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UNCERTAINTY PREVAILS AMONG SHIPOWNERS OVER ENERGY TRANSITION

A qualitative survey conducted by design and engineering consultancy Houlder has highlighted that uncertainty is perceived by shipowners as hindering shipping's energy transition.

Many shipowners recognised an 'uncertainty dilemma' – where decarbonisation choices remain highly uncertain, but that with tightening environmental regulations doing nothing is not an option, so they must try to navigate through the fog of decarbonisation and change course if needed.

From the UK to the US and beyond, 2024 has been a bumper year for elections, with voters heading to the polls in at least 64 countries. Some shipowners interviewed mentioned keeping a close eye on how the 47th US president influences their sustainability strategy before making new decarbonisation decisions, while others cited a lack of clarity from the transport departments they collaborate with as delaying progress.

"What's the definition of domestic shipping going to be, what are the exclusions, inclusions, are they going to do a phased in approach like the EU has... they've just got no answers to any of it at the moment," remarked one passenger shipowner.

Despite uncertainty at a governmental level, interviewees did recognise more certainty at a regulatory level. This is a positive development since the Houlder team last conducted this qualitative survey and workshop with the same set of large and small shipowners from across the container, tanker, bulk, cruise and ferry sectors two years ago.

Views on the EU's Emissions Trading System (ETS) varied from owner to owner. Smaller owners generally saw the ETS becoming increasingly impactful, while larger shipowners tended to feel the EU ETS was already "priced in" to plans, but that it is useful as a referenceable price for carbon that can be put into day-to-day operations and business cases.

While many owners were unable to delve into their strategies for FuelEU Maritime, or more likely unwilling to overshare with their competitive aims in mind, the consensus was that they were taking it *Continued...*

ETF URGES COORDINATED RESPONSE ON SHADOW FLEETS

The European Transport Workers' Federation (ETF) has strongly condemned the use of shadow fleets and calls on the European Union and the International Maritime Organization (IMO) for a coordinated European and International response to take measures, push involved member states in following the cargo, from origin to destination, and implement more stringent controls to ensure that vessels comply with safety, labour and environmental standards.

"Seafarers should not be unwittingly involved in illegal activities, nor should they be subjected to dangerous work conditions that put their lives at risk," ETF's General Secretary Livia Spera states. "Without a coordinated response from flag states, port authorities and regulatory bodies, these shadow operations will continue to threaten the safety of our waters and our workers" she added.

The ETF highlights the need for measures including:

- Enhanced tracking and transparency requirements, holding flag states accountable for the vessels they register.
- Stronger Port State Control inspections to ensure vessels in European waters have valid insurance, adhere to safety regulations and maintain worker protections.
- Support for IMO and International Labour Organization guidelines on fair treatment of seafarers to protect workers from criminalization in case of an incident or accident involving shadow fleet vessels.

As the ETF continues to press for these reforms, it remains committed to defending seafarers' rights, advocating for sustainable maritime practices, and working with international bodies to uphold high standards in global shipping. The ETF urges stakeholders across the maritime sector to cooperate and ensure a safe, fair and environmentally responsible future for seafarers and the communities affected by maritime transport.

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much more seriously than some other regulations right now. Non-compliance with FuelEU Maritime will mean fines much higher than those incurred from the EU ETS, with a penalty of €2,400 per tonne VLFSO energy equivalent.

"ETS is not a particularly big deal. It's small penalties compared to FuelEU. What it [FuelEU] has done is shocked businesses into realising the penalties they are going to have to pay if they don't act on energy efficiency…and then eventually future fuels," said once respondent. 'From an R&D point of view, these have helped secure support and budget,' they continued.

Speaking about the survey, Houlder CEO Rupert Hare says: "We can't let uncertainty become an alibi for inaction on decarbonisation, so we undertook this research to understand better how the wider industry can support shipowners in rising to the challenge. Based on recent conversations and developments it's clear to us that, in shipping and the energy transition, uncertainty is certain and the industry has to find a coping mechanism.

"Hardly headline news, but with incoming regulations such as FuelEU Maritime, owners are running out of time. They need to accurately simulate scenarios on vessels with information available today to enable informed decision making now – while you can't be absolutely certain of what's ahead, you can take useful action to alleviate the anxiety. Surrounded by fog, you'd slow to a crawl without aids to navigation."

Jonathan Strachan, Chief Technical Officer, adds: "We believe 100% certainty is neither possible nor necessary for shipowners to navigate the decarbonisation maze. In fact, those who wait for a perfect route to reveal itself will be left behind. What the leading shipowners are already doing is starting the journey now with the help of partners, remaining agile to change tack if they need to, and keeping well-informed to understand all the possible technological pathways available to them."

Two years after its previous interviews, Houlder 'checked in' with senior executives from shipowning companies on key sustainable shipping topics including verified clean technology performance data, how the environmental regulatory landscape has changed, and barriers to the scaling of green alternative fuels. Uncertainty materialised as a clear recurring theme and 'red thread' when discussing all of those topics.

