TOWARDS A NEW GREEN STANDARD IN MARITIME CONTRACTS: REVISITING CHARTERPARTIES

Author: Lucia Diaz Cameselle

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Runner-Up

'I believe that we have been right in the course we have charted. To abandon our purpose(...) would be to miss the tide and perhaps to miss the port. I propose to sail ahead. I feel sure that your hopes and I feel sure that your help are with me.
For to reach a port, we must sail. Sail, not lie at anchor. Sail, not drift. '[1]

Franklin D. Roosevelt (1882–1945)
32nd and longest-serving President of the United States.

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[1] Franklin D. Roosevelt, 'Fireside Chat 12: On the Recession' (14 April 1938) <https://millercenter.org/the-presidency/presidential-speeches/april-14-1938-fireside-chat-12-recession> accessed 27 March 2025.

I. INTRODUCTION

Despite the prevailing geopolitical uncertainty, the momentum for the green transition has not waned; on the contrary, it continues to intensify. There is now little doubt that decarbonisation is a collective imperative demanding action across all sectors of the maritime industry. While the technical and regulatory dimensions of this transition have been widely examined, the contractual framework underpinning maritime operations remains comparatively underexplored. This essay contends that the evolution of maritime law is essential to embed environmental considerations into everyday commercial practice. It originates as an academic contribution to the *Green Contracts Discussion Paper* presented at the CMI Gothenburg Colloquium in 2024. In particular, foundational doctrines of charterparties, such as seaworthiness, laytime, demurrage, and speed and consumption warranties, may be reinterpreted to align with climate-related objectives. Building on recent case law and industry practice, the essay argues that such contractual adaptation is a *conditio sine qua non* for the success of shipping's decarbonisation agenda.

II. REGULATORY AND POLITICAL FRAMEWORK

Global climate governance has entered a critical phase. Not even the January 2025 U.S.[2] announcement to withdraw from the Paris Agreement[3] dampened international resolve.[4] Instead of triggering a cascade of exits, as experts initially feared,[5] the move was met with redoubled commitment from the international community. In the words of UN Climate Change Executive Secretary, Simon Stiell, and in line with Davos 2025 takeaways:[6] '*A*

[2] The White House, 'Putting America First in International Environmental Agreements' (20 January 2025) <https://www.whitehouse.gov/presidential-actions/2025/01/putting-america-first-in-international-environmental-agreements/> accessed 28 March 2025.
[3] Paris Agreement to the United Nations Framework Convention on Climate Change (adopted 12 December 2015, entered into force 4 November 2016) UNTS No 54113, T.I.A.S. No 16-1104.
[4] United Nations, 'UN / US Paris Agreement Withdrawal and Aid Pause' (28 January 2025) <https://media.un.org/unifeed/en/asset/d333/d3333589> accessed 28 March 2025.
[5] 'The Paris Agreement gives countries options. Leaving isn't meant to be one' Stanford Report (January 2025) <https://news.stanford.edu/stories/2025/01/paris-climate-deal-gives-countries-options-leaving-isnt-meant-be-one> accessed 28 March 2025.
[6] World Economic Forum, 'Safeguarding the Planet: Climate, Nature and Energy at Davos 2025' (20 January 2025) <https://www.weforum.org/stories/2025/01/safeguarding-the-planet-theme-davos-2025-climate-nature-energy/> accessed 28 March 2025.

country may step back, but others are already stepping into their place to seize that opportunity'.[7]

Furthermore, the promotion of decarbonisation is already a commitment[8] that shapes the COP 30 briefing.[9] This support is clearly reflected in the stance of European Commission President Ursula von der Leyen, who has publicly reaffirmed the EU's green commitment, emphasising that the Paris Agreement remains humanity's best hope.[10] A similar position has been adopted by Keir Starmer, as evidenced in the United Kingdom Government's *Plan for Change*[11] and its *Maritime Decarbonisation Strategy*, published on 29 March 2025.[12] Notably, even traditionally cautious countries such as China are aligning themselves with global decarbonisation efforts, prioritising green policies for 2025, including a commitment to expanding carbon markets.[13]

Meanwhile, the climate crisis accelerates on three fronts:[14] Greenhouse gas (GHG) concentrations are significantly higher than at any point over the past 800,000 years;[15] biodiversity loss rivals periods of mass extinction; and pollution-related deaths are rising.[16] Strikingly, climate change is now recognized not only as being exacerbated by geopolitical

