



Financing the Decarbonisation of Freight Transport

Report summarising the findings of
the DUKFT annual event



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Report by: Nishatabbas Rehmatulla and Marie Fricaudet

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State of the art and where we're heading: Financing-green and greening-finance in context of decarbonising (UK) freight

The scale of investment required to meet the Paris Agreement temperature targets of well below 2°C and aiming for 1.5°C is estimated to require an extra annual investment of US\$300bn and US\$460bn per year, respectively¹. In the maritime sector alone, the scale of investment is estimated to be approximately, US\$60bn per annum in order to be line with 1.5°C². In the UK, to support a fully decarbonised electric bus and trucking industry, investments on infrastructure only are estimated to be around US\$12-50bn and US\$10-15bn, for catenary cable and hydrogen refuelling stations, respectively³. The majority of these investments are required to transition from fossil fuel to alternative forms of energy and can be realised through a number of financial instruments and stakeholders. Recent analysis⁴ shows that most of the investments, accounting for over 85% of the total climate finance of \$450bn in 2016 were made with the expectation of earning commercial returns relative to concessional finance, with the majority of the finance deployed as loans, which accounted for 50% of all climate finance flows.

The prevalence of this type of commercial finance highlights the crucial role of private financial institutions in climate finance and decarbonisation. Not only can they support the flow of capital into low/zero carbon investments (financing-green) but also support the transition of hard-to-abate and carbon intensive sectors, such as heavy industries (cement and steel) and transport, by ensuring that in both these cases their investments are climate aligned, the process of ensuring lending and investment decisions comply with a downward trajectory toward long-term decarbonisation targets. However, a number of barriers common to investments in energy efficiency

1. McCollum et al. (2018)
2. Krantz et al. (2020)
3. ETC (2019)
4. CPI (2018)

and specific to climate alignment, make the process of aligning assets and investment portfolios challenging in practice.

The event seeks to explore the nature of decisions investors are making today which impinge on decarbonisation, the accuracy of evidence that investors need to make decarbonisation-aligned decisions and the key stakeholders that need to use that evidence to make a meaningful impact in decarbonising the freight sector.

To provide more context and highlight the relevance of the event, by the end of 2019, financial institutions representing between \$17-20trn had 'pledged' to align their investment portfolios with the decarbonisation goals of the Paris Agreement through various initiatives, including Collective Commitment to Climate Action (\$13trn), The Net Zero Asset Owner Alliance (\$4trn), 3C initiative (\$153m), Terra approach (\$2.5trn) and Poseidon Principles (\$100bn). Some notable and recent examples of action on climate alignment by private financial institutions include the ING led 'Terra Approach' and the sector-based 'Poseidon Principles'. These come at a time where, in most sectors there still isn't an agreed upon decarbonisation pathway against which to align lending portfolios due to a lack of frameworks and methodologies that can be used by investors to evaluate climate risks of existing portfolios and inform their new investment decisions.

The tide is shifting as investors face increasing pressure to incorporate climate transition risks from regulations such as the EU Taxonomy on Sustainable Finance and broader Environmental, Social & Governance (ESG) disclosure initiatives, such as the UN Principles for Responsible Investment (PRI), Carbon Disclosure Project (CDP) and Task Force on Climate-Related Financial Disclosures (TCFD). The UK's Green Finance Strategy also includes expectations for publicly listed companies and asset

owners to disclose climate risk and impact data by 2022. A number of recent UK specific strategies, such as the Clean Maritime Plan, Rail Industry Decarbonisation Taskforce's report to the minister, forthcoming Transport Decarbonisation Plan, also provide a sense of direction of travel in terms of decarbonising the UK's freight sector.

About this report

Decarbonising UK Freight Transport (DUKFT) is a network funded by UK Research & Innovation, aiming to convene people and distil information from their discussions, with the view to inform a detailed set of future challenges and arising key research questions. The panel discussions that follow were composed and coordinated by the network and they intend to shed light on issues related to investment decisions, with the view to support the building of knowledge. The objectives of the panel discussions are to explore the nature of decisions investors are making today that impinge on decarbonisation, locating the thresholds and the accuracy of evidence that investors need to make decarbonisation-aligned decisions and defining the parties that need to "buy in" to the evidence/knowledge to move forwards. The findings that arise mainly focus on the current state of the sector, the role of government, the availability and the accuracy of data and the possible solutions.

