HOUSE OF COMMONS

Environmental Audit Committee

Oral evidence: Net zero aviation and shipping, HC 520

Wednesday 26 January 2022

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Watch the meeting

Members present: Dr Matthew Offord (Chair); Duncan Baker; Barry Gardiner; Sir Robert Goodwill; James Gray; Caroline Lucas; Cherilyn Mackrory; Jerome Mayhew; Valerie Vaz.

Questions 170 - 253

Witnesses

I: Mike McCartain, Group Director of Safety, Marine, and Engineering, Associated British Ports; Guy Platten, Secretary General, International Chamber of Shipping; and Dr Tristan Smith, Reader in Energy, and Shipping, UCL Energy Institute.

II: Alex Clark, Researcher, Smith School of Enterprise, and Environment, University of Oxford; Katharine Palmer, Global Head of Sustainability at Lloyd's Register, and High-Level Climate Champion's Shipping Lead at United Nations; and Michael Parker, Chairman, Global Shipping, Logistics & Offshore, Citi.

Written evidence from witnesses:

Associated British Ports

UCL Energy Institute, Centre for Research into Energy Demand Solutions (CREDS), Decarbonising UK Freight Transport (DUKFT) and UMAS

University of Oxford

Examination of witnesses

Witnesses: Mike McCartain, Guy Platten, Dr Smith.

Q170 **Chair:** Good afternoon. Welcome to our third session on net zero aviation and shipping on the Environmental Audit Select Committee. We are very pleased to have three witnesses this afternoon, who will be answering questions that we have about policy instruments and market-based mechanisms and incentives for shipping to decarbonise, and particularly to support ports and infrastructure investment.

Can I ask you to introduce yourselves and the organisation that you are from, starting on my left? Dr Smith.

Dr Smith: Thank you. Dr Tristan Smith. I am an associate professor at University College London in energy and transport, and a director at UMAS.

Mike McCartain: Mike McCartain. I am the group director for engineering safety and marine at Associated British Ports. We are the largest ports group in the UK.

Guy Platten: I am Guy Platten. I am secretary general of the International Chamber of Shipping and National Shipowners' Association, representing about 80% of the world's tonnage.

Q171 **Chair:** Thank you very much for your time and for coming along this afternoon. This is a very important inquiry. I am aware that the amount of emissions that come out of your industry account for about 2.7% of all emissions. If that industry was a country, it would be the sixth largest emitter of emissions in the world. We feel that this is a very important aspect of our inquiry and we are very pleased that you are here today.

I will start with the first question. The Government have published "Maritime 2050", the "Clean maritime plan" and the transport decarbonisation plan. What are your impressions of these Government strategies to reduce shipping emissions, how effective they are and where they could make improvements? Who would like to start?

Guy Platten: The strategy is fine, it is good, but it needs to be backed up with practical action as well. As an industry, we are committed now to net zero by 2050. We want to move fast but we need Government to work with us. That means investment in infrastructure; it means investment in research and development and in production of clean fuels if that is to happen. As an industry we are ready for this, but we need not just a strategy but to operationalise that strategy and put it into place because 2050 is not that far away now.

Mike McCartain: From a ports perspective we are very much aligned, and we do follow what our customers need and want, too. It is ironic that the IMO is just down the road here; plainly, being a maritime nation, we are a major player in the leadership of what should be happening with shipping, and the ports will follow along to support our customers.

One thing we should be considering too is modal change, because a lot of ports are connected with rail. That connectivity is so important for the supply chain and plainly gets more and more vehicles and lorries off the road. In the whole supply chain, there is a net saving that could be made there with ships, road transport and rail, as well as ports. That does require some investment but first we need some very strong leadership to get industry to change and align to that vision of 2050.

Dr Smith: I think the documents that you have referred to are a missed opportunity to provide either clarity of policy direction or a stronger signal on funding and how it would be used. It is either of those two that would unlock investment in the business cases, which would advance the technologies that we need.

What was also a missed opportunity was the potential to connect them to energy and infrastructure plans for the UK. I found all of those to be quite a technology-centric perspective on decarbonisation. A lot of the shipping industry's missed opportunity to reduce its emissions today comes from well-known market barriers and failures that have been evident for decades, to do with the way that chartering arrangements are made, the interface between ports and ships and how ships could optimise their voyage arrivals and speeds. That relates to behaviour change, and that is a perspective that is not as strong in those documents as we think it could be.

They also tread this very difficult line—it is particularly difficult for shipping, so this is an acknowledgment that it is a major challenge—between what is domestic and what is international, what is within jurisdiction and control of the UK and what is not, and how we interface with the IMO. Given the speed at which the IMO is moving, there needs to be less reticence to wait for the IMO and more aggression towards how we control the international shipping portion of emissions that relate to the UK, particularly now that it is in the carbon budget.

Q172 **Chair:** We are anticipating a review of the "Clean maritime plan" probably this year. What would you recommend that the Government should include in that plan? What should be their main priorities?

Guy Platten: I would like to see the ambition to produce low-carbon fuels at scale. One of the issues that we have is that a lot of Governments across the world will talk about being a centre of zero-carbon fuels but we are not seeing what those plans are.

We had a major event at COP26, a shipping conference, and we had the Minister of Energy and Mining from Chile. He explained that their ambition in Chile was to produce 150 million tonnes of green hydrogen in the next 10 years, per year. There were a lot of very, very senior shipowners and chief executives in the room and you could see the gasp in the room because suddenly they could conceptualise what they needed to do. I would like to see it move away from, "We are going to be the research and development centre. We are going to do this," to, "As a United Kingdom, we are going to commit to producing x million tonnes of

green fuels," because that will be a strong signal for shipowners to move into this field and to unlock the investment that is needed.

Tristan quite rightly talks about needing more political leadership at the IMO and we need to get the regulated certainty. One very senior shipowner stood up at this conference and said, "We want more regulation," which is highly unusual for a businessman to say, but it is true because, without that regulation, without that certainty, it is holding back the investment that we need to put in to achieve a zero-carbon future. What I find, speaking to shipowner after shipowner, is that everyone has the memo now and they want to do this. It is a strange situation where the political leadership is falling behind what the industry wants to do on the zero-carbon future.

Mike McCartain: From a ports perspective, there is, "Is it hydrogen? Is it ammonia? Is it LNG?" The currency of LNG seems quite strong at the moment. We also want to be able to provide green electric plug-in points for vessels when they come into our ports. We have just started to do that with Southampton, but that is again about access to the grid, the local grid, and the infrastructure to help with that so that you have that continuity in the supply chain for reducing those emissions. That is an important part of the equation as well.

Dr Smith: Perhaps I can divide some of the answer between two things. There are advanced solutions that are already well deployed internationally and the UK just has to catch up. Green electricity is one element of that but I don't know whether that is something that you need to fund. I think it is something that you just need to have a very clear policy about, because it is able to make a business case today if there isn't the uncertainty about whether it would be subsidised in some form. It is a clarity argument there.

Then there is the technology, which is less certain. I have a lot of sympathy for the fact that there is this unknown about which of the hydrogen vectors will be the most promising candidate fuel for all the different types of ships, because what might work for a large container ship calling in at Felixstowe or Southampton might be very different from what works for the offshore vessels or the fishing vessels. There will be a small subset that we think would definitely be electrified but there is still in the UK, even in the domestic fleet, a dominant role for a liquid fuel. That means a hydrogen-derived fuel, so there is a very clear need for the connection into this "Clean maritime plan" revision to the hydrogen strategy.

Where I am not sure that I have a clear view at the moment is on whether the UK needs to be a hydrogen producer for that to work. The UK has a potential role to be a hydrogen importer and to have some domestic production, but coupling this to hydrogen production in the UK, especially if that could be much more expensive than what we could bring in from elsewhere is something that still needs consideration before we throw it into that.

What is obvious, though, is in the hydrogen strategy where we focused on looking at generating hydrogen that could be put in the gas grid. If you had a prioritisation, using that hydrogen in the maritime industry would make more sense, given that heating, domestic heat, electrification and other uses of that hydrogen should be prioritised where there is a much harder choice for alternatives.

The final point I would make is that we risk—especially looking at what other countries are doing—coming across as rather UK-centric in a topic that needs to reach multilateral agreement at the IMO. Other countries are putting a lot into what they do with third countries, especially third, developing countries. That could be quite important for a hydrogen strategy, especially when you think about imported hydrogen. It is also important for technology development partnerships because a lot of the solution will need technology transfer. If we are going to have an equitable transition globally, the UK has the potential to lead domestically but also in partnership with developing countries. That can help a lot for some of the challenges that we have in UNFCCC and COP, where we have this very difficult multilateral agreement to reach, which requires us to show that we are working to help all countries move at a similar speed.

Chair: Excellent, thank you very much.

Q173 **Barry Gardiner:** Dr Smith, you talked about well-known market barriers when you were answering the Chair then. Can you expand on what those barriers are? What are the simple ways in which they can be overcome? You alluded to slow steaming as one of the things that you were talking to, but there are fleet efficiency improvements, there is electrification and there is zero-carbon fuel. Can you chart out for us what you see as those well-known market barriers within each of those?

Dr Smith: Some of it is often referred to as the landlord-tenant problem. It is not specific to shipping and the name obviously comes from the housing stock, where someone who owns an asset does not necessarily cover the fuel cost. If you have that misalignment and you do not have a commercial agreement that enables risks and opportunities to be shared, equally then you end up with inefficiencies and failures to crystallise the efficiency that might otherwise have been achieved.

Q174 **Barry Gardiner:** In shipping you are talking about what? Time charters?

Dr Smith: Charter parties. Within that, there are certain clauses, which have long existed, to do with requiring shipowners to travel at high speed and wait. That has created a lot of inefficiency. There are also informational barriers because the true savings that you get from various different interventions are not necessarily measured or transparently reported. Mike might be better placed to comment on this. I think there is an information-sharing problem in the operation of the sector as well, with a lot of the logistics detail still being managed in a very manual way, which prevents optimisation from being applied on an operational basis.

Q175 **Barry Gardiner:** If we can stick to optimisation for the moment, perhaps, Mr McCartain, you could address that and then Mr Platten as

well.

Mike McCartain: Previously, having worked for a shipping company, fuel optimisation—especially given where the fuel prices were going—was key. There are now on the market bubblers for hulls, all sorts of paints for hull surfaces and clever, regenerative-type plant systems to reduce the fuel consumption. However, as the fuel type changes, perhaps to LNG, one of the challenges that is presented to the companies is: where do we bunker this and so on, and what will that do to our routes and the permissions to be able to bunker and the infrastructure costs? From a fuels perspective, those are some of the challenges but they can be overcome with the right sort of support.