[7] Simon Stiell, 'Ten Years Since the Paris Agreement: How Far We Have Come & the Journey Ahead' (6 February 2025) <https://unfccc.int/news/ten-years-since-the-paris-agreement-how-far-we-have-come-the-journey-ahead-un-climate-chief-delivers> accessed 28 March 2025.
[8] UNFCCC, *'Setting the scene for COP30: from promise to practice'* (UNFCCC, 20 March 2024) <https://unfccc.int/news/setting-the-scene-for-cop30-from-promise-to-practice> accessed 28 March 2025.
[9] European Union External Action Service, *'EU Statement – UN General Assembly: Informal briefing on UNCCC COP 30'* (5 March 2025) <https://www.eeas.europa.eu/delegations/un-new-york/eu-statement-%E2%80%93-un-general-assembly-informal-briefing-unccc-cop-30_en> accessed 28 March 2025.
[10] Elena Lazarou and Gabija Leclerc, *US Withdrawal from the Paris Climate Agreement and from the WHO* (European Parliamentary Research Service, PE 767.230, February 2025).
[11] United Kingdom, *Plan for Change: Milestones for Mission-led Government* (CP 1210, 5 December 2024).
[12] UK Department for Transport, *Maritime Decarbonisation Strategy* (Policy paper, 25 March 2025) <https://www.gov.uk/government/publications/maritime-decarbonisation-strategy> accessed 28 March 2025.
[13] State Council of the People's Republic of China, *Report on the Work of the Government* (delivered at the Third Session of the 14th National People's Congress, 5 March 2025) <https://npcobserver.com/> accessed 28 March 2025.
[14] Harvard Kennedy School Student Policy Review, *'Global Governance, Climate Change, and International Security: Aligning Issues to Compel Action'* (17 June 2023); Joint Research Centre, *Global Energy and Climate Outlook 2024: Keeping 1.5°C within reach* (Publications Office of the EU 2024).
[15] United Nations Environment Programme, *Making Peace with Nature: A Scientific Blueprint to Tackle the Climate*, Biodiversity and Pollution Emergencies (2021) 14 and 61.
[16] According to Word Health Organization, air pollution is associated with 6.7 million premature deaths annually. WHO, *'Ambient (Outdoor) Air Pollution'* (24 October 2024) <https://www.who.int/news-room/fact-sheets/detail/ambient-(outdoor)-air-quality-and-health> accessed 28 March 2025.

tensions but also as a threat multiplier that fuels conflict and insecurity.[17] Courts and international bodies[18] have begun to treat climate protection as a legal duty, and it is expected that States will progressively intensify their commitment to environmentally sustainable public policies, particularly in light of recent jurisprudential developments at the European level, as we await for the advisory opinion of the ICJ expected in 2025.[19] In this regard, the landmark judgment *Verein KlimaSeniorinnen Schweiz v. Switzerland (2024)*[20] has reinforced the legal understanding of States' obligations to reduce GHG emissions, in line with the advisory opinion of the International Tribunal for the Law of the Sea of 21 May 2024.[21]

The global decarbonisation target enshrined in the Kyoto Protocol[22] is widely recognised as marking the third major energy transition in the history of maritime transport. As with the two preceding transitions, namely the shift from wind to steam propulsion in the eighteenth century and the subsequent move from steam to oil-based fuels in the twentieth century, the current transformation requires the active involvement of all maritime stakeholders.[23]

On the public side, regulatory authorities are implementing two primary lines of action to facilitate maritime decarbonisation. The first consists of technical and operational measures, including the Energy Efficiency Design Index (EEDI), the third phase of which entered into force in January 2025;[24] the Ship Energy Efficiency Management Plan (SEEMP);[25] the Data Collection System (DCS) for fuel oil consumption;[26] the Energy Efficiency Existing Ship

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[17] Ashok Swain and others, '*The US Withdrawal from the Paris Agreement—Implications for Global Climate Governance and Security'* (2025) 3(1) Environment and Security 3; Tobias Ide, *Catastrophes, Confrontations, and Constraints: How Disasters Shape the Dynamics of Armed Conflicts* (MIT Press 2023).

[18] Watson Farley & Williams, 'Climate Litigation: Key Risks and Liabilities for Shipping Companies' (21 October 2024) <https://www.wfw.com/articles/climate-litigation-key-risks-and-liabilities-for-shipping-companies/> accessed 28 March 2025.

[19] Obligations of States in respect of Climate Change (Request for Advisory Opinion), ICJ <https://www.icj-cij.org/case/187> accessed 31 March 2025.

[20] *Verein KlimaSeniorinnen Schweiz v. Switzerland* (2024) Case 53600/20.

[21] Advisory Opinion, ITLOS Case No 31 (21 May 2024) para 243.

[22] Kyoto Protocol to the United Nations Framework Convention on Climate Change (adopted 11 December 1997, entered into force 16 February 2005) 2303 UNTS 162.

[23] Haris Zografakis, 'The Third Pillar: A Contractual Architecture for Maritime Decarbonisation' (Stephenson Harwood LLP, 19 October 2023) <https://gard.no/insights/the-third-pillar-a-contractual-architecture-for-maritime-decarbonisation/> accessed 28 March 2025.

[24] IMO, *Amendments to the Annex of the Protocol of 1997 to Amend the International Convention for the Prevention of Pollution from Ships*, 1973, as Modified by the Protocol of 1978 Relating Thereto, IMO Res MEPC.324(75) (adopted 20 November 2020) (IMO 2020).

[25] IMO, *2024 Guidelines for the Development of a Ship Energy Efficiency Management Plan* (SEEMP), IMO Res MEPC.395(82) (adopted 4 October 2024), MEPC 82/17/Add.1 Annex 7 (2024).

[26] IMO, *Amendments to the Annex of the Protocol of 1997 to Amend the International Convention for the Prevention of Pollution from Ships*, 1973, as Modified by the Protocol of 1978 Relating Thereto: Amendments to MARPOL Annex VI, Res MEPC.278(70) (adopted 28 October 2016), MEPC 70/18/Add.1 Annex 3 (2016).