ITIC CALLS FOR CAUTION IN CALCULATIONS

In a recent case underscoring the essential nature of precise cost estimation in maritime logistics, the International Transport Intermediaries Club (ITIC) has settled a US$140,000 claim resulting from an error in calculating port charges. The incident involved a South American grain shipment where the pool manager's use of outdated cost estimates for port fees led to a substantial financial discrepancy.

A pool manager organised a ship to load a cargo of grain at a South American port. Using a Final Disbursement Account (FDA) from a previous ship's call at the same port, the manager estimated the port costs at US$80,000. This figure was communicated to the pool owner and incorporated into the freight calculations for the voyage.

Unbeknownst to the manager, the ship assigned for the current voyage was 40,000 metric tonnes larger than the previous one, placing it into a higher pricing bracket under the terminal's rules. Additionally, its deeper draught necessitated a second pilot, further inflating costs.

Consequently, the actual port charges escalated to US$220,000, vastly exceeding the initial estimate. The unexpected extra cost of $140,000 was not included in the freight, resulting in a significant financial shortfall for the pool owner.

Upon investigation, ITIC recognised that the pool manager had failed to update the port cost estimates to reflect the specifications and requirements of the larger ship. Accepting responsibility for the oversight, ITIC settled the claim in full, compensating the pool owner for the unforeseen expenses.

Mark Brattman of ITIC comments: "This incident serves as a stark reminder of the critical importance of precise cost estimation and diligent planning in maritime logistics. The substantial shortfall due to inaccurate port charge estimates underscores the risks involved and the necessity of aligning cost calculations with ship specifications to avoid unforeseen financial impacts."

CONFLICTING CLAUSES

ITIC has also reported on a shipbroker's failure to identify conflicting laycan clauses in a voyage charterparty that led to a complex dispute and a US$100,000 claim, which ITIC has reimbursed. The case, highlighted in ITIC's recent **Claims Review**, shows the importance of meticulous contract drafting and attention to detail in maritime agreements.

Acting as the sole broker, the shipbroker was instructed by both the charterers and shipowners to include their preferred laycan (lay days and cancelling) clauses in the charterparty. Unfortunately, the broker inserted both clauses into the recap without realising they were contradictory. Neither party noticed the conflict, and the fixture was concluded containing both clauses.

Subsequently, the ship faced delays at the discharge port from its previous voyage, leading the shipowners to anticipate missing the agreed laycan for loading. Invoking their laycan clause, the shipowners proposed a new laycan, which the charterers had a specified time to reject. According to the shipowners' clause, if the charterers did not reject within this period, acceptance was assumed.

The charterers did not reject the new laycan within the allotted time, which the shipowners interpreted as acceptance. However, upon recognising the delay, the charterers invoked their own laycan clause, allowing them to cancel the charterparty outright. They promptly secured another ship and proceeded with their operations.

Left without cargo, the shipowners were forced to seek alternative employment for their ship. The best available option positioned the ship unfavourably for future cargoes, resulting in alleged financial losses.

The shipowners submitted a claim for US$400,000, representing the losses from the breached charterparty. After negotiations and considering questions about the shipowners' efforts to mitigate their losses, the claim was reduced to US$100,000. ITIC reimbursed the shipbroker for this amount.

Brattman emphasises: "This case underscores the critical need for meticulous attention to contract detail in maritime agreements. Overlooking conflicting laycan clauses led to significant financial consequences for both parties, highlighting the role of precise drafting and thorough review in avoiding costly disputes."

SWEDISH CLUB ADDS HEAVY WEATHER ALERT TOOL

Extreme weather incidents are increasing across the globe and the impact on cargo ships is evident. Maritime insurance specialist the Swedish Club reports that it registered claims exceeding US$25m attributable to heavy weather over the past five years.

In response, the Swedish Club has developed a Heavy Weather Alert tool as an addition to its leading loss prevention tool **Trade Enabling Loss Prevention (TELP)**.

Heavy weather can cause structural damage, cargo shifts, broken mooring lines, wet damage, lost cargo overboard and more. The Club says it has also seen examples where vessels have failed to suspend cargo operations and depart port in a timely manner when severe weather is approaching, resulting in major losses and claims. This is despite the fact that most vessels today have access to high quality weather reporting and weather routing.

The Swedish Club's Heavy Weather Alert provides timely loss prevention advice to insured vessels operating in proximity to severe weather patterns. Based on a vessel's position, in combination with up-to-date weather information and real-time data, the Heavy Weather Alert system automatically generates a customised loss prevention alert, with hands-on advice, when severe weather conditions are detected near a vessel's position – thereby helping to mitigate potential risks and ensuring the safety of both crew and cargo.

