Paradigm Academic Press
Law and Economy
ISSN 2788-7049
AUG. 2024 VOL.3, NO.8

EU's "Fifty-fifty Split Rule" for Shipping Carbon Emissions Trading: Development Logic, Legitimacy Analysis and China's Response

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doi:10.56397/LE.2024.08.07

Abstract

In 2021, the European Union issued a new "fifty-fifty split" regulation, proposing that the shipping industry should not only be included in its Emissions Trading System (ETS), but also that the coverage of the shipping ETS should be expanded to 50% of intercontinental shipping carbon emissions starting or ending at European ports. Based on the general legitimacy analysis of the EU's shipping ETS, the academic community lacks research on the source of the "fifty-fifty split rule" mechanism. This article focuses on international law of the sea and international climate law. Looking at its logical approach, the dispute between the "extraterritoriality" and "full coverage" arguments held within and outside the EU on the 50% quota reflects the economic and political logic of legislation, and their combined effect produces "fifty-fifty split". Looking at its implementation difficulties, it faces questions about its legitimacy under international law. The extraterritorial effect of the new regulation lacks an international legal basis for extraterritorial jurisdiction; although it complies with Article 2.2 of the Kyoto Protocol, it conflicts with the principle of common but differentiated responsibilities. Exploring the relevant restrictions of international law of the sea on this initiative and responding to negative impacts through legal and political means is a new methodology.

Keywords: green shipping, EU ETS for shipping, coverage, legitimacy

1. Introduction

The emission problem of the shipping industry has long been a concern of the international community. How to achieve green transformation has become a difficult problem facing the global shipping industry.[1] In this field, in order to reduce carbon emissions, the Marine Environment Protection Committee (MEPC) of the International Maritime Organization adopted an amendment to Annex VI of the International Convention for the Prevention of Pollution from Ships (MARPOL Convention) at its 62nd session. The amendment incorporates two new management specifications: the Ship Energy Efficiency Management Plan (SEEMP) and the Ship Energy Efficiency Design Index (EEDI). At the same time, the role of the carbon emission trading system in carbon emission reduction was demonstrated.

Due to the particularity of maritime transport and aviation[2], the Kyoto Protocol did not include these two areas in the Kyoto emission reduction mechanism. Instead, Article 2.2 of the Protocol authorized the International Civil Aviation Organization (ICAO) and the International Maritime Organization (IMO) to be specifically responsible

[1] Central People's Government: "Providing a "Chinese Solution" for Global Shipping Industry Emission Reduction". (2021, June 3). https://www.gov.cn/xinwen/2021-06/03/content_5615100.htm.

[2] Because it is difficult to determine where the emission occurs, and the emitter is unclear, international shipping also facilitates carbon leakage. See Hu Bin, (2017). *International Law Analysis of the EU Maritime Carbon Emission Trading Mechanism*. China Social Sciences Press, 1st edition, p. 2.

for emission reduction work. The maritime industry is also mostly excluded from the carbon emission market mechanisms of various countries due to its significant international nature and the complexity of mechanism application.[1] The EU once preferred that IMO and other international institutions develop unified international carbon emission standards. For a long time, the EU Emissions Trading System (EU ETS) did not include the maritime industry. In July 2011, the 62nd meeting of the Marine Environment Protection Committee (MEPC) of the International Maritime Organization adopted the amendment to Annex VI of the International Convention for the Prevention of Pollution from Ships (the MARPOL Convention). This amendment introduces the Ship Energy Efficiency Design Index (EEDI) into the original Annex VI. However, the effect is not satisfactory, and the actual carbon emission reduction effect does not meet expectations.[2] At the same time, a report issued by IMO shows that the proportion of maritime carbon emissions caused by no measures is so high that the international community cannot ignore it.

The EU took measures earlier. According to Directive (EU) 2023/959 issued by the EU on May 16, 2023, the shipping industry will be officially included in the EU ETS from January 1, 2024. All ships with a gross tonnage of 500 or more that arrive at or leave EU ports and sail between ports within the EU will need to purchase and pay carbon quotas for their emissions of greenhouse gases such as carbon dioxide. Specifically, 100% of the emissions of seagoing vessels during the entire voyage between ports within the EU and 50% of the emissions between EU and non-EU ports will be included in the scope of carbon emission quota charges. When the distance between EU ports and ports outside the EU is less than 300 nautical miles, a 100% ratio will also be determined, regardless of the registered nationality of these ships.[3] The proposal made by the EU aims to promote emission reduction in the shipping industry through market mechanisms and achieve the emission reduction targets of the Paris Agreement, which is consistent with the global efforts to reduce greenhouse gas emissions,[4] but the international law issues it has raised have attracted widespread attention. Obviously, the EU's inclusion of shipping in the EU ETS has triggered a unilateral and multilateral chain reaction, and there are many studies on the legitimacy of its various branches of international law and its impact on the global shipping industry. However, it is not comprehensive for China. The basic principles of the "fifty-fifty" coverage proposal in the fields of international law of the sea and international climate law are still unclear.[5] The legislative intention of the European Commission to adopt a narrow geographical scope of application in the EU ETS and whether it complies with international law need to be re-examined.

This article analyzes controversial issues in international law by interpreting the basic principles of the EU's unilateral "fifty-fifty" strategy. The EU ETS for shipping involves the dual issues of marine environmental protection and international climate governance. How the "fifty-fifty split rule" is reflected in coordinating the relationship between the two is also the focus of this article. It further explores the rationality and legitimacy dilemma faced by the current implementation of the rule, and ultimately provides China with corresponding measures to promote the green transformation and sustainable development of China's shipping industry.

2. Rule Issues: Questioning the Scope of the "Fifty-fifty Split Rule"

2.1 Adjustment of Governance Measures — Update of Applicable Navigation Areas

The EU ETS, known as the "heart" of Europe's climate policy measures, promotes greenhouse gas emissions reduction in a cost-effective and economically efficient manner through market-driven mechanisms.[6] The measure requires shipping companies to hold a number of tradable emission permits equal to their annual greenhouse gas emissions. By reducing the issuance of new quotas year by year, the EU ETS sets a strict downward trend for overall emissions within its coverage. By 2030, the areas it covers, including electricity and

[1] Cao Xingguo, (2024). Comprehensive Approach to Building a Carbon Emission Market Mechanism for Maritime Transport in China. *Journal of Pacific Studies*, (1), p. 73.

[2] See Chen Lunlun and Zhao Yanhao, (2020). EU Green Shipping Policy and Its Implications. *Journal of Zhejiang Ocean University (Humanities and Social Sciences)*, (5), p. 19. Psaraftis, HN, & Kontovas, CA, (2013). Speed models for energy-efficient maritime transportation: A taxonomy and survey. *Transportation Research Part C: Emerging Technologies, 26*, 338.

[3] European Union: Reducing emissions from shipping. https://climate.ec.europa.eu/eu-action/transport/reducing-emissions-shipping-sector_en

[4] World Bank: Carbon Pricing Dashboard: Status and Trends. https://carbonpricingdashboard.worldbank.org/

[5] See Ringbom, H., & Finska, L., (2022). Regulation of GHGs from Ships: On the available discretion for regulatory solutions in a European and Finnish perspective, 8.