Index (EEXI); and Carbon Intensity Indicator (CII) rating scheme.[27] The second line of action comprises market-based measures, which seek to internalise the environmental cost of GHG through economic instruments. These include carbon pricing mechanisms and emissions trading schemes, such as the EU-ETS.[28]

In light of this scenario, 2025 is widely regarded as a decisive juncture for the maritime decarbonisation agenda and, as noted by Christopher J. Wiernicki: '*the IMO holds the keys*'.[29] After years of preparatory work, the International Maritime Organisation (IMO) is expected to adopt its most significant GHG reduction measures to date. At the heart of the regulatory effort lies a draft amendment to MARPOL Annex VI, Chapter 5, which sets out a dual mid-term mechanism. The first component is technical in nature, introducing a goal-based marine fuel standard (GFS)[30] that mandates progressive reductions in the lifecycle GHG intensity of marine fuels, the so-called 'Z factor'. The second component is economic and consists of a maritime GHG pricing mechanism. This may take the form of either a universal levy,[31] namely a fixed carbon price per tonne of emissions, which has been proposed to range between 18 and 150 dollars per tonne of GHG[32] and would constitute the first globally applicable charge imposed on a transnational polluting activity, or a market-based mechanism that allows credit trading between vessels performing above and below the established benchmarks, as reflected in the IMSF&F model.[33]

During the ISWG-GHG 18,[34] held in February 2025, participants acknowledged that, while several options remain on the table (including hybrid models), there is growing consensus on the need for a binding and revenue-generating instrument to foster the uptake of zero- and

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[27] IMO, *Amendments to the Annex of the Protocol of 1997 to Amend the International Convention for the Prevention of Pollution from Ships*, 1973, as Modified by the Protocol of 1978 Relating Thereto, IMO Res MEPC.328(76) (adopted 17 June 2021) (IMO 2021).
[28] Directive (EU) 2023/959 of the European Parliament and of the Council of 10 May 2023. OJ L130/134, PE/9/2023/REV/1.
[29] Christopher J Wiernicki, 'Bending the Curve – Embracing Disruption and Accelerating Collaboration to Achieve Net Zero' (Capital Link Singapore Maritime Forum 2025, 13 March 2025) <https://forums.capitallink.com/shipping/2025singapore/audio/bending.mp3 > accessed 28 March 2025.
[30] IMO, *Comparative Analysis of Candidate Mid-Term Measures: Fact Sheet* (GHG-EW 3/INF.6, 21 March 2024).
[31] IMO, *Comparative Analysis of Candidate Mid-Term Measures: Fact Sheet* (GHG-EW 3/INF.10, 21 March 2024).
[32] Austria and others, ISWG-GHG 18/2/5 - Consolidation of the proposals for an economic element of the mid-term measures based on a GHG levy/contribution (IMO, 20 December 2024).
[33] IMO, *Comparative Analysis of Candidate Mid-Term Measures* (GHG-EW 3/INF.3, 21 March 2024).
[34] IMO, 'Eighteenth meeting of the Intersessional Working Group on Reduction of GHG Emissions from Ships (ISWG-GHG 18), 18–22 March 2024' (IMO, 22 March 2024) <https://www.imo.org/en/MediaCentre/MeetingSummaries/Pages/ISWG-GHG-18.aspx> accessed 28 March 2025.

near-zero emission fuels (ZNZ) and uphold the principle of a Just and Equitable Transition.[35] The Group also clarified that the GFS will serve as the normative tool for regulating fuel carbon intensity, while the accompanying economic mechanism, whether a levy or a reward-credit system, will provide the financial structure for cost redistribution and technological acceleration across the global fleet.[36] Negotiations on these mid-term measures are scheduled to take place in a tightly compressed sequence in April 2025, with a view to the adoption of binding instruments by October of 2025. These measures are expected to enter into force in March 2027 and to become fully effective during the 2027-2028 period.[37]

III. MARITIME LAW AND THE GREEN TRANSITION

Although public policy serves as a critical foundation for maritime decarbonisation, and the private sector has historically lagged behind, meaningful progress towards net-zero emissions necessitates a collaborative approach involving all stakeholders, public and private,[38] as seen in initiatives such as the *Global Maritime Forum Annual Summit.*[39]

There is growing recognition that '*maritime decarbonisation will be shaped by litigation and by the courts*'.[40] In parallel with regulatory developments, the responsibility of private operators is being reinforced through judicial intervention,[41] as illustrated in *Milieudefensie et al. v Royal Dutch Shell Plc*.[42] In this 2021 decision, the District Court of The Hague, relying on the standard of care enshrined in the Dutch Civil Code,[43] ordered the energy and

