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Knut Ørbeck-Nilssen climbs a stairway to zero-carbon fuels



Perfect vs the good

Gas is good for now, while we wait for zero-carbon fuels, says DNV boss.
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 A portrait of Knut Ørbeck-Nilssen, a middle-aged man with short, light-colored hair, wearing glasses, a white shirt, a blue patterned tie, and a grey suit jacket. He is smiling slightly and looking towards the camera. The background is a soft-focus outdoor scene with greenery and a white architectural element.

DECISION MAKER: KNUT ØRBECK-NILSSEN

Climbing shipping's stairway towards zero-carbon fuels

Knut Ørbeck-Nilssen steps up to the 'Grand Challenge' of decarbonising shipping

Knut Ørbeck-Nilssen, CEO of DNV, has a passion for the music of his earlier years, typified by his *modus operandi* of introducing each of the class society's annual [Maritime Forecast to 2050](#) analyses with a key line from a song.

In 2019, Sting's *Forget about the future* summed up his view of the industry. Last year, it was Genesis' *Land of confusion* that matched the mood. And when [he launched this year's edition](#) on 31 August, he invoked Led Zeppelin's 1971 rock anthem [Stairway to Heaven](#) to reflect his view that we are on a step-by-step 'decarbonisation stairway'.

It was not just the song's title that made it an appropriate choice, he told *ICS Leadership Insights*: its very structure "describes reality in a good way".

It starts with a simple acoustic guitar riff "and then it gradually builds ... and becomes both faster and more complex" as it steps up towards its climax which, in Ørbeck-Nilssen's analogy, is "the target of carbon reductions".

In part, the song seems to sum up his approach to fuel options: "There are two paths you can go by, but in the long run/ There's still time to change the road you're on", it says. For Ørbeck-Nilssen, one of those paths is represented by gas. "We have been very vocal about gas as a good place to start. If you can take out around 15% of CO₂ with LPG, and up to 25% with LNG and combine that with energy efficiency measures, I think we're off on a good trajectory", he said. "And that will give us time to develop other alternatives".



DNV supports LNG fuel and gave its approval in principle to a tank system for crude tankers and bulkers (image: Newport Shipping)

What matters now, he said, is that “we get going” because, “like Voltaire said, ‘perfect’ is the enemy of ‘good’ [so] using gas as fuel: that’s a no brainer”.

Alternatives such as methanol and ammonia will only make sense if they are produced using renewable energy or raw materials, so methanol produced in a traditional way “makes it worse”, he said. In any case, there is not enough of it. “Some of the bigger owners can source some of the rare quantities of the green version, [but] for the industry [as a whole] it is just not available” he pointed out.

And nor will they be available this decade, he had said a few days earlier in introductory remarks to DNV’s annual [Alternative Fuels Conference](#). He referred them to “so-called transition fuels”, an expression that generally refers to gasses being used as a short-term bridging fuels. He noted that they should instead be termed “fuels in transition, because the bridge is getting longer and longer”.

If we all call the tune

In his remarks at that event he had described decarbonisation as “the

COP26 will challenge IMO’s GHG ambition

This month’s United Nations COP26 climate change conference will “increase the political pressure on [UN] member states to do more” and that “puts the IMO under significant pressure to accelerate the decarbonisation targets and timelines”.

That was what DNV CEO Knut Ørbeck-Nilssen told attendees to the class society’s annual [Alternative Fuels Conference](#) in October and, with IMO’s MEPC 77 meeting scheduled to start on 22 November – just 10 days after COP26 ends – discussion of COP’s outcomes will be fresh in MEPC delegates’ minds.

But is there any enthusiasm at IMO to amend its [GHG strategy](#), which currently aims to reduce CO₂ emissions from shipping by 40% compared with 2008 levels by 2030 before “pursuing efforts towards 50% by 2050”?

Ørbeck-Nilssen believes there is. “The spirit of today is that something has to be done”, he told *ICS Leadership Insights*, with pressure for change coming from “significant and dominant member states like the EU, the US and, hopefully, China”.

IMO “is certainly the best entity to regulate global shipping” but if it does not respond to calls to strengthen its targets, there is “a realisation now that many national states and regional groups are moving in this direction”.

A likely outcome, he suggested, will be that the 2050 target percentage will be raised. Last September, China’s president Xi Jinping [made a commitment](#) for that country to reach zero-carbon by 2060 “so to say that shipping should [achieve a] 50% reduction by 2050 sounds a little bit on the weak side”, Ørbeck-Nilssen said.

COVID response ‘a lost opportunity’

COVID-19 economic recovery spending has been “a lost opportunity” with most stimulus packages “locking in carbon-intensive systems”, according to the executive summary to DNV’s latest [Maritime Forecast to 2050](#).

When dealing with the pandemic, DNV’s CEO Knut Ørbeck-Nilssen told *ICS Leadership Insights*, most nations set out to “save jobs and minimise the economic downfall to the largest possible extent”. But in doing so, they were “saving jobs that already existed in many industries where they were not really contributing to the ‘[Green Shift](#)’”. But he acknowledged that such a policy would have made it difficult for politicians to “dampen the economic fall to the extent they did”.

