has been presented with many great proposals of how such model could work. For instance, as outlined in the report Closing the Gap, commissioned by the Getting to Zero Coalition, that introduces a model of a relatively low carbon price, which will be gradually increased over time to around \$200 per tonne. The optimal level of taxation can be discussed, but fundamentally, sustainable marine fuels need support from a carbon tax on fossil fuels to create a viable business case for both the supply- and demand side of our industry. How to manage and utilise the revenues of such a mechanism is an even more difficult question, but some form of a global R&D fund, as earlier discussed, could be just the right solution. There is still a substantial need for R&D investments in fuel and engine technologies to create clarity on the optimal pathways for the transition in shipping. The industry has come a long way without such mechanisms, but to ignite the spark that will create momentum, we believe that the enforcement of such a model is both ideal and essential for shipping to decarbonise.’

3 Do you believe that LNG’s position as a ‘cleaner’ alternative marine fuel was strengthened in 2021?

When we devised this question, we thought it would divide the room – and so it proved.

MacLaine was in no doubt: ‘LNG’s is not a “cleaner” alternative, full stop. I don’t understand why this myth perpetuates in the shipping industry.’

Sharan also gave a succinct No, saying that ‘LNG is not a long-term solution’ and ‘the world will have to move away from fossil-fuels’.

Cabbia Hubatova was in the No camp too. ‘When looking at fuels and their climate impact,’ she maintained, ‘we need to consider not only the emissions released at-sea, but also upstream emissions. Moreover, we need to look beyond just carbon and take into account other greenhouse gases and different time horizons for their warming potential. Methane has more than 80 times the warming power of carbon dioxide over the first 20 years after it reaches the atmosphere. At least 25% of today’s climate impact is driven by methane from human activity.’

‘Considering LNG, even if methane slip from ships is addressed, there may be harmful methane leaks that occur during extraction of natural gas, processing, and throughout the supply chain. The idea of bridging fuels makes very little sense with ships, which are only replaced every 25-30 years. We need to focus on developing



Simon Bennett

‘ICS has come forward with a detailed proposal for a carbon levy which, with political will from IMO Member States, could potentially be implemented as early as 2025’

Simon Bennett
International Chamber of Shipping

and deploying technologies that will lead to zero-carbon shipping in the long term.'

Gilpin thought that LNG may have actually advanced its case a bit in 2021 – but she added that she was 'not happy about it!', arguing: 'It is in the fossil fuel companies' interests to sell fossil fuels for as long as possible. LNG is positioned as a transition fuel, but the issue of methane slip is terrifying. The International Panel on Climate Change (IPCC) specifically calls for "strong, rapid and sustained reductions" in methane emissions in the next decade to avoid the worst effects of global warming. By increasing the numbers of vessels that use LNG it will create more of the so-called "fugitive emissions" and means shipping is heading in the opposite direction.

'BioLNG is a good option but it is not available at scale and land-based transport systems are better suited to using it.'

Malpas felt that 2021 had been a bit of a 'mixed bag' year for LNG as a cleaner alternative fuel. 'On the one hand,' he explained, 'various prominent industry players have supported the view that LNG is an important interim fuel option for reducing emissions including carbon dioxide, sulphur dioxide and nitrogen oxide emissions. The orderbook for LNG-fuelled vessels also remains strong, so it seems that LNG will remain in the maritime fuel landscape for at least the next quarter of a century (i.e. the expected lifespan of newbuild vessels).

'However, the case for LNG as a marine fuel in the longer term seems doubtful due to other developments. For example, Cargo Owners for Zero Emission Vessels (coZEV), a pledge by prominent shippers including Amazon and IKEA to reach absolute (not net) zero emissions across their supply chains (including ocean transport) by 2040, thus ruling out LNG-fuelled vessels along with vessels relying on fossil fuels.

'Focus on methane emissions / 'methane slip' across the LNG production and consumption chain have also dented LNG's reputation. Some actors, including the World Bank, are refusing to support LNG as a cleaner alternative fuel, and there have been calls in the EU to remove LNG from the list of sustainable fuels incentivised under the FuelEU Maritime initiative.

'COP26 saw upwards of 104 countries sign up to the Global Methane Pledge, promising to cut their methane emissions by at least 30% by 2030. Interestingly, this could end up boosting LNG as a marine fuel, because reductions of "well to wake" methane slip would improve the overall methane emission profile of this method of propulsion.'

Malpas' HFW colleague **Sbraga** judged

that, overall, 'LNG's status as a viable alternative to conventional high carbon emission fuel for ship propulsion has remained consistent'. He explained why: 'Whilst the sector is justifiably striving for net-zero emissions fuels, the investment, technology and availability has not yet reached the level necessary to make such fuels (i.e., methanol, ammonia, hydrogen, etc.) a viable and cost-effective solution for the sector to harness and deploy right now.

'[In contrast] LNG emits around 20-25% less carbon emissions than conventional fuel, has the necessary investment and also the most advanced infrastructure (including supply) in order to play a central role going forward

but also a fuel where biofuel and eLNG will be a part of future fuels.' As the transition gathers pace, Aabo added: 'A lot of drop-in carbon free/neutral fuels will be used and the drop-in part will slowly be more and more of the total fuel energy utilised.'

Draffin also flagged up the growing importance of BioLNG: 'Most see LNG as a transitional or "bridging fuel" although the increased adoption of LNG is visible in the investment in new tonnage and in the supply infrastructure. The LNG advantage is that once in service it is anticipated that the increased production of BioLNG and blends of Bio and fossil LNG will significantly decrease the

'Projects are exploring the potential of using ammonia as a fuel in various ship segments and many concept designs have been developed, some of which already have or are in the process of receiving Approval in Principle'

Christos Chryssakis
DNV Marine



Christos Chryssakis

and most likely for the next 20-30 years. The orderbook for LNG fuelled ships has also remained strong. So there still remains a strong case for LNG right now.

'However, it has not been plain sailing for LNG over the course of the past year with its credentials as a "clean" alternative fuel going forward being questioned by important global institutions such as the World Bank. The prospect of a methane slip across the LNG production and consumption chain and its very harmful effect on the environment also drew negative press coverage in the lead up to COP26 and culminated in the development of the Global Methane Pledge. Whether this pledge itself will improve LNG's offering as an alternative fuel in the years to come remains to be seen.'

O'Leary also picked up on the global institutions' misgivings about LNG, and argued that: 'The World Bank has thoroughly discredited the notion that LNG could ever be considered a "clean" fuel.'

Aabo did see a role for LNG in shipping's energy transition. 'I believe that the idea of "bridging" fuels will be necessary,' he told us, 'and I do see LNG as a "bridging" fuel

'Well to Wake" profile of these ships.' **MacLean** and **Scarborough** pointed out that, based on the order book at least, LNG has been making headway: 'It is clear that the number of newbuilds, retrofits and bunkering is ramping up, particularly as LNG will provide a benefit under CII and EEXI. The

EU's Fit for 55 package also proposes a regulation requiring LNG infrastructure at sea ports. While LNG provides distinct benefits in terms of air quality, the impacts of fugitive methane and methane slip from combustion have increased in public awareness, not least with the announcements around fugitive methane at COP26. We believe that more needs to be done to regulate methane loss from combustion and the supply chain.'

Williams had also been casting his eye over the figures, noting that: 'About 25% of newbuilding orders last year were LNG capable. Owners will be hoping for breakthroughs in lower cost synthetic methane and biogas to reduce the carbon footprint of their fuel – which won't be LNG as it won't be "natural" or a fossil fuel, but a renewable that works in the same engine.'

'At least 60% of fuels are delivered in six countries – China, Korea, Singapore, the UAE, Netherlands and the US – all of these offer plenty of LNG bunkering facilities now.'

With regarding to LNG's environmental performance, Williams reminded us that: 'Methane slip is eliminated in high-pressure engines – though admittedly these are a recent innovation.'

Bringing us back to the newbuild evidence for growing LNG demand, DNV's **Christos Chryssakis** reported: 'In 2021 we have seen a fast increase in the number of orders of LNG-fuelled ships. This has been mainly driven by large container ships, but there has been strong interest by all ship segments, including tanker, bulk carriers, as well as car carriers. Approximately 12% of the vessels (over 240), representing more than 25% of the Gross Tonnage have been ordered with LNG, which reflects their size and consequently high fuel consumption. These vessels can be expected to be in operation at least until the mid-2040s and their owners are exploring their options for ensuring they will be compliant with carbon intensity regulations.'

'In this direction, there has been strong interest in exploring the possibilities of using bio-LNG, while some testing has already started. Suppliers are also building up the infrastructure, for bringing more bio-LNG to shipping towards 2030 and beyond. In addition, a new generation of low-pressure LNG engines has been launched by the major engine makers, reducing methane slip by approximately 50%, while the interest in high-pressure engines with negligible methane emissions remains strong. At the same time, there is a lot of activity towards developing methane oxidation catalysts that can be used for further reducing methane emissions.'

'The EU's Fit for 55 proposal and in particular the inclusion of shipping in the European Emissions Trading System, as well as the proposed FuelEU Maritime regulation, are also creating a regulatory framework that will favour the use of LNG until the mid-2030s and later will provide incentives for the use of bio-LNG.'

Bunker Holding has been watching LNG's progress because, as **Lassen** explained:

'Momentum around LNG as a marine fuel did certainly strengthen in 2021 due to a net increase of almost 250 LNG-fuelled vessels on order – more than the four previous years combined. We also begin to see more of the large liner companies adopting LNG, which is a significant driving force of the development of the bunkering infrastructure. Today, LNG is

available in most of the larger bunkering ports around the world, and even at smaller niche locations. There are still "availability white spots" on the map to be aware of, but the majority of the larger trade lanes are covered, and the infrastructure development continues.'