Key messages from the event

Central to the aims of the DUKFT network the event sought to understand investors', both public and private, perspectives on managing risk, climate alignment, barriers and drivers to investment. The following key messages can be distilled from the event.

Call for government leadership based on academic evidence

While there is now a consensus on the necessity to decarbonise freight transportation and the market is now allegedly ready to decarbonise, investments and actions have been shy as government action is falling

behind expectations from the private sector. One of the main takeaways of the event is the demand from the industry to the UK government to drive the decarbonisation of freight transportation in three main areas:

- Overall guidance and targets.
- Providing adequate market signals.
- De-risking of investments in low-carbon technologies.

Market actors are waiting for government guidelines on the technologies available for certain sectors where the technology pathway is not clear, like shipping, aviation or trucks. Fragmented sectors like road freight further needs government leadership by providing targets and setting standards, as it is nearly impossible for actors within the market to coordinate their actions. This guidance needs to be based on academic evidence to allow manufacturers and investors to make the right decisions.

“The private sector is ready and waiting, wants a carbon price, wants to get on with it...”

Michael Parker, Citi

The implementation of regulation, for example in the form of carbon pricing, is increasingly seen as both likely and necessary to the private sector, at least for shipping and aviation. Because most of the capital to decarbonise freight transportation is not in the public domain, the government needs to make sure that investors have adequate market drivers to align their investment strategy with the decarbonisation pathway. One of the key ways to ensure that carbon emissions are integrated into the private sectors' decision making and improving the business case for decarbonisation is through the use of price signals which will incentivise the various stakeholders in transport and energy sectors to start cooperating and make decisions in accordance with the decarbonisation agenda.

Finally, as freight vehicles and fuelling infrastructure have long asset lives, the risk of stranded assets is a major concern for owners and investors. Therefore, the government should consider its role in providing subsidies that will de-risk investments in new technology for decarbonisation to investors who deliver the necessary capital to owners during the initial phases. Once technologies have neared maturity and the capital costs have decreased, market forces should be sufficient to drive the further uptake of clean technologies.

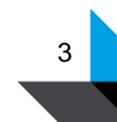
Building consensus rather than filling information gaps

It is clear that accuracy and availability of information are not the barriers in decarbonising the UK's freight sector, as good enough approximations and properly evaluated options are sufficient for decisions to be made. Verifying climate alignment of investor's portfolios and owner's fleet is becoming possible as an increasing amount of data is being collected with the digitisation of the sectors, although the shipping industry in particular has been lagging behind in disclosing its carbon emissions.

However, building trust on these approximations across the various actors of the value chain, for example, consumers, owners, charterers and investors, is necessary and requires validation in a transparent and consistent manner. In this context, independent certification schemes are necessary for investors to have confidence, for example in the case of green bonds and offsetting schemes.

Investors and customers as drivers of decarbonisation

Change is expected to be driven from stakeholders in and around the market rather than the vehicle owners themselves. With increasing public awareness and availability of public data, consumers might drive the momentum towards green investments, pushing charterers and cargo owners to be more aggressive in their decarbonisation agenda. However, relying only on changes in demand preference is not sufficient and engagement of government and investors is absolutely necessary.



Investors in particular have a great role to play in driving the decarbonisation agenda, as they can provide the capital necessary to invest in clean technologies, and have an influence on the cost of capital of assets. In the shipping sector, the 'Poseidon Principles' is an example of a coordinated initiative by the private finance community to reduce the carbon intensity of their portfolio. In addition, decreasing amounts of finance forces owners to turn to public investors with intense decarbonisation agendas or alternatively to more expensive sources of finance. Both trends mean that owners will eventually face a greater financing cost when investing in higher emissions assets, boosting the business case for low and zero carbon assets.

Key messages from the panel discussions

The nature of decisions investors are making today that have an impact on decarbonisation

Panel members: Nigel Base (Society of Motor Manufacturers & Traders), Julian Bray (TradeWinds), Michael Parker (Citi), Mallory Sedgwick (Department for Transport)

Panel Coordinator: Dr Tristan Smith (Director - DUKFT, Associate Professor, UCL Energy Institute)



The panellists recognized that solutions will be market driven as investments will mostly come from the private sector, but the industry needs clear government targets and an overall sense of direction. The panellists highlighted the lack of guidance from the

government, perceived to be behind schedule on transport decarbonisation and the needs of the industry. In particular, the private sector is waiting for market based measures such as carbon pricing to internalise decarbonisation in investment decision making.