Peter Stålberg, Senior Technical Advisor, comments: "Over the past five years, the Swedish Club has registered claims exceeding $25m attributable to heavy weather. Any measures we can take to reduce this figure will contribute positively towards our members' operations and insurance records."

The Swedish Club's TELP service combines the latest technology with its years of claims experience and expertise, including information from external sources, to help vessels safely chart their way through high-risk areas around the globe. By tracking its insured vessels' AIS signals, the Club is able to identify vessels bound for an area of particular risk and provide them with timely and tailored loss prevention advice relevant to that destination. TELP sends out the advice a few days prior to the vessel's arrival, or when severe weather is approaching, enabling the crew to plan.

In addition to navigational risks or weather patterns, TELP can advise shipowners and masters of problems with bunkers, pilots or towage, or known issues with unfounded claims or dubious charges. With many thousands of ports and waterways to navigate, often varying from voyage to voyage, it is not easy for a master to be aware of all potential high-risk areas. TELP can issue a warning if any of these 'hotspots' could be encountered during what should be an uneventful journey.

Current TELP subscribers will be automatically enrolled in the Heavy Weather Alert service as it is rolled out, ensuring they benefit from this addition without any additional steps required.

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- Control of plant wear
- Dust control
- Bulk Materials characterisation
- ATEX/DSEAR compliance
- Expert Witness services

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- Commissioning and Troubleshooting 'Hand's On' Pneumatic Conveying Systems

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FREE TRAINING STANDARD FOR ALTERNATIVE FUELS

The Nautical Institute has announced the release of its new training standard for alternative fuels. This standard, available free of charge, underscores the Institute's commitment to its work as an educational charity dedicated to the safety of seafarers.

As the first milestone in the International Maritime Organization's (IMO's) 2023 greenhouse gas (GHG) strategy approaches with the requirement for between 5% and 10% of the world fleet expected to be powered by zero or near-zero GHG emission technologies, many shipowners have had to take a decision on how they will fuel their fleets before all the variables have been fully tested. The result is that one can expect vessels powered by a number of different fuels such as ammonia, methanol and hydrogen to be launching within the next few years before the IMO will be able to establish Standards of Training, Certification and Watchkeeping for Seafarers (STCW) competency requirements. Although tanker operators have been transporting these fuels as cargo for some time, there is a lack of experience of the procedures needed for their safe bunkering.

Recognising that there will inevitably be a gap between the first of these vessels coming into service and the STCW requirements being implemented, the Nautical Institute has taken the lead to develop guidance that provides an interim framework for trainers and training providers globally. This standard is voluntary and offers broad guidelines that will enable training institutions to create training programmes to meet current needs but leave room for future development as alternative fuels become more established and operational practice evolves.

With a 10-part scheme of work, the Nautical Institute's Training Standard for Handling Alternative Fuels in the Maritime Sector provides guidance to training providers to offer programmes of learning that ensure seafarers will have the knowledge to handle bunkering of alternative fuels safely and confidently.

Captain John Lloyd , CEO of The Nautical Institute, says: "This standard doesn't replace the STCW requirements that will be established in the coming years. Rather it seeks to offer interim support that bridges the gap until that time and, having been designed as a living document, it will be able to evolve with industry best practice.

"We have always been dedicated to promoting the highest standards of professionalism, competence, and safety in maritime through the provision of training, sharing knowledge and expertise, and prioritising the safety of working seafarers and we believe that by making available this new standard free of charge throughout the industry, we are adhering to these values."

K LINE BOOSTS CONNECTIVITY WITH NEXUSWAVE

Kawasaki Kisen Kaisha (K Line) has announced that it has decided to conduct a trial of a new network service NexusWave, launched by Inmarsat Maritime, on its fleet. K Line has agreed with Inmarsat's idea of seamlessly integrated multiple high-speed networks in real time to enable high-speed, always-on ship-to-shore communications, thereby enhancing digitalisation of ship operation and environmental response, as well as the welfare of seafarers. The implementation of these trials started in October.

Launched in May this year, NexusWave is a unique bonded multi-dimensional network, offering high-speed connectivity, unlimited data, global coverage, and 'secure by design' infrastructure. The service seamlessly integrates multiple high-speed networks in real time – Global Xpress (GX) Ka-band, low-Earth orbit (LEO) services, and as-available coastal LTE service – enhanced by an L-band layer for resiliency, to deliver fast, always-on connectivity. NexusWave also features enterprise grade firewall security.

K Line Group will continue to strengthen both onboard and ship-to-shore tele-communication systems, creating a safe and comfortable working environment for seafarers, ultimately leading to the provision of higher quality maritime transportation.

Akihiro Fujimaru, Managing Executive Officer of K Line, says: "In recent years, there has been an increase in data transmission to enhance safety and quality. As such, we require connectivity services that are fast, reliable and global. Furthermore, high-speed internet connectivity will greatly contribute to reforms to onboard workstyles and automated ship navigation. Maintaining connections with family and friends is quite crucial for preserving the well-being of our crew. NexusWave promises to fulfil these needs well into the future, especially with the anticipated service launch of the high-capacity ViaSat-3 Ka-band satellite. This technology will also bolster our digitalisation initiatives moving forward."