To your point on optimisation for vessels, generally that data will stay within shipping companies. It is not the sort of thing that will be shared across the sector because plainly that is confidential and important for our respective pricing points.

Q176 **Barry Gardiner:** You talked about the infrastructure that the ports might need for different fuel types. What sort of expansion of space might be required for that?

Mike McCartain: It will depend on the size of the bunkering arrangements and some of the health and safety considerations. It would depend on the size of the facility that you want to put down, as well as, of course, the local considerations and the planning ones. They are all time-led. By way of example, in Southampton, where we wanted to have a shore power facility there for the crews, we had the local council leaning in and helping, which was a great help to break through that initial barrier. Therefore, these things can be done.

Guy Platten: On the expansion to the port infrastructure, we have to remember that the zero-carbon fuels that we talked about—hydrogen-based fuels—are a lot less energy-efficient, energy-dense, than oil, for example, by a factor of five. You can do the maths in terms of how many ammonia tanks you might need to build by a port, or hydrogen tanks, in order to service the infrastructure.

In terms of the optimisation, I do agree that it is a bizarre situation where a ship under the charter parties is expected to proceed at full dispatch to get here and just hang about for weeks. We have seen the congestion of various ports around the world. There is certainly some work that can be done there in getting that right so that you proceed at a speed commensurate with the most efficient operation of the ship.

Q177 **Barry Gardiner:** Can I interrupt you there to ask what sort of regulatory framework would it be possible to impose to ensure that that is not in the charter party?

Guy Platten: That is work that we are doing as an industry as a whole now, because there is a great deal of pressure to improve the environment and these are the low-hanging fruits that you can do. It has been traditional, back hundreds of years, in terms of dispatching a ship.

These are things that are being worked on and that I believe are possible but it does need ports to talk to each other. Ideally, you sail from a port at the optimal speed—not the slowest speed, the optimal speed—to get to the other port to berth and discharge your cargo. That is the most efficient way and, if we can achieve that, that is some low-hanging fruit that can be taken now before we move to a zero-carbon future.

Dr Smith: The point that Guy is explaining is something that we have heard for a decade and this does need a regulatory framework. The IMO tried to advance something called the carbon intensity indicator, where the whole operational carbon intensity, the emissions per unit of transport supplier, are wrapped into a metric and that is mandated at a certain level of reduction. Unfortunately, because of a multilateral discussion that required everyone to agree—not everyone, but consensus—that is not very strong. However, the framework and the metric do not prevent individual countries from requiring a higher level of compliance.

From a regulatory framework perspective, the obvious opportunity for a country like the UK—and this is an A to E rating—is to say, "We would only expect ships with an A rating in our ports or we will do x—use your imagination." Therefore, there are frameworks that could be leveraged from the IMO to try to make this a more compelling case than just letting the market solve the problem.

Q178 **Barry Gardiner:** Thank you. Who is blocking them?

Dr Smith: The IMO?

Barry Gardiner: Who is blocking the IMO from introducing this? Is it commercial interests or is it Governments?

Dr Smith: It is Governments that were not able to—the IMO is a member-states process.

Q179 **Barry Gardiner:** What I am asking is: where is the pressure coming from? Is it commercial pressure on Governments or are Governments simply saying that this is not something that they are engaging with? Mr Platten?

Guy Platten: Yes, the IMO is a collection of Governments. It is not a body in itself, it is Governments coming together. You have to remember that there are different political interests out there within the Governments. If you are a developing nation and you are far away from your markets, you are going to be slightly more nervous about introducing more regulation. You have to get over those to bring people together. It is a consensus body, essentially, so it is about persuading all nations that they have something to gain out of moving to a zero-carbon future.

I hope we will talk about market-based measures but there is a real opportunity now to build that consensus among all nations, because the industry is absolutely committed and we know that we need to have a

market-based measure if we are going to transition to a zero-carbon future. It is about the politics of the IMO and trying to bring everyone with us on this journey.

Q180 **Barry Gardiner:** Your chamber has said that, "The resources currently being dedicated are not of the scale required to ensure the commercialisation of zero-carbon fuels and ships by 2030". You also said that it is as if COP26 never happened. There you have the different Government parties, just like at the IMO, and there is at least a mechanism for trying to ensure that funding is given from the wealthier nations to the developing nations in order to achieve that corporate build-up. However, is that happening at the IMO?

Guy Platten: We were very disappointed with what happened at MEPC, the Marine Environment Protection Committee. There were two days spent debating a resolution that was never going to get through, but that is the tactics of the IMO. We put forward comprehensive plans for a mandatory levy that all shipowners would pay on a tonne of fuel consumed. That would go to research and development because, according to the IEA, the amount spent on R&D in the automotive sector increased from 67 billion in 2009 to 130 billion in 2019 compared to 1.8 billion in maritime, so you can see the factor there.

This would be all shipowners paying this money. Of course, there are the other, larger shipowners, who have done quite well in recent months, who are already committed to spending a lot more on R&D. We thought it was a no-brainer because it is not going to cost the taxpayers anything. This is a fund put forward by industry but, although it has some support from quite a few countries, it still has not gone through. If we take that as a small sum of money to start with, to a market-based measure trying to get that consensus, it is going to need some strong political leadership in order to get that across the line.

Q181 **Barry Gardiner:** Has the UK been giving strong political leadership at the IMO?

Guy Platten: It could do a lot more at the IMO in terms of supporting the fund concept and supporting the market-based measure. We have put forward proposals—I am not saying they are the best proposals for market-based measures, but they are—for it to use its diplomatic soft power, which it has in spades to move this forward. I have just returned from Singapore and the UAE and, despite what is going on, we are still held in quite high regard. There is a great opportunity for the UK to be seen at the IMO, particularly since it is headquartered here in the United Kingdom, and to show some leadership on market-based measures and the R&D fund, all of which are quite mature proposals, which, if there was the will, could get through at the next session and come into force.

Q182 **Barry Gardiner:** Dr Smith, your research has shown that, even at the lowest international IMO level of ambition, to achieve the sort of greenhouse gas reductions by 2050 that are being talked about, the zero-carbon fuels such as ammonia would have to become the dominant fuel.

The Committee on Climate Change said that zero-carbon fuels would have to comprise the majority, 87%, of the emissions savings from shipping. What are the constraints to achieving that sort of change in the timeframe that we have?

Dr Smith: The constraints are the progress that we make, critically, this decade to lay the foundations for a very rapid transition over the 2030s and the 2040s, so a lot of our research has been to try to work backwards. We think you need a critical minimum volume of those scalable zero-emission fuels, the hydrogen-derived fuels, in use by the end of the decade, in eight years' time. That volume is approximately 5% of the energy use of the sector, which is about 30 million or 40 million tonnes of ammonia or equivalent.

That is why I do not fully agree with Guy on what went wrong at the IMO when it did not adopt IMRB. IMRB funds R&D. It does not fund deployment. These are technologies that people are already ordering ships to use. This is not a problem that we need to spend five years in a laboratory to solve; this is a problem that we solve by putting in deployment and use of these fuels over the next eight years, such that we get to that 40 million tonnes of use. If IMRB was not delivering that, it was not the right policy for the IMO to adopt at that point.

That does not mean that there is not a need for some R&D funding to be a component within what we adopt at the IMO. It means that we need to set our sights even higher. There are policy options on the table that would go a lot farther than IMRB. We will discuss them again in May and I hope that the UK will be in a leadership position in that debate.

Q183 **Barry Gardiner:** How can you be sure that the fuels that we are talking about are not from fossil-fuel feedstock?

Dr Smith: There is a process at the IMO that is developing guidelines under lifecycle analysis, which would enable the IMO to explicitly specify that at point of consumption the production and the supply chain of that energy commodity meet certain criteria, as we do already on the sulphur specifications of fuel. At the point of consumption, you are getting a specification of the sulphur content and that is associated with production. It is harder to do that for the greenhouse gas emissions associated with the supply chain, but that is the topic that the IMO is discussing and can progress. However, it is another part of the puzzle that needs to be solved.

Q184 **Barry Gardiner:** Finally, Mr Platten, the Government have talked a lot about nuclear in production of green fuels for merchant ships. I should declare an interest. I used to be a general average adjuster, so the number of engineers' logbooks that I have read is quite considerable, and I imagine that you have read quite a few as well. Would you feel that your average ship's engineer is going to be able to cope with nuclear modular reactors on board? How is this going to happen?

Guy Platten: I will not comment specifically on nuclear reactors because, if I am honest, I do not know the engineering behind them. Certainly,

when we move to the new fuels, there is going to be a huge amount of reskilling and upskilling of our seafarers in order to be able to safely handle and consume these fuels.

In terms of nuclear reactors, it is funny that two years ago that was dismissed out of hand by many people, but you do hear it increasingly talked about as a possible range of options that we need to adopt to get to a zero-carbon future. There is quite a lot of work being done in the UK on these modular reactors to make that happen.

Q185 **Barry Gardiner:** You are very careful in what you said about the need for upskilling. Of course, that is not just in one country. That would be around the world. As I say, you will have read many logbooks and you will know the qualifications of many ships' engineers. Do you feel that the Government have adequately addressed the need for a skills upgrading programme? Where is that education happening? What pipeline are we setting up now in order to educate people for the technologies of the future that they are going to have to cope with? How is flagging going to affect that?

Guy Platten: Not enough. In fact, I have had some calls and discussions this morning about this. We have set up—along with the International Transport Workers' Federation, the ICS, the IMO, the ILO and other partners—a just transition taskforce. That is looking at this whole idea of the green skills and the upskilling that we need to do. We must be very careful that when we upskill this is not just the sole province of the countries that are the most developed, the advanced economies, and that we make sure that those in the developing world can also take advantage of the new skills that are going to be required. It is something that I am passionate about—to get that work under way.

There is also an opportunity at the IMO next month to approve a revision of our standards certification and watch keeping, which much include also the transition to the zero-carbon fuels. Upskilling is going to be absolutely vital but let's make sure we bring everyone with us on that journey.

Q186 **Barry Gardiner:** Mr McCartain, from a ports point of view, what are the challenges that you face with the new fuels?

Mike McCartain: Some of them we have touched on, probably, in terms of storage and the regulation and the safety cases for them. That would be the first challenge for us. I would include in that, if it were to come to market, what some sort of modular nuclear reactor might be. It would be the same challenge.

Q187 **Barry Gardiner:** What planning considerations would there be for you in terms of a local authority if, coming in and out of your port with great frequency, there were modular nuclear reactors?

Mike McCartain: It might be that if something were to happen from an emergency perspective with any of those fuels—including the one that you just mentioned—it is how we at the port would deal with it with the local authorities. In terms of ammonia, if you did have perhaps an

ammonium cloud, then where it drifts to and the effects of that have to be considered. We have to do that with an awful lot of our tenanted sites. Those are the practical considerations. How does one mitigate those? Get agreement and then you can move forward in the planning process.