“[Road business operators] public position is that government’s regulations should be technology neutral and that the government should tell them what they want and when they want it.”

Nigel Base, Society of Motor Manufacturers & Traders

Further academic evidence on the technologies available and the impacts of new buildings and retrofitting on lifecycle emissions is also needed to inform the government action and for the investors and manufacturers to make commercial decisions. As a result, there are reservations on both the regulatory environment and the investor agency, and investments in zero-carbon solutions are currently limited and conservative, considering that each sector has diverse assets and capital risks.

The threshold and accuracy of evidence that investors need to make decarbonisation-aligned decisions

Panel members: Carole Ferguson (CDP), Alan Lewis (Smart Freight Centre), Lionel Mok (Climate Bonds Initiative), Vishnu Prakash (Stena Bulk), Julian Worth (CILT, Chartered institute of Logistics and Transport)

Panel Coordinator: Dr Nishatabbas Rehmatulla (Senior Research Associate, UCL Energy Institute)



It was recognised that accuracy of information is not currently an issue, as already a lot of information on decarbonisation is available. Well-informed approximations and properly evaluated options appeared

sufficient. However, there needs to be a consensus around those approximations across the industry from a diverse set of stakeholders – asset owners, charterers, traders and financing institutions, for example, to jointly invest or to share the added cost of new technologies (for example, through long-term contracts between charterers and ship owners). While

“We need a coming together or a consensus within the industry and within similar stakeholders that are willing to share the risk if we were to go into a particular type of fuel or more a particular type of technology.”

Vishnu Prakash, Stena Bulk

this is not necessarily the case in the maritime freight sector, in the rail sector it was highlighted that there is already a high level of confidence in electrifying rail and a freight modal shift to rail as a way to decarbonisation.

To create the confidence in the data, the panellists highlighted the need for the investor, for example the issuer of a green bond, to have a clear understanding of what investments are green or climate aligned. This would require an independent certification scheme or standardised metrics that can enable investors to evaluate climate alignment, such as the Climate Bond Initiative, or the Task Force for Climate-related Financial Disclosure (TCFD).

“The framework is out there, but, from an investor perspective, I think the most important thing is these frameworks have to be able to map materiality and bring it back to the fundamentals of how investments are looked at. Otherwise it's very much like a marginal part of the decision making process.”

Carole Ferguson, Carbon Disclosure Project

Some panellists highlighted the need for the methodologies to be independent from the transport mode and the industry, in order to take decisions on an equitable basis, while another stated that the actual metrics can only be meaningful when taking into account the context in which companies and industries operate. Climate disclosure is not mandatory or regulated as financial reporting is, hence there is a lack of standardisation of certification schemes which is seen as a challenge for investors. This partly explains why decarbonisation currently plays only a marginal part of the decision-making process.

Identifying the key stakeholders that need to ‘buy in’ to the evidence to move forward

Panel members: Duncan Buchanan (Road Haulage Association), Tim Morris (U.K. Major Ports Group), Aoife O’Leary (Environmental Defence Fund), Jos Standerwick (Maritime London)

Panel Coordinator: Dr Stavros Karamperidis (Lecturer in Maritime Economics, Plymouth Business School)



Although the decarbonisation agenda has been growing in importance, meeting customer demands and reducing costs are still the main considerations of operators and owners

across all freight modes. Emission reductions through energy efficiency have thus far been driven by the desire to reduce fuel costs, but further decarbonisation will happen only if there exist policies which would create a framework where it would be profitable to decarbonise. This is particularly the case for the road freight sector due to its high degree of fragmentation, with a large amount of small and medium companies operating in the market. While vehicle owners (ships and trucks) have traditionally been the focus of attention, several panellists supported the idea that they do not have much leverage, as decarbonisation will be driven mostly by stakeholders in different parts of the value chain. The panellists cited a large range of stakeholders which need to be involved in the decarbonisation of the transport sectors, including the vehicles and infrastructure owners, the customers, vehicle makers, investors, international standards bodies and regulators, and finally the public.

The involvement of stakeholders in the energy sector is absolutely necessary as shipping will both use and carry the fuel of the future. 80% of

the investments needed to decarbonise shipping concern land infrastructure and will therefore drive investments in renewable energy generation. As the demand picture for alternative fuels becomes clearer, ports will provide the bunkering infrastructure demanded by the shipping companies.