He nonetheless saw positive results from the pandemic response. “It showed a lot of agility, decision-making and actions to deal with the crisis”, he said. “My takeaway is that we are able to deal with a crisis as long as we fully realise it is a crisis.” He suggested that this realisation could be applied to dealing with “the climate crisis”.

In particular, he said, the pandemic was tackled globally “with force and commitment. And now, we should take some of that and deal with the climate crisis in the same way”.



Norway’s Green Shipping Programme inspired this hydrogen fuelled and wind-assisted cargo ship, which will carry grain and gravel (image: Norwegian Ship Design/ HeidelbergCement/ Felleskjøpet)

Grand Challenge of our time” for which “the best fuel choice is collaboration.” Or, as Led Zeppelin put it, “if we all call the tune/ Then the piper will lead us to reason”.

It is not just shipping that must join the chorus, he believes. “Even though we [can] develop all the necessary onboard technologies, [the situation] is bigger than that”, he told *ICS Leadership Insights*, because other transport sectors will be competing for the same fuels. Aviation, for example, “will probably be quite keen on biofuels so there will be a scramble to get sustainable biofuels for that sector and that will make it harder for shipping to get access to these types of fuels”, he explained.

This collaboration, then, will involve “reaching out beyond the maritime industries [to include those] that could produce green, or even blue, variants of the new fuel types”. ‘Blue’ methanol – which is produced using waste CO₂ from steel production – is already in use, such as on Stena Line’s methanol-fuelled *Stena Germanica*, which [bunkered a blue version of the fuel](#) for the first time in June.

Collaboration must also embrace governments and nation-states that will have to invest in producing green fuels, as the executive summary to its Maritime Forecast recommends. This investment, it says, should include “incentives, similar to those given to renewables, ... to stimulate technology development and accelerate uptake of hydrogen and e-fuels”.

When all is one and one is all

Stairway to Heaven looks forward to the day “when all is one and one is all” and, for DNV, that journey has started. In April this year it teamed up with three other class societies – Lloyd’s Register, ABS and ClassNK – and three flag states – Norway, the UK and Japan – to create the [Maritime Technologies Forum](#) (MTF) “to share our insights, especially on decarbonisation topics” he said.

MTF’s mission is “to leverage the research that we are all individually doing ... with the wider industry”, he said,

and acknowledged this represents “a shift” in its normal approach to business. “We’ve always worked a lot with industry partners, but mostly excluding those that could have been seen as competitors”. Yet this initiative brings together “seven parties competing in the same space but seeing the great benefit of sharing insights on this grand challenge”.

Class societies are “well placed to connect players from different industries”, Ørbeck-Nilssen said. He compared this forum with the [Green Shipping Programme](#) that it established in May 2019 to bring together 51 member organisations and 11 observers with a goal to make Norwegian shipping “an incubator and platform for export of environmental

technology and green transport services”, DNV’s website explains.

One outcome of that programme is a project, [announced in June](#), to build what is said to be the world’s first cargo ship to be fuelled with green hydrogen. HeidelbergCement and the farming cooperative Felleskjøpet will use it to alternately carry grain and gravel between Norway’s east and west coasts.

As for the MTF, its members are in it for the long term. “At least for the initial years, we would like to keep it small”, he said. Then, when it succeeds “in producing something of value to the industry, we can look at other members”.

He is certain it will not be a talking shop and its ‘something of value’ is most likely

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We should not forget
about the basics

to be industry guidance on decarbonisation strategies.

An environmental spring clean?

With this emphasis on the environment and new fuels, we put it to Ørbeck-Nilssen that it seemed as though a broom had swept away the more traditional themes associated with class: Technology, safety and design standards, for example. Had there been, as the song says, “a spring clean for the May Queen” of environmentalism?

“We should not forget about the basics”, he confirmed. “There are still bulk carriers experiencing liquefaction of their cargo and Capesizes are lost with their crew” so safety will be a very important part of the transformational stairway. A lot of attention is given to environmental, social and governance (ESG) policies, he said. “Now we see a lot of focus on the ‘E’ part of the ESG agenda” but emphasis will be added “to the ‘S’ and the ‘G’ as we proceed”.

Class will have “a very strong role in managing all this transformation”, he said, because the changes ahead “will require a strong and competent body to provide guidance, as we’ve done so many times in past centuries”. In short, as *Stairway to Heaven* concludes, they must “be a rock and not to roll”.

Methanol fuel will only make environmental sense if it is produced using renewable energy, believes Knut Ørbeck-Nilssen (image: Paul Gunton)

METHANOL FUEL

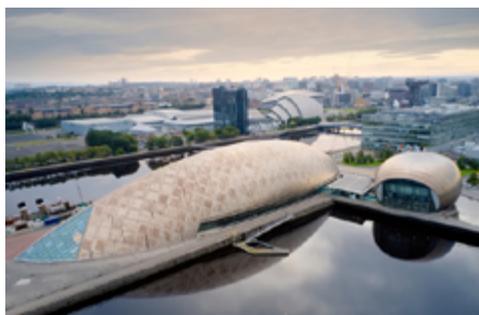
Final names announced for shipping's COP26 decarbonisation conference

A major gathering of leaders from the world's biggest shipping companies and maritime states representatives will take place in Glasgow at a cross-industry decarbonisation conference on 6th November.