Q188 **Barry Gardiner:** What discussions are now taking place between the British Ports Authority and Government on creating the regulatory framework for the future that you might need in order to cope with those new challenges?

Mike McCartain: There are no specific discussions on that that I am aware of at the moment.

Q189 **Barry Gardiner:** If you were to write a recommendation that this Committee might put to Government, it might be to start some negotiations?

Mike McCartain: I would certainly start some very strong dialogue because very quickly, behind the shipbuilding programme, whatever we are going to put on there will plainly need a port infrastructure to support that, and we would want to support that, so they have to go hand in hand together.

Barry Gardiner: Thank you very much.

Q190 **Caroline Lucas:** I want to continue our focus on ports and infrastructure. Although you have already touched on some of this, could you say any more? In particular, in addition to providing alternative zero-carbon fuels and energy sources such as onshore power supply, what role can ports play more generally in supporting the decarbonisation of shipping?

Mike McCartain: Within the supply chain itself, I am pleased to say that there are several things that we can do and there are several things that we are doing. With regard to some of our machinery on the ports, including cranes. In fact, only today—this is timely—we have announced a framework for investment in a lot of new cranes in our ports. Where we can, we are trying to move to electric or hybrid to already make some inroads into those greenhouse gases. We have pulled down, in terms of consumption, some 35% since 2014. That is one example. Also, in terms of modal change, where we can with our customers, if they want to and the pricing point is right, we are putting more and more on to rail rather than via freight.

Q191 **Caroline Lucas:** Do you know what the figures are at the moment, to get a sense of how much is using road rather than rail?

Mike McCartain: I don't. Matthew, do you have any idea of that? It will vary depending on the port. The same with diesel consumption, especially with the red diesel tax and so on that has come in. We are moving a lot of our fleet where we can—our reach stackers to HVO and our normal fleet to hybrid or electric. That investment is happening as we speak, certainly with our ports.

Q192 **Caroline Lucas:** I appreciate you might not have the figures with you

now but would it be possible to write to the Committee to get a sense on, for example, how many parts of the infrastructure—like cranes—are dependent on diesel engines. I appreciate that you say that there is a change beginning, but it would be useful to get a sense of that.

Mike McCartain: We would be very happy to give you some information on that—delighted.

Q193 **Caroline Lucas:** Thank you, that is very helpful. Mr Platten, is there something that you would like to add on port infrastructure?

Guy Platten: Other than the fact that, if we are going to achieve the goals, there need to be significant strides forward in port infrastructure in the next 10 years. There are going to be some difficult conversations to be had with the populations in terms of the expansion.

We talked about the safety elements of ammonia. I know Singapore is doing quite a lot of work on the practical safety case now. It is going to be absolutely imperative because, unless the infrastructure and the bunkering facilities are there, you can build all the zero-carbon fuel ships that you want but you are not going to be able to fuel them. It is an important consideration moving forward and something we need to move in conjunction with the ports and Governments on to make it happen.

Q194 **Caroline Lucas:** In terms of what blocks it happening, is it essentially finance or is it stuff like, where is the space?

Guy Platten: It is a combination of things. It is going to be finance; it is going to be space. We talk about cold ironing. That is when you plug the ship into the local electricity supply and you can switch off the engines. However, the power cables and the size of the cables if you do that mean huge amounts of disruption and huge amounts of getting off the grid. All these things are outside of the control of shipowners. They are often in the control of Governments and planning and the ports themselves in order to make that happen. It is really important. We cannot decarbonise without that infrastructure there to support it.

Q195 **Caroline Lucas:** Dr Smith, did you want to add anything on this one?

Dr Smith: To try to answer your question on what is stopping it, we are still dealing with this in a very siloed way, from both a transport and an energy perspective. I think that the ports in future are going be proved to have been a crucial hub in both of those transport and energy systems, but we are still thinking of them as this kind of island and we still think of the UK as an island. We are looking at the UK as a domestic transport optimisation problem when actually a lot of the freight flows that come into the UK could well be routed into ports around the UK more efficiently.

The problem that we are trying to solve is how you get a good or a raw material from a point on the other side of the globe to a distribution centre or a retail output point. It is not just about trying to get into the UK and then efficiently distribute it through the UK. As long as we think of it in that way—in a very narrow, "Here are our ways into the UK—

Southampton and Felixstowe" way—we miss that opportunity.

That overlaps with the points that have been made by my colleagues about modal shift. It is not about, "Let's put it on trains instead of road." It is about how you bring it into the port that is closest to the distribution centre. How do you bring the system boundary that you are trying to solve the problem from to be outside the coastline of the UK? All the work that we have done with the DfT has consistently narrowed us down to that border of the UK.

The same is happening on energy. How can the UK produce hydrogen that it needs? That is not the question. The question is: what is the supply chain of the future for the energy systems that we are going to be part of? With electricity we are already in a much more interconnected system with Europe, so with hydrogen we need to be thinking about that now, rather than domestic production for domestic consumption. Until we get over that siloed thinking, that is what will prevent us from seeing ports at their maximum.

Q196 **Caroline Lucas:** That is very helpful, thank you. I want to come back to Mr McCartain. How can the Government support the UK ports to deliver green corridors—you have already mentioned—as they committed to in the COP26 Clydebank Declaration?

Mike McCartain: With the green corridors, it is how we would support that in terms of investment and infrastructure so that at those end points there is the facility for those vessels to be bunkered properly and properly fuelled. Otherwise, the green corridor going to those specific points would not exist. That is probably the immediate help that we would need.

Guy Platten: It is about having a firm strategy and plan in order to make it happen, as well as the financial commitments that are going to go with that in order to make it happen in terms of building infrastructure. That is not just the UK. That is around the world as well. We put forward the idea for an R&D fund. We know that more R&D is going to be needed for the port infrastructure as well.

We published a zero emission blueprint for shipping that outlines the urgent steps that we need to take in all these different areas and that identifies key projects. We would be very happy to send a copy of that to this Committee for consideration in your evidence. We cannot operate in silos any more. We have to work together to solve this. It is not going to be shipping and then port; it is going to be us all together, and Governments play a critical role in this planning and finance of it.

Q197 **Caroline Lucas:** Finally on the financing, which has been touched on quite a few times, it has been identified that the cost of providing and upgrading infrastructure to decarbonise global shipping by 2050 could be between US$1.5 trillion and US$3.5 trillion. That is a hell of a lot of money. Dr Smith, where are we going to get it from and what will the balance be between private and public, do you think?

Dr Smith: It depends whether you count IMO-generated revenue streams reinvested into the sector as public funding. If we do and the IMO is successful in landing a levy of some sort, quite a lot of that could come from reinvestment from the levy. The reasons to do that are more political than anything else, because it enables you to play with the redistribution of that revenue and reach an agreement in a multilateral process that is progressive. That is very hard to do unless we do something about the needs of the global south in that debate.

I am not suggesting that you need to have a levy to have the revenue streams, because the business case exists. If everyone has to comply with a certain fuel specification and if that business case invests, there is a cash flow for the owner of the asset to cover the costs associated with the use of a more expensive fuel. To a certain extent that has already happened with sulphur. We moved to a higher spec of fuel. That increased the fuel costs for the fleet and they absorbed it and passed it on to their customers. We as society then pay for that.

I am not saying it is as simple as that because, obviously, it does create disruption as that phase happens, but it is not the case that you do not have private sector investment that drives that transition. We did not need to have Government subsidising the sulphur transition. We did not need to have an IMO instrument that generated revenue streams. It worked. So I don't think you cannot expect a lot of that funding to come from the private sector.

Q198 **Caroline Lucas:** On the reference you just made to the global south, can you unpack what you said about that? Were you essentially saying that they would be understandably resistant to higher costs at this point?

Dr Smith: Yes. If we go back to where you started the questions, if we move to a hydrogen-derived fuel and we do not get the production cost of that hydrogen to be very low, we are going to be paying more for the energy cost for transport, so we increase transport cost. The consequence on economies for whom export is a key element of their economic development, and especially economies that are very remote from their markets—certain parts of South America have been very vocal at the IMO process because they are remote—is they then see transport cost increase as increasing their disadvantage.

Q199 **Caroline Lucas:** How do we address that? Is it by having differential levies depending on whether it is GDP or geography? How you would do it? Is there a proposal?

Dr Smith: Yes, there is. You can address that if you have a revenue source and you use that revenue source to address the needs. I am talking about the South American concern but there are also SIDS and LDCs, who are under-represented at the IMO but who all have much more fundamental needs to overcome too. However, you have the ability to do that with a revenue source at the IMO, which is why we do not see why that has not been prioritised more. Guy would say the same thing, perhaps. It does have the potential to be solved.

The other solutions that mandate the fuel transition, such as a fuel standard—there is a proposal by the EU, the low greenhouse gas emission fuel standard—do not have a revenue-generation scheme. The only way that you can do anything about an equitable transition or an equity-driven process is to create exemptions for certain countries, but all that does is leave them behind technologically. We cannot see a solution to the need for an equitable transition to be balanced with mitigation if you go down that route.

Caroline Lucas: That has been helpful, thank you.

Guy Platten: To build on that, that is why we put forward proposals for a market-based measure. Any market-based measure introduced has to be equitable and it has to meet the needs of the developing nations of the south. A simple levy on fuel, on CO_2, if that was distributed in the right way, could be used to ensure that the developing nations got their fair share of the investment that is going to be needed in order to make this just transition.

It is absolutely critical that we get a market-based measure in place. We think it is a two-step process: first the R&D fund—the IMRB that we talked about earlier—and then the market-based measure, which could also be a levy-based system, and then to use that money effectively to help decarbonise the industry and give the support to the developing nations. We do think there is a key role that the UK can play, given its track record in this area, to support and to move this forward at the IMO.

Caroline Lucas: Sorry, I think I have strayed slightly into Robert's questioning. Thank you.

Q200 **Sir Robert Goodwill:** Thank you very much indeed. It is a little bit like the electric car situation. It is fine while a lot of people have petrol and diesel cars and they are paying a lot of vehicle excise duty and fuel tax, but as you get more and more people getting cleaner vehicles, the income from the levy will fall just at the time when you need to be putting more money into the subsidy for the green fuel. While I can see how a levy collected by the IMO, which is then distributed in some way to subsidise greener fuels, will work at the start, what is going to happen at the point when we get to full transition? Are we going to expect the industry to work on a higher cost level?