'However,' Lassen cautioned, 'LNG as a marine fuel has also seen challenges in 2021. Firstly, as LNG bunker prices went on a record surge last year, which perhaps refrained some shipowners to take the final decision to invest in LNG-fuelled vessels. Secondly, methane emissions have been increasingly debated, since the announcement of the Global Methane Pledge at COP26 to cut methane emissions by 30% by 2030

upwards, so the users of LNG (best example being existing gas tankers themselves) started to migrate back to more traditional (and cheaper) fuels.' He continued: 'Similar trends seem to have been seen elsewhere, though container lines who have contracted volume will retain those contracts until pricing dictates otherwise. Clearly the future of marine fuels will have an LNG element to it, but this will be one of a wide mix of fuel options.'

Allwright prefaced his answer by saying that the IWSA is 'fuel neutral as wind propulsion is compatible with all fuel solutions, while recognising and promoting efforts to decarbonise'. 'That said,' he added, 'LNG has continued to be one of the only alternative fuel options avail-

'Momentum around LNG as a marine fuel did certainly strengthen in 2021 due to a net increase of almost 250 LNG-fuelled vessels on order – more than the four previous years combined'

Christoffer Berg Lassen,
Bunker Holding



Gavin Allwright

increased the pressure on the LNG industry. Despite such challenges, we expect the adoption of LNG as a marine fuel to continue its development, but also to see more R&D investments in bio- and synthetic alternatives to lower emissions even further.'

Simms felt LNG bunkering has been making progress 'because of the continued introduction of LNG bunker fueling stations and vessels, increased orders for LNG-

only and dual-fueled vessels, and developing technologies for the production of green LNG and scrubbers to reduce methane emissions'. However, he added: 'A caution is that with increased demand the price incentive to use LNG versus low sulphur distillates has lessened, with – at least in mid-2021 – LNG prices greater than those for the equivalent

low sulphur distillates. LNG prices will have to continue to be lower than distillates, in order for LNG demand to continue to grow.'

John Phillips of Awyr Las also flagged up the pricing issue. He felt that it was 'hard to say' if the LNG bunkering case was strengthened in 2021 as 'the reality remains that once the LNG prices globally tracked

able for shipping and 2021 has seen a quite a lot of investment in ships and infrastructure.'

However, Allwright pointed out that there are questions remaining with all alternative fuels around their 'Clean' and 'Climate' credentials. With LNG and LNG derived alternative fuels, he said, there is a 'need to look carefully at the well-to-wake emissions with a 20-year global warming potential which is significantly more challenging (2-3x higher impact) than the currently used 100-year GWP'.

'Nonetheless,' Allwright continued, 'the move to LNG continues and with an existing infrastructure already in place holds some advantages for the swift uptake of bioLNG or potentially other gas fuels and in the very short time frame we have to deliver decarbonisation (9 years of 'business-as-usual' emissions to align with 1.5°C targets), we must utilise every existing tool in the box. The LNG roll out also provides a series of lessons on the scaling challenges in front of other alternative fuels. The need for clear regulatory pathways, a coordinated international approach around infrastructure deployment and one that protects and incentivises first movers. These will need to move far faster, as excluding tankers, LNG fuel is still only powering a few hundred vessels after well over a decade.'

'The Global Methane Pledge mentioned earlier that came out of COP26

may also add pressure on the LNG and transition stage of using LNG for alternative fuels, with a pledge to reduce well-to-wake 30% emissions for LNG by 2030.'

Einemo told us that it was hard to gauge what LNG's current standing is, 'as we keep getting very different messages from different studies about LNG lifecycle emissions and the role of methane slip during extraction/production, transport, transfer, storage, and – ultimately – use of LNG onboard.'

There are, Einemo observed, 'some parties with very entrenched positions'.

In terms of progress made, Einemo noted: 'Engine and fuel system manufacturers have worked hard to address methane slip from the ship, but it is less clear what is being done on the well to tank side as this will vary between companies and countries.'

'Meanwhile, if looking at the market position of LNG, it seems supply infrastructure has improved significantly in the past couple of years to meet growing demand from newbuilds with LNG fuel systems.'

'Also of note,' said Einemo, 'the EU's Fit for 55 package of proposals includes a requirement for "adequate" LNG bunkering infrastructure at core ports by 2025, which definitely indicates continued strong support for LNG as a cleaner alternative marine fuel in the EU following several years of supportive policies, including grants to increase uptake and supply of LNG in the EU.'

'Longer term, bio-LNG may offer a low or even carbon-neutral fuel alternative from a well to wake perspective, but as with other bio-derived fuels, availability and price are major questions.'

Tolson took the pragmatic view that: 'LNG gives us something to do now when there is little, except more efficient consumption, that can really change a vessel's carbon emissions.' He reasoned that dual fuel ships – at the scale of investment that we are seeing at the moment – will 'have a useful life'. He concluded: 'More and more investment in LNG would seem a wrong approach – but bring it on in the shorter term!'

4 Do you feel that progress was made in establishing methanol and/or ammonia as marine fuels in 2021?

There was an *almost* unanimously positive response to this question, and we will let the first word go to the Methanol Institute's **Chatterton**: 'The shipping industry received

a loud and clear signal in 2021: the announcement by Maersk of its series of dual fuel new-buildings shows that methanol is a viable and effective fuel that supports the energy transition. The fact that tanker owners have continued to order methanol-dual fuel vessels has added to industry confidence about the safety and efficiency of methanol.'

'The fact that Maersk plans to run its ships only on renewable methanol demonstrates that it is committed to a net

carbon neutral approach that takes the entire fuel lifecycle into account and delivers a sustainable solution to shipping's carbon challenge. Maersk has since declared options and has been followed by X-Press Feeders which has placed an equally significant order for methanol-fueled ships.'

'With 55 methanol-dual fuel engines on order and

all major OEMs either reviving or increasing their interest, the risks are decreasing and the opportunities increasing for owners to specify methanol as fuel and take advantage of IMO 2020 compliance and lower CO₂eq emissions, with more low-carbon and renewable methanol set to come onstream.'

Allwright also picked up on the move by Maersk: 'There has been significant interest stirred up by the Maersk embrace of methanol, and a lot of announcements of engine development for ammonia. It seems that there are still questions and quite a bit of work to be done on the regulatory side, especially for the adoption of the latter fuel.'

'Batteries and H2 seem to be progressing in the small vessel segments, however, there seems to be a general feeling that these are still quite some way from being key propulsion options for large, ocean-going vessels.'

'The elephant in the room remains; where will the huge amount of renewable energy be coming from and the time-frame/cost of these fuels becoming widely available as zero emissions fuels as opposed to the fossil fuel derived versions currently making up the vast majority of supply.'

Tolson was handing out the gongs: 'Methanol gets the Oscar for 2021 – thanks to Maersk Line! And the fact that it is a near

drop-in solution with an existing supply chain (not much of it green!) – we all want ease of transition even if the fuel is going to be very expensive. Ammonia made forward progress, but I also think clearly it has toxicity issues – not insurmountable – but try telling that to the average global citizen. Bring on the green versions of both fuels but I feel it will 15-20 years before we are talking about green production of these fuels in anything more than small volumes.'

O'Leary detected a 'growing momentum' around both ammonia and methanol. But while she noted the Maersk initiative and various green ammonia plants being announced in 2021, she warned that: 'These will remain isolated steps forward unless there is concrete policy to drive these initiatives and translate the isolated action into standard practice.'

MacLean and **Scarborough** highlighted 'the commitments from engine manufacturers and operators to put ammonia and methanol-fueled vessels in the water by mid-decade' and enthused: 'We look forward to these trailblazers proving to others that true decarbonisation is possible.'

And our respondent from the engine manufacturers – MAN ES's **Aabo** – was suitably upbeat: 'I see awareness of methanol and ammonia as the most recognised future fuels for the ocean-going vessels – both within the industry but also by the different countries' administrations.'

Chryssakis pointed out that methanol and ammonia are at different stages in terms of their development as marine fuels – but both are promising: 'Methanol fuelled vessels have been in operation for a few years, with very good operational experience. However, until recently, methanol was used

as a fuel to reduce sulphur oxide and NOx emissions, and mainly used by methanol tankers that could use their cargo as a fuel.'

'In recent years, the potential of methanol as a green fuel for reducing carbon emissions has sparked new interest, and in 2021 we had the first orders for container vessels with methanol dual fuel capability.'

In the second part of the year there has been very strong interest from all ship

segments to further explore methanol as a fuel possibility. There is consequently a lot of activity on the supply side, with several companies assessing the potential of producing green methanol as a marine fuel, and



Graeme Maclean



Aoife O'Leary

some of them already taking steps for ramping up production capacity towards 2030.

'At the same time, there is increasingly more interest from a number of ship owners and charterers on ammonia as a fuel. Engine makers are making progress in their technology development and early testing has already started. Several Joint Industry Projects are exploring the potential of using ammonia as a fuel in various ship segments and many concept designs have been developed, some of which already have or are in the process of receiving Approval in Principle.

'Ammonia-ready designs have also been developed and in 2021 several vessels have been ordered with ammonia-ready class notations, so that they have the flexibility to retrofit to ammonia as fuel at a later stage if this proves to be an attractive solution. At DNV we introduced our own set of Fuel Ready and Gas Fuelled Ammonia notations to enable owners to prepare for a later conversion to multiple different alternative fuel options, letting them maintain fuel flexibility and minimise the risk of stranded assets. Ammonia suppliers are also making plans for developing infrastructure for supplying green ammonia as marine fuel.