Ben Palmer, President of Inmarsat Maritime, comments: "Our partnership with K Line is focused on delivering robust and reliable connectivity solutions that support its operational success and meet K Line's long-term strategic needs. Its early trial of our high-capacity global service highlights the strategic foresight of K Line's commitment to leveraging advanced technology to sustain and enhance its competitive edge."

NEW TEAM TAKES THE HELM AT INTERCARGO

Intercargo has made significant changes to its leadership following its Annual General Meeting. The new appointments took effect on 1 January 2025.

Dimitrios Fafalios has been appointed Honorary Chairman following six years as Chairman. President of Fafalios Shipping, he has led Intercargo through significant developments in the shipping sector since 2019, having previously chaired its Technical Committee for a decade.

Spyros Tarasis will also be stepping down at the end of 2024 following his six-year term as Vice-Chairman. His substantial contributions to the Association's work throughout his tenure were highly praised.

John A Xylas, President and CEO of Ariston Navigation Corp., has been elected as Intercargo's new Chairman. With more than 38 years of experience in the shipping sector, Xylas brings extensive expertise in dry bulk shipping operations and a strong track record of leadership, including his current role on the board of the Union of Greek Shipowners.

Metaxia Psalti, Chief Operating Officer of Neda Maritime Agency, was elected as Intercargo's Vice-Chair. Psalti, who holds a master's degree in maritime law from City University, London, brings more than three decades of maritime experience and expertise, specialising in the commercial operations of a diversified fleet. She chairs the Association's Quality Panel.

Uttam Kumar Jaiswal of Pacific Basin Shipping (HK) has been re-elected as Vice-Chairman. Jaiswal's particular focus on safety and operational excellence has been recognised through multiple awards in the shipping sector.

The Technical Committee will be led by **Dimitris Monioudis**, Managing Director of Rethymnis & Kulukundis as Chairman, supported by **Cesare d'Api**, Technical Director of D'Amico Societa Di Navigazione, as Vice-Chairman. This follows the current Technical Committee chairman, **Tom Keenan**, also stepping down at the end of 2024, having served the maximum term of six years. Keenan has been appointed an honorary member of the Technical Committee.

John Xylas, incoming Chairman of Intercargo, comments: "It is a privilege to take on this role and I want to express my gratitude to Dimitrios Fafalios for his outstanding leadership over the past six years. As our sector navigates significant changes, from decarbonisation to digitalisation, Intercargo's role in representing quality dry bulk shipowners has never been more important. Together with our new leadership team, we will continue to promote safe, efficient and environmentally sound bulk carrier operations while ensuring our members' voices are heard at the highest levels of international shipping."

IACS WITHDRAWS UR H1 TO ALIGN WITH IMO

In light of the evolving regulatory landscape for ammonia as a maritime fuel, and the recent finalisation of the International Maritime Organization's (IMO's) draft interim guidelines on ammonia, the International Association of Classification Societies (IACS) has announced the withdrawal of Unified Requirement UR H1, "Control of Ammonia Releases in Ammonia Fuelled Vessels", ahead of its scheduled implementation date of 01 January 2025. This decision ensures alignment with the IMO guidelines and creates a clearer regulatory environment as ammonia use expands within the maritime sector.

The decision to withdraw UR H1 stems from the differences between its safety parameters and those outlined in the IMO Interim Guidelines. The IMO Sub-Committee on Carriage of Cargoes and Containers, at its 10th session, finalised the draft interim guidelines for the safety of ships using ammonia as fuel, with a view to approval by MSC 109. These guidelines include several differences from IACS's original UR H1 requirements.

The IMO Interim Guidelines establish a 22ppm threshold for acute exposure, without defining a hazardous concentration, and require preventing direct ammonia release during normal and controllable abnormal scenarios, which may exclude releases from leakages. Toxic areas have been defined, requiring gas dispersion analysis to demonstrate concentrations do not exceed 220ppm in key locations. An ammonia release mitigation system is required to maintain outlet concentrations below 110ppm, with alarms for exceedances. Additionally, alarms must activate at 110ppm with system shutdown at 220ppm, while a visual indication is required at 25ppm near entrances to affected enclosed spaces. These differences could potentially lead to confusion within the maritime industry.

To ensure consistency and reduce the potential for conflicting interpretations, IACS has decided to withdraw UR H1 with a view to publishing a revised version that aligns with the IMO guidelines. The revised UR, to be published in 2025, will provide a consistent regulatory framework for the safe adoption of ammonia and will provide the necessary safety framework for ammonia-fuelled vessels while aligning with best practices and international guidelines.