[35] IMO, *2023 IMO Strategy on Reduction of GHG Emissions from Ships* (IMO, 7 July 2023) <https://www.imo.org/en/OurWork/Environment/Pages/2023-IMO-Strategy-on-Reduction-of-GHG-Emissions-from-Ships.aspx> accessed 30 March 2025.
[36] Tristan Smith and others, *ISWG-GHG 18 - Frequently Asked Questions on Mid-term Measures for reducing GHG emissions from international shipping* (UCL Energy Institute 13 February 2025).
[37] Lloyd's Register, *'MEPC 83: Crunch Time on Various Fronts – but Consensus on a Probable Outcome'* (Lloyd's Register, March 2025) <https://www.lr.org/en/knowledge/horizons/march-2025/mepc-83-crunch-time-on-various-fronts-but-consensus-on-a-probable-outcome/> accessed 28 March 2025.
[38] US Department of Transportation, *Decarbonizing the Maritime Shipping Industry: Starter Guide to Reducing Greenhouse Gas Emissions from Maritime Shipping* (Office of the Secretary 2023), 10.
[39] Global Maritime Forum, *Currents of Change: Annual Summit Tokyo 2024* (Copenhagen, 29 January 2025).
[40] Stephenson Harwood LLP, *Maritime Decarbonisation and Climate Litigation Risks: Key Points from the Stephenson Harwood Seminar*, 2 November 2022 (2022) <https://www.stephensonharwood.com/news/maritime-decarbonisation-and-climate-litigation-risks-seminar>.
[41] Vibe Ulfbeck and Maxim Usynin, *'Climate Change Litigation in the Maritime Sector as Enforcement Mechanism?'* in Søren Givrin and Vibe Ulfbeck (eds), Carbon-Free Shipping and Shipping Carbon: Contracts in Context (Hart Publishing 2024) 189, and Pia Rebelo and Xavier Rebelo, 'R*ights-Based Climate Change Litigation Against Private Actors'* in Makanatsa Makonese (ed), Climate Litigation and Justice in Africa (Bristol University Press 2024) 189-218.
[42] Case No. C/09/571932/HAZA19-379, 26 May 2021 ('Milieudefensie v Shell'), ECLI:NL:RBDHA:2021:5337.
[43] Book 6, Section 162.

petrochemical company to reduce its net carbon dioxide emissions by 45% by 2030, compared to 2019 levels, through the implementation of appropriate corporate policies. The case, however, remains ongoing. Although the Court of Appeal in its 2024 ruling[44] adopted a more cautious approach, recognising a general duty of care under Dutch law without imposing a specific emissions reduction target, the matter remains under review before the Supreme Court of the Netherlands, whose judgment is expected in 2026. Similarly, in the United Kingdom, *Begum v Maran*[45] marked a paradigm shift in private law liability, which reasoning may be analogously applied to climate-related omissions.[46] In this decision, the English Court of Appeal allowed a negligence claim against a UK company arising from contractual decisions with foreseeable extraterritorial human rights implications within a transnational value chain, departing from the traditional UK and US approach to privity of contract,[47] with its fundaments on *Tweddle v Atkinson* (1861).[48]

This line of litigation increasingly extends beyond failures to reduce GHG emissions and now includes preliminary claims concerning *greenwashing*[49]; the dissemination of misleading or unsubstantiated environmental representations. Consequently, the credibility of private sustainability commitments increasingly depends on their integration into legally binding and operationally enforceable frameworks, such as charterparties. In response, proactive maritime actors are moving from rhetoric to contractual reality. Empirical evidence suggests proactive early adopters of verifiable Environmental, Social and Governance (ESG) strategies gain both reputational and financial advantages,[50] creating a market incentive alongside legal risk.

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[44] ECLI:NL:GHDHA:2024:2099.
[45] *Begum v Maran* (UK) Ltd (2021) EWCA Civ 326.
[46] Pia Rebelo, *Green Shipping Contracts: A Contract Governance Approach to Achieving Decarbonisation in the Shipping Sector* (1st edn, Hart Publishing 2024), 24.
[47] Debadatta Bose, '*The Tort of Irresponsible Contracting: Supply Chain Liability Explained Through Begum v Maran*' (forthcoming in *Cambridge Handbook on Law and Responsible Business* <https://papers.ssrn.com/sol3/papers.cfm?abstract_id=5124545> (Cambridge University Press, 2025).
[48] *Tweddle v Atkinson* (1861) EWHC J57 (QB), (1861) 1 B&S 393.
[49] IBA, 'ESG: Courts Weigh in as Crackdown on Greenwashing Claims Intensifies' (International Bar Association, 6 March 2025) <https://www.ibanet.org/ESG-courts-weigh-in-greenwashing> accessed 30 March 2025.
[50] McKinsey & Company and NielsenIQ, *Consumers Care About Sustainability – and Back It Up with Their Wallets* (McKinsey & Company, 2023) <https://www.mckinsey.com/capabilities/growth-marketing-and-sales/our-insights/consumers-care-about-sustainability-and-back-it-up>accessed 30 March 2025.

IV. CHARTERPARTY DECARBONISATION

Decarbonising maritime transport entails a complex interplay of operational, contractual, technological, and financial measures. As Michael Tsimplis has noted, '*shipping must develop its own solutions, balancing legal frameworks with viable business models to drive widespread emission reductions*'.[51] While the focus of this study is contractual, it is necessary, for contextual clarity, to outline the principal categories of measures currently shaping the sector.

The first category comprises operational adjustments intended to enhance voyage efficiency and deliver immediate reductions in emissions.[52] These include slow steaming, route optimisation, Virtual Arrival (VA) and Just-in-Time (JIT) scheduling. However, such measures remain insufficient to address systemic inefficiencies when considered in isolation. The persistence of 'Steam Fast Then Wait' (SFTW), incentivised by traditional speed and consumption clauses, illustrates the limitations of behavioural change unsupported by legal adaptation.[53] As a response, contractual innovations have been proposed, including multilateral voyage coordination platforms, benefit-sharing schemes, and restructured performance obligations.