'The EU's Fit for 55 proposal, and in particular the proposed FuelEU Maritime regulation, is introducing requirements related to the lifecycle emissions of fuels for the first time. This will provide the regulatory framework for using fuels produced in a sustainable manner. The same discussion, on lifecycle emissions of fuels, has also started at the IMO.'

Einemo gave a neat summary of the two fuels' progress. 'Methanol is gaining some traction,' she noted. 'When a major shipping company like Maersk announces its intention to pursue green methanol as one of its GHG reduction strategies, that's an important signal. It does depend on succeeding in producing sufficient green methanol though, as most methanol today is produced from natural gas and as such does not provide a good GHG emission profile from a lifecycle perspective.

'Ammonia, working as a hydrogen carrier, is generating a lot of interest, having the great advantage of producing no CO₂ when used as a fuel,' continued Einemo. 'Work has already begun in earnest at the IMO to develop appropriate technical safety measures for ships to use ammonia as fuel, alongside other alternative fuels which require specific safety measures.'

Draffin took a broadly similar line to Einemo, and also flagged up the same issue with methanol: 'The number of projects to encourage the adoption of methanol is likely to be a driver for methanol use but it currently

suffers from a relatively high "well to wake" due to its manufacture from natural gas.'

Offering the bunker supplier's perspective, **Lassen** judged that: '2021 has been a very interesting year for the proponents of methanol and ammonia as marine fuels. While there are still unanswered questions for both products, the shipping industry has been educated on many levels by a strong media coverage.

'A large number of partnerships and consortia, with involvement of top-tier companies, are currently leading the way to demonstrate that methanol and ammonia can be safely supplied and used for propulsion.

'Engine and fuel system manufacturers have worked hard to address methane slip from the ship, but it is less clear what is being done on the well to tank side as this will vary between companies and countries'

Unni Einemo
IBIA

'On the demand side,' said Lassen, 'several orders for methanol- and ammonia-ready vessels were announced last year. Most prominently, we admire the decision by Maersk to create the first demand indications by ordering so far 13 new buildings capable of burning methanol. In our perspective, this was the main event in 2021 on the sustainable fuel stage. We hope to see more of such announcements this year, which will be a great support to the supply infrastructure development.

'On the supply side, last year was full of announcements of partnerships and projects aiming to bring sustainable methanol and ammonia into production. Such partnerships often gather actors from various parts of the value chain. As several sectors will be competing for these products, we can only support this industry-wide collaboration to secure that appropriate volumes of these fuels will be used to lower emissions in the maritime industry. We expect 2022 to become another important year for the development of methanol and ammonia as marine fuels, and we will continue to engage in partnerships and projects in this field to support that development.'

Phillips believed that 'both methanol and ammonia will be in the product mix available to users' – but added that there is 'still a long way to go'. Furthermore, he said: 'The big issue will always centre around financial capacity (investment in infrastructure) to make more than a trace impact on the status quo.'

Woo was making a similar point when he said: 'I suspect that the sheer volume of bunkers required will make these alternatives a fashion statement and not much else.'

Simms agreed that the Maersk order was a 'significant vote of confidence in methanol as a fuel' but warned that: 'Safety will continue to be the greatest challenge to widespread use of methanol and/or ammonia as fuels: both are far more toxic to humans than petroleum-based fuels or LNG.'

After noting that Maersk has been 'making great progress with methanol', **Gilpin** echoed **Simms'** point on safety. 'I worry a lot about

ammonia,' she said, 'as do many shipowners I speak with. The toxicity is a huge concern to human life and those of marine and aquatic species – upon which our ecosystems depend.'

Williams and **Gilpin** must be having similar conversations, as he recounted that: 'Every ship operator I speak to dislikes ammonia as it is toxic.' However, Aabo would be pleased to see that **Williams** flagged up the MAN ES tri-fuel (LNG/ methanol/ gasoil) engine as a notable development.

MacLaine was decidedly sceptical about ammonia and methanol: 'These fuels are being carried forward before we have a clear idea if they present realistic solutions to the climate issue. Methanol releases CO₂ into the atmosphere no matter where it comes from. Ammonia releases N₂O which has 300 x the GHG impact of CO₂, as well as having grave toxicity issues.'

5 Do you feel that progress was made in establishing electric propulsion and batteries for shipping in 2021?

In contrast to her views on methanol and ammonia, **MacLaine** believed there has been 'a huge leap forward in marinised batteries, energy storage, and electric propulsion'.

MacLaine continued: 'The emergence of swappable battery solutions is a game-changing innovation in allowing widespread distribution of electricity across all shipping operations. For example, Shift Clean Energy's

PwrSwäp offers charged modular “ePods”, located using an Uber-style app. New business models – no time waiting for charging and elimination of risk for the customer – make battery swapping a very flexible and attractive way forward. Another company making great strides in this area is Zero Emission Services who provide clean propulsion to inland vessels in the Netherlands in swappable 20-foot containers or “ZESpacks”. These solutions are future proof, insofar as they can be integrated with any possible future fuel. At the same time, energy storage systems (ESS) such as those offered by MJR Power & Automation are becoming the norm, with the industry recognising the benefits for reducing GHG emissions and saving costs.’

Ricardo’s **MacLean** and **Scarborough** detected a very positive volte face in attitudes to electrification. ‘In the past year,’ they reported, ‘the feelings towards battery-electric propulsion have moved rapidly from it being not possible to large scale announcements.’

They explained why: ‘Stena’s announcement of a 215-metre ferry covering a 90 kilometre (km) route is a game-changing increase in scale compared to other projects. The challenge now seems to be shifting from the battery and vessel technologies to getting sufficient clean electricity to port-side and on to the ships to provide these large electrical energy requirements in a short enough time for commercial operations. This is likely to be a challenge for large-scale adoption, as ports are by necessity on the edge of the electric grid and have historically not been large electricity consumers, so tend not to have the infra-

structure suitable for shore power, let alone providing 30MWh over only 60-90 minutes.’

‘No specific developments come to mind,’ said **Einemo**, ‘but it is another growth area for specific ship types operating locally, as battery capacity limits operating range. This is a good solution to reduce emissions and noise

more positive but still answered with a No. ‘It maybe a solution for my private boat or small ferry and for sure we will see some batteries on bigger ships and hybrid configurations – but we need something with serious energy density to power these ever larger ships! I am sure some will argue that massive

‘Safety will continue to be the greatest challenge to widespread use of methanol and/or ammonia as fuels: both are far more toxic to humans than petroleum based fuels or LNG’

Steve Simms
Simms Showers



Steve Simms

from vessels operating in densely populated areas.’

For **Simms**, however: ‘There were two notable developments: Yara’s sailing of an autonomous battery-powered container vessel between Norwegian ports, in November, 2021; and a technology being developed by a US company called Fleetzero, which incorporates batteries to power ships into shipping containers.’

‘The significant challenge to overcome,’ Simms added, ‘is the same for electric automobiles, that is, batteries which can power vessels over relatively long distances and then the means to recharge or replace the batteries on a timely basis. But, overcoming those challenges is likely, starting with smaller vessels operating over relatively short distances with the same, regular calls.’

For many, there is still work to be done on developing infrastructure and pushing up electric ships’ range capacity. **Williams** summed up: ‘Batteries work for short-sea, inland and cross-river applications – but not much good for ocean shipping.’

Draffin gave some more detail: ‘The ordering and delivery of electric powered small tugs, harbour service vessels and bunker barges (both all electric and hybrid propulsion designs are under construction) shows the industry responding to the need for decarbonisation. The current constraints are a lack of battery charging infrastructure and the limitations of practical steaming range and maximum power.’

The sceptics on this question included **Sharan**, who considered there had been ‘no visible progress’ in 2021. **Tolson** was a little

developments took place for battery technology in 2021 – but it didn’t penetrate my world much!’

Phillips said: ‘Given I can’t get a car presently due to a dearth of the metals needed for the new generation of electric/hybrid cars I suspect this is a bit of

a strange idea that using batteries with zero carbon footprint (really) should be championed. It alarms me that my iphone battery becomes unusable after two or so years. What will the impact of a global battery-powered fleet be on demand for these resources?’

Woo asked: ‘If we have not yet solved the problem of electric vehicles on land, how on earth are we going to address it for ships which are hundreds of times bigger? I personally do not think this is a realistic option.’

Overall, there was a roughly equal split between positive and negative responses on the issue of electric propulsion with a fair sprinkling of Don’t Knows – but the positives were very enthusiastic, so there is no lack of energy or drive in this sector.

6 Do you feel that progress was made in establishing fuel cells and/or hydrogen for shipping in 2021?

Just as he did with batteries, **Simms** was on hand to fill us in on a recent project: ‘2021 brought the first solely liquid hydrogen-powered vessel – the *MF HYDRA*, a ferry operated by Norled in Norway. The challenges for hydrogen are similar to those for battery power: designing tanks which can hold sufficient volumes of liquid hydrogen for longer voyages, for example. But again, as with the *MF HYDRA*,

‘The shipping industry received a loud and clear signal in 2021: the announcement by Maersk of its series of dual fuel newbuildings shows that methanol is a viable and effective fuel that supports the energy transition’

Chris Chatterton,
The Methanol Institute

overcoming those challenges is likely, starting with smaller vessels operating over relatively short distances with the same, regular calls.'

MacLaine also noted the launch of the *MF Hydra*, as well as Switch Maritime's *Sea Change* – a 75-passenger ferry powered by hydrogen fuel cells and batteries – and told us that there are 'quite a number of vessels on the hydrogen'.