ANTHONY VEDER RAMPS UP DIGITALISATION

Gas shipping company Anthony Veder has strengthened its partnership with NAPA, a global provider of maritime software and data services, to expand the use of electronic logbook solutions and ease regulatory reporting.

The joint project between the two companies introduces the functionality of voyage reporting, helping Anthony Veder streamline onboard data collection and fulfil increasingly complex environmental regulatory requirements, thereby contributing to shipping meeting its net zero target.

With the new voyage reporting functionality, NAPA Logbook reduces the administrative burden of regulatory compliance and covers the monitoring systems EU-MRV (Monitoring, Reporting and Verification), and the IMO-DCS (Data Collection System). The digital platform enables the integration of logbooks with regulatory reporting; data is automatically shared with shoreside teams, via NAPA Fleet Intelligence, as well as with the verifier, in this case DNV Emission Connect, in near real-time.

With type approval from DNV, the platform goes beyond normal electronic logbook systems and can submit data for verification to DNV, as well as other relevant stakeholders in the supply and emissions chain, in a format that meets all requirements. This provides end-to-end compliance support, removes duplication of work and offers invaluable time savings for crew which would otherwise not be possible.

With the initial success of NAPA Logbook across Anthony Veder's fleet, the company is ramping up digitalisation to ease seafarer workload, boost morale and reduce the margin for error. Since 2023, NAPA Logbook has already cut 2000 administrative hours per vessel – a 14% reduction.

Digital tools can help reduce the administrative workload onboard and contribute to the accuracy of reporting, which is becoming increasingly important with regulations like the EU Emissions Trading System and FuelEU Maritime.

Björn van de Weerdhof, Commercial and Sustainability Director at Anthony Veder, says: "Being compliant with regulatory reporting is important but is becoming more and more complex. Without digitisation and automation this would be increasing time spent by our seafaring colleagues. By partnering with NAPA, integrating its digital logbook, and through digital solutions and automated entries, we significantly reduced the administrative burden on board so our seafarers can focus on their core duties: operating our vessels in a safe, sustainable, and efficient way for our customers."

Tommi Vihavainen, Director, Development, NAPA Safety Solutions, adds: "We recognise that crew are already stretched thi, and new regulations only add to this challenge by diverting precious time from primary responsibilities. Digitalisation of paper-based processes, using tools like NAPA Logbook, can streamline onboard data collection and reporting to minimise duplication of work, ensure regulatory compliance, meet sustainability goals and, ultimately, contribute to creating a more satisfying work environment. We are proud of the positive impact we've been able to create for Anthony Veder in such a short amount of time and look forward to continuing our partnership."

The global maritime industry, and seafarers in particular, are grappling with new ways of working to support shipping's decarbonisation transition. A recent survey by the International Seafarers Welfare and Assistance Network (ISWAN) revealed that 54% of seafarers reported an increase in their workloads, 44% said they are feeling higher levels of stress and 33% fear potential criminalisation due to complex reporting requirements.

Digital, integrated solutions like NAPA Logbook, through NAPA Fleet Intelligence, allow teams to tackle these issues by doubling down on automation, thereby minimising errors and saving time, and offering a holistic approach to operational safety and efficiency. By enabling data to be exchanged between systems, teams can enhance situational awareness and make better-informed decisions on critical operational matters and regulatory compliance, with greater speed and accuracy, as the platform also gives a centralised data overview.

TT CLUB WARNS ON BATTERY-POWERED PERSONAL VEHICLES

The drive to decarbonise ports and terminals is intensifying with growing interest in using battery powered e-bikes, e-scooters and e-motorbikes. Operators are tempted by the cheaper and cleaner alternative to diesel-powered vehicles. However, the TT Club warns about the significant risks associated with their use in facilities not designed to accommodate such vehicles.

Ports, terminals and logistics facilities are typically designed to accommodate large vehicles and cargo handling equipment. The introduction of smaller, more vulnerable road users such as e-bikes and e-scooters presents unique challenges. These vehicles are less visible, making traffic management and the prevention of human-machine collisions much more difficult. Typically, terminal traffic layouts and pavement conditions, are designed for large vehicles and plant, not for smaller, more vulnerable, battery-powered personal vehicles.

TT Club has long-standing experience of such terminal risks, Risk assessment manager Neil Dalus comments on the question of paved surfaces, in particular: "Designed to withstand high volumes and heavy loads, the terminal surfaces often suffer significant wear and tear, resulting in uneven road conditions. For smaller wheeled battery electric vehicles, these conditions can be hazardous. Traversing rail crossing points, especially when wet, and encountering spills of cargo or oils further increase the risk of accidents. Two-wheeled vehicles, being inherently less stable than four-wheeled vehicles, are particularly susceptible to these hazards."

As the use of electric personal vehicles blurs the lines between different user groups within a facility, such as pedestrians, plant and handling equipment operations, TT recommends additional terminal traffic safety planning. This should include consideration of licensing, training, and personal protective equipment (PPE) requirements.

