Multi-tasking: the 2020 global sulphur cap and shipping’s multi-fuel future

The ExxonMobil/Bunkerspot debate

Nor-Shipping, 31 May 2017, Oslo
The decision to introduce a 0.5% global sulphur cap in 2020, taken at the meeting of the Marine and Environmental Protection Committee (MEPC) 70 at the International Maritime Organization (IMO) headquarters in London in October 2016, marked the beginning of a momentous and far-reaching period of transition for the world’s shipping industry.

The implementation of emission control areas (ECA) (North Sea (2007), Baltic Sea (2005), North America (2012) and US Caribbean (2014)), with the most recent transition from burning 1.0% to 0.1% sulphur fuels in January 2015, has already presented its own set of challenges for fuel buyers and suppliers alike in terms of fuel choices, and issues of fuel quality and compatibility. While for those tasked with enforcing the sulphur regulations, ensuring that owners and operators fully comply with the ECA rules has proved to be a steep learning curve.

However, the implementation of what will effectively be a vast ‘global ECA’ has the potential to scale up the challenges and concerns found within the regional ECAs by a completely different degree of magnitude, and the game plan of how shipowners and operators, as well as fuel providers, will meet the 2020 deadline remains very much a work in progress.

Compliant fuel availability, the spectrum of compliance options (such as the use of scrubbers or alternative fuels such as LNG), the introduction of new 0.5% fuels to the market, and effective enforcement of the global sulphur cap are factors that must be addressed by the shipping community, and decisions on fuel/compliance options must be taken within what is a relatively short timescale.

What is clear is that the global shipping sector is facing a multi-fuel future, where fuel choices will be influenced by trading patterns and by the operating profile of the vessel types that make up each owner’s fleet, and, of course, by the willingness of owners and operators to play by the rules and burn compliant bunkers.

While the MEPC 70 decision brought certainty in the form of a firm regulatory deadline, it also generated a plethora of uncertainties and questions about the manner and means of its implementation. As such, ExxonMobil and Bunkerspot brought together a number of shipping industry experts at a closed roundtable discussion at Nor-Shipping in June to debate the key issues associated with adapting to the 2020 mandate. Their comments and perspectives contributed to a thought-provoking and illuminating debate that is summarised here.
The broad consensus of the panellists was that the MEPC decision had provided a welcome certainty for the shipping sector, although Unni Einemo of IBIA pointed out that the decision had not been unanimous. ‘It was interesting to observe the number of Member States that had objections to 2020 – and were concerned about it – and wanted 2025,’ she said. ‘This could perhaps be a signal of those countries that will really struggle to have sufficient products available by 2020.’

ExxonMobil’s Iain White took up this point about resistance to the 2020 date as expressed by some countries: ‘How is that going to leave them with compliance in the future if they didn’t want to do it and if their refining industries are government run – and don’t readily have the investments to make the changes that are going to have to be made?’

The participants were also in agreement that while the selection of a deadline has provided some much-needed clarity, meeting that deadline will be challenging and many in the shipping industry are concerned about fuel availability come 2020.

Michael Green of Intertek further explored the issue of fuel availability, and highlighted the timescale for the introduction of new technologies for compliance purposes as well as innovative 0.5% fuels. ‘Are we going to be in a position where [these technologies and fuels] have hit maturity by the time we come to 2020; will we have that degree of experience by the time we effectively flick the switch at midnight on 31 December 2019?’

The challenge of regulatory enforcement was pressed home by Anna Larsson, representing Wallenius Wilhelmsen Logistics (WWL) and the Trident Alliance. ‘Now the challenge will be to get enough substance in the IMO implementation paper to enable robust implementation globally. For flag States and Port State Control (PSC) the challenge will be how to actually enforce the regulation and ensure a legal framework and sanctions that are a deterrent?’

Iain White also outlined the scale of the impending changes from a refiner’s perspective, noting that 75% of the marine fuel supplied at present has a sulphur content greater than 2%, and this is not going to be available to be blended down to the 0.5% sulphur fuel that owners and operators are largely going to use post-2020.