Draffin felt the *Sea Change*, together with other R&D projects, 'demonstrated the feasibility of the technology'. However, he added: 'Fuel cells using LNG, methanol and hydrogen have been used as auxiliary power supply since 2015 but the challenge remains to develop practical liquid hydrogen storage for vessels. Pressurised hydrogen storage carries weight penalties which make it unsuitable for vessels which need more than a few hours operation between refuelling. Fuel cell technology also has practical limits on the available power output in marine applications at this time with a maximum in the order of about 2MW.'

Williams reminded us that Kawasaki's trial LH2 carrier arrived in Kobe in January 2021, and added that: 'Various LH2 supply agreements have been signed, e.g. between Japan and Australia, Germany and Australia. Hydrogen production plans are multiplying globally.' Nevertheless, his view was that while shipping will be able to 'take advantage eventually', it is still 'early doors, as the footballers say'.

For **Sharan**, it was a question of timescale: 'Hydrogen

is an expensive fuel at the moment and it will not make any economic sense to switch to hydrogen in the short term. But, definitely, hydrogen could be a long-term solution.'

Whereas for **Tolson**, it was just scale: 'Perhaps I only think in terms of major ocean-going tonnage, where I see little activity and excitement. I guess I am too focused on moving post panamax container ships and VLCCs around the world.'

Aabo also believed that the technology was 'still far from the need for oceangoing vessels'.

O'Leary considered that there have 'definitely been technological steps forward but very little policy to drive these technologies forward'.

'Ultimately,' she concluded, 'the technologies will only become widespread when there is regulation that mandates them or that makes them cost neutral compared to an alternative scenario.'

Einemo informed us that a 'historic milestone for facilitating the uptake of fuel cells' was made in mid-September 2021, when the IMO's CCC sub-committee agreed draft interim guidelines for ships using fuel cell power installations, adding fuel cells to the short list of energy converters used to power ships.

'It took around 10 years of discussion to develop the framework, intended to ensure the safe and reliable delivery of electrical and/or thermal energy through the use of fuel cell technology,' said Einemo. 'It will be sent to the Maritime Safety Committee (MSC) for approval at its 105th session in April 2022.'

In Einemo's view: 'Fuel cells have many attractions in the drive to find new fuels and propulsion systems that can help shipping reduce harmful emissions; both air pollutants like sulphur and nitrous oxides, and CO₂. They are efficient, and can use a wide range of fuels and feedstocks.'

'There are, however, cost and technical barriers to overcome. So far, fuel cells have been deemed suitable mainly for auxiliary power rather than propulsion for ocean-going ships.'

MacLean and **Scarborough** believed there is definitely a bright future for this sector: 'While there have been few noteworthy public announcements regarding fuel cells, Ricardo is seeing significant interest and projects from customers in the maritime fuel cell market. Therefore, we expect this market to continue to grow.'

'The useful lifetime is still unknown for fuel cells, in comparison to maritime internal

combustion engines that provide decades of reliable service, and they are not yet commercially available at marine scale. While we expect the challenges with respect to safety to reduce as projects such as the MarHySafe guide safe design, we expect the price and availability of hydrogen to remain a barrier to making the commercial case for hydrogen.'

7 The energy transition and the long-term shift away from fossil fuels is having a major impact on oil and gas exploration and production. We have seen a number of companies announce plans to convert their traditional oil refineries into 'bio-refineries', or terminals and production centres focused more on alternative fuels. Do you expect this trend to continue in 2022?

Draffin took a practical view: 'The world has more refining capacity than it needs so the conversion of refinery sites to the production of alternative fuels makes good economic sense and can make use of some of the existing installed hardware.'

Gilpin said that she 'expected the trend to continue' – but added that 'it can't happen fast enough to address the climate emergency'.

MacLaine didn't hold back: 'Let's hope the trend continues or we're all stuffed! The bunker industry needs to accept that it's either over for fossil fuels or it's over for the planet. We really are at the "evolve or die" stage, where you're either part of the change or you're out of the game. We need to stop equating bunkers with fossil fuels. Companies like Unitrove are designing and working with partners to build hydrogen bunkering infrastructure. This shift is already under way across the globe.'

Allwright felt 2022 could be a big year for the transition: 'I would expect that companies will continue to look to diversify their portfolios, with increasing momentum in the industry to decarbonise. If we look at any past energy transitions there will be a smooth transition in the earlier stages with a steady growth in knowledge, installations and demand which gradually leads up to a number of tipping points – technical, regulatory, access, experience/knowledge, demand and price. From an outsider's point of view, we are certainly not at these tipping points as yet, however a number of these are approaching and 2022 could be the year where significant strides are made in laying the foundation for the technical and regulatory advances needed to facilitate that switch.'

MacLean and **Scarborough** brought the focus back to the refineries: 'As the energy transition occurs at different rates across multiple sectors, existing refineries will need to



Madadh MacLaine

'The bunker industry needs to accept that it's either over for fossil fuels or it's over for the planet. We really are at the "evolve or die" stage, where you're either part of the change or you're out of the game'

Madadh MacLaine
Zero Emissions Ship
Technology Association

'The maritime sector will face strong competition from road transportation and aviation in the battle for lower emission fuels. This, once again, highlights the critical importance of carbon taxes and/or market-based measures to stimulate and support the energy transition in marine'



Christoffer Berg Lassen

Christoffer Berg Lassen
Bunker Holding

reevaluate their demand/supply balance between multiple sectors of product off takers (such as road, aviation and marine) and the associated product mix. It is clear that refineries will also need to factor in increasing demand from bio-based and synthetic fuel options. We expect this trend of firm announcements to continue at low pace in 2022, as decisions made in private at corporate decision-making level make their way into public announcements then hard-wire in the ground over a number of years.'

Williams told us: 'Refiners' investors will drive this, as will regulations for road transport fuels – especially in the US and EU. Regular gasoline and gasoil demand may well have peaked, with ethanol blends and fuel cells, LNG / CNG and other lower-carbon alternatives growing market share. Auto manufacturers are talking openly about the "inflection point" where they stop investing in ICE vehicles and focus on electric and fuel cells. The low-carbon liquid transport fuels won't be available to shipping for years yet.'

Tolson pointed out that: 'The conversion of refineries (famously being done in California) is obviously driven by low carbon fuel friendly tax regimes and incentives.' He continued: 'If you have an old refinery with a hydrotreater present then why not make renewable diesel from sustainable feedstocks – it's worth a lot! I am not sure any of these fuels are really destined for the bunker sector – which is the challenge for biofuels and bunkering – in that land (or air I guess) based bio usage is preferable. Bunkering might get some of the residuals of renewable diesel or biodiesel production, but we will not likely get the best cuts.'

'Will refinery conversion limit fossil fuel availability? Well not in California where these refineries were not big producers – I don't think we are going to run out of fossil fuel options for quite some time. After all, we seem to accommodate VLSFOs with little problem without massive modification to existing refineries, so I think we can find enough fossil-

based bunker fuels as and when people need them.

'Longer term, as we seriously transition into lower carbon fuels, I am quite convinced that fossil fuels for bunkers will get very expensive – partly because of

the carbon taxes etc. but limited availability will lead to higher prices – a good reason to continue to convert and scrap older ships.'

Perhaps echoing Tolson's point about the marine fuel market not getting 'the best cuts', **Sharan** considered that the impact of the changes in the refining sector 'might not be visible in 2022 on bunkering', as 'switching is a long-term game'.

Simms said that he expected the trend for refinery conversions to continue, adding that: 'What will lead this is a drop in investment in fossil fuels production, which was notable in 2021.' He also believed the demand for decarbonisation will see the competition in the bunker sector turning to how 'green' a fuel is from well to wake. 'Interestingly though,' he added, 'this may tend to lower the price of traditional bunkers – particularly high sulfur bunkers used with scrubbers/EGCS – if the overall market demand, and production, turns to alternative fuels. Vessels using scrubbers/EGCS may become more of the main consumers of fuels produced by remaining traditional refinery operations.'

Einemo picked up on the price implications: 'If this trend continues, it could help boost avails of bio-derived fuels and hence make them more affordable, potentially reducing the price differential with fossil-based fuels.' And **Sand** reminded us: 'Everything that changes the status-quo of the refinery industry will have a knock-on effect on bunkers. Availability, quality and pricing of it.'

Chatterton gave a broad view of what the shift towards producing alternative fuels will mean for the marine fuel market: 'Despite the lack of new, strong commitments at COP26, it is clear we are moving beyond the era of fossil fuels. Traditional fuels will continue to be

produced and used over the coming decades but with more and more governments adopting alternative and sustainable fuels, viable markets will dwindle and gradually disappear as regulations make them increasingly more expensive.

'LNG is often viewed as a transition fuel, and most methanol today is produced from natural gas feedstocks, albeit as a more convenient liquid to handle and store at ambient temperature and pressure. The methanol industry is already adopting measures to reduce the carbon footprint of existing plants, as we see new forms of methanol production enter the market, from carbon capture, biogenic sources to direct air capture.'

'The expanded availability of methanol on fuel trading platforms, price assessments as a marine fuel and the ship-to-ship bunkering demonstration performed in May of last year in Rotterdam by Waterfront Shipping strongly indicate that the supply side is responding to the demand signal.'

'This will see more and more capacity diverted towards shipping as an end user market and in turn see traditional bunker infrastructure converted to methanol as demand grows,' Chatterton continued. 'Since methanol is a liquid fuel with similar properties to gasoil, it can be easily stored and bunkered with only minor modifications required to bunker stations or vessels and minimal additional training to ensure it is handled safely.'