The shipping industry's official COP26 sideline event, [Shaping the Future of Shipping](#), will bring together leaders from the shipping, energy, finance and climate sectors, as well as international ministers, to translate the government ambitions set out at COP's leaders' summit and identify actions and recommendations for all parties, including IMO member states.

Newly confirmed attendees include Patricia Espinosa, Executive Secretary of the United Nations Framework Convention on Climate Change (UNFCCC), Rt Hon Nusrat Ghani, MP, and Francesco La Camera, Director General of International Renewable Energy Agency (IRENA). Ministers from Belgium, Cyprus, Chile, Greece, Panama and Kenya are also confirmed to attend the conference. A full list of speakers can be found [here](#).

Guy Platten, ICS Secretary General, said: "This unprecedented meeting of minds



Glasgow Science Centre is the official venue for the COP26 Green Zone (image: Shutterstock)

has been in the making since 2019, and shipping's official COP26 event shows the scale of our commitment to decarbonise the sector."

The [discussions](#) will inform the UNFCCC climate conference and the upcoming IMO climate committee meeting scheduled after COP26. Attendees will also discuss ways to accelerate much-needed R&D for shipping and a proposed carbon levy.

Platten added: "We are bringing together people that create plans, not promises".

Register to live the stream event [here](#).

Positive steps taken at IMO on GHG

Positive initial steps have been taken on proposals for mid-term measures to cut shipping emissions at [the recent](#) IMO Intersessional Working Group on Reduction of GHG Emissions from Ships.

Participants at the remote session held on 18-22 October reviewed multiple submissions, including the ICS and Intertanko proposal for a [global carbon levy](#) which has much in common with

a similar proposal from Pacific Island States.

Simon Bennett, Deputy Secretary General, ICS, who was present at the meeting, said: "We welcome the progress made by governments at IMO, ahead of COP26, to begin in earnest the process of setting a realistic carbon price for international shipping and developing a market based measure to expedite the transition to net zero emissions."

'Significant long term' R&D investments needed for zero-carbon emissions

A massive scaling up of finance for research and development is essential to achieve zero carbon emissions by 2050, says report by ICS and global engineering, environmental and strategic consultancy Ricardo.

[A Zero Emission Blueprint for Shipping](#) outlines the urgent steps essential to transform shipping's current dominant propulsion technology and fuels landscape in less than three decades.

Launched ahead of COP26 and pivotal meetings at the International Maritime Organization, the report provides a blueprint for governments and industry to target their investment in innovation.

Ricardo has identified 265 example projects needed to overcome key technical and systemic challenges and accelerate the transition to zero-carbon emissions in shipping. An estimated cost of \$4.4bn would be needed to fund these projects.

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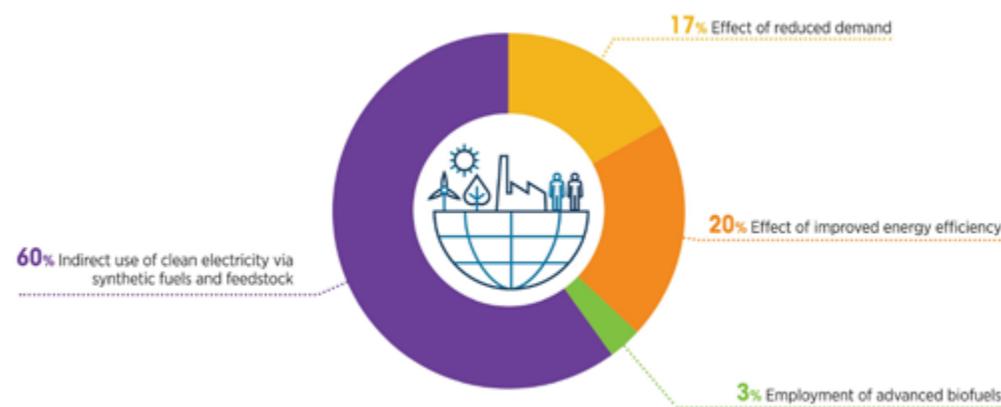
Green hydrogen-based fuels set to be the backbone for the sector's decarbonisation, IRENA says

A reduction in carbon emissions from shipping of 80% compared with 2018 levels is achievable, according to one scenario included in a report, [A Pathway to Decarbonise Shipping by 2050](#), published in October by the International Renewable Energy Agency (IRENA). Most of that reduction – 60% – will come from ‘green’ hydrogen fuels made using renewable electricity.

A contribution of 17% will be achieved by a reduction in shipping demand due to systemic changes, like those linked with the global energy transition, such as fewer imports and exports of fossil fuels, according to Roland Roesch, Deputy Director of Innovation and Technology at the International Renewable Energy Agency (IRENA).

These reductions are vital components in shipping's pathway to contribute to a global goal of limiting temperature rise to 1.5°C, compared with pre-industrial levels, the report indicates.

Roesch spoke during [an ICS webinar](#) a few days after the report's publication and said that alongside planning for new



fuels, it is important “to think [about] what to ship and where to ship and how to ship” and thus reduce demand for shipping services and increase the adoption of energy efficiency measures.