Dr Smith: Two things mitigate that and help the scenario that you describe. One is that the higher costs of using a new fuel occur at the beginning of a transition. As you go through a transition you have learning effects that reduce the costs. We have seen that with renewable energy. I do not want to presume at this point, with all the uncertainty, that we end up learning so much about how to make hydrogen and its co-products very cheaply that it is equivalent to the HFO prices that we have today. However, what you described is exactly why we must not turn decarbonisation into a fuel-only mission, because there are efficiencies that, if you bring them in in parallel, mean the fuel might be more expensive but you need less of it.

We also need to go back to the discussion about wind assistance technologies, which have been sidelined because they are not quite as sexy as the alternative fuels but again will reduce the energy needs in the sector. If you combine wind and energy efficiency—all the missed savings of efficiency that we have mentioned that exist already in the market and could be solved over the next couple of decades—with technology learning, the actual transport cost increase by the time we get to 2050, and the revenue streams are disappearing because we do not have the fossil revenues, could be close to where we are today. That is something that we can design a process to achieve and we are designing that process.

Q201 **Sir Robert Goodwill:** Turning to Mr Platten. I recall when we were taking evidence from the aviation industry about alternative fuels that they were very attracted to synthetic liquid fuels because they could put them in the existing aircraft that they already had. As far as these new fuels are concerned, will some of them go in the existing engines, will we need different bunkers on the ships or do we need to look at the turnaround time of building new ships to be suitable for the fuels?

Guy Platten: Certainly, for the biofuels and liquid fuels, existing engines can be adapted. However, that is never going to be the true answer because you are not going to be able to produce them sustainably at scale in order to make it happen. They can be used in the short term, and they are by some shipping liners. They will use a proportion of synthetic fuel in their bunkers as well. You are going to have re-engine or build new ships.

There are some encouraging signs. For example, Maersk has ordered 12 or 14 methanol-powered or methanol-enabled ships. Other companies are doing the same sort of thing. We have 60,000 ships out there so it is going to be a big opportunity for shipbuilding in the future if, as we hope, we go down a zero-carbon fuel route, because they are going to have to adapt to the new technology.

Q202 **Sir Robert Goodwill:** What is the typical life of a ship at sea?

Guy Platten: We always say the lifetime of a ship is about 30 years. It does depend on which sector and which trade but it is about 30 years. Some ships go on a lot longer than that and some ships that are perhaps less well maintained go to the recycling yard sooner than that. That is why these are big decisions that we have to take now as an industry because we have an investment over that period of time. We cannot really hang about with this because, the longer we leave it, the more challenging the 2050 target becomes if we really are going to transform the industry.

Q203 **Sir Robert Goodwill:** It will be 2052 when the ship that we build this year is decommissioned, so we have already missed that target.

Dr Smith, you said that the IMO does not really have the ambition. Is that because unless you are Greece or a country with a massive shipowning fraternity it has not been seen as the area where progress

can be made on global warming? Is it because it happens in international waters and it is not something that states can control?

Dr Smith: No, I think it is just because it is a multilateral process with 170 Governments that are trying to reach a very difficult balance between achieving greenhouse gas reductions and managing their own national interests of maintaining trade and trader in a competitive way.

I am sorry I am not being very clear on this but you cannot blame the organisation. We could have a much greater spotlight shone on the IMO negotiations. They have become more transparent and we can hear what countries say. As researchers, we have been very disappointed by some of the allegedly progressive countries, like Europe, that have not been a voice for progress and ambition at the IMO, as much as we would like them to have been, in the way that the UK was in the meetings last year. That will help us to see how we can make sure that we can work with allies that we would normally have in some of the UNFCCC processes and bring the same positions that they take at UNFCCC into the IMO. However, it is a long process that needs a lot of investment and effort, including from Foreign Office-type activity.

Q204 **Sir Robert Goodwill:** Following on from that, do you have an opinion on what a suitable price would be to stimulate emission reductions as a matter of urgency?

Dr Smith: We think that you can do a lot with relatively low carbon prices around $50 to $100 per tonne this decade because, if you recycle those revenues and target them at the subset of the fleet for which the early use of zero-emission fuels is the cheapest, you can get quite large volumes of use built up, just as we did in the renewable energy sector in the UK. However, you would need to step up the carbon price in the 2030s to something around $200 a tonne in order to get that to be a mass-market transition.

Q205 **Sir Robert Goodwill:** Finally, to Mr McCartain. We seem to be in a VHS/Betamax situation at the moment. If you are port owner, do you put in ammonia storage or do you put in hydrogen storage? What do you do? Because it is a global industry, do you forecast that there could be problems where ships arrive at ports where they do not have the fuel that they need? Do we need some sort of global leadership in terms of suggesting where we should go, or should the market be allowed to decide and we get a few problems where people put in a lot of their money in storage and find it is the Betamax and not the VHS?

Mike McCartain: I could add to that. It could be Blu-ray as well, couldn't it? Generally, we are market-led, customer-led. If it did come down to some sort of standardisation, plainly that would enable us as an industry to move much, much quicker to support our customers. Otherwise, with different companies having different requirements, plainly we will tailor what we can in terms of infrastructure to meet their needs and requirements. That is pretty much the polite answer. Unless something as

heavy as legislation or intent leads and we can follow, we will generally be looking to follow our customers and support them as best we can.

Q206 **Sir Robert Goodwill:** There are some big players like DP World in the ports market. Do you talk to other competitors about where this might be going? Are you allowed to talk to them because of competition rules?

Mike McCartain: DP World is part of the Southampton port, so we have a strong dialogue with it. Our dialogue has always been, "Where can we help you?" It might be cold ironing or electric supply to vessels and so on. We are always trying to lean into our customers to ask what they need from us from an infrastructure perspective. That is pretty much where we are.

Q207 **Barry Gardiner:** Following up on the question from Sir Robert, I thought the Clydebank Declaration had in it something about a twinning arrangement between ports and creating those green corridors. Where there are clearly established routes where you are taking bulkers and you know exactly what they are going to be carrying—soya or grain or whatever—from a particular market and they are coming into Southampton or wherever here, is there not the possibility of ensuring that there is a twinning arrangement between those ports so that instead of saying, "We will wait and see what our customers want," you as ports can take a real initiative here and go out and be proactive rather than just saying you will wait and see what happens.

Mike McCartain: I think we could. We have already talked about the whole variety of different types of fuels that might exist. Currently that will be rather tricky because you may go for the Betamax option and it is more VHS. From a green corridor perspective, yes, you could do that, however being cognisant that you are not disadvantaging, from a competitor perspective, other ports or companies, which would be the constraint.

Q208 **James Gray:** I want to ask you a little bit more about the IMO, which we have talked about a fair bit—both about the targets and the means of achieving them. Before I do that, can I ask you a more general point that has been puzzling me? I used to be in the shipping industry many, many years ago. If all the things that you describe are done here in Britain—for example, with port infrastructure or with regard to the UK-flagged fleet—that is absolutely fine. However, as we found at COP26, those of us with the best possible intentions and the best possible mechanisms to achieve those intentions are pointless unless the rest of the world does these things. That must particularly apply, surely, in the shipping industry, where a Liberian-flagged vessel carrying grain from Australia to the Arabian Gulf, we have no influence over whatever.

Therefore, am I being very naive in thinking that, unless the IMO do step up, we risk landing up in the position where the things we do here in Britain are first-class and very expensive and make us uncompetitive with the rest of the world unless we can persuade—throughout the IMO—international fleets and international ports to step up to the mark in the way that we have done. Is that a naive thought?

Guy Platten: Not at all. The one advantage our industry has is it is a global industry and it has a global regulator. That is the starting point, and if you can get that agreement it is incredibly powerful because everyone then complies with it. We have some great conventions, the SOLAS—the Safety of Life at Sea—convention, which came about after the Titanic disaster. You have the marine pollution, MARPOL, regulations, which came about after the Torrey Canyon disaster. These conventions are international conventions. When people are like-minded and get together, they can solve these real-world problems on a global basis because you are quite right that just doing something in the UK is great but it is not going to change the dial. The percentage of shipping emissions emitted around the UK is going to be negligible compared to the rest of the world.

I do feel, though, that the UK is in a unique position because the IMO is headquartered here. It has an extensive diplomatic network and it can engage with developing countries around the world to persuade them that there is a way forward. As I said in my opening remarks, as an industry we want more regulation because that will give us the certainty to make the investments that we need to decarbonise our fleet. That starts at the IMO in agreeing these amendments that we need to happen to regulations to make this happen.

Dr Smith: There are two ways to close the price gap to use a more expensive fuel. One is regulation. The other is to get the customer of shipping to pay some of the premium. One of the developments last year was that some of the large retailers—Apple, Amazon, IKEA—made commitments to use only zero-emission shipping from 2040 onwards and for a significant proportion of their supply chain to be zero-emission shipping by 2030.

That coalition and other initiatives like it—like the First Mover Coalition that was launched at COP26—have the potential for the market to drive use of zero-emission shipping, not necessarily globally but certainly into developed economies and certainly into the UK where we have that potential.

Q209 **James Gray:** Would you not agree that that kind of initiative is very worthy but it is extremely small-scale? For example, I used to work for the Australian Wheat Board and we used to move 500 million tonnes of grain a year, or some such, from Australia to Saudi Arabia or somewhere. They are not going to say, "Oh, yes, don't worry about it. We'll pay a bit more. That is absolutely fine." are they? The international grain traders are desperately trying to make these sales. It is a commercial matter; it is not an altruistic matter.

Dr Smith: It is not quite the same for the grain traders as it is for the containerised goods. If you look at the corporates that are making the most noise about some of these other initiatives, they include the bulk traders. Cargill has been one of the nosiest corporates on this area. It has been one of the founders of the Sea Cargo Charter, which commits the charterers to transparently declare the trajectory that they are on

towards a zero-emission point in the future and to work to enable that. These are all corporates that need to get finance from companies that see that they are moving to a zero-emission across all their areas of emissions, not just their Scope 1 emissions but their Scope 3 emissions. Shipping is a lot of big corporate Scope 3 emissions. I am not arguing that this gets you to 50% of the fuel use being hydrogen-derived but it gets you to 20% or 30% perhaps.

I think the question that you are asking is about timing, not about whether this happens or not. Does the UK expose itself by going for hydrogen a bit too early? Well, if that is a disadvantage, you then have the market lead to go and sell the technology and be a leader of how you put those supply chain solutions in globally. Surely that could be valued alongside the downside of having slighter higher—

Q210 **James Gray:** It is timing, isn't it? On the point that was mentioned before, I thought 30 years is a bit long for a ship, isn't it? Surely the insurance premiums make it much less than that.

Mike McCartain: No, 30 is the recognised number.

Q211 **James Gray:** When do Lloyd's additional premiums start? I thought it was 15 or 20 years.