Investors also have a central role to the decarbonisation of freight transportation. In the shipping sector, the amount of finance available is reducing, particularly from the traditional banks, while there is a need for new tonnage; this gap will likely be filled by institutional markets with high ESG agendas, or from Western and Chinese leasing houses. One panellist expressed the need to establish ongoing co-operation between these later two ecosystems to operate within a decarbonisation trajectory.

“Stakeholders are starting to wake up and realize that actually shipping is another way to drive investment in renewables, especially in the developing worlds.”

Aoife O’Leary, Environmental Defense Fund

Currently, the risk of stranded assets is an important area of concern for ship and truck owners, as well as ports, which impedes investments in new technologies. As vehicle owners will have to make investment decisions on future propulsion systems in the absence of in-depth R&D, several panellists acknowledged the central role that governments will also have to play in providing certainty to investors who deliver the necessary capital to vehicle owners that adopt new technologies for decarbonisation. This requires providing subsidies to de-risk large scale investments once new technologies arrive, as has been evidenced in the wind power generation industry. Retrofitting is seen as a possibility that can offer future optionality and reduce stranded asset risks.

“I believe that there has to be a role for government in terms of providing certainty to investments in transitional tonnage moving towards net zero, potentially through residual value products, that would support new sources of capital coming into the market and vitally grow the UK’s commercial management base.”

Jos Standerwick, Maritime London

Cargo owners can also have a disproportionate influence as they have leverage over the supply chain. While there was a consensus between the panellists that greater public awareness in regards to environmental issues has created an increasingly large market for green transportation, there was no consensus on the scale and impact of changes in consumer behaviour.

Panellist biographies

Panel 1



Peter Hinchliffe, *Chair of Decarbonising UK Freight Transport and Former Secretary General, International Chamber of Shipping*

Peter spent 25 years in the Royal Navy, including 5 years in seagoing command. After the Navy, Peter worked at the International Chamber of Shipping and was appointed the Secretary General in 2010 before retiring in 2018. Peter is currently the Chairman of the Nautical Institute Executive Board and an independent maritime advisor.



Tristan Smith, *Director of Decarbonising UK Freight Transport and Associate Professor in Energy and Transport, University College London*

Tristan has led several multi-million pound research projects at UCL and has built a team focused on modelling and analysis of shipping's efficiency and emissions. The team maintain a number of widely used models including GloTraM. Tristan led the 3rd IMO GHG Study, is lead author of ISO 19030, co-chair of the World Bank's CPLC Maritime Thread, and co-founded the University Maritime Advisory Services (UMAS).



Nigel Base, *Commercial Vehicle Manager, Society of Motor Manufacturers and Traders (SMMT)*

Nigel has been at the SMMT since 2011. Prior to this he had a varied and highly successful career in the automotive sector which began as an apprentice at a local garage before going to study mechanical engineering. Nigel is an obsessive rower and mountain biker.



Julian Bray, *Editor-in-Chief, TradeWinds*

Julian leads the editorial team at TradeWinds, the leading global shipping business publication. As a specialist business journalist, he has spent his career as a reporter and editor on magazines, daily newspapers and news agencies.



Michael Parker, *Chairman of Global Shipping, Logistics and Offshore, Citi*

Michael has a wealth of experience in the shipping finance sector spanning the last 36 years. In this time he has received several awards, including the Capital Link Leadership Award in recognition of his unique and extensive contribution to the shipping industry, chaired various committees, and served on governmental expert panels and advisory boards.



Mallory Sedgwick, *Senior Policy Advisor, International Negotiations for Maritime Environment and Climate Change, Department for Transport*

Mallory leads in the development of technical measures to reduce Greenhouse Gases in international shipping at the International Maritime Organization for the United Kingdom. Previous to this, she was the Private Secretary to a former Minister of State at the Department for Transport and led on the maritime portfolio and has a background in finance. She has a degree in biology from Arizona State University.

Panel 2



Carole Ferguson, *Head of Investor Research, CDP (Carbon Disclosure Project)*

Carole manages a team of 8 analysts focussed on material climate and environmental risks and opportunities for key sectors and companies. Prior to joining CDP she had 25 years of experience in the financial markets including 10 years as a fund manager at Societe Generale Asset Management and 5 years at JP Morgan on structured products.



Vishnu Prakash, *Head of Data Science, Stena Bulk*

Vishnu is an Economist and Statistician, his role involves working with Stena Bulk's decarbonisation and sustainability goals, including evaluating climate risk and developing strategies to manage Stena Bulk's transition towards 2050 and beyond. Prior to joining Stena, Vishnu worked in research and consulting, supporting both private and public institutions in decarbonising the industry.