‘So that is a lot of product that is effectively no longer going to be available to the industry – and the marine
fuels industry is 35% of the fuel oil business around the world, so it’s going to be a big change.’

Jakob Frabricius of Torvald Klaveness, while acknowledging that the 2020 decision had been broadly welcomed, also spoke of the concerns and questions now preoccupying owners and operators. ‘What products will be available; will there be products in all the ports; do we have to make any engine switchover; who will control what the vessel is burning on the high seas?’

‘We still don’t have all these decisions. There are a lot of unknowns in this industry right now and we are not sure in which direction we are going – some people say fuel oil and some people say gasoil.’

Despite the positivity on the choice of an implementation date, however, a number of panellists expressed concerns over shipping’s willingness to make compliance decisions well ahead of 2020. Michael Green summed the situation up, noting that: ‘A lot of people we have spoken to seem to be taking a “head in the sand” approach, and saying “We will deal with it when it comes about”. But will this be 31 December 2019, or midway through 2019?’

EXPERT INSIGHTS:

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UNNI EINEMO

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MICHAEL GREEN

“Non-compliance may happen at the shipowner level – some people will choose to ignore it. But the fact that there may be non-compliance on a country level, on the supply side, that we don’t particularly understand yet, that is something we will have to watch carefully.”

IAIN WHITE
On 1 January 2020, the shipping industry’s appetite for fuel oil is expected to plummet. Estimates about the scale of the switch from high sulphur fuel oil to low sulphur fuels vary within a range of 2-4 million barrels a day, and forecasts of the increased cost to shipping as a result of the switch are also sobering. The International Chamber of Shipping (ICS), for example, cites an increased financial burden of up to $100 billion a year.

With most of the shipping sector still to make 2020 compliance choices, the decisions to be taken over future product streams are challenging for the refining industry.

‘It’s a momentous change,’ Iain White told panellists. ‘The industry is going to have to change, and I think what is not widely understood in the maritime world is that refiners do not choose to make fuel oil – fuel oil production is a consequence of the processes that you have in the refinery.

‘For maritime, fuel oil has been a wonderful marriage of convenience for all these years. And all of this product is worth less than the price of crude oil. There are not many industrial processes that have a product coming out that is worth less than the raw material going in, so there is simply no incentive for the refining industry to invest in altering the production of high sulphur fuel oil i.e. to desulphurise it to make low sulphur fuel oil.

For some refiners, emphasised White, the economics of continuing to produce fuel oil will simply not stack up.

‘The investment decisions that refiners make are always based around maximising the value of the molecules, which means upgrading them to a high value – typically distillate type – products, and so those will be the decisions that are made.’

ExxonMobil has already committed to upgrading the coker at its Rotterdam refinery and a new coker in Antwerp was announced in 2016 and will enter operation in 2018. In the future, therefore, there will be no high sulphur fuel oil coming out of these key European refineries. The Antwerp coker will, according to Iain White, remove as much as 3 million tonnes of fuel oil from the market.

However, such refining investment and upgrading decisions have a long lead time. White indicated that the time line from such a decision to implementation is around five years. By implication, if refiners have not already taken those decisions, any such changes will not come onstream for 2020.

As also highlighted by Iain White and Michael Cobb, each refinery is different; there is no ‘standard refinery’ and refineries in different markets are set up for different product streams. For example, the US refinery infrastructure is principally set up to produce gasoline, while the European sector is a 50/50 split between gasoline and gasoil.

Frances Keeler of Clyde & Co. gave insights into the refinery ‘model’ by providing her perspectives on the Californian sector: ‘Because the requirements in the United States are to have more low sulphur fuels, it’s a trade-off – do you pay more for your lower sulphur crudes or do you pay less for higher sulphur and then spend the money on a hydrotreater or other equipment to lower the sulphur content? So, each refinery actually makes its own decisions.’