Asked how shipping demand might be reduced, he said that there should be more reliance on local and regional goods. Logistics carriers are reporting that customers are already more focused on regional and carbon-free transport, he said, while people can also make individual contributions in the way that they

Estimated roles of key CO₂ emission reduction measures associated with IRENA's 1.5°C scenario (Source: IRENA)

shop. European consumers, for example, might choose European wine rather than select Australian or Chilean alternatives, he suggested. Linked to this specific example, a key driver will be the growing adoption of circular economy principles and changing consumer habits.

IRENA's report also considers future fuel options and predicts that E-ammonia made from green hydrogen “looks set to be the backbone for decarbonising international shipping in the medium and long term”. It acknowledges that ammonia “is corrosive and highly toxic if inhaled in high concentrations” but says that because it “has been handled safely for over a century” those factors “should not be considered major barriers”. An ammonia engine is expected to be ready in 2023, which “will be a key milestone in unlocking the use of renewable ammonia”, the report predicts.

As well as ammonia, E-methanol and hydrogen itself are also emerging as significant fuels and the report includes an estimate that, by 2050, 46M tonnes/year of hydrogen will be needed for international shipping. Of that, 73% will be

required for ammonia production, 17% for methanol and the remaining 10% would be directly employed as green hydrogen, it foresees.

Before these fuels become available, however, Roesch said that in the short term shipping must take “all measures possible to improve its energy efficiency”; and could account for 20% of carbon emission reductions. Meanwhile, in the medium term “biofuels may play a key role”, ultimately representing 10% of the future energy mix and representing 3% of the decarbonisation solution by 2050.

But decarbonising shipping cannot be done in isolation, Roesch suggested. It must be aligned with governments national planning [strategies]”, he said, such as infrastructure programmes in ports to make these new fuels available. “It doesn’t make sense to start everywhere at the same time”, he said.

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shipping must take “all
measures possible to
improve its energy efficiency”
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COVID has left a trade finance gap for developing nations

International trade financing will play a vital role in supporting developing countries emerge from COVID-induced recessions, believes David Malpass, President of the World Bank Group, which has ploughed large sums into supporting regional economies.

In his [opening remarks](#) to the World Bank’s Development Committee on 15 October – which met during the bank’s week-long series of annual meetings – he said that from April 2020 until June 2021, the bank had committed more than US\$157 billion to address the lack of finance, “the largest crisis response and fastest growth in our history”. This makes the bank’s support for the world’s poorest countries at “an all-time high,” he said.

Developing countries “face grave challenges” in the wake of the pandemic, he added, including per-capita income growth of just 0.5% this year, compared with 5% in advanced economies in 2021; “that is the reverse of what we want in order to narrow the inequality gap”, Malpass said.

In [a subsequent summary](#) of its discussions, the committee echoed Malpass’ sentiments and said that the economies of low- and middle-income countries “remain below pre-pandemic GDP levels and are falling further behind [due

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Developing countries “face
grave challenges” in the wake
of the pandemic
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to] volatile commodity prices, supply chain disruptions, inflationary pressures, and constraints on fiscal space”.

Later the same day, Malpass spoke in [an online discussion](#) in which he confirmed that the bank’s intervention was intended to address “one of the challenges early in COVID [which was] the loss of trade financing”. This view was supported by the World Trade Organization’s Director General Ngozi Okonjo-Iweala. “How can you trade if you don’t have what oils the wheels?” she said, but argued that “because it’s a problem of developing countries and not of rich countries, it’s not talked about as much”.

Makhtar Diop, Managing Director of International Finance Corp (IFC), the World Bank Group’s private sector arm, said that the trade finance gap between those groups of countries has been

increasing during COVID-19 and that, as a result, banks “are now less comfortable in supporting transaction coming from developed countries”.

In response, IFC has provided US\$18 billion since the beginning of the pandemic “because half of the SMEs [small- and medium-sized enterprises] in developing countries have been denied requests for increases in trade financing and 70% of the SMEs don’t have access currently to this trade financing”.

Just four days later, IFC announced its first COVID-related support for the ready-made garment sector, when it invested US\$22.7 million in a dyeing and finishing company in Bangladesh to build a new factory that will improve efficiency and create jobs in the region.

Also taking action in response to the lack of trade finance is Standard Chartered, a leading trade finance bank in emerging markets. Its CEO, Bill Winters, confirmed that the pandemic has had a bigger impact on SMEs than larger companies, although even they had difficulties drawing on revolving credit facilities in March-May 2020 “when there was a meaningful liquidity drain out of the banking system” he said.

But he was optimistic for the months ahead. “We saw trade volumes drop significantly in the early period, [but] the



good news is that they recovered quite quickly as well”, he said. So although trade disruption during the pandemic was initially severe, he said, “we could expect that overall trade volumes in the next six to eight months will be well ahead of pre-pandemic levels”, he predicted.

“To cater for this resuming and growing demand for trade from developing nations

This fabric finishing plant in Bangladesh is to receive funds from IFC’s first COVID-related investment in the ready-made garments sector (image: IFC)

it is vital to solve the current port congestion in various regions in the world to ensure that container capacity can be freed up” Jan Hoffmann, UNCTAD’s Head of Trade Logistics, told *ICS Leadership Insights*. “Efforts to ease the flow of goods across the entire supply chain, at ports, and road and rail freight, will also be vital and requires urgent political leadership and collaboration,” he added.