Lassen rather neatly summed up the majority-view on this issue: 'We do expect the trend of converting traditional oil refineries into "bio-refineries" to continue. The demand for sustainable fuels in the transport sector will only increase and will continue to impact green investments. While the investments will eventually increase the availability of sustainable fuels, it will still take some time to bring the currently unbalanced market situation into equilibrium. In addition to this, the maritime sector will face strong competition from road transportation and aviation in the battle for lower emission fuels. This, once again, highlights the critical importance of carbon taxes and/or market-based measures to stimulate and support the energy transition in marine.'



COVID-19

8 Do you expect that COVID-19 will continue to impact shipping activity and bunker demand in 2022?

Mollet was optimistic: 'I believe the backlog with containers and general goods being delayed will ease significantly. Global travel and a return to passengers choosing cruises for holidays should also increase again.'

'Normal service is slowly being resumed,' said **Phillips**. In contrast, **O'Leary** believed we have seen a sea change: 'There is no going back, even once the pandemic is fully finished, there will still be impacts on the supply chain as people have changed habits now. Working from home is here to stay.'

Allwright focused on the long term: 'Once the industry moves past the "survival" mode impacts of the COVID pandemic, one of the critical fall outs will be in the retention and recruiting of high-quality seafarers that will be vital for the success of a rapid and deep decarbonisation of the industry. COVID restrictions and the negative impact on many seafarers and their families could have significant long term retention implications. As an industry, after a number of challenging years, we also need to be actively promoting and recruiting talent into a swiftly changing and exciting industry that needs well trained and highly motivated designers, engineers and digitally savvy shore and ship-based teams.'

Woo also focused on the human factor. 'The most concerning impact which the shipping community as a whole must address,' he said, 'is the mental health and overall well-being of the crew as a result of the immigration obstacles brought about by the pandemic.'

Opinion was divided on COVID's impact on shipping and bunkering. In the No camp, **Williams** asked: 'Has it affected shipping? Demand was weak for tankers in 2020 and 2021 but bulkers and container ships enjoyed

'COVID continues to disrupt shipping, especially in waiting/quarantine period, mostly off the Chinese ports'

Rahul Sharan
Drewry Shipping Consultants



Rahul Sharan

their best years since before the global financial crisis. Bunker demand will be affected by increasing efficiency and slow steaming to cut emissions, more than it will by COVID lockdowns.'

In the Yes camp, **Sharan** maintained: 'COVID continues to disrupt shipping, especially in waiting/quarantine period, mostly off the Chinese ports. This keeps putting supply under a tight spot.'

In **Draffin's** opinion: 'It is likely to continue to impact on bunkering operations, global bunker demand and may add to pressure to accelerate developments in bunkering technology.'

Simms reported: 'COVID-19 decreased bunker demand in 2020; demand increased

somewhat in 2021 but so also did fuel prices, so that bunker providers' profit margins did not increase. 2022 also will – with continued consumer demand – likely bring more price inflation. Container carriage rates are likely to continue to be high and so container carriers' demand for bunkers will also continue to be high.'

Tolson warned: 'We have some way to go to work our way through this "black swan" event. I would expect 2022 to see a significant economic boom as we transition from an epidemic to endemic situation and more and more economies (with pent up demand) start to open fully. This is good for international trade and shipping and so bunker demand in 2022. 2021 was close to a volume return of 2019 levels and I would expect 2022 to exceed these levels.'

'Of course,' Tolson continued, 'this is a boom for a couple of years and then the world will likely start to get an economic downturn and at the same time impacts as vessels start their early phases to reduce fuel consumption and CO₂ emissions – not to mention as years progress attempts to import less and stimulate local production – this shift away from international trade (though not massive) will impact bunker demand. I guess all except the drive for decarbonisation are really products of the COVID shock and disrupted supply chain; and one could argue increased focus on decarbonisation was a fall out from COVID – so maybe all is COVID driven!'

Einemo gave an answer of two halves: 'Global bunker demand seems to have bounced back in 2021 along with shipping activity, and there isn't any clear indication that activity will slow down on a global level in 2022. However, COVID-related disruptions to port

handling capacity and shipping may cause port-specific fluctuations in bunker demand.'

9 Do you expect the measures taken to combat COVID-19, such as social distancing, travel restrictions, the use of personal protective equipment (PPE), vaccination passports, testing and self-isolation, will continue for much of 2022?

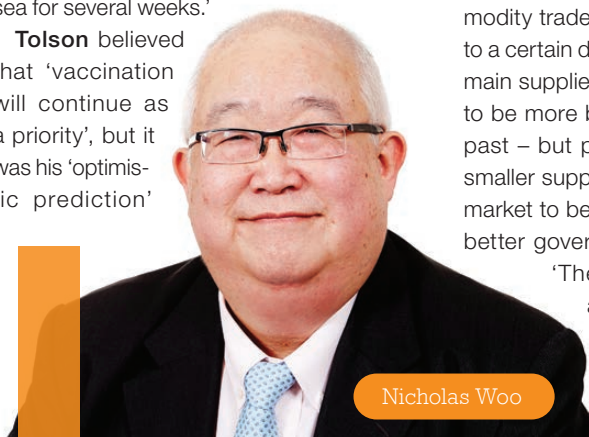
Sharan expected 'COVID protocols' to continue for 'at least the first half of 2022'. **Simms** reasoned that, 'if the COVID-19 pandemic proceeds as past pandemics have', the combination of the measures taken to combat the virus and herd immunity should result in 'the gradual easing of the measures in the last half of 2022'.

Mollet offered a slightly shorter time frame, believing that 'restrictions will ease and be lifted in the majority of countries by the middle of 2022'. He also shared some insights on how the pandemic has impacted day-to-day bunkering. 'During the period of COVID restrictions,' he recalled, 'bunker supplies in Malta were affected as crews were unable to pass between the vessel and barge. Surveying was not possible. Many shipping companies continued to enforce a rule preventing crews to go down to the barge even when national regulations were loosened and lifted. This became a problem during supply disputes adding yet further complications and uncertainty.'

Bennett was broadly in agreement with Mollet: 'Assuming that some highly virulent new variant does not emerge, the situation is likely to ease in much of the world by the middle of the year, though in nations, particularly in Asia, that are still wedded to a zero-COVID policy we may have to wait somewhat longer.'

Woo admitted that, as a solicitor, he has only 'read anecdotally of procedures taken by bunker suppliers to protect themselves and the vessels they service, from COVID'. However, he added: 'There is insufficient clarity of information for shipowners and operators to find out exactly what steps have been taken and how effective they are when crews are inexplicably infected with COVID despite being at sea for several weeks.'

Tolson believed that 'vaccination will continue as a priority', but it was his 'optimistic prediction'



Nicholas Woo

that measures such as testing, self-isolation, PPE, travel restrictions and social distancing will be 'more and more a thing of the past'.

10 Do you think that the global economy, shipping activity, oil prices and bunkering will continue to feel the financial repercussions of the pandemic for some time to come?

Almost everybody answered Yes to this question, although some were able to identify signs of recovery and even a few silver linings.

Focusing on the shipping industry, **Phillips** reported: 'There have been a number of failures of businesses as either a direct or indirect result of the pandemic. These have hit hardest with the banks and financial institutions and the insurers. Consequently, and rightly so, there is a degree of reticence to engage with the sector except where full transparency and realistic business models exist. Banks are finally upping their game with regard to compliance and KYC, but this will inevitably add pressure on some operations with tighter business models or more clouded fundamentals.'

Tolson considered what the long-term implications might be for bunker companies – and for smaller players in particular. 'While money may in theory be tight in bunkering,' he noted, 'we seem to have got through 2021 (when bunker prices doubled) with no major bankruptcy or crisis! So perhaps money/credit insurance/working capital finance might be a little easier, [and there is] no credit squeeze right now.' However, Tolson added that he was 'a little concerned with interest rates', as 'any major increase here will not be good for the bunker business'.

'In some ways,' Tolson mused, 'the industry is lucky (I use this term with a sense of irony) in that the decline of the smaller independents and traders have been followed by the rise of the larger better capitalised commodity trader owned physical suppliers and to a certain degree larger bunker traders. The main suppliers/sellers in the industry appear to be more bankable than they were in the past – but perhaps this is self-fulfilling, as smaller suppliers/traders are squeezed from market to be replaced by larger entities with better governance (?) and diversified risk.'

'The only thing that worries me about this,' said Tolson, 'is that bigger suppliers/sellers may be a little lacking in their innovative capabilities. Will we really miss the smaller suppliers?'

'Global bunker demand seems to have bounced back in 2021 along with shipping activity, and there isn't any clear indication that activity will slow down on a global level in 2022'

Unni Einemo
IBIA



Unni Einemo

I think this depends on how the bigger companies manage innovation.'

Broadening the conversation to cover the global economy,

Williams warned: 'We are not out of the woods yet. The WHO says the one billionth vaccine was injected on 16 January. It has taken two years to develop a jab and deliver it to one eighth of the global population. It could take the rest of this decade to vaccinate us all to the point where only mild variants are allowed through the net. Public patience with pandemic restrictions may fail well in advance. The social changes brought about by the pandemic are on the whole not good. Atomisation, loneliness, mental health issues, flight from the cities, online trolling and rage, political manipulation. A greater range of authoritarianism. I wrote a piece in March 2020 called, *Lick it, Or Become Like China*. Still feels valid today.'

Woo said: 'It seems to me that the answer to this must be obvious, [but] this does not mean that all repercussions are negative. Indeed, the rise in rates especially for boxships suggests that some of the repercussions are very positive.'