[6] Directive 2003/87/EC of the European Parliament and of the Council of 13 October 2003 establishing a scheme for greenhouse gas emission allowance trading within the Community and amending Council Directive 96/61/EC [2003] OJ L275/32 (EU ETS Directive) art 1.

heat producers, energy-intensive industries, and airlines operating in the European Economic Area (EEA), will achieve a greenhouse gas emissions reduction of at least 51% compared to 2005.[1]

As early as 2009, the Dutch consulting firm CE Delft was commissioned by the European Commission to study the geographical scope of EU shipping carbon emissions and proposed four plans based on this.[2] The applicable geographical scope is expanded from small to large, from the territorial waters of EU member states to the entire voyage of ships entering EU ports.[3] However, in the EU's "Fit for 55" plan in 2021, new regulations different from these four plans are proposed specifically for carbon emissions in the shipping industry, namely covering emissions generated when ships dock at EU ports and sail within the EU, and also including 50% of emissions to and from non-EU countries. Currently, only carbon dioxide emissions are regulated, and the EU plans to include methane and nitrous oxide gas emissions from 2026.

Under EU legislation, all ships over 5,000 gross tonnage must collect and report their CO2 emissions data when entering or leaving ports in the EU and the European Economic Area (EEA).[4] Therefore, the inclusion of the shipping industry in the EU ETS is based on the provisions of other EU ETS sectors and the existing EU Monitoring, Reporting and Verification System (EU MRV). The MRV mechanism requires ship operators to submit certified annual emissions reports and submit corresponding emission quotas in the EU register within a specified time. For example, the emissions for the whole year of 2024 need to be certified in the EU MRV system and completed before March 31, 2025. Subsequently, shipping companies must pay the prescribed carbon quotas to the EU competent authorities based on the certified data before September 30. The MRV regulation applies to all large commercial ships that dock at EEA ports "loading and unloading cargo or embarking and disembarking passengers". The MRV mechanism established in the early years has become a link in the process of waiting for the EU ETS for shipping. It can provide a reference for the implementation of IMO marine emission reduction technology or market mechanism, and also make necessary information and data preparation for the EU's future unilateral marine carbon emission reduction market mechanism.[5] However, the "geographical scope" of the updated ETS for shipping is significantly narrower than the provisions of the MRV regulation on intercontinental shipping. The "Fit for 55" rule in the proposal indicates that, for example, a ship operating company engaged in container transportation from China to ports under EU jurisdiction (or vice versa) only needs to submit 50 EU ETS quotas for every 100 tons of carbon dioxide or equivalent greenhouse gases emitted during the above voyage (after being included in the scope of adjustment in the future). The European Commission did not clearly explain the above decision-making criteria, but defined the "fifty-fifty split rule" as a "practical way to implement the principle of common but differentiated responsibilities and the principle of capabilities."[6] Accordingly, non-European coastal countries can independently decide on corresponding legal actions for the remaining (50%) emission share. The update of the scope of EU ETS for shipping is different from the original assessment and speculation, and the legality and feasibility of the scope of the "Fit for 55" rule are questionable.

2.2 Adjustment of the Scope of Governance: Debate on Extraterritorial Application

The EU's move to include 50% of the global shipping industry's quota in its emissions trading system has been strongly condemned by the international community, including Chinese scholars. Criticisms have been launched from multiple angles. The international legal legitimacy level includes the legislative background, fundamental purpose, legitimacy, and extraterritorial validity of the EU ETS. In terms of negative impact, in the field of international shipping, some stakeholders have expressed negative feedback on the EU's proposal.[7] Their views point out that the proposal has problems on multiple levels, especially that the EU shipping ETS constitutes a "unilateral" action, which may undermine the efforts of the IMO to develop a global, market-based tool to

[1] Commission (EU) (n 2) Explanatory Memorandum 1; EU ETS Directive (n 12) Annex I.

[2] Technical support for European action to reduction greenhouse gas emissions from international maritime transport, Tender dgenv.

[3] Technical support for European action to reducing GHG emissions from international maritime transport. Research report commissioned by European Commission.

[4] Commission (EU) 'Integrating Maritime Transport Emissions in the EU's Greenhouse Gas Reduction Policies' (Communication) COM(2013) 479 final, 28 June 2013, 5.

[5] Hu Bin, (2017). *International Law Analysis of the EU's Maritime Carbon Emissions Trading Mechanism*. China Social Sciences Press, 1st edition, 40.

[6] Commission (EU) Proposal for a Directive of the European Parliament and of the Council Amending Directive 2003/87/EC, recita17.

[7] Suda, R., (2021, June 7). Japan Opposes EU's Plan to Include Shipping in ETS. *Argus Media*. Hand, M., (2021, July 15). EU Emissions Trading for Shipping Highlights Europe and Global Shipowner Divide. *Seatrade Maritime*.

reduce maritime emissions. [1]Moreover, this unilateral emission reduction action based on the market is difficult to cover carbon emissions caused by the high seas, and thus it is difficult to form a protection of the integrity of the marine environment. As for the impact of the EU ETS for shipping on China's international trade[2], there is a basic positive correlation between China's shipping carbon emissions and shipping export trade volume.[3] Therefore, the management of shipping carbon emissions will have a transmission effect on China's shipping export trade, indirectly exerting control on China's transport ship types, resulting in a reduction in shipping export capacity. At the same time, with the increase in carbon emissions from ships and the rise in quota costs, the price competitiveness of China's seaborne export commodities will decline, which will in turn limit China's export share in the international market.

Indeed, in proposing to include maritime transport in the EU ETS, the European Commission justified its regulatory approach on the basis that existing shipping regulations, including energy efficiency measures adopted by the IMO, do not adequately meet climate objectives for reducing maritime emissions.[4] However, it is striking that, despite possible jurisdictional tensions, the European Commission did not assess the compatibility of the proposed marine ETS with existing international law in its impact assessment accompanying the proposal.

However, within the EU, there are doubts about the "other 50%" quotas that have never been included in the EU ETS for shipping, arguing that the impact assessment issued by the European Commission shows that the results seem to be contrary to the actual effects of its actions. First, by 2030, the full implementation of the measure is expected to achieve a 59% reduction in total emissions compared to the baseline emissions of 45 million tons of carbon dioxide.[5] Secondly, by 2030, compared with the scope set by the "fifty-fifty split rule", the expanded scope of application will generate an additional 1.2 billion euros in revenue through the quota auction mechanism.[6]

The policy goal of the EU ETS for shipping is to promote its carbon emission system globally and eventually establish a global carbon emission trading market. Needless to say, the wider the scope of application, the stronger the political and economic incentive effect of the EU ETS, a market-based and global agreement on emission reduction measures. Given the emission reduction and economic goals of the EU ETS, comprehensive coverage seems more purposeful than the "fifty-fifty split rule".[7] In the EU Commission's public consultation, most respondents said that they prefer to build an emission trading system with complete coverage, so EU countries hope that the European Commission will prove the rationality of the choice of scope of application that deviates from the established policy goals.