The second category concerns contractual instruments, which lie at the heart of this inquiry. These involve the integration of environmental obligations into charterparty provisions and associated contractual frameworks. Among the most salient developments are the substitution of conventional speed and consumption warranties for carbon emissions targets, the adoption of standardised clauses facilitating cooperative decarbonisation, and the design of legal mechanisms for the allocation and trading of carbon credits. In this context, it has been proposed that environmental objectives be recognised as a '*Third Pillar*' of maritime contractual architecture, on an equal normative footing with commercial and safety imperatives.[54]

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[51] CIL and CLIMA, *CIL-CLIMA Conference Report: The Decarbonization of Shipping and Alternative Fuels* (12–13 February 2025) <https://cil.nus.edu.sg/> accessed 28 March 2025.
[52] René Taudal Poulsen and others, 'Energy Efficiency in Ship Operations - Exploring Voyage Decisions and Decision-Makers' (2022) *102 Transportation Research Part D* 103120 <https://doi.org/10.1016/j.trd.2021.103120>.
[53] Hanna Varvne, 'Anchoring Current Arrival Practices in Rhetoric: A Study of Just-in-Time Arrival of Tanker Ships' (2025) 14 *Cleaner Logistics and Supply Chain* 100197.
[54] Haris Zografakis, *'The Third Pillar: A Contractual Architecture for Maritime Decarbonisation'* (Gard, 19 October 2023) <https://gard.no/insights/the-third-pillar-a-contractual-architecture-for-maritime-decarbonisation/> accessed 28 March 2025.

A third dimension lies in technological innovation. Decarbonisation efforts have centred on the adoption of alternative fuels, such as LNG, ammonia, methanol, hydrogen and synthetic fuels, as well as electric and hybrid propulsion.[55] Further advances include onboard carbon capture, wind-assisted propulsion and cold ironing. Performance optimisation[56] may be enhanced through the use of A.I. and high-frequency vessel data (HFVD).[57] However, their deployment necessitates tailored contractual arrangements, particularly with respect to cost allocation, risk apportionment and technical compatibility between stakeholders.[58]

Finally, financial mechanisms are playing an increasingly significant role in aligning capital with decarbonisation targets. Beyond the Poseidon Principles, recent instruments have encouraged the incorporation of environmental covenants into ship finance agreements, the application of the EU Taxonomy Regulation, and the issuance of green and sustainability-linked bonds in accordance with the Green Bond Principles and the Climate Bonds Initiative.[59] These instruments aim to mitigate legal and reputational risks, improve access to sustainable finance and address the split incentive dilemma through appropriately drafted cost-sharing provisions. As carbon pricing becomes embedded in charterparty frameworks, environmental performance indicators are expected to gain increasing prominence in compliance, credit assessment and asset valuation, most notably the CII.[60]

Collectively, these categories reflect a sector undergoing substantial normative and operational transformation. Significantly, each measure engages the legal infrastructure of private law: operational reforms require enabling clauses; technological deployment demands precise contractual integration; and financial arrangements necessitate legal safeguards. Against this backdrop, attention must now turn to charterparties themselves, the foundational instruments of maritime commerce, to examine their evolving function as vehicles for decarbonisation.

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[55] Shaohan Wang and others, 'Decarbonizing in Maritime Transportation: Challenges and Opportunities' (2023) 13 *Journal of Transportation Technologies* 301 <https://doi.org/10.4236/jtts.2023.132015>.
[56] Inmarsat and Thetius, *Digital Decarbonisation: Charting a Course to a Low-Carbon Future* (2022).
[57] Beeni Jacob, *'How Can High-Frequency Vessel Data Be Used in Charter Parties?'* (Nautilus Labs, 1 August 2023) <https://nautiluslabs.com/resources/how-can-high-frequency-vessel-data-be-used-in-charter-parties/>accessed 28 March 2025.
[58] Eduardo Müller-Casseres and others, 'International Shipping in a World Below 2 °C' (2024) 14 *Nature Climate Change* 600.
[59] Rebelo (n 46) 35-74.
[60] Pia Rebelo, 'Legal Tools for Overcoming Perceived Risks in Green Shipping' in Ellen Eftestøl and others (eds), *Green Shipping in the Regulation of Risk* (Brill | Nijhoff 2022) 646–684.

V. DECARBONISATION IN CHARTERPARTIES

In the absence of binding international obligations to ensure effective and equitable decarbonisation of the shipping sector, charterparties are increasingly emerging as autonomous regulatory instruments. Environmental imperatives are reshaping foundational contractual pillars such as seaworthiness, speed and consumption warranties, and laytime provisions, as decarbonisation goals influence operational expectations. Through performance warranties, data-sharing duties, fuel standards and emissions-related penalties, these agreements transcend their conventional role, operating as mechanisms of soft norm creation. This evolution is reinforced by prevailing trade practices, which may imply environmental obligations in the absence of express terms, particularly where aligned with industry standards. The legal recognition of legitimate interests in environmental compliance may also support enforcement of liquidated damages and incentive mechanisms, consolidating charterparties as instruments of private climate governance within the maritime legal framework.