While acknowledging the economic impact of COVID-19, **O'Leary** believed that: 'One of the outcomes of the pandemic has been to move the climate crisis up in importance for many policymakers and also to illustrate how much action can be taken in a short time when the political will is there.' She continued: 'I think the global ramifications and the clear demonstration of how interconnected the world is will continue to impact policymaking for years to come. Hopefully leading to increased political will to decrease shipping emissions.'



IMO 2020, FUEL QUALITY AND AVAILABILITY

11 Do you think some of the teething problems that were reported in some ports regarding the supply and storage of very low sulphur fuel oils (VLSFOs) have now been fully overcome?

Aabo gave an authoritative response: 'I am Chairman of CIMAC WG fuels and member of ISO 8217 WG, and we do not see a challenge anymore.' Aabo added that there were some initial issues, but 'only the first six months and all related to using correct piston rings, and proper cleaning and treatment of the VLSFO / ULSFO house. In MAN-ES we don't hear about any problems related to the new fuels.'

Drawing on his own industry experience, **Mollet** recalled: 'The only issues we had with the new VLSFOs were experienced in the first quarter of 2020. Thereafter, product was both readily available and of increasing quality and stability.'

Draffin said: 'Most of the initial problems of quality consistency and understanding of onboard handling have been resolved. The risks have not "gone away" but knowledge and understanding of the risks has significantly reduced the incidence of serious issues.'

Einemo drew upon the experience of IBIA members, to conclude: 'The initial challenge was two-fold: VLSFO availability; and getting used to the fact that VLSFO handling characteristics are much more variable than what we saw for HSFO.'

'The availability challenge was overcome sooner than expected, though temporary product shortages still occur from time to time in specific locations.

'The handling challenges are still there but better understood. There has been a slight increase in fuels found off-spec for sediments, indicating potentially unstable fuels, when comparing VLSFOs to HSFOs. The off-spec percentage is still small, but suggests some fuel blends are problematic. Then there are fuels which meet ISO 8217 specifications, but later become unstable during storage and handling onboard. Experts are hard at work in trying to identify causes (e.g., sensitivity to temperature during storage and handling, comingling even at small volumes) and to find test methods that may be better at predicting a fuel's inherent stability reserve and compatibility with other fuels. The ISO 8217 technical committee is looking into whether new test methods can be added to the standard.'

Offering a legal perspective, **Woo** reported: 'We have certainly not seen the deluge of char-

terparty disputes that was predicted to happen when the sulphur cap regulations came into force. All parties in the chartering chain must take credit for this. However, I have heard anecdotal evidence particularly from engineering experts, that damage to MEs and generators are going to develop over the coming years from continual use of low density fuels.'

Tolson added a cautionary note: 'The teething problems are overcome but the challenge of producing low sulphur fuels that are stable will remain. The nature of bunkering is that (at least in historical terms) we blend to the key specification – which in this case is sulphur. But if we blend to sulphur, we will always optimise on this specification, thereby pushing stability parameters. So this problem continues – probably as long as we use VLSFO.'

Simms also flagged up the blending issue: 'The price of distillates continues to be low, so there is relatively less blending done (and consumed) to meet 0.50% requirements. When distillate prices increase there will be more blending and more quality problems from blends.'

'I think IMO 2020 proved mostly that bunker demand is truly dependent on trade and shipping – not fuel availability'

*Adrian Tolson
BLUE Insight*

12 When IMO 2020 first came into force, there was a big shift away from high sulphur fuel oil (HSFO) towards VLSFO and marine gasoil (MGO). However, HSFO sales in some ports have since seen something of a resurgence as more scrubber-equipped ships come onto the market. Do you expect to see further growth in HSFO sales (and scrubbers) over the next five years or so?

Sand pointed out that, for short term at least: 'The sale of HFSO is constantly going up. The most recent increase in the high-sulphur price spread has only contributed to the interest in scrubbers.'

Mollet thought that, with 'refineries changing their production and moving to new fuels, the remaining production and stocks of HSFO are likely to be available and priced favourably for those wishing to buy and burn it'.

Aabo also saw more short-term demand for HSFO, adding: 'I believe it is primarily limited to large container orders today. They are also huge consumers. I do believe it will continue as long as a good business is seen.'

Draffin said he expected HSFO sales to 'remain stable for the next five years at least'. He explained why: 'Those owners who have invested in EGCS will want to see a return on that investment. The most significant unknown is the potential for increased restrictions on "open loop" effluent. Even if the VLSFO/HSFO price differential decreases most operators will be reluctant to switch, preferring to wait until the picture on alternative fuel choices becomes clearer.'

Simms believed there is more mileage in scrubbers, but there are issues to be resolved. 'Scrubber technology, timing for installation, cost, and efficiency all has been improving,' he said. 'There are also developing technologies to have scrubbers equipped for carbon capture. Scrubber-equipped vessels also produce less nitrous oxide than vessels not scrubber-equipped.'

However, **Simms** added: 'The big question ahead for scrubbers is wash water discharge: whether open loop scrubber use will be permitted in most ports. With this is the question of HSFO pricing, that is, will HSFO be the right price, and will there be the availability, so that scrubber-equipped vessels will have a return on investment favourable to other-equipped vessels.'

Tolson was another who expected continued growth in HSFO but he believed it will 'trail off eventually being mainly confined to newer tonnage', as we aren't seeing many conversions. 'Also,' he continued, 'it's mostly confined to major ports and bigger ships so this limits HSFO growth. The Hi5 spread will widen as HSFO gets de-emphasised for power generation; but HSFO will not collapse

– there is too much value for refiners in this barrel which has been proven over the last two years. Those of us who thought HSFO price would collapse with 2020 failed!'

However, **Tolson** emphasised that: 'The continued sale

of fossil fuels is generally bad for us all. Whether it is scrubbed HSFO or VLSFO there is not a lot of difference in the big picture: both emit GHG. This is what needs to be fixed. Hopefully carbon capture on vessels will become a reality and allow for continued use of both types of fuels – if not their demise will be accelerated.'

While there are some in the bunker industry who might hanker for the old days when 380 cSt heavy fuel was the go-to fuel, **Woo** spoke for many of our respondents when he said: 'If there is a resurgence of HSFO sales, then this seems to be a step backwards in the industry's decarbonisation efforts.'

According to **MacLean** and **Scarborough**: 'The decarbonisation agenda will drive a move away from fossil marine fuels, regardless of sulphur content. In addition, there are increasing emphases on releases below the waterline, including a focus on scrub-

ber technology. Regulation on scrubbers is moving and I think the market for scrubbers reflects that. I would be surprised to see many shipowners invest in technology that could become unusable in many locations in the near future.'

13 Do you believe that we have seen a major shift in terms of *where* – and in which type of ports – ships are bunkering as a result of IMO 2020?

There was a general agreement that there has been at least some bunker demand migration to the hubs as result of the global sulphur cap. **Simms** felt we haven't seen the full effects yet – 'but this was probably because of COVID-19 and the phenomena of lower priced distillates'. In time, he added, 'There will be more blending when distillate prices increase, [and] as a result more demand at bunker hubs'.

Draffin reasoned: 'The hub ports will find it easier to offer a full range of fuel grades and types. Operators trading between smaller bunker ports will need to choose from what is available rather than their ideal choice – this will be true for alternative fuels leading to a greater focus on term contract supply arrangements.'

Einemo also noted that the 'major ports have benefitted from being able to offer a fuller choice of fuels'. While **Sand** emphasised that the 'availability of sales locations for HSFO came down significantly in 2021', so 'the sale of that fuel is now concentrated in main hubs'.

'The hub ports will find it easier to offer a full range of fuel grades and types. Operators trading between smaller bunker ports will need to choose from what is available rather than their ideal choice'

Nigel Draffin



Anthony Mollet



Nigel Draffin

ber washwater releases. It is considered likely that environmental concerns will see increasing restrictions on the use of scrubbers. And therefore, we consider that investment in scrubbers coupled with use of HSFO risks becoming a stranded asset.'

Sharan was in agreement: 'The world will be moving towards alternative fuels, so a switch to more scrubbers and ultimately more HSFO use, might not be a norm anymore.' As was **O'Leary**: 'I think it is clear the direction

'I am not sure there has been a *major* shift,' said **Tolson**. 'Ports with VLSFO production obviously benefited as did those with emphasis on 2020 transition – Chinese ports are a prime example of this. Fujairah has likely grown – although it is still suffering from the fall out of the Qatar embargo. There is lots of VLSFO in Fujairah but local market growth is finite. Real growth only comes to those with highly elastic demand (maybe China?).' He concluded: 'I think IMO 2020 proved mostly that bunker demand is truly dependent on trade and shipping – not fuel availability. Demand patterns didn't shift as much as many of us predicted.'



INDUSTRY PLAYERS

14 The global bunker community now has two industry bodies: the long-established International Bunker Industry Association (IBIA) and the Marine Fuels Alliance (MFA) which was established in May this year. Do you see the establishment of the MFA as a positive development for the bunker industry?

It seems appropriate to let **Mollet** speak first: 'As its first Executive Officer, I truly believe the Marine Fuels Alliance will prove valuable to its members and the wider bunker industry. Its aims are to provide critical support and guidance for suppliers, a large majority of whom are independent and less able to acquire the resources and opportunities to develop their business. The MFA's committees and agendas are being designed to allow members to drive the strategy. We wish to create as many standardised processes and protocols as possible, available for members to adapt to their business.'

'It is our intention to work on the day-to-day matters for members. We want to provide more direct assistance across the topical areas we have outlined to be the Executive Committees.'

'There is a clear need for small and independent suppliers to future-proof themselves across so many areas. For example, the need to understand new fuels, the barges and supply methods that will have to be procured, the technical aspects of the fuels and therefore fundamental changes to simple, daily operating systems. Training and education will be vital.'