Overall, through the analysis of the views of all parties on the "fifty-fifty split rule" its establishment involves the interaction of multiple logical relationships and interest factors, which will have a far-reaching impact on the actual implementation of the EU ETS for shipping and the improvement of its applicability. Although the theoretical prospects and potential legal obstacles of incorporating international shipping into the EU's emissions trading system have been relatively well demonstrated, different conclusions have been drawn.[8] In view of this, it is necessary to sort out the legal logic of the "fifty-fifty split rule" as the basis for the EU's marine emission

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[1] See K Kulovesi, (2012). Addressing Sectoral Emissions Outside the United Nations Framework Convention on Climate Change: What Roles for Multilateralism, Minilateralism and Unilateralism? *Review of European Community and International Environmental Law*, *21*, 193-202.

[2] Shao Lili, (2024). Responsibility Allocation and Implementation of Carbon Emission Reduction in International Shipping - Based on the Improvement of Carbon Market Mechanism. *Legal and Business Research*, (3), 168.

[3] Hu Bin, (2017). *International Law Analysis of the EU's Maritime Carbon Emissions Trading Mechanism*. China Social Sciences Press, 1st edition, 13.

[4] Commission of the European Union, (n.d.). Explanatory Memorandum, 5. For an overview of the relevant IMO measures, see Finska, L., & Ringbom, H., (2022). Regulation of GHGs from Ships: On the Available Discretion for Regulatory Solutions in a European and Finnish Perspective (BALEX 2022), 8-15.

[5] Commission (EU), 'Impact Assessment Report Accompanying the Proposal for a Directive of the European Parliament and of the Council Amending Directive 2003/87/EC Establishing a System for Greenhouse Gas Emission Allowance Trading within the Union, Decision (EU) 2015/1814 and Regulation (EU) 2015/757.' (Staff Working Document) SWD (2021).

[6] Ibid 105.

[7] Commission (EU), 'Impact Assessment Report Accompanying the Proposal for a Directive of the European Parliament and of the Council Amending Directive 2003/87/EC Establishing a System for Greenhouse Gas Emission Allowance Trading within the Union, Decision (EU) 2015/1814 and Regulation (EU) 2015/757.' (Staff Working Document) SWD (2021) ibid Part 1, 150.

[8] See Dominioni, G., Heine, D., & Martinez Romera, B., (2018). Regional Carbon Pricing for International Maritime Transport: Challenges and Opportunities for Global Geographical Coverage. *Carbon and Climate Law Review*, *12*, 140, 144-147.

reduction responsibility, explain the significance of the transition period, and find a breakthrough to resolve the negative impact on China's shipping trade while adapting to the needs of the development of China's marine carbon emission reduction practice.

3. Approach Research: Logical Explanation of the EU ETS for Shipping "Fifty-fifty Split Rule"

CE Delft conducted an economic assessment of the possible risks of the EU's original four shipping ETS schemes from a cost perspective, whether it is environmental effects, risk avoidance, or management complexity. In essence, they all demonstrate the feasibility of the EU ETS for shipping from a cost-effectiveness perspective. However, the EU did not choose the most economically advantageous option, and other factors played a role in the EU's legislative decision-making process. Based on this, we can integrate the international background established by the system and the essential attributes of carbon emission governance and interpret the path of the system's generation and evolution from three dimensions: realistic logic, political logic, and value logic.

3.1 Economic Logic: Relying on the Shipping Market Mechanism to Stimulate the Motivation to Alleviate the Climate Crisis

The particularity of emission reduction in international shipping is mainly reflected in the objective uncertainty of carbon emissions in international shipping.[1] As a key area to promote international trade, if the shipping industry does not implement carbon emission mitigation measures, its carbon emissions will continue to grow. According to the medium-term forecast scenario, by 2050, carbon emissions from international shipping may increase by 50% to 250%, depending on the economic growth rate and changes in energy demand.[2]

After the establishment of EU ETS, the EU, based on the above growth possibilities, attempted to expand this system to the global scope, which has its realistic economic basis. On the one hand, similar to international aviation carbon emissions, international shipping carbon emissions are not fixed and static, but move and diffuse in the global atmosphere. Therefore, it is difficult to accurately define the specific responsibilities that shipping companies in various countries should bear. From the regulatory level, a global emission reduction mechanism is imperative. On the other hand, the larger the scope of the carbon emission trading market, the more stable the basic supply and demand relationship in theory.[3] Given the global nature of carbon emissions, local measures may trigger the migration of enterprises within the jurisdiction to avoid higher carbon pricing costs. Furthermore, there are special features of international shipping GHG emission regulations, such as the "flag of convenience" problem, which may lead to "carbon leakage"[4], making it impossible to effectively solve the global carbon emission problem. In order to stabilize the trading market and reduce the transaction price, and combined with the above principles, the EU hopes to include the global shipping industry in the EU ETS to stabilize the supply and demand relationship in the trading market, stabilize the transaction price and avoid the "carbon leakage" problem.

3.2 Political Logic: The Conflict Between External Environment Transmission and Internal Policy Shift

After years of practice, the EU has realized that the EU ETS has not only achieved certain results at the environmental level, but also demonstrated its value at the economic level, prompting the EU to consider expanding it to more areas to achieve broader sustainable development goals. The development pattern of the EU ETS for shipping "fifty-fifty split rule" is rooted in the political logic of the dual role of the external environment and the evolution of internal policy and legal systems.

From an external perspective, in the context of global climate governance, the governance process is increasingly politicized. The issue of "carbon politics" has gradually become the focus of international law and policy as the power structure is adjusted, technical mechanisms are created, and emission reduction targets are deepened.[5] In a political context, it is inevitable to recall the process of the EU incorporating the international aviation industry into the EU ETS, because compared with the full coverage, the difference in the scope of

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[1] Shao Lili, (2024). Responsibility Allocation and Implementation of Carbon Emission Reduction in International Shipping — Based on the Improvement of Carbon Market Mechanism. *Legal and Business Research*, (3), 168.

[2] See United Nations Conference on Trade and Development: Sustainable freight transport in support of the 2030 Agenda for Sustainable Development. https://documents.un.org/doc/undoc/gen/g18/274/98/pdf/g1827498.pdf?token=lcc9cPYIa9lX4fBzZx&fe=true,2024-01-15.

[3] See Wang Xinting, Wu Zhixuan, and Yuan Guangda, (2020). "Construction of Carbon Emission Rights Value Assessment Model — Taking Datang International Power Generation Co., Ltd. as an Example. *Accounting Monthly*, (7), 38.

[4] Zheng Shaohua, Wang Hui, (2022). Research on the International Shipping Carbon Emission Trading Mechanism under the Background of Green Shipping. *Journal of Zhejiang Ocean University (Humanities and Social Sciences Edition)*, (5), p. 2.

[5] See Yang Weidong and Chen Yiyu, (2022). Discourse Game in International Carbon Politics: An Analytical Perspective Based on Critical Discourse. *International Relations Research*, (5), pp. 144-146.

application justified by the European Commission is also reflected in the field of international aviation. In 2010, the EU also attempted to expand the EU ETS to (100%) carbon emissions from intercontinental flights departing from or arriving at European airports. Its jurisdiction was questioned by several countries, including the United States and China, and in the end, the scope of the plan was temporarily limited to intra-European flights.[1] Ship GHG emissions are extensive, interconnected, and global, which have a significant impact on global climate governance and are related to the interests of the international community as a whole. The EU's unilateral shipping measures have been generally opposed by non-EU countries so far. Therefore, after conducting an opaque "implicit weighting" of different standards, the European Commission adopted a narrower scope of application of 50% based on political decisions.[2] The EU did not clearly explain the criteria for these decisions but summarized the scope of "fifty-fifty split" as "practical solutions to the principle of common but differentiated responsibilities and capabilities".