This transformation is best understood through the legal architecture of charterparties. As *sui generis* contracts rooted in English common law and refined by maritime custom, they govern the commercial allocation of risk and responsibility in ship operations. The distribution of environmental duties varies by charter type: in voyage charters, the owner retains operational control and regulatory obligations; in time charters, control is shared, with the owner maintaining navigational command, often subject to performance warranties; in bareboat charters, operational control transfers entirely to the charterer, who assumes owner-like responsibilities, including compliance.

This typology is central to understanding how environmental obligations are embedded in performance clauses. In time charters, provisions on fuel consumption and speed, once static commercial undertakings, are now reframed as environmental performance metrics. Anticipated measures, such as the proposed carbon levy or the GFS, require active cooperation, particularly where fuel choices or routing instructions impact emissions. Accordingly, environmental warranties and exceptions may be construed more restrictively, and traditional doctrines such as off-hire or frustration reinterpreted in light of climate-related delays or restrictions.

The duty of seaworthiness, traditionally defined as the obligation to provide a vessel fit for its intended voyage, is also undergoing expansion. A vessel that fails to meet emissions limits or lacks appropriate monitoring technology may be deemed unseaworthy, even if structurally sound. This shift has led to reassessments of standard terms, with industry models such as BIMCO now incorporating carbon intensity indicators and fuel specifications.

Environmental duties may likewise arise through implied terms and evolving standards of good faith, particularly where emissions performance affects tradability or regulatory standing. As established in *Hutton v Warren*,[61] commercial custom may supplement written contracts where they are silent. Additionally, under *Cavendish Square Holding BV v Talal El Makdessi*,[62] the recognition of a legitimate interest in environmental compliance may justify climate-related damages clauses, further embedding green obligations into charterparty frameworks.

a. Seaworthiness

Under English common law, seaworthiness has long constituted a foundational obligation of the shipowner. Traditionally defined as the requirement to provide a vessel reasonably fit to encounter the ordinary perils of the voyage and to carry cargo safely,[63] the concept has progressively evolved to embrace a broader operational, documentary, and legal readiness. As confirmed in *The CMA CGM Libra (2021) UKSC 51*,[64] seaworthiness extends to navigational preparedness, encompassing aspects such as passage planning and the competence of the crew.

However, in the context of maritime decarbonisation, the obligation is undergoing a further conceptual transformation. Compliance with emissions regulation, whether under MARPOL Annex VI, the EU-ETS, or anticipated measures such as the IMO carbon levy or the GFS, is increasingly viewed as a component of the vessel's legal fitness. As noted in *The Elli and The Frixos* (2008),[65] a ship that fails to comply with newly effective environmental regulations may be rendered unseaworthy on grounds of illegality, even if otherwise physically and operationally sound. This extension of the seaworthiness concept reflects a broader doctrinal

[61] *Hutton v Warren* (1836) EWHC J61.
[62] *Cavendish Square Holding BV v Talal El Makdessi* (2015) UKSC 67.
[63] Federico Franchina, *'The Seaworthiness: An Old Warranty for a New Duty'* (2017) XV Giureta, Rivista di Diritto dell'Economia, dei Trasporti e dell'Ambiente.
[64] *Alize 1954 and another v Allianz Elementar Versicherungs AG and others* (2021) UKSC 51.
[65] *Golden Fleece Maritime INC v st Shipping and Transport INC* (2008) EWCA Civ 584.

and contractual recalibration. A vessel may be considered unseaworthy not only if it lacks the equipment to monitor or report emissions, but also where the failure to retrofit or upgrade relevant systems frustrates regulatory compliance. The requirement of due diligence, as articulated in the Hague and Hague-Visby Rules, where incorporated, must now be interpreted through the prism of contemporary environmental imperatives. Although these regimes do not govern charterparties by default, their normative influence persists where such terms are expressly incorporated in the contractual framework.

The practical implications of this evolution are twofold. First, parties to charterparties must anticipate that breaches of climate-related obligations may found claims of unseaworthiness or give rise to disputes regarding allocation of liability, especially those linked to certification, emissions performance or energy efficiency indices. Second, model clauses developed by industry actors, such as BIMCO[66] or *The Chancery Lane Project*[67] (specially via its Otto's, Ariel's, Aiden's and Bradleigh's Clause),[68] increasingly embed emissions performance requirements into standard forms, thereby crystallising the expectation of environmental seaworthiness. These clauses often link compliance not only to legal mandates but to collaborative targets, reinforcing the role of seaworthiness as a contractual interface between operational practice and climate governance.

In this respect, the future of seaworthiness lies in its ability to accommodate environmental expectations as both express and implied components of contractual performance. Courts have historically shown restraint in implying new obligations absent clear evidence of custom or necessity (*Hutton v Warren*).[69] Yet the cumulative effect of regulatory expansion, normative soft law, and the commercial salience of emissions performance suggests that a failure to ensure environmental readiness may increasingly be judicially recognised as a breach of the seaworthiness obligation. Whether this evolution occurs incrementally through precedent or more boldly through legislative alignment remains to be seen. However, it is clear that in the age of climate accountability, seaworthiness can no longer be understood as a static technical threshold, but a dynamic and forward-looking standard incorporating compliance with evolving environmental obligations.