Shipping's battle for zero carbon fuel

A race has begun for industries sourcing zero carbon fuels

Shipping is heading into a competition against opponents already familiar with the game. It is a competition for low-carbon fuel and the other players are big industry sectors, and big carbon emitters, such as aviation, road transport, steel and cement.

Frédéric Meyer, Director of Strategy & Projects for TotalEnergies Marine Fuel, thinks shipping isn't ready or fully cognisant of future changes to market dynamics. Instead of a marketplace and infrastructure developed over decades to provide HFO almost exclusively for shipping, the new fuel-supplying community that it will be dealing with is not dedicated to shipping. As such, the shipping sector may face a price arbitrage against other sectors or have to pledge long-term commitments to secure its supply of future fuels.

For a buyer, how much it is prepared to pay will be affected by the abatement costs it faces for using the fuel. This will



TotalEnergies's refinery opened in 2019 and can make 500,000 tonnes of HVO biodiesel per year (image: TotalEnergies)

vary from industry to industry, Meyer told *ICS Leadership Insights*, and each industry "is likely to deploy fuels with the lowest abatement costs".

For some fuels – biofuel, in particular – different grades for different sectors may emerge, he said, with different costs based on their specifications. Aviation already has access to 'sustainable aviation fuel' (SAF), which is made from a range of feedstocks such as waste cooking oil and biomass, and Meyer

expects that a marine equivalent, SMF, will be developed.

TotalEnergies already makes a biofuel, hydrotreated vegetable oil (HVO), at [a refinery near Marseilles](#) France, mainly for road transport. It is planning other manufacturing units to serve aviation and is also considering projects for the marine sector, "using a different technology", Meyer said.

For hydrogen and e-fuels, "different markets will compete for the same molecule", he said, but he singled out e-ammonia as one fuel that may be unique to shipping in the transport sector, perhaps with competition from the power sector and fertiliser manufacturers. He stressed ammonia's toxicity will have to be addressed, adding that other e-fuels, including e-methanol and e-methane, will also likely become part of shipping's future fuel mix.

But Professor Stefan Ulreich believes that ammonia "might be the preferred fuel of the future for many applications". He is Professor of Energy Economics at Germany's Biberach University of Applied Sciences and is writing a report



Airlines are already using biofuels (image: United Airlines)

about zero-carbon fuels for the ICS that will be published in early 2022.

Competition for hydrogen

Professor Ulreich's report focuses on hydrogen and its related fuels, including methanol and LNG, which can be made using hydrogen produced using renewable energy and CO₂ captured from the air or from the exhaust of gas-fuelled engines, creating a circular economy, he told *ICS Leadership Insights*. Hydrogen will also be used as a fuel in its own right, for example [for domestic heating](#).

Because of the greater competition, there is likely to be volatile pricing, which is essential to attract producers into the market. In fact, "stability is the death of

investment", he said, because "you only invest when you have a hope that market prices will increase".

Investors are likely to be large private or state-owned companies in locations where renewable energy is readily available. Saudi Arabia, for example, has plenty of sunshine for solar electricity and Russia could use hydropower or nuclear energy to produce electricity to become hydrogen exporters.

But the steady demand for hydrogen-based fuels provided by a large energy consumer such as shipping would not create enough incentive to attract such investors, he said. Professor Ulreich referred to [data published in 2020](#) by

Fuelling the transition

In an exclusive assessment for *ICS Leadership Insights*, S&P Global Platts' US-based Energy Transition Analyst Mark Mozur addressed some important questions about shipping's transition to future fuels.

Mozur said that S&P Global Platts analytics expects a "high likelihood of non-market forces determining the price of future fuels, including policy and regulatory instruments, such as imposed costs based on their carbon content".

He said another non-market force will be the early-stage roll out of future fuels "via vertically integrating shipping arrangements" such as own use for ammonia/hydrogen and/or via swaps. He gave the example of a swap in early 2021 between a supplier of hydrogen-based fuel (Saudi Arabia) in exchange for LPG/CO₂ off-take for reinjection into oil wells from a counterparty (South Korea).

"Taking these two factors into account, Platts Analytics believe that future fuels will compete on the same basis as refined fuels," said Mozur.

Looking at fuel competition for the marine market, Mozur said three potential changes will emerge:

- A competitive advantage may be afforded to dual-fuel ships that can run on different types of fuel, essentially mitigating some of the fuel cost risk via arbitrage;
- Port-level fuel storage infrastructure may be built to account for this switching potential; and
- Fuel suppliers may seek to hedge supply contracts to non-marine sectors such as power generation.