The European Commission did not further explain the directive. Non-European coastal countries are free to take corresponding measures for the remaining 50% of emissions, and can "use half the energy" for intercontinental navigation. The EU acknowledged that a narrower scope may be more acceptable to third-country operators and have much less impact.[3] It is not difficult to see that the scope of the "fifty-fifty split rule" seems to be intended to avoid international political backlash and prevent aviation situations.[4]

From an internal perspective, both the international shipping industry and the aviation industry rely on the economic power of the country to a certain extent, and low-carbon ship governance also shows the leadership characteristics of the Western political system.[5] The Western political system has a greater say in global governance and low-carbon ship governance. Since the 1980s, the European Union has gradually replaced the United States and become the leading force in global climate governance with its unique institutional structure.[6] The amount of EU legislation in the climate field is important evidence. According to statistics, there are approximately 1,800 laws or policy measures related to climate change worldwide, including legislative bills passed by governments, administrative orders or policies issued. In the past 20 years, a total of 137 countries and regions have promulgated 153 formal laws and regulations on carbon governance, with the EU ranking first in terms of legislation.[7] From phenomenon to system, *the Green Party*, which advocates environmental protection policies, has won more and more public electoral support in recent years, giving rise to growing calls for the EU to integrate deeper into global climate and environmental governance. Voting for environmental protection has become politically correct in Europe to a certain extent[8], and it has had a significant impact on the EU's relevant policy formulation and the transformation of "climate diplomacy."

When internal and external factors are combined, the EU's "fifty-fifty split rule" for shipping ETS can be seen as a political compromise, indicating that the EU is developing a more balanced and politically acceptable solution to govern carbon emissions from international shipping.[9]

4. Dynamics or Impediments: Dilemmas in the Implementation of the "Fifty-fifty Split Rule"

[1] Ma Yunfeng, (2021, October 28). Analysis of Aviation Carbon Trading Policy and Research on Airlines' Response Strategies. *Civil Aviation New Think Tank*. http://att.caacnews.com.cn/mhfzzcgjyxb/mhfzzcgjyxb1th/202110/t20211028_59183.html

[2] Decision (EU) 2015/1814 Part 1, 155, 158. Directive 2003/87/EC is the original legal document establishing the EU greenhouse gas emissions trading system. Decision (EU) 2015/1814 and Regulation (EU) 2015/757 are the revised regulations related to the greenhouse gas emissions trading system.

[3] See L Finska and H Ringbom, (2022). 'Regulation of GHGs from Ships: On the Available Discretion for Regulatory Solutions in a European and Finnish Perspective' (BALEX 2022), 47.

[4] Kotzampasakis, M., (2023). Intercontinental shipping in the European Union emissions trading system: A 'fifty–fifty' alignment with the law of the sea and international climate law? *Review of European, Comparative & International Environmental Law*, *32*(1), 31.

[5] Sun Yue, (2023). International Legal Governance of Ship Carbon Emissions: Differences, Models and China's Path. *China Maritime Law Research*, (4), 19.

[6] See Sbragia, AM, & Damro, C., (1999). The Changing Role of the European Union in International Environmental Politics: Institution Building and the Politics of Climate Change. *Environment and Planning C: Government and Policy*, *17*, 53-68.

[7] See Shaikh Eskander, Sam Fankhauser, & Joana Setzer, (2021). Global lessons from Climate Change legislation and litigation. *Environmental and Energy Policy and the Economy*, *2*(44), 44.

[8] See Peng Weibu, (2024). Constructing China's Green Development Image in the Context of Western "Environmental Populism". *Public Diplomacy Quarterly*, (1), p. 82.

[9] Woerdman, E., (2004). The Institutional Economics of Market-Based Climate Policy. *Elsevier*, 199.

EU ETS has formed an independent system within EU member states. However, under the influence of the above logical motivation, the EU has extended its scope of application to the international shipping level. Especially in the context of the EU unilaterally promoting the implementation of the shipping ETS through internal legislation, the construction of the global shipping ETS has been "engulfed" to some extent, and the development has become an inevitable trend.[1] But does this unilateral measure promote or hinder the realization of global shipping emission reduction goals? In the face of the doubts raised by the international community about EU ETS, it is necessary to further weigh the feasibility of the promotion and implementation of the system. The attention and controversy faced by the promotion of the system largely come from its extraterritorial application arrangements. The universal jurisdiction of EU MRV over ships entering the port is an "extraterritorial" measure for global issues. The "fifty-fifty split rule" of the EU ETS for shipping involve international maritime activities.[2] Whether there is extraterritorial jurisdiction is necessary to evaluate the compatibility with the law of the sea. At the same time, the goal of the rules is to reduce international greenhouse gas emissions, so the jurisdiction of the EU should also be decomposed from the perspective of climate law.

4.1 Dilemma of International Law of the Sea

4.1.1 The "Fifty-fifty Split Rule" Is "Extraterritorial" in Nature

National jurisdiction is the right of a state as a subject of international law to regulate actions and events.[3] The United Nations Convention on the Law of the Sea (UNCLOS) grants states broad jurisdiction over their ports and inland waters, which, like land territory, constitute the scope of the coastal state's full sovereignty.[4] Under UNCLOS, coastal states can impose full laws, regulations and control on these areas to ensure that their sovereignty is fully exercised and protected.

However, the question is whether the "fifty-fifty split rule" involves non-static entry requirements of port states for ports, especially in areas that are not under the exclusive jurisdiction of any country, such as the high seas, and whether they can be linked to the activities of ships on the high seas. Because the expanded EU ETS will partially cover emissions occurring in waters outside the European jurisdiction, it is inevitable that many scholars have proposed that universal jurisdiction over ships entering ports should be regarded as an "extraterritorial" approach to global issues[5], which is suspected of abuse of jurisdiction and poses a threat or infringement on the freedom of other countries.

A country can usually only exercise jurisdiction within its territory. If it exercises jurisdiction outside its territorial borders, it will be considered extraterritorial jurisdiction. Within the scope of a country's territorial sovereignty, the country's jurisdiction is in principle complete, but the exercise of this right must comply with the relevant provisions of international law, including any possible restrictions.[6] However, international law holds an opposite attitude towards the exercise of extraterritorial jurisdiction. In the trial of the "Lotus" case, the Permanent Court of International Justice held that extraterritorial jurisdiction must comply with the permissive rules of international law unless there are permissive rules in international treaties or customary international

[1] See Cao Xingguo, (2024). Comprehensive Approach to Building a Carbon Emission Market Mechanism for Maritime Transport in my country. *Pacific Journal*, (1), p. 73.

[2] See Dobson, NL, & Ryngaert, C., (2017). Prophecies of Climate Protection: EU & Extraterritorial Regulation of Maritime Emissions. *International and Comparative Law Quarterly*, *66*(2), 295-298.

[3] Vaughan Lowe, International Law.