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[66] BIMCO, 'BIMCO Clauses' (BIMCO, 2024) <https://www.bimco.org/contractual-affairs/bimco-clauses/> accessed 31 March 2025.
[67] The Chancery Lane Project, 'Climate Clauses' (The Chancery Lane Project, 2024) <https://chancerylaneproject.org/clauses/> accessed 31 March 2025.
[68] Rebelo (n 46) 157.
[69] *Hutton v Warren* (1836) 1 M & W 466).

b. Speed and Consumption Warranties

These concepts have traditionally played a central role in risk allocation under time charterparties, safeguarding the charterer's expectation of timely and cost-efficient performance. These undertakings require the shipowner to ensure that the vessel maintains a specified average speed, and fuel consumption under defined sea and weather conditions. They enable reliable voyage planning, freight delivery, and bunker cost control. Breach may give rise to underperformance claims, off-hire deductions or damages

This contractual framework is being redefined by two converging developments: the widespread adoption of slow steaming to meet decarbonisation targets, particularly under the CII regime, and the integration of HFVD systems that allow continuous monitoring of operational performance.[70] These developments have created tension between charterers' rights to full contractual performance and owners' obligations to mitigate GHG emissions. Judicial and arbitral reasoning may reflect this shift. In *Bulk Ship Union SA v Clipper Bulk Shipping Ltd (The Pearl C)*,[71] the court accepted that, under certain commercial conditions, a reduction in speed may be justified provided it does not contravene charterers' orders or breach the duty of utmost despatch. Although unrelated to environmental regulation, the decision supports a purposive and flexible interpretation of performance warranties, which may accommodate decarbonisation efforts.[72] Empirical data underscores the environmental utility of speed modulation: in one optimisation initiative, a modest speed adjustment saved over 30 tonnes of fuel.[73]

In response, a range of innovative clauses has been proposed to reconcile contractual obligations with environmental compliance. Chief among them are eco-speed clauses[74], which permit vessels to sail below traditional warranted speeds for the purpose of achieving emissions targets or maintaining CII ratings, without constituting breach. These clauses may incorporate benefit-sharing mechanisms, distributing fuel savings between owners and charterers to harmonise environmental and commercial objectives. Their effectiveness is

[70] Jean-Marc Bonello and Tristan Smith, *'Exploring the Effect of Vessel Performance Information Barriers on Decision-Making Practice: A Time Charter Application'* (4th Hull Performance and Insight Conference, Gubbio, May 2019).
[71] *Bulk Ship Union SA v Clipper Bulk Shipping Ltd* (The Pearl C) [2012] EWHC 2595 (Comm).
[72] IMO, Report of the Marine Environment Protection Committee on its Sixty-First Session (MEPC 61/24, 6 October 2010) paragraph 5.13.
[73] Inmarsat and Thetius, *The Digital Decarbonisation Report 2022* (Inmarsat and Thetius 2022)
[74] Haris Zografakis et alia '*Decarbonize Shipping or Decarbonize International Maritime Trade: The Present Contractual Framework and the Need for a New Contractual Architecture'* in Ileana M. Costea (ed), Maritime Decarbonization (Springer 2023) 201.

further enhanced when integrated into JIT arrival schemes, which reduce emissions from anchorage idling. Recent research estimates that coordinated port arrivals under JIT protocols could cut global maritime GHG emissions by up to 25% annually.[75] HFVD represents a crucial shift in charterparty governance. Unlike traditional noon reports, it generates granular, time-stamped metrics capable of attributing performance deviations with precision. To ensure its evidentiary value, parties may include data governance provisions specifying the admissibility, verification and weight of data drawn from platforms such as the DCS and EU-MRV.[76]

The principle of utmost despatch, long a feature of voyage charters, is likewise undergoing reappraisal. While it obliges the vessel to proceed without undue delay,[77] that duty may now be at odds with environmentally optimised routing or regulated speed reductions. A rearticulated notion of utmost despatch, incorporating a duty to proceed with reasonable environmental efficiency, may better reflect contemporary operational standards and sustainability targets.[78] Nonetheless, such environmental deviations remain legally uncertain absent clear contractual authorisation. Tribunals are unlikely to excuse departure from warranted performance in the absence of express clauses permitting emissions-based adjustments. Evidentiary issues may also arise where HFVD is incomplete or disputed. To mitigate these risks and support regulatory alignment, parties should introduce express exceptions to speed and consumption warranties within comprehensive emissions governance frameworks.

c. Off-Hire and Ballast Voyages

The imperative of maritime decarbonisation compels a renewed scrutiny of off-hire clauses within time charterparties. Traditionally engaged by internal deficiencies such as engine failure, grounding or detention, these provisions frequently incorporate residual formulations such as *'any other cause preventing the full working of the vessel'*, typically construed *ejusdem generis*, unless qualified by expansive language such as '*whatsoever*'. The presence

[75] Tristan Smith and Haydn Francis, *Port Congestion, Waiting Times and Operational Efficiency* (UCL Energy Institute and UMAS 2024).
[76] European Maritime Safety Agency (EMSA), 'THETIS-MRV: Monitoring, Reporting and Verification of CO_2 Emissions' (EMSA, 2025) <https://mrv.emsa.europa.eu/#public/eumrv> accessed 31 March 2025.
[77] Yvonne Baatz (ed), *Maritime Law* (3rd edn, Informa Law from Routledge 2014) 136.
[78] HFW, '*Decarbonisation in Shipping: Contractual and Charterparty Issues'* (Standard Club, December 2021).

or absence of fault remains irrelevant; the operative criterion is the impact on the vessel's ability to perform the contractual service[79].