The world's first fossil-free steel ingot (image: SSAB)

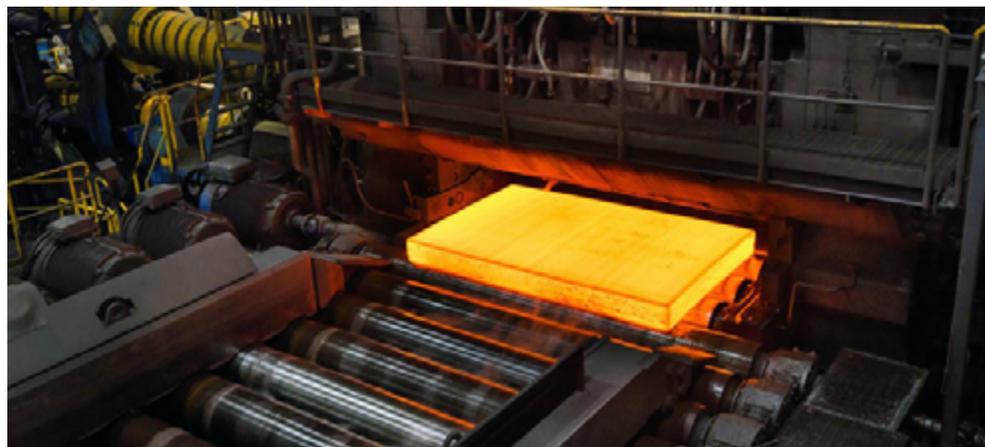
the Kearney Energy Transition Institute, which states that by 2050, global annual hydrogen consumption could reach 540 million tonnes, of which 28% will be used by road, rail, air and shipping. The report uses 2018 data for its current hydrogen consumption figures, which show total hydrogen consumption of 115 million tonnes that year, of which 82% was used to produce oil, ammonia, steel and methanol; transport use was recorded as 0%.

Professor Ulreich noted, however, that shipping's competitors for fuel will face the same challenges so, provided there is global regulation for shipping's use of carbon-free fuels, "the shipping industry will still be competitive in comparison to other transport modes".

Shipping operations themselves, could change, however, as a result of a switch to zero-carbon fuels. Steel production, for example, could move to where hydrogen is produced most cheaply; "it is easier to transport iron ore to [such a region] ... because then you can save the hydrogen transport costs", he said.

Barriers to entry

Looking specifically at the transport sector, PhD student Nathan Gray of Ireland's



University College, Cork, anticipates shipping will face competition from heavy goods vehicles for hydrogen and biofuels and from aviation for biofuels in the medium term and e-fuels in the future.

He was lead author of [a paper published in February, Decarbonising ships, planes and trucks](#), and told *ICS Leadership Insights* that "constraints of weight are particularly important for aviation".

Among other factors, he found that much more land is needed to produce biofuels than for electric or synthetic fuels, and "the quantity that can be produced sustainably is not sufficient for the transport sectors that require large amounts of fuel".

Access to new fuels will also be affected by barriers to entry for different sectors,

he said, and the wider impact of applying these fuels. Ammonia, for example, is already used in substantial quantities by the fertiliser industry, so there will be very low financial or technical barriers for green ammonia into that sector.

Shipping, on the other hand, has a very high barrier to entry for ammonia, including investment in new engines, onboard storage and supply infrastructure.

Methanol, on the other hand, can be considered a drop-in fuel for shipping, but is expensive, while for LNG "methane slippage along the supply chain would concern me", he said. That is simply a matter of eliminating leaks, "but if it's managed poorly, it has the potential to undo whatever gains you might make" from using it as fuel, Gray said.

Zero emission goals for cement and steel

Two of the biggest CO₂ emitters are setting a course to curtail their polluting.

Cement and concrete are responsible for [7% of human-made global CO₂ emissions](#) and, [speaking in July](#), Dinah McLeod, CEO of the Global Cement and Concrete Association announced a campaign, 'Concrete action for climate', to tackle this. It has been conceived in partnership with the Mission Possible partnership, whose ambition is "to trigger a net-zero transformation of seven industrial sectors", including shipping.

McLeod said that the industry was committed to become carbon neutral by 2050, as set out in a 2020 [Roadmap](#). It included a six-point plan of action, including fossil fuel reductions and increased use of alternative fuels, such as municipal waste.

Steel production accounts for [7% of total energy sector emissions](#), according to the Mission Possible Partnership, which launched a [net-zero steel sector transition strategy](#) in October. If fully realised, it would reduce the sector's carbon share of global energy sector emissions to less than 1%, [an accompanying statement](#) declared.

Australian shipping sets an environmental agenda



YM Efficiency lost 81 containers in heavy seas
(image: Australian Transport Safety Bureau)

Surrounded by pristine waters, Australia finds its priorities diverge from those of other regions

Teresa Lloyd, CEO of the shipowners organisation Maritime Industry Australia Ltd (MIAL), is at times, bemused. When she attends international shipping gatherings, “sometimes it feels like we’ve come from a different planet”, she shared with *ICS Leadership Insights*.

Her frustrations are rooted in the nation’s unique maritime situation. [An estimated 10% of world trade](#) passes through its waters – most of it bulk cargo exports – yet those waters have unrivalled environmental credentials and protecting them is paramount. But compared with other regions, “what the industry sees as being a normal acceptable risk, is off the charts for us”.