[4] See EJ Molenaar, (2007). 'Port State Jurisdiction: Toward Comprehensive, Mandatory and Global Coverage'. *Ocean Development and International Law*, *38*, 225-227.

[5] See Li Weifang, (2012). Legitimacy Analysis of Including the Aviation Industry in the EU Carbon Emission Trading System. *Politics and Law*, (10), pp. 98-106.

[6] See Chen Yifeng, (2011). Does International Law Permit What It Does Not Prohibit? — Contemporary International Law Reflections on the "Lotus" Principle. *Global Legal Review*, (3), p. 78.

law.[1] Unlike the "fifty-fifty split rule", the EU Aviation ETS uses the carbon emissions of all aircraft flights as the basis for calculating the emission quota for entering the EU in terms of geographical scope of application. In 2010, four US aviation giants, including United Airlines, filed a lawsuit in the British court, questioning the legality of Directive 2008/101/EC and requesting the court to declare the directive invalid.[2] The case was finally transferred to the European Court of Justice (ECJ) for trial. The ECJ ruled that the EU Aviation ETS did not have extraterritorial effect because Directive 2008/101/EC only took effect when one or both of the aircraft's takeoff and landing took place within the EU. The existence of a convincing "territory link" was a reflection of the principle of territorial jurisdiction.

However, the "subjective jurisdiction" and "objective jurisdiction" phenomena in territorial jurisdiction do not completely limit a country's jurisdiction to the territory. The territorial principle and extraterritorial jurisdiction are not completely mutually exclusive. National jurisdiction based on the territorial principle may also constitute extraterritorial jurisdiction. The emission behavior of ships of other countries beyond the territorial sovereignty of EU member states is included in the jurisdiction of ETS by the EU based on the territorial jurisdiction principle, which undoubtedly constitutes extraterritorial jurisdiction practice. Furthermore, perhaps the EU is aware of this "confusion" and implements the "fifty-fifty split rule" in the field of international shipping. 50% may be a "relief" on the jurisdiction quota, but it is necessary to distinguish between carbon quota reduction and jurisdiction itself, because it is impossible to prove the specific amount of carbon emissions of ships of other countries under the EU's "territorial jurisdiction" in the future. The 50% figure has not been interpreted by the EU as a restriction on jurisdiction. According to the presumption of the results of the litigation of international aviation jurisdiction cases, it is an accurate interpretation that the EU has jurisdiction over extraterritorial shipping ships.

4.1.2 The Extraterritorial Expansion of the "Fifty-fifty split rule" Lacks International Legal Basis

Originally based on international criminal law, the state's extraterritorial jurisdiction usually has the following basis for exercise. First, based on the principle of nationality, the state has the right to exercise jurisdiction over the behavior of its citizens outside the country; second, based on the principle of territoriality, the state can exercise jurisdiction over behavior that starts in its territory but has consequences outside the country or over behavior outside the country that causes adverse effects; third, based on the principle of protection, the state can exercise jurisdiction over foreign behavior that damages or threatens its national interests; finally, based on the principle of universality, the state can exercise jurisdiction over certain international crimes, regardless of where they occur. In addition, the authorization provisions of international conventions are also the legal basis for extraterritorial jurisdiction.[3] Is there a possibility that the five types of jurisdiction should be broken down one by one based on international law? As mentioned above, the principle of territorial jurisdiction includes two types of practices: "subjective jurisdiction" and "objective jurisdiction". In the case of The Pakootas v. Teck Cominco Metals, Ltd., the US court, based on the objective jurisdiction principle, determined that a company located in Canada was responsible for the pollution caused by the river in the United States under the domestic Comprehensive Environmental Response, Compensation and Liability Act (CERCLA). Although the pollution occurred in Canada, the consequences of the pollution directly affected the environment of the US, so the US court believed that it had the right to exercise jurisdiction over it in accordance with its own environmental law.[4] The US has substantially reduced the importance of national borders and updated the connotation of national

[1] In 1926, a French ship, the Lotus, collided with an Italian ship on the high seas, causing the Italian ship to sink and causing casualties. After the accident, the Turkish authorities arrested the French captain of the Lotus and filed a lawsuit against him in the Turkish court. The French government claimed that Turkey had no right to exercise jurisdiction over the incident, while Turkey argued based on the principle of "negative jurisdiction", arguing that any country has the right to prosecute international crimes. In the Permanent Court of International Justice (PCIJ) hearing this case, the court established a basic principle of international law, namely that the first and most important restriction imposed by international law on the exercise of jurisdiction by a state — unless otherwise provided by international law — prohibits a state from exercising jurisdiction in any form in the territory of another state. This judgment reaffirmed the basic principle of international law, namely, "what is not authorized by law is prohibited" and emphasized the restrictive nature of state behavior under the framework of international law.

[2] Directive 2008/101/EC includes the aviation industry in the EU Emission Trading System (ETS). According to the directive, all aircraft taking off and landing at EU member state airports need to purchase emission quotas for their carbon dioxide emissions. Therefore, not only airlines within the EU need to comply with this regulation, but also airlines around the world, as long as their flights take off and land within the EU.

[3] See Malcolm N, (2011). *International Law* (6th Edition). Peking University Press, p. 410.

[4] Justia US Law: Pakootas, et al. v. Teck Cominco Metals, et al., No. 2:2004cv00256 — Document 2832 (ED Wash. 2024). https://law.justia.com/cases/federal/district-courts/washington/waedce/2:2004cv00256/10383/2832/

sovereignty. Traditional legal territorialism can no longer meet the needs of modern society.[1] Observing the relevant cases of the US courts, it can be seen that although it maintains the adherence to the territorial principle on the surface, it actually provides a basis for the extraterritorial application of the law by adopting similar protection principles, thereby expanding the scope of its jurisdiction. Today, the EU also wants to follow the US in implementing extraterritorial jurisdiction, but there is still a lot of debate on whether the subjective territorial principle or the objective territorial principle can be applied to other fields besides criminal law.[2] At the same time, another issue that cannot be ignored due to the deepening of internationalization is the emergence of a large number of "connection points", which has raised questions about the abuse of the territorial principle, including "subjective jurisdiction" and "objective jurisdiction".[3] More and more scholars have proposed that with the strengthening of communication in the international community, almost nothing exists in isolation and everything is mutually influenced.[4] If the extraterritorial practices formed by individual countries are effective as international law practices, it will cause chaos to the international order.

In addition to the principle of territorial jurisdiction, protective jurisdiction can also be a widely applicable defense for the EU. Protective jurisdiction is used to address the damage or potential threat of damage caused by extraterritorial acts to the "fundamental (core) interests" of a country. However, what is the "fundamental interest" of a country is actually a concept with extremely flexible connotations and a large room for interpretation. In 1969, he US tanker Manhattan successfully crossed the Northwest Passage, which aroused the Canadian government's concerns about the safety of the water environment.[5] In 1970, Canada enacted the Arctic Water Pollution Prevention Act, which, based on the principle of protective jurisdiction, extended Canada's jurisdiction over ship pollution to within 100 nautical miles outside the Beaufort Sea.[6] However, the broad interpretation of the principle of protective jurisdiction and the expansion of its scope of application have triggered protests from the US and have also caused controversy in the international community, especially in terms of using the principle to expand the applicability of domestic environmental regulations. From the perspective of the applicability of the principle of territorial jurisdiction alone, the EU's fundamental interests are difficult to be interpreted as the impact of climate change[7], including marine GHG emissions. From the perspective of systemic interpretation, it is also difficult to determine that global warming will damage its fundamental (core) interests or pose a threat of damage. Otherwise, all countries in the world have the right to take measures to bring marine GHG under their jurisdiction. According to customary international law, in addition to traditional territorial jurisdiction, the principle of nationality and the principle of universality provide countries with additional jurisdictional bases. However, these two jurisdictional principles do not have legitimate jurisdictional grounds when the crew does not belong to an EU member state or when no international crime stipulated in international criminal law has occurred.