In an evolving regulatory landscape increasingly governed by emissions ceilings and carbon pricing mechanisms, compliance with frameworks such as the CII and the EU-ETS now conditions the vessel's lawful trading status. Non-compliance, rendering the ship commercially inoperative, may therefore amount to functional off-hire. The integration of carbon-related contingencies into off-hire clauses would enhance contractual coherence and reinforce compliance incentives. Deviations undertaken to bunker low-carbon fuels, or failures in maintaining emissions monitoring systems, may legitimately interrupt operational availability and warrant a proportionate suspension of hire.

The treatment of ballast voyages similarly merits reconsideration. Although devoid of freight-generating function, such voyages account for a substantial share of emissions. While their legal treatment varies across charterparty types, the environmental externalities associated with ballast operations challenge the presumed neutrality of existing risk allocations. Contractual innovations that promote backhaul optimisation, emissions offsetting, or emissions-efficient routing may serve to internalise environmental costs and advance decarbonisation objectives. Where charterers impose routing that structurally necessitates extended ballast legs, bespoke clauses may reallocate carbon liabilities or mandate adherence to best environmental practices, thereby embedding evolving normative standards through private ordering.

d. Laytime and Demurrage

Laytime and demurrage provisions have long formed a cornerstone of voyage charterparties, governing risk during cargo operations and promoting commercial efficiency. Under the classical '*first come, first served*' rule[80], the vessel must tender notice of readiness within the agreed laycan window, failing which the charterer may cancel the charter. Once on berth, laytime commences and, if exceeded, demurrage[81] becomes payable (contractually defined as liquidated damages). While this system provides legal certainty, it has attracted criticism for

[79] Yvonne Baatz (ed), Maritime Law (3rd edn, Informa Law from Routledge 2014) 160.
[80] Varvne (n 53).
[81] Yvonne (n 77) 171.

incentivising practices such as the *'rush to wait'*[82], where vessels proceed at full speed only to idle at congested ports, thereby increasing unnecessary emissions.

To address this, contractual mechanisms such as JIT and VA clauses have been introduced, particularly in BIMCO model forms. These allow for speed adjustments en route based on berth availability, enabling laytime to be recalculated as if the vessel had arrived earlier. This preserves demurrage entitlements while curbing emissions. However, their operation raises legal complexities. Delays in instruction or inaccurate port data may lead to disputes, particularly regarding whether the charterer's intervention constitutes a waiver or a modification of the owner's duty of utmost despatch.

Although case law remains limited, the effectiveness of these clauses depends on mutual cooperation and accurate data exchange. The BIMCO JIT Clause 2021 requires reliable port information and written agreement on revised arrival times. In practice, fragmented logistics and limited port digitalisation frequently obstruct their implementation.

A related development is the emergence of benefit-sharing models. Traditionally, demurrage has served a compensatory function, while despatch is often excluded. In the context of decarbonisation, there is growing support for positive despatch schemes that reward emissions-efficient behaviour. For example, when slower sailing under a JIT scheme leads to fuel savings, these may be shared between owner and charterer according to a pre-agreed formula. In this way, charterparties begin to reflect environmental performance within their economic structure. This evolution aligns with the concept of *greenworthiness*. Where environmental integrity forms part of seaworthiness or fitness for purpose, coordinated voyage planning and flexible laycan management become essential. Failure to adopt feasible JIT practices may be seen as a breach of due diligence or of implied obligations to act in an environmentally responsible manner.

Accordingly, the laycan clause merits revision. Its current rigidity often leads to early arrival regardless of berth readiness, generating avoidable emissions. A more sustainable approach would incorporate conditional laydays based on updated loading schedules or digital notifications, aligning contractual obligations with operational realities and environmental objectives.

[82] Abd Alla Ali Mubder Mubder, *'The Implementation of Berth Allocation Policies That Enable Just-in-Time Arrival in Port Calls'* (2024) Intl J Phys Distrib & Logistics Mgmt.

VI. CONCLUSION

The foregoing analysis underscores that the decarbonisation of the maritime sector, while rooted in international regulatory commitments, will ultimately hinge on the transformative potential of private law. Charterparties, as dynamic instruments of commercial practice, now serve not merely as tools of risk allocation but as vehicles through which climate-aligned obligations may be given tangible legal effect.

This study has illustrated that long-standing contractual doctrines, such as seaworthiness, performance warranties, laytime and demurrage, are neither static nor immune to normative evolution. Rather, they are capable of being reinterpreted in light of contemporary imperatives, allowing environmental considerations to be embedded within the established logic of maritime commerce. Contractual obligations, traditionally guided by commercial expectations, must now incorporate a heightened duty of environmental diligence, consistent with emerging jurisprudential and regulatory standards.

However, doctrinal evolution alone will not suffice. It is imperative that legal practitioners, arbitral institutions and industry bodies engage in the development of coherent, standardised contractual solutions that align with decarbonisation goals while preserving legal certainty and commercial efficiency. Through such calibrated innovation, maritime law may evolve from a reactive discipline into a proactive instrument for environmental governance.