Alan Lewis, *Technical Development Director, Smart Freight Centre*

Alan leads the overall development of SFC's programs and initiatives within the Global Logistics Emissions Council (GLEC), an industry-led partnership. He led the development of the GLEC Framework as a global method to calculate and report logistics emissions across the multi-modal logistics supply chain. Alan's background prior to this is in the emissions impacts of freight and urban transport.



Julian Worth, *Rail Freight Forum Chair, Chartered Institute of Logistics and Transport*

Julian has spent 40 years in the rail freight industry in a wide variety of roles, including Managing Director, Transrail Freight, and Marketing Director, English, Welsh & Scottish Railway. He now works with a range of clients in the private and public sectors, providing strategic advice on rail-based logistics and associated facilities. He also writes on rail freight matters and speaks at conferences in the UK and abroad.



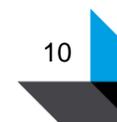
Lionel Mok, *Policy Manager, Climate Bonds Initiative*

Lionel works as Policy Manager for Climate Bonds Initiative, an investor-focused NGO that is seeking to mobilise global capital for climate change solutions. He has helped to draft the energy sector criteria for the EU Taxonomy, and provides research and technical advisory services for public and private sector actors seeking to incorporate climate change considerations into investor and issuer behaviour. He currently leads the development of CBI's Shipping criteria.



Nishatabbas Rehmatulla, *Senior Researcher, University College London (UCL) Energy Institute*

Nish uses social research methods to continue his research interests in implementation of energy efficiency measures, zero emission fuels/technologies and barriers to their uptake, as well as investigating solutions, including policies and finance to accelerate transitions to a low carbon industry.



Panel 3



Duncan Buchanan, *Policy Director, Road Haulage Association*

Duncan is a logistics policy expert who worked in Government and industry prior to joining the RHA in 2016. In the Department for Transport he led on goods vehicle operator licensing, roadworthiness and sustainable freight policy. Prior to DfT, Duncan worked for international freight businesses covering transport by sea, air and road.



Tim Morris, *Chief Executive Officer, UK Major Ports Group*

At the UK Major Ports Group Tim represents nine companies that account for more than 70% of the total tonnage handled in UK ports. Prior to joining the UKMPG Tim worked in communications covering the energy and infrastructure sector, spent eleven years in the steel industry with Tata Steel Europe and six years as a management consultant for McKinsey.



Aoife O'Leary, *Director - International Climate, Environmental Defense Fund*

Aoife is lawyer with substantial environmental and economic experience. She has worked with and advised various NGOs on the environmental impacts of international shipping and aviation, EU environmental governance and UK community energy. Aoife also has expertise in economics and brings this to bear in the policy solutions she advocates. She is a board member of the charities *Rethinking Economics* and *Economy*.



Jos Standerwick, *Chief Executive, Maritime London*

Jos is Chief Executive of Maritime London, an industry-led body representing maritime professional services in the UK, working to ensure that the UK remains a world-beating location to base maritime related business and conduct maritime trade. Jos has worked in the maritime sector for 12 years but began his career working in Uganda as General Manager of an industrial generator business, primarily working in the burgeoning mobile telecoms market.



Stavros Karamperidis, *Lecturer in Maritime Economics, Plymouth Business School*

Stavros has primary research interests in shipping and ports logistics, maritime cyber security, decarbonisation, employability of millennials in logistics and indices development. Stavros is chairman for Devon and Cornwall for Chartered Institute of Transport (Chartered Member) and Fellow of the Higher Education Academy. Stavros secured funding from the Horizon 2020 and Innovative UK



About the network

The objective of the DUKFT Network is to ‘unleash significant investment’ into the freight sector’s decarbonisation. The Network aims to collect and distil current knowledge, as well as to identify and de-risk the key remaining research challenges that can unleash significant freight-decarbonisation targeted investment and guide enabling policy. The Network will achieve its aims by fostering a close-knit community focused on unlocking and enabling the next step in UK freight transport decarbonisation by providing a rigorous and independent co-created (stakeholder and academia) knowledge and evidence base and accompanying recommendations and strategy to accelerate investment.

For more information visit: www.decarbonisingfreight.co.uk

Get in touch: decarbonisingfreight@ucl.ac.uk

Twitter: @DecarbonUKFT



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Decarbonising UK Freight Transport is hosted by University College London. We are partnered with a further ten universities where our academic and research staff are based.