Michael Cobb reiterated that refining economics dictate product output, noting that ‘What a refiner can do and what a refiner will do are two different things – and the “will do” is driven by economics.’

And by extension, should current refining economics no longer have the same traction in the future, then refiners will change their strategies. As Michael Cobb explained: ‘What will happen over time is as the other industries respond, as the prices of the different fuels
play out, then the refiners will see a new view on how they make investment decisions.’

Changing patterns of marine fuel demand will inevitably lead to some recalibration of refinery output and fuel availability in the key bunker hubs of Singapore or Rotterdam, for example. Michael Cobb also highlighted that the main marine fuel hubs are also major trading centres, so as such, ‘You may still want to import residual fuel into these areas.

‘It could be used for marine or it could be used for a refinery to crack the fuel oil and turn it into diesel; and so you might still expect to see fuel oil in those markets, but it may not be in the form of a marine supply.’

**EXPERT INSIGHTS:**

“There will be a recalibration of the big bunker hubs. We make 3 million tons of fuel oil a year at Antwerp, and by 2020 that’s going to stop. So there is going to be a significant rebalancing way ahead of 2020 in that respect – and that’s just a small example of what is going to happen.’

IAIN WHITE

“Today, we may not see an investment decision to build a coker somewhere else where we produce fuel oil, but if the spread between diesel and fuel increased, then that may create an investment decision and so you bring the market back to balance. You will have a lot of market rebalancing, but it will take a lot of time to do.’

MICHAEL COBB
Shipping’s demand for heavy fuel oil after 2020 will be driven by the uptake of exhaust gas cleaning technology to remove vessel emissions. The appetite for this abatement technology has been significantly suppressed by continuing low oil prices but the number of vessels using scrubbers is expected to grow, particularly towards 2030. Forecasts vary but it is suggested that there could be around 3,200 scrubbers installed at the 2020 watershed, rising to some 22,000 by the end of that decade.

Panellists at the Nor-Shipping roundtable discussion agreed that scrubbers would form a part of the compliance ‘mix’, but a number of them had questions over the reliability of the technology and also, linking back to the earlier discussion about refining capacity, over fuel oil availability and future price trends.

Christos Chryssakis of DNV GL pinpointed the main reservations over scrubber adoption: ‘We have heard concerns over reliability and lifetime. The quality of scrubbers is improving, but many in shipping are uncertain – and the big uncertainty is over fuel price.’

‘Some don’t even believe that the price spread [between high and low sulphur fuels] is going to grow; some think it is going to grow but then in a few years it is going to come back down – and so they are afraid of taking a decision given that uncertainty.’

Anecdotal evidence may also be contributing to the shipping sector’s ‘nervousness’ over scrubbers. For example, Kjeld Aabo of MAN Diesel & Turbo told panellists that in some quarters there is a perception that there will only be enough fuel for a certain number of scrubbers, and so there is concern that if more scrubbers are installed, there will be less fuel available.

The key question, said Unni Einemo, is whether there is going to be high sulphur fuel available in ports where a ship needs it.

Iain White picked up this line of thought and asked whether HFO would be even available on an individual barge basis. ‘The marine fuels business is a logistics business,’ he said. ‘Clearly, for some years fuel oil will be there because the refining industry will not be able to adjust immediately, but will anyone have the incentive to put it on a barge?’

Anna Larsson provided the perspective of an owner/operator which has a strong environmental policy on sulphur emissions. WWL has a fleet of 130 vessels that operate around the world, ‘and we need to be able to use our fleet in the best possible way and minimise risk.’

‘We were early testing scrubbers and now have five in operation,’ she said. ‘The technology needs development to further improve performance.’

‘There is certainly a place for scrubbers but there will not be a one-size fits all solution. We pursue a multi-stranded strategy which includes different kinds of low sulphur fuel to ensure full compliance while managing risks and costs – so for us it’s going to be a mix.’