Additionally, charging and maintenance of these vehicles can also present significant challenges. Emerging data indicates a higher risk of fire during the charging process, necessitating thorough due diligence in procurement of vehicles and their charging points. Proper fire risk assessments covering the location of charging points is essential to mitigate these risks, the club says.

Dalus concludes: "While battery-powered personal transport vehicles offer significant benefits in terms of decarbonisation and cost-effectiveness, their integration into ports, terminals, and other logistics facilities however requires careful planning and consideration of risk. Addressing these issues will be crucial to achieving a balance between innovation and safety in the ongoing and rapidly developing drive to achieve a cleaner working environment in the cargo handling industry."

CMT TEST KIT REVEALS CAT FINES CONTENT

Fuel compatibility and viscosity problems continue to result in marine engine component damage and high cat fines. "We expected fuel incompatibility problems and high levels of cat fines to diminish with the introduction of the IMO 2020 Sulphur Cap [MARPOL Annex VI] in January 2020. But despite new fuels and advanced engine technologies, problems persist. Cat fines remain a major problem for marine engine operators," says Matthias Winkler, Managing Director of CM Technologies (CMT).

In a significant development for low sulphur fuel users, CMT has introduced a test kit that allows crews to quickly and easily determine the cat fines content of fuel during and after bunkering, and before injection. The CMT Cat Fines II Test Kit not only helps protect the engine and its component parts against excessive wear, but it also helps verify the efficiency of the fuel treatment plant – separators, fuel filters and settling tanks.

Catalytic fines are the byproduct of catalysts used in the fuel refining process. It is the accumulation of these very hard, abrasive aluminium and silicon particles that can severely damage cylinder liners, fuel injection valves, piston crowns and rings, potentially damaging the engine beyond repair.

Winkler says cat fines levels are exceeding ISO8217:2017 specifications in fuel being bunkered in some areas, including the Amsterdam-Rotterdam-Antwerp region. But more common is that accumulated cat fines in tank sediments are being dispersed back into the tank and engine during operations, particularly in rough seas.

With higher viscosity IFO 380cst or IFO 180cst fuels, cat fines tend to be suspended in the denser liquid and are removed more easily by fuel separators. Low sulphur fuels have an average viscosity of 105cst, though it can be as low as 10cst. And this is resulting in cat fines sinking to the settling tank, where they can often go undetected.

"Engine builders recommend no more than 10ppm of cat fines in the fuel before it enters the engine, in reality, it is about 30ppm, but sediment levels are much higher," Winkler said.

While some ship operators are opting for additives that can improve Total Sediment Potential (TSP), sediment

tests have shown samples significantly exceeding the maximum cat fines limit of 0.10%.

Historically, more frequent use of fuel separators was the best way of removing cat fines from heavy fuel oil before the fuel enters the engine, but with low sulphur fuels "cat fines content before the fuel oil separators and consequently before entering the engine is usually unknown", adds Winkler.

CMT has also found that, since January 2020, more paraffinic blends are being used, but there is incompatibility between an aromatic and a paraffinic fuel, which can lead to fuel degradation and instability.

David Fuhlbrügge, CMT's Operations Manager, adds: "Mixing two types of fuels increases the risk of incompatibility, particularly when mixing heavy fuel and low sulphur distillate fuels. This can result in clogged fuel filters, separators and fuel injection pumps, all of which can lead to loss of power or even shut down of the propulsion plant, putting the ship at risk.

CMT is also seeing increasing levels of asphaltene, another consequence of fuel blending, and which also results in increased sediment formation. And although the rate of sediment formation is not easily predicted (it changes with conditions such as temperature and storage time) it is resulting in an increase in fuel system blockages.

Aside from the manual removal of sludge from tanks, which is both time-consuming and costly, CMT advocates more frequent monitoring of the fuel for compatibility. "Our Electronic Compatibility Tester can save operators from the costly consequences of having an incompatible fuel mix in the tank," says Fuhlbrügge. Measuring the actual accumulated concentration of cat fines meanwhile has until now been largely impossible., according to the company.

Winkler concludes: "Engines running on low sulphur fuels are at an elevated risk of damage, but we can now measure cat fines and verify the quality, grade and compatibility of the fuel delivered, detecting potential fuel and engine problems before they happen."

REPORT HIGHLIGHTS STEPS TO SUCCESSFUL IHO S-100 ADOPTION

The UK Hydrographic Office (UKHO) has launched a new report – created by maritime technology research company, Thetius – exploring the five key steps to supporting the successful adoption of the International Hydrographic Organization's (IHO) S-100 data framework.

The report – based on the findings of a comprehensive maritime research project – highlights the need for cross-industry collaboration, communication and effective training to support its adoption. It also explores the need for revised safety management and communication infrastructure systems, and tactful preparation for a 'dual-fuel' model system to equip the industry with the knowledge and processes needed ahead of the transition.