Mike McCartain: Every five years you have to have a hull inspection.

Q212 **James Gray:** Therefore, timing is the point. One hundred years from now every ship that is built will have the capability and every port in the world will have the infrastructure, but that is certainly not the case now. My point really was: given the commercial necessity of the international shipping world and the trading world, they will surely do all they can to delay what the IMO is reasonably trying to do? Are they really altruistic? They are pretty hard-headed. Are Greek shipowners and Arab grain traders going to be as enthusiastic as all of you are?

Dr Smith: Look at the evidence of where the pilots and trials are taking place. They are taking place in Malaysian shipowner communities and in Greece. They are not driven by only Scandinavian companies and some UK companies. There is huge interest in this subject because of the risk. This is basically climate risk. If you build a ship now and you cannot trade it in 10 years' time and you have to write it off, that is a big problem. That is why you have some of the interest in the sector to be regulated. All they want is certainty so that they can have a book of assets and can see how they would be not writing them down.

Q213 **James Gray:** A final question, which is the one I am supposed to ask you: what more could the IMO be doing? How could it hasten to achieve its targets? What is it doing now and what would you like us to recommend that it should be doing?

Guy Platten: It could expedite some of things on the table—for example, the international maritime research and development fund. It could pass that at the next session. It could expedite the market-based measures in terms of giving some certainty there for shipping. That again is a political

thing that could go through IMO. There are things that it could do now in terms of the regulation that, with the right political will, could make it happen and would give a real certainty to the industry—that regulatory certainty to make the investment decisions. We know that shipowners are starting to put off their decisions, in terms of which ships to build, until they know, because they do not want to be left with—as Tristan said—a stranded asset in 10 years' time. The quicker the IMO can move, the better it is for the industry to get on with it and to get on with the job of decarbonisation.

Mike McCartain: The challenge is probably: how do we help them and lead it and help it through? We are a maritime nation; we have a lot of soft power and we have a lot of influence. It is literally up the road, the whole organisation, and we should be perhaps leaning in far more and helping it along.

Q214 **Chair:** Would you say that the IMO timescales for its strategy are appropriate?

Guy Platten: They are there, and the figures are there in terms of the review of the strategy. Can it move quicker? Yes, it can move quicker. However, that again is down to political will to make it happen. At the end of the day, the IMO is just a collection of 170 Governments. If it had the right direction, its delegations will make the decisions to make it happen. That is what it comes down to. It can move quicker if Governments want it to move quicker, and that is then political will.

Q215 **Chair:** I want to pick you up on the issue of political will. We consider political will—politicians. Is there a lack of political will within the IMO or is it that Governments need to have that will to put pressure on the IMO through their membership?

Guy Platten: The delegations that go to the IMO will take their instructions from their central Government. It needs the central Government to empower their delegations to make a deal. Otherwise, as officials will do, they will not make a decision, because that is the easiest thing to do.

Chair: It certainly is political will that is needed. Thank you very much for your contributions this afternoon. I have to say that it has been fascinating and very useful. Thank you for coming along. We appreciate your time.

Examination of witnesses

Witnesses: Alex Clark, Katharine Palmer and Michael Parker.

Q216 **Chair:** Good afternoon. Welcome to the second session of today's net zero aviation and shipping inquiry. This is our third session and our second panel this afternoon. Would you like to introduce yourselves, starting with Mr Parker?

Michael Parker: Thank you, Chair. Michael Parker. I am chairman of Citigroup's shipping and logistics banking business. I am also on the

board of the Global Maritime Forum and chairman of the Poseidon Principles Association, which may be relevant to some of your questions.

Alex Clark: Good afternoon. I am Alex Clark. I am a researcher at the Smith School of Enterprise and Environment at the University of Oxford.

Katharine Palmer: Good afternoon. My name is Katharine Palmer. I am the global head of sustainability at Lloyd's Register and I am also the shipping lead at the UN high-level climate champions team.

Chair: Thank you very much for coming along this afternoon. We are very interested in the evidence that we hope you are able to give us. This inquiry is very timely, given that we have just had COP26, and it is particularly relevant in the roles that all three of you no doubt played within that. Our first question is from Valerie Vaz.

Q217 **Valerie Vaz:** Can I start with you, Katharine? You are the United Nations climate champion. What exactly does that involve? Shipping was not part of the Paris agreement, but it obviously is. There are outcomes from COP26 that are relevant. Could you say what your role is? The key thing I am looking for is who is going to bang all the heads together. We seem to have a lot of different groups and I am not clear, having heard from the earlier evidence, where the accountability comes into it. Who is going to be holding everyone to account?

Katharine Palmer: Thank you very much for the question. The high-level climate champions are appointed by the COP presidency, so there is always an incoming and outgoing high-level climate champion. The high-level climate champions team was set up under the Marrakech Partnership to support the implementation of the Paris agreement, specifically focusing on the non-state actors. It is about mobilising commitment and action of the non-state actors, whether they be businesses, organisations, cities or regions. As we are seeing currently in the shipping industry, it is these non-state actors that can often move a lot quicker and mobilise themselves to take action. It is through this ambition loop that we drive action in non-state actors, to demonstrate and give confidence to the state actors so that they can then up their level of ambition from a policy perspective.

At COP26 we saw evidence of that across all sectors, where ambition was upped from the state actors but also from the non-state actors. We saw evidence of how that comes together. In the team I work in, we have sector leads across all sectors. Obviously, I am there to lead the shipping sector, but it is primarily focusing on mobilising action of non-state actors and then demonstrating that to enable Governments and state actors to up their ambition as well.

Q218 **Valerie Vaz:** These are the 150 organisations that came together to feed into COP26, is that right? Is that what you are saying—anything non-state?

Katharine Palmer: Yes. I work with non-state actors, so that could be anything from organisations, initiatives or private companies, all across

the maritime value chain, looking at whether it is commitments they make as individual organisations and joining the campaign that we run in the climate champions team, which is the Race to Zero campaign, or whether it is coming together to make sector-wide commitments. We saw initiatives like the finance community coming together with the Poseidon Principles. We have seen initiatives that have already been mentioned this afternoon from the retail cargo owners who use containerised shipping. They have made commitments. You can start to see parts of the maritime value chain making commitments to drive zero-carbon shipping. We have cross-collaboration commitments when we see consortia coming together, as we are seeing now with green corridors implementation and projects coming together around green corridors.

Q219 **Valerie Vaz:** Before we get on to green corridors, what would you see as the key outcomes from COP26 on shipping?

Katharine Palmer: I think that shipping had an unprecedented COP compared to all the other COPs. The shipping industry throughout 2021 came together and aligned themselves around that long-term intent of zero-emission shipping by 2050. It is about the alignment of the industry, and we were able to demonstrate that alignment on what is needed to Governments. We were able to get, as outcomes of COP26, commitments from Governments. We saw commitments from 14 countries to the zero-emission shipping by 2050 declaration.

The private sector went to COP26 with a call to action that was developed through the Getting to Zero Coalition, with over 260 organisations signing up to that call to action for Governments to put in place the enabling policy framework that is needed to make zero-emission shipping the default choice by 2030 and also to remove the ambiguity in the long-run target for shipping. We wanted a Government response and we got this Government response through the zero-emission shipping by 2050 declaration that was signed by 14 countries.

We then had the Government response through the Clydebank Declaration, which was committing to first mover green corridors, with 22 countries signing that to date and stating their intent to support the creation of green corridors. I think there are six by 2025 as the first target.

Q220 **Valerie Vaz:** Just quickly, you are saying there are 22 countries signed up to the Clydebank Declaration?

Katharine Palmer: Yes. To date it is 22 countries.

Q221 **Valerie Vaz:** That is not everybody in the world signing up to these green corridors. Can I turn to Michael perhaps? I am intrigued by this idea of green corridors in the sea in terms of shipping. I do not know if they have been identified anywhere. How do you see that working?

Michael Parker: We launched at the same time as the Clydebank Declaration. At the same panel that Robert Courts chaired that announced the Clydebank Declaration, the Getting to Zero Coalition also

announced the next wave, which is the green corridors, where the private sector thinks working with the relevant Governments will be able to create these green corridors. That work, which we call a pre-feasibility study, takes two of the major trade routes—the iron ore route from Australia to Japan and countries in between, and the container trade from Asia to Europe, which is the largest single trade route.

That pre-feasibility study, for which a lot of the work was done by the Energy Transitions Commission for the Getting to Zero Coalition, identifies that if you take the fuel production—what is key here is companies in Australia committing to produce the fuel—and you have the offtake, the cargo, being bought by the steel producers in Japan and Korea, then you have the ships built that will be zero-emission ships using those fuels and the bunkering ports able to provide it, and then you have the multilateral banks in the regions. You will be able to create these very large mega-projects for which precedents exist many years ago in the first LNG maritime trains. Because of the lower emissions that come out of that, cargo owners will be motivated to move their cargo on those routes. As the Clydebank Declaration says, clearly, there will be brown corridors living alongside the green corridors because this will be a transition period.

Because the fuel producers need to know there is the demand and because Australia is signalling an intention to move to the production of zero-emission fuels, that is what makes that possible. If you have all the parties that can be brought to bear in terms of the physical equipment and the fuel, that will actually happen.

The key thing to me in the Clydebank Declaration, as Katharine mentioned, is this commitment to getting six corridors up and running by 2025 or the middle of the decade. That is the earliest I have seen of anything in terms of actual things happening. If the 22 signatories, and I believe there will be more signing fairly soon, make things happen—and I think discussions are going on—then we will see the private sector work alongside those Governments to invest in the equipment.

As one of the previous panellists said—either Guy or Tristan—the ships, the zero-emission vessels, being on the water by 2025 is the view of many people in the industry. You have to start somewhere and then, of course, that will scale up over time.

Q222 **Valerie Vaz:** Just quickly on what you said, when will we know the outcome of that feasibility?

Michael Parker: I think that there is a lot of work going on this year and obviously discussions taking place between different countries. It goes back to the question earlier about port to port. I think that we will see a lot of announcements come out during the course of 2022, where under the Clydebank Declaration two or more Governments that have signed get together to create a green corridor.

The work of the Getting to Zero Coalition is a parallel effort indicating what could be done, but the expectation is that you need to create green corridors where you have willing parties to provide the mechanisms to subsidise the new fuels and you need to have corridors where the cargo trade is significant to make it noticeable. Then the belief, of course, is that that will ripple out into everywhere, and then the question of the take-up is going to be how quickly you can produce more and more fuel and build more and more ships that will use that fuel.

Q223 **Valerie Vaz:** The question is: who holds the pen on that? Obviously, we have the presidency up until now, but who is pulling all that together?