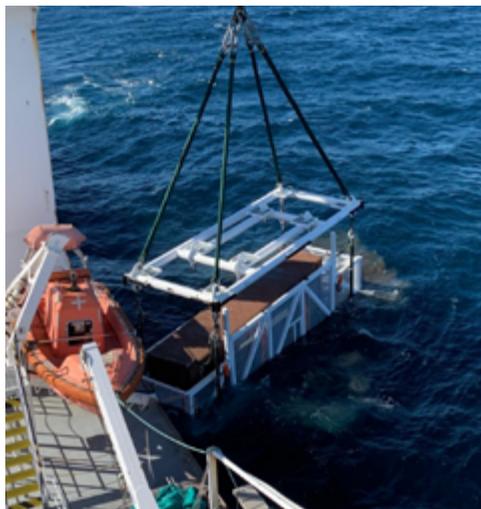
In Lloyd’s view, “if you make a mess, you clean it up”. For example, in 2018 the 4,250 TEU container ship *YM Efficiency* [lost 81 containers overboard](#) in bad weather off Newcastle, NSW. Many sank and much debris came ashore, but it was unclear who would pay the clean-up cost as Australia is not a signatory to the Nairobi Convention.

It was the Australian Maritime Safety Authority (AMSA) that organised the work and historically, in such cases the clean-up cost has been recouped through a levy on the broader industry. That is unacceptable, she said. “[To say] ‘we’ve done what we’re legally required to do,’ is not good enough.”

Angela Gillham is also frustrated. She is MIAL’s Deputy CEO with a particular brief on environmental matters and, when looking at Australia’s commitments on climate change, finds them lacking. For example, although it has been clear for some time that it is necessary to do so, the coalition government had not made any commitment to aim for net-zero carbon emissions until less than a week ahead of COP26, because its two coalition partners hold divergent views on the necessity and benefits to the nation of strong action on climate change.

This very recent change in policy in the lead up to Glasgow has occurred following clear support for a zero-carbon goal by 2050 from the Australian community. Gillham noted coverage in large circulation newspapers and business groups such as the Business Council of Australia, which [published a report](#) on 13 October setting out a possible route for government.

Australia has been slow to transition to offshore wind power as cheap energy has



AMSA organised the clear-up after YM Efficiency’s container spillage (image: AMSA)

been on tap from its coal fired power stations. However, this looks set to change with the imminent passage of legislation and a number of windfarm projects are in the planning stages. The federal government is heavily invested in the new hydrogen economy and views hydrogen – eventually to be produced from renewable sources or with assistance from carbon capture and storage – as a potential future replacement for its LNG exports.

Within the shipping community “there’s a huge amount of uncertainty about how we are going to meet our emissions reductions obligations”, Gillham said,

Securing shipping’s ‘vital’ role

“Shipping is vital to the Australian economy”, Barnaby Joyce, Deputy Prime Minister and Minister for Infrastructure, Transport and Regional Development told *ICS Leadership Insights*. Australia is the fifth largest user of shipping services in the world, he said, with 99% of its goods by volume and 80% by value moved by sea.

“Importantly, shipping carries our bulk exports such as iron ore and coal and takes our agricultural products to the world”, he said, acknowledging that “we rely on shipping for the imported goods we use, from the items in our houses through to critical supplies, including medicines”.

Yet very little of these cargoes are carried on Australian ships. There are only 13 Australian-flagged ships over 7,000gt plus about another four or five that are Australian-controlled, said MIAL CEO Teresa Lloyd. Even its domestic cabotage trades are mainly served by foreign vessels. Instead of being a significant flag state, “we are a huge port state” with 64 working commercial ports, she said.

This has consequences for the broader shipping industry. “We need master mariners and chief engineers coming ashore to fill critical roles” in these ports and elsewhere, she said. Not only that, but with so little domestic tonnage “we just don’t have a capability to look after our nation if we needed to”.

To address this, the MIAL has proposed to the government that a strategic fleet should be established, supported by fiscal policies similar to those available in other jurisdictions.

Precise details are still being developed, but MIAL’s vision is that there would be “a specified suite of vessels that would be privately owned and operated in commercial trades”, Lloyd explained. Because they will rely on support – such as beneficial treatment for corporate tax and seafarer income tax – they would be Australian-flagged and crewed and be available to the government should they need to requisition maritime assets.

COVID: Australia's state of play

Australia has some of the most restrictive COVID travel restrictions in the world but that is expected to change on 1 November, as this issue of *ICS Leadership Insights* is published. How significant that will be for shipping, remains to be seen, however, because states need not follow the national guidance.

Since March 2020, its borders have been closed to almost all international travellers wishing to enter, while Australians have required an exemption to leave. But on 1 October, [Prime Minister Scott Morrison announced](#) that “there will be no travel restrictions if you are a vaccinated Australian entering or leaving our shores”. Its introduction timetable, however, will vary from state to state: 80% of a state's population must be vaccinated for states to consider opening their borders

That federal system has created a two-tier crew-change model during the pandemic, according to Sarah Cerche, Director, Workplace Relations, Domestic and International, at MIAL.

Although at the federal level, [exemptions were introduced for non-cruise seafarers](#) in April 2020 to recognise their “unique and strategically important role in Australia's supply chains”, states were allowed to adopt additional protocols “which most of them promptly did, meaning we have different rules across the jurisdictions”, Cerche said.

She singled out Queensland as an exception, which has been able to facilitate international crew change throughout the pandemic, albeit with [strict measures in place](#) including testing, quarantine periods of no more than 14 days and use of PPE. About 250 crew changes per week are taking place in the state, Cerche estimated.