UNCLOS is an important international convention related to this. On the one hand, according to Article 53 of UNCLOS, States have the right to make regulations in their internal waters and territorial seas to regulate navigation and other related activities while ensuring that the right of innocent passage of other States is not impaired.[8] With respect to the exclusive economic zone (EEZ) and other maritime areas, UNCLOS establishes the normative jurisdiction of port states, especially in relation to law enforcement matters. In order to implement investigations and proceedings in ports, UNCLOS authorizes coastal states to make laws and regulations in their exclusive economic zones to prevent, reduce and control pollution from ships. Such laws and regulations must be consistent with "international rules and standards established by competent international organizations or

[1] See Guo Zhenyuan, (2024). The Principle of Appropriate Connection in Jurisdiction of Foreign-Related Civil Litigation: Theoretical Interpretation and Application Path. *International Law Research*, (2), 133.

[2] Parrish, A., (2008). The Effects Test: Extraterritoriality's Fifth Business. *Vanderbilt Law Review*, *61*(5), 1455.

[3] See Bai Xue and Zou Guoyong, (2021). "EU's Response to US 'Long-Arm Jurisdiction': Measures, Results and Inspirations". *Wuhan University International Law Review*, (5), pp. 53-76.

[4] See Von Stein, J., (2022). Democracy, autocracy, and everything in between: how domestic institutions affect environmental protection. *British Journal of Political Science*, *52*(1), 339-357.

[5] Wu Peiqi, (2022). What is "Extraterritorial Jurisdiction": Tracing the Origin, Correcting the Name and Theoretical Adjustment. *Nanjing University Law Journal*, (1), 18.

[6] Guo Peiqing and Liu Jiangping, (2009). The Manhattan Incident and the Expansion of Canada's Sovereign Rights in the Northwest Passage. *Journal of Ocean University of China (Social Sciences Edition)*, (5), pp. 5-10.

[7] See Ringbom, H., (2011). Global problem—regional solution? International law reflections on an EU CO2 emissions trading scheme for ships. *The International Journal of Marine and Coastal Law*, *26*(4), 613-641.

[8] See McDorman, TL, (1997). Port State Enforcement: A Comment on Article 218 of the 1982 Law of the Sea Convention. *Journal of Maritime Law and Commerce*, *28*, 305-308.

general diplomatic conferences and widely accepted" (hereinafter referred to as "international rules").[1] Article 218 of UNCLOS further stipulates that even if the discharge from ships occurs on the high seas, the port state has the right to investigate and initiate proceedings in its ports against discharges suspected of violating international rules.[2] In other words, in certain circumstances, if the discharge violates international rules, the port state may exercise jurisdiction in accordance with the provisions of Article 218, even if the discharge originally occurred in the waters of other countries. Article 218 of UNCLOS only combines certain intrusive port enforcement actions (i.e., "investigations" and "prosecutions") with the applicability of "international rules" for actions outside territorial waters. In other words, UNCLOS does not prohibit states from setting port entry conditions for the actions of ships outside their territorial waters, but the convention does limit the ability of states to investigate and prosecute pollution from foreign ship sources in ports unless there is reasonable suspicion of a violation of international rules.[3]

On the other hand, according to Articles 211 and 212 of UNCLOS, although UNCLOS clearly states that port states have certain jurisdiction, the effectiveness of unilateral measures taken by a country to prevent pollution is limited to the area under its jurisdiction. Therefore, the scope of application of ETS should be limited to the sovereignty of the EU. The EU does not have the authority to regulate GHG emissions during navigation beyond its jurisdiction, which involves overlapping jurisdiction. If this is possible, it will infringe the jurisdiction of the flag state.[4]

In summary, UNCLOS does not exhaustively define the scope of jurisdiction permitted when a port state exercises extraterritorial jurisdiction. In the absence of specific international legal provisions, the ETS "fifty-fifty split rule" must be evaluated based on general international law outside UNCLOS, especially based on customary international law rules on national jurisdiction.[5] Therefore, returning to the perspective of customary international law, the principle of jurisdiction cannot provide clear guidance and basis, resulting in a lack of international legal basis for extraterritorial jurisdiction.

4.2 Dilemma of International Climate Law

4.2.1 "Fifty-fifty Split Rule" Are in line with Article 2.2 of the Kyoto Protocol

As a signatory to the Kyoto Protocol, another international law controversy caused by the EU's unilateral measures is whether the EU has the right to implement unilateral measures outside the IMO framework when the Kyoto Protocol clearly authorizes the IMO to be responsible for the management of global shipping emissions reduction.

Regarding the path to solve this problem, the academic community generally interprets Article 2.2 of the Kyoto Protocol extensively. Article 2.2 of the Kyoto Protocol specifically mentions international shipping, stipulating that "Parties included in Annex I shall seek to limit or reduce emissions of greenhouse gases not controlled by the Montreal Protocol from aviation and marine bunker fuels through their efforts, respectively, through the International Civil Aviation Organization and the International Maritime Organization."[6] Parties listed in "Annex I" shall take corresponding measures when achieving their quantified emission limitation and reduction commitments.[7] Whether this article restricts the EU from taking unilateral measures should be explored from the literal interpretation.

First, there is a logical contradiction in the distinction between Annex I and non-Annex I countries. Article 2.2

[1] See Ringbom, H., (2008). The EU Maritime Safety Policy and International Law. Brill/Nijhoff, 397-398.

[2] Article 218 of the United Nations Convention on the Law of the Sea provides that when a ship voluntarily enters a port or offshore terminal of a country, the country has the right to conduct an investigation. If there is evidence that the ship has violated applicable international rules established by relevant international organizations or diplomatic conferences, and standards, a country can bring proceedings against it for discharging any substance outside its domestic waters, territorial sea or exclusive economic zone.

[3] See Nordquist, MH (Ed.)., (1991). United Nations Convention on the Law of the Sea 1982, A Commentary, Volume IV (UNCLOS Commentary). *Martinus Nijhoff*, 260-272.

[4] Mao, Z., Ma, A., & Zhang, Z., (2024). Towards carbon neutrality in shipping: Impact of European Union's emissions trading system for shipping and China's response. *Ocean & Coastal Management*, 4.

[5] Kotzampasakis, M., (2023). Intercontinental shipping in the European Union emissions trading system: A 'fifty–fifty' alignment with the law of the sea and international climate law? *Review of European, Comparative & International Environmental Law*, *32*(1), 33.

[6] National People's Congress of China website: "Kyoto Protocol". http://www.npc.gov.cn/npc/c542/c15977/c9597/c10716/201905/t20190522_48275.html , August 24, 2009.