Frances Keeler drew attention to the specific case of California, which introduced its own 0.5% sulphur restrictions for MDO back in 2009. Here, it was initially possible to meet the low sulphur mandate by using alternative options but following a challenge in court by the Pacific Merchant Shipping Association the California Air Resources Board (CARB) readopted its low sulphur regulation and dropped the ‘alternative’ option clause, so it is currently not possible to use a scrubber in California. As things stand, compliance with ECA regulation is through the use of distillate.

Drawing the discussion on scrubber uptake to a close, Christos Chryssakis, who was the lead on a recently published DNV GL study on low carbon shipping, also flagged up the impact of scrubbers on fuel consumption which results in a slight rise in per

**Talking Point 3**

**2020 compliance options – scrubbers**
vessel greenhouse gases (GHG) emissions.

‘If you invest in scrubbers today for a new building, you are not going to switch to another fuel, so we think this should be part of the discussion when the IMO talks about a reduction in GHG.’

**EXPERT INSIGHTS:**

> “We buy our own fuels and have been preparing for the global cap for a long time… we are looking at a multi-solution – not just multi-fuel – future.’

ANNA LARSSON

> “For a small port without regular visits from ships with scrubbers, a supplier may not be able to justify financially to have HFO in storage.’

UNNI EINEMO

> “It is very important in today’s world that refineries know if there is fuel oil demand from shipping, and so they may dedicate some of the [residual] tanks for marine fuel use. If they are not getting that demand from customers then they will change this…and this is why it will be very important if shipowners do want fuel oil and they are interested to try [scrubbers], that they term that volume up as soon as possible.’

MICHAEL COBB
Here are currently just over 100 LNG-fuelled vessels in service, and a little over that number on order. By 2020, therefore, LNG will be the fuel of choice for a small fraction of the global fleet, and, if current forecasts prove to be accurate, it may be 2025 before the number of LNG-fuelled vessels shows substantial growth. However, experience within the current ECAs has shown that LNG as a marine fuel has traction within a number of vessel sectors, such as ferries and other short sea shipping vessels, and PSVs. Uptake is now scaling up considerably in the container ship and cruise vessel sectors, and the roundtable participants were in agreement that the adoption of LNG will be case specific.

‘By 2040, we see LNG as being around 10% of the total fuel mix in the marine industry, and so what you will see is that for some ship types operating on certain routes, LNG will be a very good option for them,’ commented Michael Cobb.

But for other ships, such as tramping vessels, ‘it is going to be a lot more challenging’.

Christos Chryssakis supported the ‘case by case’ scenario, suggesting that for relatively small vessels LNG ‘can be quite an attractive option, much better, in fact, than scrubbers, because scrubbers have a very high fixed capital investment.’

The provision of a good LNG supply infrastructure will be the catalyst for any future sustained demand for LNG-fuelled vessels, and terminals are setting the pace in creating a supply network.

‘Instead of a barge going to a refinery to load fuel oil, a small LNG ship will go to an LNG terminal and pick up LNG,’ said Michael Cobb.

‘We have seen a lot of this in Europe, such as the GATE terminal in Rotterdam and in Zeebrugge, and more of these are on the horizon around the world. Singapore and China are starting to develop, and there is a lot of infrastructure in Japan and South Korea, from the heritage LNG business.’

Kjeld Aabo of MAN Diesel & Turbo introduced the challenge of methane slip into the discussion. ‘We know that some dual fuel engines have a high methane slip. I don’t know how this is going to play a role in talks with the IMO, but I am quite certain there will be some discussion about it.’

Anna Larsson responded to this comment: ‘It is interesting what you say about low loads, because one of the strategies for fuel efficiency is lower speed. So if you reduce the speed, would the methane slip become more of a problem?’

‘This is where the EEDI is working against the [notion] of minimum power availability for any situation,’ commented Aabo. ‘It is going in a totally different direction, and so we have seen vessels with not enough installed power.’