While new S-100 standards are set to support the maritime industry with some of its most pressing challenges: decarbonisation, cyber security, safety and efficiency, there are challenges to adoption that must be addressed. ***'New Waters: How the S-100 data framework will shape e-navigation'*** aims to support industry professionals by providing context and insight on S-100 and its role in the next generation of digital navigation solutions.

S-100 has been developed by the International Hydrographic Organization (IHO) as a universal data framework that will enrich and enhance the way maritime data is collected, shared and utilised. This is set to replace the less modern S-57 performance standard, which currently underpins Electronic Navigational Charts in use today.

The report delves into the limitations of S-57 in an increasingly connected maritime industry; for example, the barriers to integration with wider data sets, the lack of granularity of data in complex areas, and the constraints to supporting emerging technologies like autonomous vessels. These gaps emphasise the need for a more advanced data framework to meet the evolving demands of modern navigation.

The S-100 framework aims to address these challenges, but the report highlights that steps are required for a smooth adoption. Overcoming technical, operational and organisational hurdles will involve updating digital infrastructures, training personnel to manage new systems, and ensuring data accuracy and consistency. S-100 offers advancements in interoperability, data standardisation and cybersecurity, as well as improved data exchange, real-time streaming, and integration of dynamic data – all designed to enhance navigation efficiency and safety.

The report is based on comprehensive research undertaken by research firm, Thetius, following detailed discussions with a variety of representatives from across the maritime industry. Thetius supports a wide range of maritime industry leaders in providing research and insight to inform strategic technology decisions, and works with industry operators, technology suppliers and investors.

Following this research, the report makes five key recommendations:

- **Foster collaboration and communication**

  Ensuring stakeholders across the industry are working

together will be necessary to ensure consistency and interoperability of the data and systems.

- **Consider new training modules**

  Dynamic training modules will be critical in the successful introduction of S-100 to ensure maritime professionals are working with systems they can understand and implement effectively.

- **Revise safety management system (SMS)**

  SMS practices will need to be updated to ensure they align with these new data standards, ensuring secure data exchange in maritime environments.

- **Invest in VHF Data Exchange Systems (VDEs) and Low Earth Orbit (LEO) satellite connectivity**

  Industry stakeholders should consider how and when to invest in communication infrastructure, to ensure their vessels are ready for S-100 products.

- **Prepare and plan for the dual-fuel ECDIS period**

  During this transition phase, stakeholders must ensure their systems can handle both S-57 and S-100 data formats.

The report is being launched alongside a dedicated Admiralty webinar, ***Shaping the Future of Navigation with S-100***, offering further insights and discussions on S-100's transformative impact.

IACS INTRODUCES KEY SAFETY REQUIREMENTS FOR CRANKCASES

As the industry shifts towards alternative fuels in response to environmental regulations and sustainability goals, the safety risks associated with these fuels cannot be overlooked. Crankcase explosions, a critical hazard in engine operation, becomes even more concerning in the context of gas and low flashpoint fuels. To address this issue, and as part of the *International Association of Classification Societies (IACS)* commitment to assisting the industry to decarbonise safely, IACS has published the latest edition of Unified Requirement (UR) M10, which introduces new safety requirements to protect internal combustion engines from crankcase explosions.

The revised URM10, specifically designed for engines running on gas or low flashpoint fuels, addresses the unique challenges posed by these fuel types thereby ensuring that safety measures keep pace with evolving technologies and thus safeguarding maritime operations.

Revision 5 of UR M10 builds on key exisiting safety standards essential for protecting against crankcase explosions. These include the requirements for crankcases to be constructed to withstand the internal pressures generated by potential explosions. For engines with a crankcase volume exceeding 0.6 m^3, additional explosion relief valves are required to safely manage the excess pressure. Furthermore, a crankcase explosion relief valve must be in compliance with type testing procedures stipulated in IACS UR M66, as incorporated in IACS Members Rules, ensuring they meet the unified technical requirements fit for safety purposes, designed to safeguard against explosions.

This new edition of UR M10 was achieved through extensive collaboration with key industry stakeholders, including engine manufacturers. This cooperative effort ensures that the new guidelines are not only effective but also practical and feasible for real-world application, reflecting the latest technological advancements in engineering practices and safety protocols.

In this latest edition, IACS has also introduced the following improvements to address the safety requirements specific to engines fuelled by gas or low flashpoint fuels:

Airflow requirements: technical conditions for the external airflow into the crankcase have been specified for engines fuelled with gas or low flashpoint fuels, ensuring operational safety.

Lower explosive limit (LEL): the revised UR M10 now defines the LEL for gas, fuel vapours, or mixtures in the crankcase, contributing to enhanced safety measures.

Crankcase pressure control: to prevent interference with critical safety devices, such as oil mist detection systems during forced extraction of the crankcase atmosphere.