Michael Parker: I don't think anyone is pulling it all together because it is people of a same mind working together. I think one of the biggest drivers for this is the private sector because the private sector, whether it is finance or companies, is being driven by the zero-emission agenda in their supply chains.

One of the key changes taking place in the shipping industry is a recognition by the consumer that how the goods they buy are manufactured from an environmental perspective and how they are transported has an environmental impact. As soon as the consumer begins to recognise that, they will want to know how that thing they have just bought online is being delivered to them—not just in the white van at the last mile but also where it has been manufactured and how it is coming by sea. Because that data is increasingly available, consumers can begin to make those choices.

The Net-Zero Banking Alliance, GFANZ, the insurers, the banks and all the other financial institutions that made commitments in Glasgow have all signed up to commitments about net zero by 2050 in their portfolios. The private sector is going to drive this, but as the previous panel indicated, we need the IMO to help regulate that in order for the certainty to be there, with safety clearly being very high, if not highest, on the agenda as we move into these alternative fuels.

Q224 **Valerie Vaz:** The IMO consists of all the countries, but obviously the Clydebank Declaration is fewer. You mentioned that some more countries are going to sign up to it. Are you able to say which ones?

Michael Parker: No, I don't know. You will have to ask the DfT. I believe that the UK is very much leading the effort to get more signatories.

Q225 **Valerie Vaz:** Do you want to add anything to that, Alex?

Alex Clark: I don't think so. Perhaps this is a good time to preface further comments by saying that I am here as an author of a report on contracts for difference and the application to zero-emission shipping and I am not a shipping expert.

I will make a couple of quick comments. This is also in reference to Tristan's observation in the earlier panel that existing proposed subsidies under the IMO, or redistribution of revenues under the proposed levy, are focused on R&D, not on deployment. One of the benefits of moving in the

direction of green corridors is that, if the IMO or a nation state decides to support that sort of investment, it would be effectively a subsidy for deployment. There are many reasons why that is necessary and potentially more effective than pure R&D subsidies. I think I will stop there.

Q226 **Valerie Vaz:** Can I ask a question to all three of you? How do we make the Clydebank Declaration more meaningful?

Katharine Palmer: I think that we have to hold the signatories to account and to ensure that we have in the plan that the COPs will be used as that check-in on progress against the Clydebank. I think that this check-in on progress is very much being led by the Department for Transport. The Department for Transport will still take a significant role in the diplomatic effort to seek more signatories going forward, and we are hoping throughout this current year to be able to announce more signatories. We do need to hold those signatories to account through an annual check-in on progress under the COP umbrella.

Michael Parker: I would add to what Katharine said in terms of having the COPs act as that reminder to as many countries as possible to sign up. Once some of these corridors are announced, other countries en route within the ends of those corridors obviously have an incentive to sign up. As the consortia are announced for some of these corridors, from the private sector and from some of the financial institutions no doubt, I think that will create the snowball effect, because the private sector has to meet its targets for net zero. It is looking for things to invest in. It is looking for things to finance. What we need is to finance technologies that are seen to work and deliver those lower emissions.

I don't think that the role of classification societies in shipping has been mentioned so far this afternoon. LNG was used as a fuel before the IMO regulated it, so there is a view that some of these alternative fuels, including ammonia, could be put in use if the classification societies—Lloyd's Register, DNV, ABS and others—certify them as being safe. If the hull and machinery insurance sector and the banking sector say, "That is good enough for us," the investment will take place, and IMO will then catch up, we hope.

Alex Clark: I will perhaps underline the point that Michael just made about the importance of aligning incentives across the private and public sector. Obviously, you get into discussions about the detail and distributional equity and who should pay for what but, unless that is in place, it would be wishful thinking to an extent to assume that it is all just going to happen with the political will in place. There needs to be tangible, sensible policy in place to support it.

Valerie Vaz: Thank you all very much.

Q227 **Duncan Baker:** I want to move on to where the finance is going to come from for making these changes that we need in the shipping industry. I think nobody is under any illusion about the cost that is in front of us.

Can I go to Michael Parker first of all? Where should that finance start to come from?

Michael Parker: The capital markets at the end of 2021 had over $2 trillion of sustainable bonds outstanding. That essentially covers green all the way through to transition, and "sustainability linked" is the definition that now is used to cover the whole thing. There is a view that the actual issuance in 2022 could be over 1 trillion. This is what investors want to invest in. They want to invest in things they can see that have a direct impact in terms of reducing emissions.

The shipping industry is going through a radical change as we speak, for two reasons. One is digitalisation, which provides the data that enable us to measure the emissions. It means that the emissions of every item of cargo in the end can be tracked and measured. The environmental footprint of every manufacturer's supply chain will become a matter of public knowledge. Many big manufacturing companies, when that data does become available, will consider clearly changing how their supply chains work, unless, of course, they can get reduced emissions through a transition period, where you may use something like LNG or through the zero-emission fuels when they come.

Shipping has traditionally been banked by commercial banks for a number of different reasons. One is because shipowners like to build big ships and their assets and their security. There is obviously a big fabric of international maritime law and finance. I think that banks will continue to play that role in terms of the ordering and building of those ships initially and then the capital markets will, in effect, take over for the long-term financing.

The reason that shipping finance has been volatile goes back, I suppose, to the 1970s, when shipping finance was no longer against the long-term employment of an asset with a determined cash flow, which is how Aristotle Onassis and Niarchos replaced their Liberty ships. As soon as it became a spot trade with volatility that is how banks then started also losing money if they financed the wrong ships.

The decarbonisation of shipping is only going to happen because, first, the consumer is willing to pay for it, and that premium will pay for the decarbonisation of shipping with a very small additional cost on an item of cargo to the consumer; and, secondly, because of the long-term capital commitments the institutional investors—banks, pension funds and all those types of investors—want to make. That is why these green corridors need to be 20 to 25-year commitments. That changes the whole nature of finance of this.

The other thing that I think is important—we know from Covid and from the Ever Given how important shipping is and that it is, in fact, much more important than many people may have realised to the security of supply chains—is that if you decarbonise the shipping industry, you start to decarbonise every other industry. Immediately, there is a vested interest of the cargo owners, as Tristan mentioned earlier.

Sea Cargo Charter is one of many of the major energy companies and commodity companies who want to choose which ships to employ based on the emission profile of the ship that is being offered for charter. The coZEV alliance—these consumer companies in the States, including some in Europe, such as Unilever and Michelin—are going to drive the elimination of fossil fuels in their supply chains because they know their consumers and shareholders want that to happen. The whole nature of finance of the shipping industry is going through a transformation.

Q228 **Duncan Baker:** From what you are saying—I want to bring in Katharine Palmer in a moment—the market will very much help to dictate, and consumers have to come with it, but the risk with that is that it will be slow.

Michael Parker: I am not sure it will be slow, because I think that the speed will be dictated by the production of the fuel and the production of the ships. The shipyards are gearing up for this. We must not forget the transition period. That is going to be very important in order that the infrastructure that exists today and is continuing to roll out around something like LNG may be useful for those zero-emission fuels. The finance is there. The consumer wants it and I think that, frankly, will drive it much faster than people might think.

Q229 **Duncan Baker:** I will bring Katharine Palmer in. It is very useful to hear what Michael Parker has said. Do you think that there is still a case that the UK Government can help stimulate this transition? For instance, is regulation required at all?

Katharine Palmer: I am going to say yes. Although there are the market drivers that Michael has described, there is still a need to reduce uncertainty. In order to unlock a lot of the private finance that is available, it is about reducing uncertainty. In order to reduce that uncertainty, that is where we need a clear policy on the direction of travel. We need to lose some of this ambiguity that is in some of the policy ambitions at the moment. It is having unambiguous, clear, long-run intent in the policy but also putting in 2030 and 2040 milestones and targets along the way. I guess what we are saying is zero greenhouse gas emissions on a lifecycle basis by the time we get to 2050.

I think that having that statement of intent and, from a Government perspective, sharing in some of that risk, so that not all the risk is taken by the private sector and we have some risk-sharing mechanisms at the moment where we are in the transition, enables us to get to that scale of 5% by 2030 so we can prove the technology. I think that that more proven technology will increase demand and will also be able to reduce the costs of that technology so the uptake is then just taken up by the market.

Q230 **Duncan Baker:** Going back to Michael Parker, what we are seeing is probably what could be best described as some ethical stance in some of the lending that is coming out through the Poseidon Principles. That is a little bit of a departure from the pure market-based analysis that you just

gave us. Can you give us a little bit more understanding of what those principles are aiming to do and what difference it will make?

Michael Parker: Through the auspices of the Global Maritime Forum, I was asked to meet with someone from the World Bank and the Rocky Mountain Institute. They wanted to tell the banks which ships we should or should not finance based on their emissions. I explained that that is not how banks lend to shipowners or shipping companies. We met in the middle after 18 months of negotiation and drafting. We had originally started meeting with the energy companies and the commodity companies and they veered off after about six months because they felt the banks were going to be too prescriptive about what the Poseidon Principles would be. They then created their version, which is the Sea Cargo Charter.

The Poseidon Principles are the first framework that finance has created for any industry in terms of committing to align the emissions from our portfolio with the IMO's ambition, which is 50% by 2050. We will change that to net zero or zero by 2050 during the course of this year.

The key issue is the transparency around reporting what the alignment—in or out of alignment—is. We just published our second annual report. We get the data, by the way, from a regulation of the IMO that requires shipowners to provide the emissions data for the calendar year that has just passed. We take that data and, with the help of people like Tristan, we have a methodology that then enables us to measure the alignment of our portfolio against the IMO's ambition. This is now being followed up by other industry sectors—the same concept—to come up with a trajectory that will be towards Paris, clearly, as the objective ultimately.

It is going to change the nature of the business we do because we are transparent. Citigroup has just issued its TCFD report for the last year. There is a paragraph that I helped to write around our alignment with the Poseidon Principles. We are going to be judged by the financing decisions we may make. Because of Citi's commitment to net zero by 2050 in our portfolio—which our new Scottish-born chief executive, Jane Fraser, made on her first day in office on 1 March last year—the commitment to net zero means I and my colleagues have been challenged to make sure that our portfolio will meet those targets not just in 2050 but en route to that. All the banks that have signed up to the Net-Zero Banking Alliance are also going to have to make those commitments.

The business decisions we make have to be consistent with those things. Clearly, it is not going to be a smooth journey, because the data will change. Covid has obviously had a big impact on some of the transportation emissions. It is the transparency that is key. The financing decisions we make we will be judged by, and what that will mean is that certain types of shipping that we would have financed or refinanced will not happen. The major shipping banks will not do it. It also means that we will be very keen to finance the zero-emission vessels as soon as there is that opportunity. Again, it is the virtuous circle of motivation

that, as soon as the shipyard can produce it, because the fuel is there to power it, the banks will want to finance it.