He also pointed out that the technology for four-stroke engines can be based on the diesel principle and also the Otto process, and he highlighted that: ‘The diesel has almost no problem with methane slip but the Otto process can have quite a high propensity.’

The panellists agreed that suppliers of LNG will be the players that have extensive experience in handling the product.
'The barrier for entry to the bunkering industry is pretty low, but the barrier for the LNG industry is pretty high,' said Iain White.

‘Another thing to think about it is that when [an LNG fuelled vessel] goes into drydock for any hot work the vessel has to be gas freed – so you actually need an LNG supply contract that goes both ways.

White also widened the scope of the ‘alternative fuels’ debate to consider the use of LPG, and a number of panellists were enthusiastic about its potential as a bunker fuel.

‘LPG is not widely talked about in the industry,’ said White, ‘but it is perfectly viable and somewhat easier to handle. There is a plentiful supply, and an infrastructure already exists.’

‘This is exactly our view,’ responded Christos Chryssakis. ‘It is much easier to install, at the moment it is very cost-effective, and there are so many terminals around the world.’

From a technical point of view the use of LPG is perfectly feasible, said Kjeld Aabo. ‘The engine would be an LNGi (injection) model – and as you say it is so easy to handle.

‘The fuel gas system would cost maybe a tenth of that for LNG.’

The use of LPG would also remove the need for cryogenic storage, although the tank would be pressurised, thereby adding a weight factor.

Iain White also noted that, unlike for the automotive sector, there is no industry standard for the use of LPG as a marine fuel. As such, perhaps this should be on the IMO’s agenda for future discussion, he suggested.

Unni Einemo concurred: ‘It is something that should be brought in under the IGC review work, because they are already working on a methanol chapter – and it’s making good headway.’

**EXPERT INSIGHTS:**

> A lot of the terminals have very long term supply contracts. Eventually those contracts will come to an end, and, therefore, there will be an incentive for the terminal operators to find additional utilisation from other sectors outside the traditional LNG industry, and this could include marine or small-scale inland demand.

MICHAEL COBB

> There comes a point in a ship’s lifecycle when any LNG there is onboard needs taking off. So [what is required] is not just an LNG supply contract; it’s a supply and management contract.

IAIN WHITE

> It is interesting to see that the shipping companies who are early adopters have also had to become directly involved in their own supply. It’s not that they are having to set up supply on their own, but they are having to find partners in the ports they call at… and users are potentially becoming suppliers to other users because they are willing to share facilities. There is a new picture emerging – it is a partnership model.

UNNI EINEMO
A significant number of owners and operators will run their vessels on distillate in 2020 – either because this is their fuel of choice or because they haven’t implemented their individual 0.5% sulphur strategies in time.

However, the final piece in the multi-fuel future jigsaw is, of course, the introduction of new 0.5% fuels to the bunker market, and panellists at the Nor-Shipping discussion had much to contribute on this subject.

‘When we speak to shipowners, our customers, we actually talk more about the new fuels to come than emission control,’ said Kjeld Aabo.

‘Everyone would like to look into the crystal ball and see what type of fuel is coming. As an engine designer, we need to be very open minded and be ready to produce engines that can burn whatever fuel is out there.

‘One thing is certain, [the new fuels] will come but will it be available in all the different ports, or will it only be close to where there is a refinery? It is going to be extremely exciting in one way, but also scary. I can say that in the ISO 8217 group and in CIMAC we are focussing on the specifications of the new fuels; the problem is – we don’t know what is coming!’

Iain White acknowledged that the experience of introducing new ECA fuels to comply with the 0.1% fuel mandate had been a learning curve (ExxonMobil developed the HDME 50 and AFME 200 products). ‘We are seeing now that people are just getting comfortable, two years in, with the new ECA fuels.

‘We have certainly learned that we need to work much harder when we do introduce new fuels to help the industry. By supplying all the testing agencies, for example, so that they understand what is coming, and it is not just us saying, “here’s a new fuel, and it will be fine.”’