[7] Kyoto Protocol to the United Nations Framework Convention on Climate Change (adopted 11 December 1997, entered into force 16 February 2005) 2303 UNTS 148 (Kyoto Protocol) arts 2 and 3.

clearly stipulates that Annex I Parties shall achieve greenhouse gas emission reduction targets in the shipping and aviation industries through the mechanisms of IMO and the International Civil Aviation Organization (ICAO). On the other hand, this provision seems to imply that non-Annex I Parties do not need to participate in emission reduction actions through the above two organizations. However, IMO adopts the principle of non-discriminatory treatment[1], and there is no classification of Annex I and non-Annex I countries. In view of this, since the conclusion of relevant IMO agreements requires the joint participation, consultation and final vote of all contracting countries, it is impractical in practice to require Annex I countries to reach a shipping emission reduction agreement only through IMO. If, according to this provision, non-Annex I countries do not bear the obligation to reduce emissions in the international shipping industry, how will their status and role in IMO be defined?

Secondly, the EU has no mandatory obligation to use the IMO platform. As a regional organization, the EU plays an important role in global maritime governance, but it is not a direct member of the IMO. As a party to the UNFCCC, the EU has no obligation to implement relevant regulations and international treaties (such as MARPOL) formulated by the IMO. Even if Article 2.2 of the Kyoto Protocol is regarded as a mandatory regulation, the provision has no practical effect on the EU, and the EU has no obligation to implement relevant activities of international shipping emission reduction through international treaties and organizations in which it does not participate. In addition, there is no direct affiliation between the UNFCCC and the IMO. The IMO is responsible for maritime safety, marine environmental protection and promoting maritime navigation efficiency. Its main responsibilities include formulating and maintaining global standards for international shipping safety and pollution prevention, dealing with relevant legal issues, and promoting technical cooperation among countries in these areas.[2] Therefore, the relationship between the UNFCCC and the IMO is not one of authorization and authorization, but a channel for the UNFCCC to seek cooperation.

Thirdly, the legal nature of Article 2.2 should not be a mandatory norm. According to Conclusion 4(a) of the Draft Conclusions on Peremptory Norms of International Law, if an international law norm is to become a mandatory norm, it must meet two requirements at the same time: first, it must be a universally applicable international law norm; second, it must be presented in an unambiguous form.[3] Although there is no universally recognized definition of general international law, it is generally believed in academia that general international law is a universal legal norm applicable to all subjects of international law.[4] The Kyoto Protocol, where Article 2.2 is located, is an international treaty, and international treaties are generally not general international law applicable to all subjects of international law.[5] Moreover, if the provisions of this article are mandatory obligations of the "Annex I" States Parties, the fulfillment of this international law obligation lacks basis and feasibility in reality. As for the accurate form, according to the background information of the third meeting of the Parties to the Kyoto Protocol, the States Parties adopted the legislative form of independent provisions after consultation, rather than the original form of using it as a list. The legal elements contained in independent provisions are inevitably smaller than the scope of enumeration provisions. Moreover, the above two requirements are in a progressive relationship. If the first necessary condition is not satisfied, there is no need to examine the second necessary condition. Therefore, for the other parties to the Kyoto Protocol, in addition to the global measures of IMO and ICAO, they still have the right to take other unilateral measures.

Finally, the EU's unilateral measures are reasonable in the context of the weak effect of multilateral mechanisms. Article 2.2 does not strictly restrict the rights of other contracting parties to take action. Due to the particularity of the shipping industry and international aviation, IMO and ICAO have professional capabilities and knowledge and are more likely to achieve the purpose of the conclusion of the Kyoto Protocol. It is undeniable that the EU actively participates in the discussion and research on shipping emissions reduction under the IMO framework. As early as 2002, the EU issued its shipping emissions reduction strategy and has always reiterated that in order to effectively reduce greenhouse gas emissions from international shipping, the EU and its member states must

[1] Shao Lili, (2024). Responsibility Allocation and Implementation of Carbon Emission Reduction in International Shipping — Based on the Improvement of Carbon Market Mechanism. *Legal and Business Research*, (3), 170.

[2] IMO: History of the Organization. https://www.un.org/en/aboutun/structure/imo/history.shtml

[3] Zhu Mingxin, (2024). Research on the Identification of Mandatory Norms of International Law. *Wuhan University International Law Review*, *3*, 54.

[4] See Besson, S., (2010). Theorizing the Source of International Law. In S. Besson & J. Tasioulas (Eds.), *The Philosophy of International Law*. Oxford University Press, 168.

[5] Zhu Mingxin, (2024). Research on the Identification of Mandatory Norms of International Law. *Wuhan University International Law Review*, (3), 56.

work together with other members of the international community within IMO.[1] The EU also recognizes IMO as the most important international cooperation platform for global shipping emissions reduction.[2] In 2011, the introduction of energy efficiency and operation standards for shipping emissions reduction in Annex VI of the MARPOL 73/78 Convention was largely due to the unremitting efforts of the EU and its member states. When the European Commission proposed the construction of the MRV mechanism, it clearly pointed out that the implementation of the MRV mechanism is aimed at supporting the international community to reach a global shipping emissions reduction agreement under the IMO framework. However, Article 2.2 has resulted in the exclusion of international shipping GHG emissions from national or regional climate inventory targets for a period of time, resulting in a lack of supervision. Furthermore, although IMO has adopted SEEMP and EEDI measures to regulate shipping GHG emissions to a certain extent in accordance with the MARPOL 73/78 Convention, IMO still has inevitable limitations and shortcomings in developing an international legal system for shipping emission reduction, and the actual effect is not obvious. [3]In order to achieve the global emission reduction goals of the Kyoto Protocol, the EU actively participated in the global multilateral mechanism but failed to achieve the desired results. It is reasonable to take unilateral measures to promote the construction of a global shipping carbon emissions trading mechanism.

4.2.2 “Fifty-fifty Split Rule” Violates the Principle of “Common but Differentiated Responsibilities”

Academic circles question the legality of the EU’s “fifty-fifty split rule”, focusing on the study of the principle of “Common but Differentiated Responsibilities (CBDR)”. Its core message is that although all countries share a common responsibility for environmental protection, they must bear different responsibilities according to their respective social, economic and ecological conditions.[4] The CBDR principle recognizes that both developed and developing countries should bear the responsibility for emission reduction but emphasizes that developed countries should bear more responsibility for emission reduction. If “all obligations” highlights the universality of international social responsibilities, then “common but differentiated” highlights the differences in responsibilities. The focus of this principle is obviously focused on “differentiated responsibilities.”[5] Combining the above two points, some people believe that since the EU has considerable economic, technical and institutional capabilities to deal with climate change, it bears a more significant historical responsibility on global climate change issues and must bear a larger share.[6] Some scholars have argued that the EU may have the obligation to conduct due diligence in order to exercise its regulatory powers, thereby aligning international shipping with the path stipulated in the Paris Agreement.[7]

The EU’s behavior is reasonable in the legal interpretation of Article 2.2 of the Kyoto Protocol, but the Kyoto Protocol is, after all, an important international convention in the field of international environment and protection and has the highest effectiveness in international environmental protection. Furthermore, from the theoretical perspective of international environmental law and the practical experience of countries, the CBDR principle has been most widely applied in the field of climate change. Many international climate change negotiations and related legal documents are based on this principle to allocate the responsibilities of various countries in addressing climate change issues. In the field of international shipping emission reduction, IMO can adopt measures and mechanisms that reflect the flexibility of the CBDR priiple on the basis of maintaining the principle of equal emission reduction to mitigate and alleviate potential conflicts.[8] Therefore, even actions within the IMO should comply with this principle, thereby balancing the emission reduction interests between

[1] IMO: 2023 IMO Strategy on Reduction of GHG Emissions from Ships. https://www.imo.org/en/OurWork/Environment/Pages/2023-IMO-Strategy-on-Reduction-of-GHG-Emissions-from-Ships.aspx.