Crucially, seafarers have never been formally recognised as key workers – which the MIAL has called for. This particularly affects Australian seafarers who need to cross state borders to reach their ships, MIAL CEO Teresa Lloyd explained. “Our domestic seafaring cohort ... has been decimated

because of the domestic border closures”, she said. “It's easier to bring in seafarers from overseas than it is to move someone from Sydney to Perth” for domestic operations, she said.

And the extra costs of, for example, hotel quarantine, COVID testing and overtime payments for crews because time on board has been extended have added millions of dollars to shipowners' costs, she said. “A lot of these seafarers have done five or six rounds of hotel quarantine in the last year”, she added.

Even with the latest government announcement about easing restrictions, she is not confident that things will soon improve, especially in Western Australia which is one of the two most important states – alongside Queensland – for seafaring activity. It has so far had very little COVID so “they might wait until the vaccination levels are well above 90% before they even think about easing restrictions”, she said.

since there are no carbon-free fuels yet available. There is a lot of interest in biofuels, she said, but they are not available in large quantities in Australia and the cost difference between them and conventional fuel is significant.

Faced with those hurdles, MIAL members would like the government to “create some kind of incentive programme or [establish a] policy position to help them transition”, she reported (see box, page 15).

Meanwhile, like many regions around the world, Australia is considering its approach to ships using open loop scrubbers in ports. AMSA's [Marine Notice 2/2021](#) – issued in April and updated in July – says that although wash water discharges are currently permitted, “vessel owners, operators and Masters are encouraged to avoid discharging wash water within Australian port limits”.

However, AMSA has commissioned a study from the government's Commonwealth Scientific and Industrial Research Organisation “to assess the potential cumulative impacts of wash water discharges from open-loop EGCS over time”. Gillham expects this to be finalised by the end of the year.

“They are taking a fairly pragmatic approach”, she believes, and anticipates a port-by port recommendation.



China sets records for import and export values

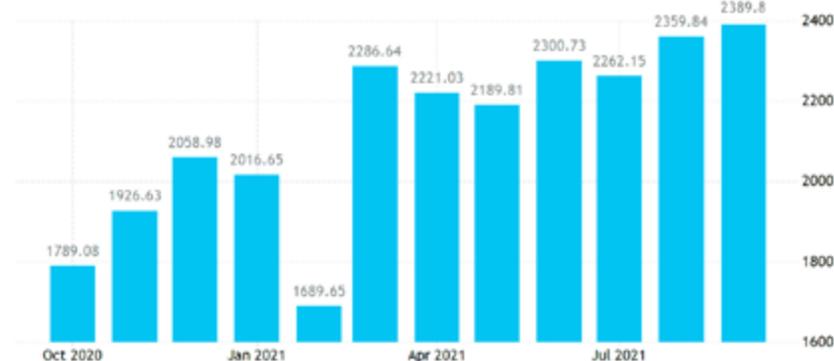
Despite its [COVID-related port closures and congestion](#) earlier this year contributing to global supply chain problems, China's imports and exports both reached all-time highs in terms of value in September, according to data from Trading Economics.

[Imports rose 17.6%](#) year-on-year to US\$239.0Bn while [exports jumped 28.1%](#) to US\$305.7Bn it reported, based on figures from China's General Administration of Customs.

In its analysis, Trading Economics said that China's energy demand remained strong, boosting imports while there was "a slowdown in inbound shipments of semiconductors and lower import volumes of industrial metals due to environmental curbs and cooling construction activity".

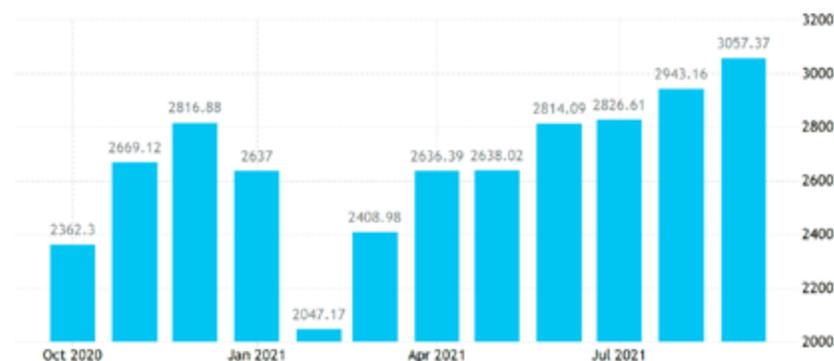
On the export side, the analyst highlighted significant sales uplifts to the US (30.6%), the EU (28.6%) South Korea (27.9%), Taiwan (26.6%) and Australia (23.8%).

China's import values, October 2020 – September 2021 /US\$100 million



SOURCE: TRADINGECONOMICS.COM | GENERAL ADMINISTRATION OF CUSTOMS

China's export values, October 2020 – September 2021 /US\$100 million



SOURCE: TRADINGECONOMICS.COM | GENERAL ADMINISTRATION OF CUSTOMS

ICS is the principal international trade association for merchant shipowners and operators, representing all sectors and trades and over 80% of the world merchant fleet.

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