He accepted that ‘practically, the new fuels are not going to come until late 2019.’ As such, ‘people are not necessarily going to be used to using them, handling them and mixing them – so there will be challenges that we will have to help everybody work through.’

Ahead or just after the introduction of the 0.1% sulphur limit in ECAs, a number of fuel suppliers introduced new branded ECA fuels, but the majority of owners and operators continued to use MGO or MDO (largely as a result of a low oil prices). According to Michael Green, the ECA transition from a 1.0% to 0.1% sulphur limit ‘has shown, from our perspective, the longest sustained positive change in fuel quality that we have seen for a long time.’

He noted that prior to 2015, 10-15% of all samples seen by Intertek were off-spec, while across 2015 this had dropped to 6%. From the start of 2017, off-spec samples have been at around 4%. There has, he said, been a significant shift away from the sample results seen with 1.0% fuels. However, he cautioned, ‘when we come to address the 0.5% fuels, I would say that we are probably going to go back to what we saw with the 1.0% sulphur fuels. Going forward, I can’t see us having a positive shift in fuel quality at the level we had immediately following 2015.’

He continued: ‘There are going to be too many factors involved with the different types of fuels – there will be so many different chemistries out there. It is going to be extremely difficult to try to predict what we are going to see in terms of fuel quality.

‘Compatibility is obviously a key issue, and what we are going to see as far as operational issues are concerned, well, who knows?’

Cat fines could also be a challenge with 0.5% fuels, as was the case with 1.0% fuels, where, noted Michael Green, cat fines had been shown to have an average of around 45 parts per million (ppm) in ECA areas, much higher than the global average of around 29 ppm prior to the introduction of the 1.0% sulphur limit.
to the introduction of the 1.0% sulphur regulation.

Green also told the roundtable participants that Intertek had noticed the entry of some ‘unusual’ fuels into the market place over recent months (within the same geographical area), whose ‘behaviour is completely out of the ordinary and that we have not seen before.’

He provided further insights on this development, noting that these fuels are exhibiting as yet unexplained instability characteristics. ‘We can see that they are problematic once onboard, but standard routine analysis is not flagging up anything that we can identify as the root cause of the issues.’

So, what will be the fuels that will constitute the 0.5% sulphur product ‘portfolio’ in 2020 and beyond? Iain White indicated that a commonly held view within the maritime industry that ships will largely be burning distillate was perhaps a misconception.

‘It will be available, but it will be at a premium.’

Indeed, he continued: ‘Anything that has got low sulphur levels will be at a premium, irrespective of what else is really in the specification of that product.’

Many 0.5% sulphur fuels are therefore likely to be blended products and the stability of such fuels will come into question, particularly when commingled onboard with other fuels.

With the likelihood of increased problems with stability and compatibility of fuels blended to a 0.5% specification, both Michael Green and Iain White reiterated the importance of good practice in onboard fuel management. And Green raised an important concern in relation to ‘good housekeeping’, noting that discussions between IBIA and training institutions have exposed a worrying lack of crew training in fuel management. ‘What we are finding…is that the time spent with the young engineers in relation to the onboard treatment of the fuel is virtually nil,’ he said.

Michael Green also suggested that within current ECAs, the perception that the new ultra low sulphur fuels were inherently problematic in handling and operation had perhaps limited the extent of their uptake. In April 2015, the residual/distillate split was 59.6%/37.4%, with ultra low sulphur fuel oil accounting for 3% of total demand. This share, he said, has since eased up to around 6% (in terms of the samples tested by Intertek), but, to date, would seem to have plateaued at this level.

The potential for an increase in the incidence of cat fines in compliant blended fuels after 2020 also brought the subject of the ISO 8217 marine fuel specification into the scope of the debate. While a buying specification rather than a regulation, White commented that most bunkers today are still purchased against the 2005 edition. ‘The 2005 spec has a cat fines level of 80 ppm – the 2010 and later [revisions] have a cat fines level of 60, and so improved protection is there for the shipowner. The industry is not waking up to using the tools that are there to help them.’