Safety evaluation: engines fuelled by gas or low flashpoint fuels must undergo a comprehensive safety evaluation to ensure gas concentrations remain below the LEL or that explosion risks are duly mitigated.

Explosion risk mitigation: predefined measures for reducing the risk of crankcase explosions have been introduced, ensuring greater protection against potential hazards.

Engine bearing monitors: engine bearing temperature monitors or equivalent devices are now classified as essential safety components.

Comprehensive documentation: documentation detailing the effectiveness of the safety measures to prevent explosive conditions is to be provided by manufacturers and designers.

Commenting on the revised UR, IACS Secretary General, Robert Ashdown, says: “As the industry continues to adopt alternative fuels, IACS remains committed to advancing maritime safety standards. By introducing enhanced safety requirements tailored to modern engines and different fuel types, URM10 ensures that the industry remains equipped to mitigate the risk of explosions, while adapting to the introduction of sustainable fuels.”

Stakeholders are encouraged to review these changes and update their safety practices accordingly.

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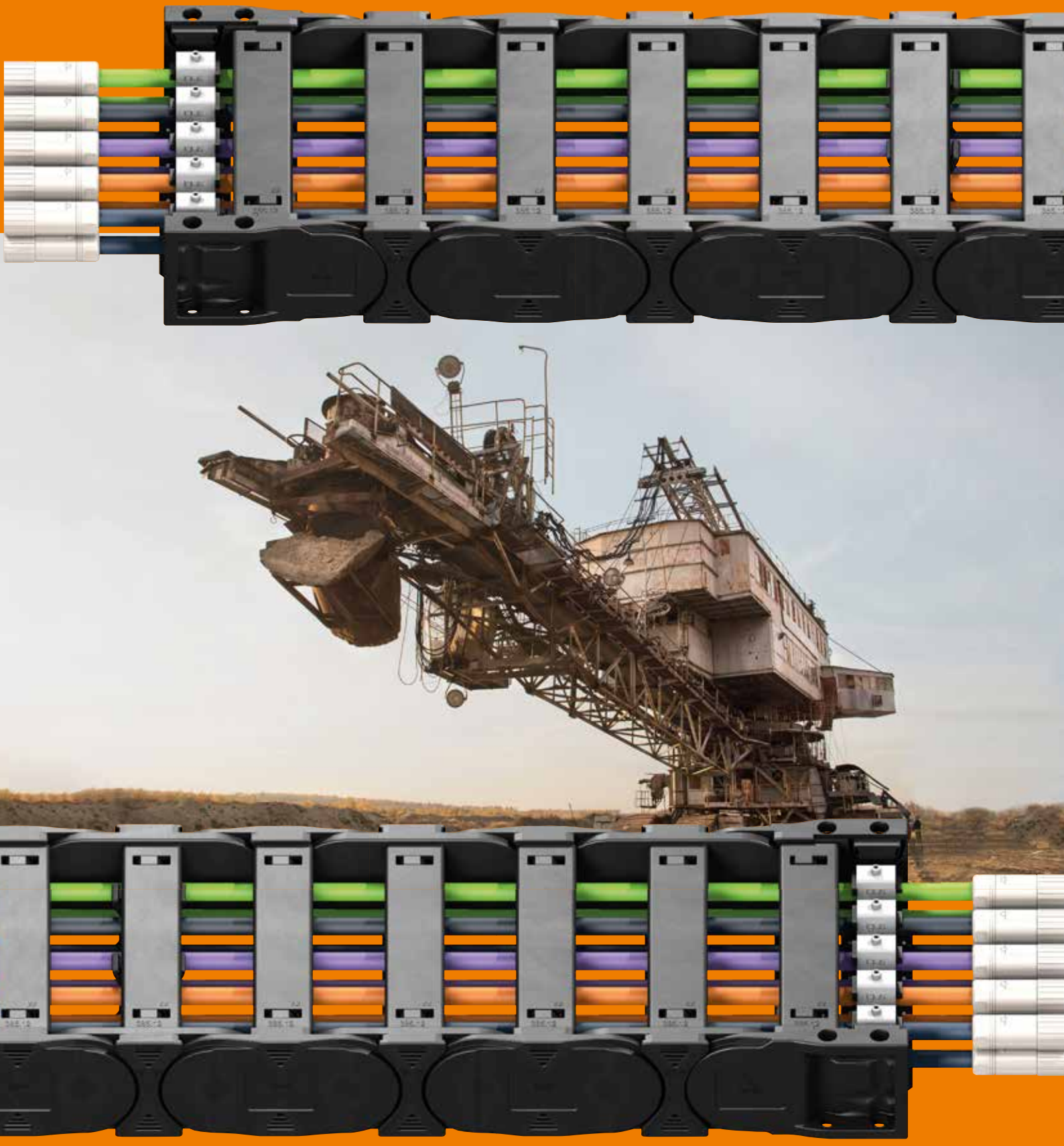

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