Q231 **Duncan Baker:** Considering you are the architect of the Poseidon Principles, when you have finished with those can you turn your attention to the building and construction industry? Aviation and shipping emissions combined are still lower than what is emitted in the construction industry. That is a little plug to watch PMQs, or after, next Wednesday, when my ten-minute rule Bill comes in about that.

Barry Gardiner: Shameless, shameless.

Duncan Baker: Shameless but very good. To finish off, some leading companies—as was mentioned a bit earlier on in the first session—such as Amazon and Ikea, are already leading by example. That is all very well and good, but if they do that are there any unforeseen consequences in terms of the impact for the UK remaining a global hub for shipping? Would it quite simply make us more uncompetitive than some of those other nations that choose to go at a slower rate?

Michael Parker: I do not see why it should. I think the issue for the UK is one of executing the Clean Maritime Plan and being a producer of zero-emission fuels. The UK is no longer a major shipbuilder of very large ships, but the UK has a lot of maritime technology companies.

I suppose the point I was going to make earlier is shipping is no longer about the ship; it is about the supply chain and the emissions. The ship is clearly the physical means of moving the cargo, but the cargo is what emits the emissions. Physically, the ship has the funnel, but a ship does not move unless someone wants to put their cargo on it—a slight difference, clearly, with passenger shipping and the cruise industry. It is about getting the physical ship to produce as few emissions as possible, but the cargo is what is going to be defined by it. There is a debate going on at the moment in certain sectors around charterers and owners and who should pay carbon taxes and things. It will be the cargo in the end that is seen by the consumer as being responsible for those emissions.

Q232 **Barry Gardiner:** On that, Mr Parker, I used to deal with Carnival Cruise Line as well as some Liberty ships—still going in those days. My comment would be that passengers are just more difficult cargo.

Can I turn to you, Mr Clark? You are here because of the work that you have done specifically in relation to financial incentives and contracts for difference. Of course, they are very familiar to many of us from the energy industry. Perhaps you could outline what their advantages might be, in terms of contracts for difference, over other forms of fiscal incentives and why you think they are so critical. Could you perhaps also distinguish between the two types of contract for difference that you have specifically spoken about, looking at the fuel or looking at the total cost?

Alex Clark: Certainly. Just to set the scene a little bit, why do you need an incentive in the first place? The shipping industry is competitive but it is also very concentrated, in some segments more than others. Although

there is certainly a consumer movement that is pushing it in the right direction, Mr Baker was correct that it is not likely to move fast enough, not least because we needed to start building zero-emission ships two years ago.

One of the reasons for that is there is a first mover disadvantage, where if you move to a zero-emissions fuel, that is significantly more expensive than standard fuels used on the market today. That is the case for hydrogen, ammonia and ethanol. There is an immediate hit. What a contract for difference does—I will get to the detail in a minute—is that it is essentially a risk-sharing mechanism that apportions some of the uncertainty to a public sector entity, whether that is the IMO, the UK Government or whoever else.

Before distinguishing the two versions of the CfDs that we have gone into in the report, there is the question of why this sort of mechanism rather than a different incentive. Perhaps the other two broadly fall into something like a feed-in tariff, which has been used for the electricity sector, or a flat subsidy, including subsidies for capital costs and so on. One of the advantages of a contract for difference is that, first, it is agnostic as to the source of funds. They could be generated from within the industry. It could come from general spending. It does not matter too much to the design of the CfD itself. Perhaps more pertinently for Government—

Q233 **Barry Gardiner:** Why is that true? There has to be certainty about the ultimate payment of that contract. Therefore, who is paying it is material. When you are dealing with energy and it is either guaranteed by Government that the bill payer will pay it or that the Government will pay it, then there is certainty. Why would that be the case if it were done within the industry?

Alex Clark: I mean that, legally speaking, at least there is a pot of money that is paying out the contract and typically that would be separate from the source. To use the UK Government's existing institutions as an example, the Low Carbon Contracts Company plays this role for CfDs for electricity. You would need an escrow account, to all intents and purposes, where, legally speaking, there is a barrier between wherever the revenues are coming from and where they are being spent. That is all I mean by that, if that helps.

Q234 **Barry Gardiner:** Sorry, I do not want to turn this into a conversation, but if you are asking players within the industry to put funds into an escrow account, which may or may not be called on, that is a huge capital commitment by them. I would have thought that there would be a considerable reluctance to do that, as I say. In saying that, ultimately there will be a fall-back by law, either on the bill payer or on the Government. There is clarity and certainty. There is much more difficulty if you are saying we will have to get the industry to put this into an escrow account and who in the industry is doing that.

Alex Clark: Certainly—I completely agree. Just to clarify the point I am making, all I am saying is that, for the operation of the mechanism itself, the revenues can come from multiple different sources.

Barry Gardiner: I will go with you. This is a thought experiment, yes.

Alex Clark: Certainly. Of course, the political feasibility of attracting funds from different sources differs.

The other main advantage is that the cost to Government or whoever the body can be cannot be estimated with 100% certainty, at least, with reasonable prediction of how prices are going to move in the next 10 years, which, granted, is not certain by any means, the liability to whoever is paying for the difference between the market price and the strike price, which I will get to, is limited and to a certain extent predictable. That was one of the attractions of the use of CfDs for offshore wind in the UK.

To the final sub-question on the actual CfDs that we put forward in the report, we spoke to a number of stakeholders across the shipping sector—including the public/private sector—and it became clear quite quickly that the No. 1 cost is fuel. To the extent that you are able to reduce the differential between the existing standard fossil fuel, which tends to be very low-sulphur fuel oil or MGO, and the alternative fuel, which is not by any means clear at this point, you can deal with some of the uncertainty that would be faced if a shipper was to take this first move and suddenly start running its fleet on a very expensive fuel. We propose a fuel-only CfD, which does deal with that.

One of the advantages of that is that it is very simple and straightforward and you do not have to deal with additional capital costs, either on the ship or in the port or elsewhere in the supply chain. It is just a clear incentive that does not deal with 100% of the incremental costs but does deal with a good chunk of them.

We put forward an alternative, which we call a total cost of ownership CfD. To outline why it could be a little bit more complicated to go down that route, ships from different segments will run on the same fuel but you will have to make different modifications to different ship types and sizes and segments for them to be able to use that fuel. You would probably need a different reference price, in the parlance of this sort of mechanism, for each segment, for each ship type, and so on.

One of the reasons we included it is that there are options, other than liquid fuel, that may ultimately become viable for net zero shipping, including onboard nuclear reactors. If it is very important not to discount that as an option. Then the total cost of ownership CfD starts to make a little more sense.

Q235 **Barry Gardiner:** Mr Clark, I am conscious that many of us around this table will know what a contract for difference is, but this is a public meeting. Could you very simply and elegantly explain a strike price

contract for difference so that anybody looking at or listening to these proceedings can understand what it is you are saying?

Alex Clark: Certainly. In a contract for difference, essentially a third party, Government or otherwise, is paying the difference between the market price for a given commodity—that could be electricity, or shipping fuel in this case—and a price that is required for an investment to become commercially viable in this context. The market price is known as the reference price. The fixed price is known as the strike price.

The entity paying the contract for difference would pay the difference between those two over time. It is quite possible that the reference price will end up exceeding the strike price, in which case, in previous examples, the funds that have been paid out would be returned. Is that sufficient?

Q236 **Barry Gardiner:** That is probably as clear as we can get it in a short space of time. Thank you for doing that. Mr Parker, you have been at Citibank for 44 years—45 this year.

Michael Parker: Forty-five this coming September, yes.

Q237 **Barry Gardiner:** That means you have seen a hell of a lot of shipowners in your time and you have dealt with them on a financial level. The fuel-only contract for difference that Mr Clark spoke about has that advantage of simplicity and clarity. How do you think shipowners and ship operators would begin to load the price into a total—I am just trying to remember what you called it—

Michael Parker: Total cost of ownership.

Q238 **Barry Gardiner:** Total cost, yes. Do you not think that the complexity of that opens it up to what, in chartered insurance terms, would be moral hazard?

Michael Parker: My personal opinion is complexity is not a good thing because, as was said on the previous panel, the advantages of the global industry that shipping is, is that you have mechanisms and policies and regulations that apply everywhere. That is what makes shipping, in fact, the most efficient form of transport.

I think that the fuel-only is also attractive because it is going to depend on who benefits from that contract for difference, whether it is the charterer or the owner. In principle, it is the cargo owner because it is a subsidy to the cost of fuel that is going to be passed on. What shipping is going to get used to again, going back to the 1950s and 1960s, is a cost-plus type of environment with the greater transparency. That is the other thing: it is much more transparent.

Whether it is subsidised through a contract for difference or through a carbon levy, the fuel cost will clearly be part of the transition to the market of new zero-emission fuels. As Tristan said, the cost of those will come down over time. I think it has to be simple, so that, for cargo

owners, it is transparent and shipowners are not bearing the cost. That is my personal view.

Alex Clark: On the moral hazard point, there are key elements of the design of CfD that can help to avoid that. In the early stages of technology, where it is very immature, typically you have seen a Government set an administrative strike price, but what has happened with wind—and would be likely to happen with shipping if something like this were implemented—is you move towards a reverse auction system where a price discovery mechanism is built in.

Under the fuel-only CfD, if the market equilibrium allows shipowners to recover not just the incremental fuel cost but also some of the capital costs, depending on who is willing to pay what, you might end up with the advantages of a total cost CfD anyway, depending on where the equilibrium ends up.

Q239 **Barry Gardiner:** I see that but, going back to Mr Parker, commercial sensitivity about those capital costs and running costs would then come into play, would it not?

Michael Parker: I think what would be needed in the financing structures—let's just assume that, in the near term, green corridors are where we will begin to see that—is transparency of where the additional cash flow is coming from and the certainty of it. That is absolutely key. That is where the Governments, on the green corridor routes, have a very important role to play, whether it is through CfDs or through a carbon levy on the fuel on that route. Otherwise, investors are going to say, "Hang on a second; why am I investing?" if it is speculative. No project finance is a certainty. There are always performance issues. The technology of zero-emission vessels and the fuels being discussed clearly give that certainty, and the trade gives the underpinning cash flow to help finance it.

Q240 **Barry Gardiner:** You have spoken of carbon levies as another form of incentives and squaring the circle. Are there any others that you think would work equally well?

Michael Parker: Other than a direct tax on the cargo, passed direct on to the consumer, with some sort of hypothecated "You have bought this pair of sneakers and you are now going to pay another $10 on top for the cost of the fuel difference," I don't, and I think that would be difficult to sell in practice, but that is what will happen over time when that $10 is 5 cents.