'Equally, we see the ever-increasing need for suppliers to have structured guidance about credit, credit reports and risk management tools. As larger suppliers and trading houses develop and expand, smaller players need help to finance their future and crucially, to understand the products available.'

And now **Einemo**: 'As the head of IBIA, and representing the bunker industry at the IMO, my focus is what IBIA can do for the bunker industry and our members, which encompass all stakeholders in the marine fuels space, globally.'

'There are several other industry bodies which, to varying degrees, have interests in the marine fuels space, both globally and locally. IBIA has collaborated with several

of them on various items of mutual interest, including IPIECA, BIMCO, OCIMF, CIMAC and IMarEST to mention some. We have worked with them in areas such as joint publications, IMO submissions and discussions, and we had input during the development of the latest BIMCO Bunker Terms.'

'IBIA represents and supports all bunker industry players and stakeholders, irrespective of size. All our members have equal access to our informal member meetings, working groups and events for exchange of views, knowledge and ideas. We're working on establishing more regional boards to give each region its own focal point to raise and address industry issues.'

'We're working with our members on subjects such as bunker licensing and adoption of MFMs, future fuels, input to the IMO's development of fuel-related safety and environmental regulations and standards in our various IBIA working groups. IBIA also works with some port authorities on bunker-industry related standards. Good industry standards, whether global or specific to a port, is beneficial to the industry as a whole.'

So what did our other respondents think about having a new bunkering body?

Williams pointed out that there are many shipowners' associations, so there's 'no reason why there can't be two in the bunker industry'.

Timothy Cosulich commented: 'It is not really clear what the MFA has done so far or will do in future.' But **Tolson** felt that we have to give the new body time to find its feet: 'I am not sure I know enough about MFA yet or what they will do or plan to achieve to comment. I think the question begs a false comparison between the two organisations. In my view, IBIA does a great job of representing the bunker industry across the stakeholders of the supply/value chain whether big or small in size. It does so with a very diverse membership who regularly voice opinion and influence direction. I don't think it is always appreciated that the association, secretariat, and board work tirelessly to represent this diversity. In my opinion, the success and value of the IBIA comes from unifying the industry and so I do have concern and surprise that some might view things differently.'



Timothy Cosulich

industry association and it is there to provide specific facilitating and promotional services for a particular section of the supply community. As such, I don't see a competition since IBIA is representing the whole industry, which includes virtually all shipping stakeholders and in that sense IBIA of course equally represents smaller, independent bunker players, through a multitude of initiatives, exchange of information, voicing their arguments through IBIA's global and now regional boards as well, and through many other actions, all aiming to encompass every single sector of the bunker industry and their role within the wider shipping chain.'

Phillips believed that IBIA and MFA both have their own important roles to play. 'These are two completely different organisations,' he explained. 'IBIA is very well established and has a reputation for its ability to meet with and sit at the "Top Table". Its existence is to ensure we, as an industry, have access to, and hopefully some influence over, the decisions at a national and international government level. Its work at IMO stands testament to this. For the MFA the concept is to engage the smaller

30th anniversary – established in 1992, and hopefully the MFA will along with IBIA have the complementary roles of further engaging with the larger marine and related industries.'

15 Do you believe the bunker industry – and its associations – should aim to provide more transparency on issues such as business ethics?

'It's not so much matter of should, as *must*,' urged **MacLaine**. 'Ethics, ESG, SCR, whatever you want to call it, is finding its way into the bottom line of investment and lending. The bunker industry will not be left behind on this!'

Sand concurred: 'The bunkering industry needs more transparency, even though it may not embrace it at first.'

Mollet assured us that: 'This is a fundamental element of the MFA's aims. Discussions, articles and seminars about the need for transparency across the bunker industry are there for all to read, see and join. But critically, there have to be tangible outcomes and of course, desire and commitment from all stakeholders. It may be a humble and honest desire of the MFA to achieve this given the vast and complex nature of our business. We firmly believe that with a conscious shift towards the direct engagement of bunker suppliers with ship owners, bunker buyers, and partner companies in a manner that allows them all to see the benefit of cooperation, then opportunities abound for creating processes and protocols that demonstrate best practice, ethical standards and therefore transparency.'

Einemo flagged up the work her association has done on this issue: 'IBIA has a Code of Ethics which we encourage all our members to support and abide by. It was developed by an IBIA working group with players from across the industry spectrum, including both small and large independent suppliers, traders, brokers and maritime lawyers. The IBIA Code of Ethics sets out basic principles on business conduct and transparency.'

'We have also worked with the Maritime Anti-Corruption Network (MACN) on the subject, both at IBIA conferences and through taking part in a cross-industry collaboration that has succeeded in getting the IMO to agree to develop guidance on anti-corruption. The initial draft guidance proposed to the IMO was developed by the cross-industry group, led by MACN working with ICS, and now has participation from a number of NGOs with consultative status at the IMO.'

Draffin, who also highlighted the IBIA Code of Ethics, told us: 'Overall, the bunker industry should indeed, and at all times, strive to be as transparent as legally and morally possible. This is something which is expected

'There are many shipowners' associations, so there's no reason why there can't be two in the bunker industry'

Mark Williams
Shipping Strategy



Mark Williams

'Let's give the MFA time to work out its role in the industry – proof of concept may take some years. But I would obviously have positive feelings and be supportive of any bunkering or shipping association that enhances the interests of its members and shares goals and objectives that I believe are for the long term benefit of the industry. I wish them luck.'

Draffin saw IBIA and MFA as complementary rather than competing entities. 'Whilst I have no involvement with MFA,' he said, 'it seems to be a trade body rather than an

and medium sized physical suppliers (and with that their trading partners and buying customers) in discussion with the aim of standardising or addressing some of the basic challenges they face, for example, T&Cs, claims processes, legal recovery actions, financial astuteness and capacity, credit insurance, and credit management amongst others.'

Simms embraced the change: 'The more opportunities that bunker fuel suppliers, traders and brokers can engage with each other and together with the larger community of vessel owners and operators, insurers, banks, shippers, and government and international organisations, the better. 2022 will be IBIA's

from all corners of the shipping industry and the bunker sector is no different.'

Ultimately, the onus is on the individual. In **Tolson's** view: 'Everyone in the bunker industry has a collective responsibility for the flawed ethical standards by which some of our industry still operates. With the lead up to IMO 2020 and now the push for decarbonisation this industry has come under the microscope of governments, port authorities, investors, and energy companies amongst others.'

'As a consultant having to explain how parts of the industry "operate" to these outsiders is both challenging and embarrassing,' Tolson continued. 'There is no logical explanation to be given as to why retail bunker prices in some ports are consistently below an economic break even. Overlay these discussions with a decade of examples of bankruptcy and fraud and there is a pretty bleak picture.'

'So, while I know that for the IBIA these issues are a main focus for the board and its various working groups, I think everyone in the industry should be focused on changing the ethics of the industry and for greater transparency – an association can lead a horse to water, but...'

16 In addition to working on issues such as developing and maintaining standards for fuel quality, bunkering operations and personnel training, IBIA and MFA are both involved in presenting the bunkering community's point of view – and preserving its reputation – in discussions with governments, the IMO, the EU and the media. On the whole, do you believe that the international bunkering industry's public image is in good shape going into 2022?

Woo felt that the industry would be held in higher regard if the general public understood how important it is to the global economy. 'Although better PR is always a good thing (linked with transparency), the fact is that bunkering and shipping ARE vital links in the global supply chain,' he insisted. 'The non-shipping lay-person does not appear to appreciate this.'

Cosulich gave a measured response: 'I wouldn't say the public image of the industry is in bad shape but I think it could definitely be better.'

Williams warned: 'My impression is that most people still believe the dirty end of the barrel involves dirty tricks, malpractice and downright criminality. If shipowners could get around bunkers by doing something else (e.g. manufacturing their own synthetic fuels on board) then they would seriously consider this.'

MacLaine called for action: 'Let's face it, "Bunker" is a dirty word. For most of us it conjures up coal and petrol sludge. This obvi-

ously needs to change and the bunker industry should be leading the charge. I've been speaking to IBIA about green hydrogen bunkers for year now. They, and MFA, need to be more proactive, organising workshops, training sessions etc. to prepare the industry for the change that is inevitably coming. There is a lot of information out there. They need to be accessing it, communicating it to their members, as well as to the shipping industry at large. I think 2020 taught us that we can't put our heads in the sand on this. We need to all prepare for change together and be realistic about the fact that it's not going to be easy!'

open to working with other organisations to make progress on important industry issues.

'For IBIA, as a representative for our members, I think our relationships, interactions and cooperation with the member states and NGOs at the IMO, the EU, various port authorities and other relevant stakeholders is the best way to put our industry firmly on the map as a vital partner in the energy transition.'

Mollet assured us: 'It is the intention of the MFA to work with all industry organisations and associations where there is alignment and the possibility for new, positive outcomes. IBIA's role is vital for the bunker

'The bunkering industry needs more transparency, even though it may not embrace it at first'

Peter Sand
Xeneta



Peter Sand

So, let's hear from the associations. First up, we have **Einemo**, who told us: 'If you base your opinion about the bunker industry (or shipping for that matter) only on what is reported in media and on social media, your bias may be negative because bad and negative news generates more interest and comment and attention than good news. The industry, and IBIA, has done a lot of good work that we share information about at conferences, with our members and in publications, but we find it doesn't always get media attention as it isn't considered "news", or good click-bait, or whatever other reasons media outlet has for choosing what to cover.'