Michael Green added to the discussion, noting that 70% of samples tested by Intertek on a daily basis are still being sold against ISO 8217: 2005.

‘Why is this still the situation?’ he said. ‘The 2005 standard is now 12 years old and the fuels we are now seeing are very different from what we saw back then.’

Looking out to 2020, and ExxonMobil’s plans to roll-out 0.5% sulphur fuels, Iain White said that studies were underway. ‘It is too early to say by location but what we can say is that there will be distillate available at 0.5% as well as heavy distillates – like the HDME 50 product – and there will probably be more HDME 50 at 0.1% available in due course.

Unni Einemo asked Iain White if the new fuels would be sea-triaalled before being brought to market, and to what extent would owners or operators be prepared to pay a premium for using this product ahead of the 2020 mandate?

Iain White acknowledged that ‘this is part of the challenge – it costs a lot of money to trial a product that has got a high value when the owner who is doing the trial has no incentive to pay us for that trial.’

Anna Larsson said that WWL is already trialling 0.5% fuel on several of its vessels to gain experience in handling the product, and ‘so far, it has been a positive experience; it has been working well and we are not seeing any issues.’

While Torvald Klaveness owns 17 vessels, it is primarily an operator (of 130 ships), and, as such, Jakob Fabricius said that decisions over compliance were perhaps not so imminent. However, he conceded that the choices to be made down the line are challenging.

‘Obviously, we want to buy fuel as cheaply as possible – if it’s 3.5% and we can get a ship with a scrubber, then perfect. But is that fuel going to be available?

‘It comes down to a commercial decision; do we convert all tanks to low sulphur and go all out for that? It is an investment but it gives you flexibility down the line, and it is the flexibility that is crucial to us so we can trade globally.’

All panellists agreed that there will be instances of wilful non-compliance with the 2020 regulation, and the discussion came to a close with a consideration
EXPERT INSIGHTS:

"What there is going to be over the first two to three years [after 2020] is probably a very chaotic environment where there are a lot of people who will be having some very nasty experiences – whether it is with direct compliance issues or with issues over the handling of the fuels they are getting."

MICHAEL GREEN

"One of the challenges is that there is a risk of pretty risk-free non-compliance in the first couple of years if there is not strong guidance with regard to how implementation and enforcement is going to take place."

ANNA LARSSON

"Certainly, from ExxonMobil’s perspective, we will be part of trying to supply whatever choice the customer wants to make – whether they want compliant fuel, whether they want to go down the LNG route. We are trying to do as much as we can in all areas to be part of a wider fuel mix and helping people to understand that."

IAIN WHITE

of how enforcement of the mandate should best be effected.

As Anna Larsson explained, the experiences in relation to ECAs have shown that enforcement can be a piecemeal affair with little punitive effect.

‘The fines are so low that it is actually not much of a deterrent at all. Even if you are calculating on getting caught and paying the fine, you are still saving so much money from not complying.’

She also pointed out that: ‘We have also seen that when the IMO regulation is transposed into national regulation and integrated into the legal systems of different countries, it doesn’t always work well – it is difficult to get violations through the legal system.

As Frances Keeler explained, the penalties for non-compliance in California waters are significantly higher and they are imposed per violation, i.e. main engine, auxiliary blower and auxiliary engine. It can cost up to $75,000 per day for each violation and a vessel could be in California waters for 2-4 days, making non-compliance a very costly exercise.

An advocate of a carriage ban on 3.5% sulphur fuels, unless a vessel is fitted with a scrubber, Larsson said the responsibility for enforcement must be resolved between Port State Control and the flag States, but she was broadly supportive of an administrative approach which has a ‘quicker impact’.

‘Maybe there is something that can be put into the recommendations on implementation from the IMO. Perhaps states could agree on certain levels of sanctions and, for example, the recommendation of an administrative rather than legal process [of penalty enforcement]."