Q241 **Barry Gardiner:** Of course, that is politically very difficult for any Government to take on. Governments would far rather it was caught up in a total cost contract for difference. Thank you very much.

Q242 **Jerome Mayhew:** We have heard a lot of evidence today about the IMO and also from the sector. It seems that the sector is way ahead of the IMO in terms of ambition to get to carbon net zero by 2050. Could I start off with Ms Palmer to understand why it is that we are still struggling with

an IMO target of reaching a 50% reduction by 2050, with a stretch target of 70%, but nowhere near the 100% net zero that we have been talking about today? What is getting in the way?

Katharine Palmer: At the time the initial strategy was set—I would highlight that that was the initial strategy and the final one is due in 2023—we landed with a level of ambition of at least a 50% reduction by 2050, with a view to full decarbonisation if shown to be possible. That last bit of the sentence gets missed quite a lot. Now we are entering a phase where we will be starting to revise the strategy and have the final one adopted in 2023.

Given the Glasgow pact and other things that have happened on the global stage, it is very much now about the time to up that long-term intent and ambition to get to that zero-emission shipping by 2050 in the final greenhouse gas strategy. As our colleagues on the previous panel mentioned, that was debated at the last Marine Environment Protection Committee. There was debate around adopting a resolution and, although that never happened, a lot of the statements made by the member states at the IMO were supportive of that long-run intent.

Therefore, I think that indication is there and I would like to think—I am quite hopeful—that that will come in the final greenhouse gas strategy but it is another year away that this sector has to wait for that certainty.

Q243 **Jerome Mayhew:** Reading the runes, your expectation today is that the final strategy in 2023 will set a target of net zero by 2050. Is that your view? I can't hold you to that but that is your expectation, is it?

Katharine Palmer: I am going to say "zero" not "net zero".

Jerome Mayhew: Yes. Sorry. Right.

Katharine Palmer: I think there are some nuances around terminology that need to be fleshed out but I think the expectation is that we will have an ambition, target, aligned with 1.5 and full decarbonisation.

Q244 **Jerome Mayhew:** On that point, it would be difficult to reconcile. You have 170—whatever it is—members of the IMO but you had 197 participants of the COP process in Glasgow, and to have radically divergent objectives from those two processes would be hard to reconcile, I think.

Mr Parker, what is your view on the current timescales of the IMO, given what you have just heard?

Michael Parker: When we were drafting the Poseidon Principles—because the data that shipowners produce goes through verification to flag state, to an IMO database—in order to try to short-circuit it, I went to see the IMO to see if we could access that database. Because it is confidential, I was told it would take at least two years and a two-thirds majority of the general assembly of the IMO to change the relevant provision. It has its processes. It is a UN body.

I think, as we discussed earlier today—Guy Platten said it—shipping does benefit from having a global regulator. What will not help shipping is competing regulation or regulatory arbitrage, so it is very important for the insurance industry and the financial industry that the regulations of shipping and trade remain global. We already have issues like sanctions and other things that we have to deal with in daily life.

Because the private sector will now very much drive this, the IMO will catch up. I think that, as the EU has just changed its proposals and has given the IMO until 2028 to come up with a proper plan, the competitive aspect would appear to be reduced, at least if the IMO—

Q245 **Jerome Mayhew:** Is that a reference to the EU proposal for a carbon border adjustment mechanism? Is that what you are talking about, and the ETS?

Michael Parker: It is generally on regulating shipping. Katharine would be able to give you more specific details. However, that seems to be hopeful because the fear around ETS and the cross-border mechanism is that the EU will be taxing shipping in a way that other countries do not want it to be taxed and so on.

The IMO has been delivered a message from everywhere outside to speed up as much as possible, but it has an important regulatory job to do around the physical assets and the regulations and some of that needs very careful consideration.

Q246 **Jerome Mayhew:** We focus perhaps too much on 2050 but what about the steps on the way? Do you think there are targets that should be increased, in terms of ambition, between now and 2050?

Michael Parker: I think everyone has a 2030 target of some sort, whether it is in the financial community or the IMO's 2030 target. Dr Smith wrote an important paper with the Getting to Zero Coalition around this tipping point in 2030 of having to have 5% of all fuels be zero-emission fuels, which triggers that every shipowner will then only order a zero-emission vessel. It is sticking to those 2030 targets that is very, very important.

As a number of people have said—Bill Gates's book is very clear on this too—if you decarbonise the hard-to-abate sectors first, you will have a much greater chance of attaining the Paris target. If you leave the hard-to-abate sectors till later, your chances of meeting Paris disappear very quickly.

Q247 **Jerome Mayhew*:*** Moving on to market-based measures, the IMO has been discussing those for a decade and does not appear to have come to a good conclusion. Do you think it is possible to overcome the barriers and to introduce a global market-based measure? Katharine, perhaps you could answer that to begin with.

Katharine Palmer: I was around at the time the IMO first discussed it as well, and I think that where we are now is the coalesce around the levy. Before, there were lots of different types of market-based measures on

the table and I think that what has now happened is the coalesce around the levy as the measure.

I also think that what is key to the success of this at the IMO is going to be to ensure that we have an equitable transition. It is about how we distribute that revenue to ensure that it is fair and equitable for all the SIDS and LDCs. I think that is the crux of what we need to unlock for negotiations going forward.

Q248 **Jerome Mayhew:** I am very interested in the levies, but just on the practicality of it, my question is, who is it who raises that levy? Who gets to keep the cash? Is it the IMO, which would be one thing, or is it national Governments? I cannot imagine national Treasuries being that keen to have, essentially, a tax on imports siphoned off to a third party. What do you think?

Katharine Palmer: Exactly, I agree with you. The proposals on the table are for a central fund that would be managed under the auspices of the IMO.

Jerome Mayhew: I can imagine the IMO would be up for that.

Katharine Palmer: Precedent is already set in some of the other mechanisms—for example, the international oil pollution fund. Mechanisms and precedents are already set and, like you said, national Governments would not want that.

Q249 **Jerome Mayhew:** Let's imagine you get permission for the IMO to apply this levy on transport. How would that interact with a regional or national-based carbon border adjustment mechanism, which is seeking to do the same job, or at least partially? There is an overlap there, isn't there? We have a good example coming up—the European Union's proposals for a CBAM. How does that dovetail?

Katharine Palmer: That is a very good question, and I have not seen anything in detail about how that would work, but I think, as with anything, if shipping is regulated by the IMO for something, I would like to think that any regional or national regulation was equivalent. It would not be that the shipping industry had to pay twice; it would just be there was one charge that was on an equivalence basis.

Jerome Mayhew: Thank you.

Alex Clark: I was going to make that point.

Q250 **Jerome Mayhew:** Mr Parker, from your perspective on the industry, what is your view on this?

Michael Parker: My view on this is that if cargo is paying, cargo will speak to Government around employment and jobs and where they manufacture. That is, the belief that the shipowner will pay—it is not going to happen.

Jerome Mayhew: You made that point very well earlier on.

Michael Parker: It is just not going to happen, so political forces will come to bear, hopefully, to make it work—put it that way.

Q251 **Jerome Mayhew:** Coming from the international and global to Britain—I am going to start with you, Mr Parker—is there anything that the UK Government should be doing to accelerate this process, to facilitate it, beyond engaging more with the organisation a mile down the road?

Michael Parker: I think, and it has been said before, that that is important, because I think being the host nation of really the only global regulator—there are one or two others but not quite the same authority in their industries—is very important in terms of our ability to influence others and, clearly, post Brexit, being free to set out the arguments.

I will answer the question in two ways. I think the leadership through the Clydebank Declaration is very important. I wandered round the blue zone in Glasgow that day, looking at other transport announcements, and there were none really of any impact other than this and I think that is a very important thing.

There is a question that arises around the way in which shipping and aviation get lumped together within the UK administrative process. I think that is something that really should be looked at, because shipping is about supply chains and those issues, rather than about people, other than, clearly, ferries and cruise ships.

The other point is that there are the short-sea and domestic aspects of shipping, where smaller vessels can operate today with hydrogen, and upscaling existing battery technology on smaller inland vessels, being used in the Netherlands, could be used for either regional, cross-channel, cross- North sea types, but also potentially in taking road traffic cargo off the roads with short-sea shipping up the east and west coasts to regenerate the ports. I think the levelling-up concept could be about building out the port infrastructure across the whole of the United Kingdom. Decarbonisation would be one way of doing it while reducing road emissions.

It is those two things, plus, as I mentioned earlier, the UK should become a producer of zero-emission fuels. We have the geographic ability to do that. The Clean Maritime Plan is very well written and I think, if the Government could execute most of those things, we need to be fuel producers at the other end of the supply chains. If we don't do it, it will all be within the EU.

Q252 **Jerome Mayhew:** Mr Clark, do you have any final comments?

Alex Clark: Certainly. I think I will focus more on the international deep-sea shipping lanes, which are a different question altogether, although I agree with the comments that Michael just made.

It is a tricky thing to sell if you are subsidising a shipping route with companies that may not be British or even involved other than in delivering goods to UK ports. It would be easy to make the case then that

money is simply flowing offshore into other countries and other companies that do not have much of an interest in the UK.

Having said that, even if that is true and even if it turns out to be unwise to move too quickly on building a hydrogen industry that is not competitive 20 years from now, it still may be beneficial from an intellectual property point of view and being able to export the technologies associated with a hydrogen supply chain. There is the example of Germany and solar PVs. That is a very clear case. Germany is still exporting technology to China even though the public perception is rather that Germany has lost out from that, from solar subsidies. I am not sure that would really be the case.

Finally, I think that in terms of moving first on green corridors and on making sure that there are viable incentive mechanisms in place where it is commercially sensible to move into a zero-emissions fuel without having to take a huge hit—whether the consumers pay for that or whether the Government pay for that through contracts for difference or any other mechanism—that is where the UK is extremely well positioned to make a move and the downside risks are relatively limited.

Q253 **Jerome Mayhew:** Ms Palmer, the final word to you?

Katharine Palmer: Thank you. I think I would support what my colleagues have said there. The green corridors are a great opportunity for the UK to demonstrate its leadership nationally through relationships with other countries, whether that is with SIDS and LDCs, as well as with other developed countries. I think the routes the UK chooses are going to be critical, but I think being the first to demonstrate these green corridors and taking that evidence to the IMO to show that this is possible really does demonstrate the UK's leadership.

Jerome Mayhew: Thank you very much.

Chair: I would like to thank our witnesses this afternoon. I apologise if we went on slightly longer because of the vote interrupting us earlier. We are very grateful for your time this afternoon. Thank you.