'As IBIA's representative to the IMO,' Einemo continued, 'I see that some shipping organisations and flag states have deep and entrenched poor opinions about the bunker industry, which are hard to overcome, but IBIA keeps working on improving their understanding of the marine fuels sector. IBIA has gained respect with member states and other NGOs with consultative status at the IMO for working constructively to and provide practical input to developing IMO regulations and guidelines, as well as in recent discussion with the EU on policies aimed at decarbonising shipping. IBIA is also

industry and their work is highly regarded and respected far beyond the stakeholders in the bunker industry.'

'The creation of the Marine Fuels Alliance should only go to strengthen and promote the hard work being done by the bunker industry to achieve the environmental, regulatory and quality management in our operations.'

'If we can raise the profile and accreditation of our supplier-members, allowing them to enjoy more positive recognition of their brand and position in their local market, then surely we will have achieved something quite significant.'

Mollet continued: 'The MFA has an Executive Committee called "Sustainability". Its agenda will be centered around decarbonation, new fuels, the sustainability of existing fuels and the transition between the old and new.'

'Buyers, partners and our member-suppliers will be tasked with developing guides and processes. We have several companies engaged already, from ship-owners to businesses actively promoting solutions in the areas of carbon trading, barge development, storage and analytics.'

'The MFA, with IBIA and its long-established network of International organisations and partners can certainly raise the public image of our industry.'

Phillips again offered a suggestion on how

the two industry bodies could complement each other's activities. 'As far as I am aware,' he said, 'the MFA has no ambition to champion the industry at Governmental (national, EU, International) level. This is the domain of IBIA and I would like to think that the MFA itself and through its actions to create a better space for the physical suppliers and thus better and more predictable standards of service to its customers would be a support structure for IBIA going forward.'

Draffin believed: 'In general, the industry remains actively engaged in presenting its activities in a clear and transparent way to the regulators and the public. With all industrial and commercial activities there will be issues arising that will attract media attention and sometimes negative comment. It is the nature of media coverage that negative comment generates more reaction than positive comment. With regard to action on climate change, the international nature of the shipping industry as a whole is governed by the requirements of its regulators and the needs of its customers, bunkering is no exception. If regulators demand a particular course of action we follow that requirement and if customers want us to meet their particular needs, we endeavour to meet that need.'

O'Leary considered that: 'As an industry that mostly sells fossil fuels, there is little positive space for [bunkering] to occupy during the climate crisis.'

Simms, however, argued that the bunker industry can draw positives from its role in the energy transition. 'If you compare the focus of various industries on decarbonisation, the bunker industry has been very focused on that, and through IBIA in particular vocal and recognised at the IMO on the topic,' he said. 'The shipping industry is still one of the largest "invisible" industries – in that there is relatively less public knowledge about how it operates, than perhaps other industries. But those who have attention on the bunkering industry would have to conclude, given the initiatives of IBIA and major bunkering companies, that there is serious industry commitment to climate action and decarbonisation.'

Tolson was another who felt that the energy transition would be integral to the public's perception of bunkering. 'I am very much aware of what the IBIA does regarding raising and maintaining standards in many areas within our industry and also the work that has been done with IMO

and other regulatory bodies over many years and increasingly of late,' he said. 'But I have no idea what MFA's engagement in these areas might be – as I mentioned above it's a bit premature to assess the performance of a new association before it has had the chance to really get going.'

'As far as the industry is concerned,' Tolson continued, 'reputationally the bunker industry has challenges, as discussed above, and I think we need to continue to address these. I am not sure the general public has much of a view on us, except as we sit as part of the shipping and/or fossil fuel energy complex. They are singularly unimpressed with these two, especially when it comes to issues of

Speed is not always ideal. Fast-fingers and the need to seal the deal can grossly affect matters at a later time, during claims for example.

'This is an area the Technological Executive Committee in the MFA will discuss,' Mollet continued. 'We have to ensure processes are in place to avoid simple errors being made in the click of a mouse or push of an instant message. We embrace and will strongly promote tech solutions with key partners. Behind it however, we have to ensure users follow fundamental practices and requirements.'

'The solutions are there already and being advanced rapidly. It is of course attractive to banks, insurers and lawyers to have the instant access to key information for every chain of the

'If the recent issues surrounding the likes of Hin Leong and others before teach us anything, it is that loopholes that give opportunity to defraud must be closed and that the payment cycle needs to be streamlined and hastened'

John Phillips
Awyr Las



John Phillips

climate change. So perhaps we suffer from guilt by association to the other two. I think we need to support shipping's efforts regarding energy transition and this I am sure we will do.'

procurement and contractual process. If we can align the capabilities of the technology with the needs of the end users, then we have an exciting, efficient and paperless future ahead!

'For the moment,' considered **Woo**, 'so long as there is a market for alternative fuels and so long as fossil fuels continue to remain the only viable economic source of energy to run the vessels, then I do not see why there needs to be a "fundamental shift" in the process.'

MacLaine took a long-term view: 'This is inevitable. Along with the new fuels will come a digitalised GHG footprint. Otherwise there's no point. The only way we will be able to tell green, from brown, from grey or from blue with new fuels is if they are 100% traceable with no margin for error.'

MacLean and **Scarborough** also looked at the environmental angle: 'The decarbonisation agenda will drive a move away from fossil marine fuels, regardless of sulphur content. In addition, there are increasing emphases on releases below the waterline, including a focus on scrubber washwater releases. It is considered likely that environmental concerns will see increasing restrictions on the use of scrubbers. And therefore, we consider that investment in scrubbers coupled with use of HSFO risks becoming a stranded asset.'

Aabo believed that 'long term fuel con-

17 Finally, do you believe that we might be seeing a fundamental shift in the bunker buying process, as a result of new technologies and digitalisation?

This is a big, complicated question, to which **Cosulich** gave an admirably brief response: 'Yes, but not this year.'

Mollet believed that the times are changing. 'The digital age is here,' he declared, 'and as even our young children show advanced capabilities using IT, then there is no way back for the pieces of paper, stamp & pad box or the fax machine. The procurement platforms and instant communication systems allow for streamlined transactions. Around this, however, are all of the fundamental elements we must continue to incorporate in everything we do. As deals are done, signed off and supplies commence, it is essential all the boxes are ticked, contracts filled in and key processes followed.'

tracts will become more normal' – both for the green fuels and HFO – in order to 'ensure that unexpected changes in pricing will not have a huge impact on the Opex of vessels.'

Williams felt there may be a shift in the bunker buying process but 'perhaps not as a consequence of digitalisation except as in charterers will want much more data more immediately if they are to accept paying for emissions.' He continued: 'That may cause a Flight to Quality as ship operators fear losing their emissions clearance from charterers (like staying within SIRE for tankers).'

Phillips didn't foresee any major change to brokers and traders, but urged that: 'We really need to speed up the invoicing processes and add checks and balances to them.'

'If the recent issues surrounding the likes of Hin Leong and others before teach us anything,' Phillips warned, 'it is that loopholes that give opportunity to defraud must be closed and that the payment cycle needs to be streamlined and hastened. COVID-19 and the collapses of 2020 have left us with many suppliers only selling on secured or at best shortened terms. With those that still support 30-day terms needing to be paid timely, any end buyer needing a LOP before paying their vendor results in a 3/5 day payment gap that can be damaging to cash flows for some smaller operators (and some larger

ones for that matter too). So some level of block-chain is inevitable: electronic BDN immediately after loading, no delay in invoicing, traced invoicing and money flows, etc.'

Simms agreed that IT and digital bunkering sales platforms have now become a part of the industry, but he believed that 'there will always be a demand for "traditional" bunker traders and brokers and their direct relationship with, and knowledge about their customers' needs.'

Einemo took a broadly similar view. She observed a shift 'as buyers avail themselves of digital tools and platforms that can help them with quick access to key information on things like price, avails, and product types – and potentially use them to procure fuels. Also, more and more companies on the supply side will use digital tools to streamline the process from initial enquiry and order through to the BDN.'

However, she also believed that: 'There are aspects of the bunker buying process that technology and digitalisation cannot readily address, for example counterparty risk and knowing your suppliers. Whoever adds value and really facilitates the buying process, for example through good knowledge or contracts, will continue to have a role to play.'

Sand judged that the industry is changing 'steadily, but only quite slowly'. **Draffin** also saw evolution rather than revolution. 'I do not

foresee a "fundamental" change,' he said. 'There will be shifts in approach and shifts in the operational requirements but these have always occurred. The role of brokers and traders is totally dependent on what they contribute to the process. If they add value they will have a part to play but that concept has not changed.'

Tolson doubted that we were seeing a 'fundamental' shift. 'The conservative world of shipping makes only gradual change and so will the bunker buying process,' he said. 'For most, purchasing is much the same as it was 20-30 years ago, but with perhaps better purchasing departments, more term contracts and more price risk management. New fuels will bring much closer supplier/buyer relationships and longer term contracts etc. which will require brokers and traders to adapt or be replaced as intermediaries.'

'I am not sure as to a shift to digitalisation gripping our industry,' Tolson continued. 'We have seen a lot of promises and impressive tools but behind the scenes there are a lot of analog practices. Don't get me wrong, we are certainly more dependent on digital technologies every year, but we are some way off a watershed moment. Now 20+ years after the first on-line purchasing platforms one would have hoped we would have made more progress – perhaps tomorrow?'

CONTRIBUTORS

Our pool of contributors for the *Bunkerspot* New Year survey represented a broad cross section of the industry. Some participants answered the survey questions but chose not to make their comments public and we have, of course respected their wishes.

We thank everyone for their contributions – and we are especially grateful to the following:

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