[2] XINDE Maritime, (2024, July 12). The EU, the US, the UK and other countries recommend that IMO revise shipping emission reduction targets. https://xueqiu.com/7856000765/218384093.

[3] See Zhang Liying and Miao Wenqing, (2023). The Impact of EU Low-Carbon Fuel Regulations on China’s Shipping Industry and Solutions. *China Maritime Law Research*, (3), 82.

[4] See Yao Ying, (2012). Exploration of Pathways to Reduce Emissions from Maritime Transport under the Principle of “Common but Differentiated Responsibilities”. *Contemporary Jurisprudence*, (1), p. 56.

[5] Ma Jing, (2005). Legal Philosophy Research on Environmental Justice. Doctoral dissertation of Jilin University, 147.

[6] Holz, C., Kartha, S., & Athanasiou, T., (2018). Fairly Sharing 1.5: National Fair Shares of a 1.5°C-Compliant Global Mitigation Effort. *International Environmental Agreements: Politics, Law and Economics*, *18*(1), 117.

[7] Peel, J., (2017). Climate Change. In A. Nollkaemper & I. Plakokefalos (Eds.), *The Practice of Shared Responsibility in International Law*. Cambridge University Press, 1033-1034.

[8] See Yuan Xue, (2018). On the Application of the Principle of Common but Differentiated Responsibilities in the Field of International Shipping Emission Reduction. *China Maritime Law Research*, (3), p. 59.

countries with different levels of development.

However, although the CBDR principle emphasizes that developed countries should bear more responsibility for emission reduction, it is of course for emission reduction within their jurisdiction. Under this principle, the EU should claim more national voluntary contributions (NDCs) for global shipping carbon emission reduction and take regional measures to achieve it. The "fifty-fifty split rule" adopts a 50% carbon quota for ships outside the EU, and its extraterritorial effect applies to all ships indiscriminately, regardless of the flag state. Therefore, in terms of extraterritorial effect, the EU's behavior conflicts with the effectiveness of the CBDR principle, which greatly reduces the preferential rights of developing countries in global GHG emission reduction based on the CBDR responsibility principle[1], which is actually not conducive to the development of shipping in developing countries and small island countries.

Therefore, although the EU is not obliged to take action within the IMO framework to build or cater to multilateral mechanisms, since the CBDR principle is a recognized principle of international law in the field of climate change, specific industry regulations should be based on this principle.[2] There are also concerns that the EU's unilateral shipping ETS measures may violate this principle.

5. China's Response

China is both a major shipping country and a developing country, and maritime transport is the main mode of trade between China and Europe. However, Chinese academic circles generally believe that the EU's inclusion of the shipping industry in the ETS may have a significant negative impact on China, such as increasing the operating costs of shipping companies, increasing the burden on cargo owners, and reducing the profits of export companies.[3] On the one hand, Chinese academic and practical circles have demonstrated from multiple perspectives the adverse impact of the EU's "Fit for 55" directive on China's shipping industry, and the extraterritorial application of the system may undermine China's sovereign interests and the stable development of its shipping industry. On the other hand, on the basis of international law of the sea and international climate law, restrictions can be imposed on the EU's behavior. By analyzing the internal logic of the EU's behavior, China can take corresponding countermeasures from a political and legal perspective.

5.1 Basis and Feasibility of Legal Path

5.1.1 Restrictions on EU Behavior by International Law of the Sea

The EU's "fifty-fifty split rule" inevitably violates the CBDR principle upheld by international climate law, which has become a direct restriction on EU measures. In addition, there are further restrictions on EU behavior in the field of international law of the sea.

In addition to exercising jurisdiction over the extraterritorial GHG emissions of foreign ships based on the principle of objective territorial jurisdiction, the EU has a more legitimate reason, namely, port state jurisdiction does not apply the mandatory requirements for shipping GHG emissions to external ships that only pass through its territorial waters but are in ports, but rather makes it a condition for port access. Because there is no clear provision, "port state jurisdiction" has become a controversial issue in academia. According to Article 212 of UNCLOS, port states have the right to take restrictive measures against foreign ships entering their ports, but Article 300 of UNCLOS clearly stipulates that when exercising the rights, jurisdiction and freedoms recognized by the Convention, countries should do so in a manner that does not constitute an abuse of rights.[4] Therefore, the limitations of port state jurisdiction are only non-discrimination, good faith and non-abuse of rights.[5] When there is a conflict of jurisdiction, countries need to balance interests and exercise their sovereign rights in a reasonable and proportional manner. However, if there is no further clarification of the scope of port state jurisdiction, the power of port states will be unconstrained, and this provision will be meaningless.

First, there are legislative jurisdictional restrictions. UNCLOS was negotiated and agreed upon in the 1970s and early 1980s, before climate issues figured prominently on the international agenda. Therefore, the relevant

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[1] Li, Z., (2013). The new development of international legislation for GHG emission reduction and its enlightenment. *World Ocean, 9*, 35-39.

[2] Sun Yue, (2023). International Legal Governance of Ship Carbon Emissions: Differences, Models and China's Path. *China Maritime Law Research*, (4), 19.

[3] Zhu, Z., (2015). Legitimacy of maritime shipping emission reduction policy of EU. *China Navigation, 38*, 102-105.

[4] Kotzampasakis, M., (2023). Intercontinental shipping in the European Union emissions trading system: A 'fifty–fifty' alignment with the law of the sea and international climate law? *Review of European, Comparative & International Environmental Law, 32*(1), 34.

[5] Hu Bin, (2017). *International Law Analysis of the EU's Maritime Carbon Emissions Trading Mechanism*. China Social Sciences Press, 1st edition, 148.

provisions established by the Convention aim to balance the interests of coastal states, mainly to protect the marine environment from pollution in the form of oil spills and dumping, while avoiding undue interference with the traditional navigation rights of flag states.[1] However, to what extent does GHG constitute ship pollution? The chemical reaction between excess carbon dioxide and seawater will cause seawater acidification, thereby threatening marine ecology. In this sense, it meets the definition of marine environmental pollution in Article 1, Paragraph 4 of UNCLOS. But GHG itself is a product and part of the earth's atmospheric cycle. All living things in nature produce carbon dioxide. In addition to carbon dioxide, GHG also includes other substances, hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulfur hexafluoride (SF_6), and so on. From the theoretical point of view of environmental law, environmental factor pollution refers to the discharge of substances exceeding a certain limit or inappropriate discharge, resulting in damage to the ecosystem.[2] It is not difficult to see that both theory and practice define excessive or unreasonable emissions of GHG as pollution, rather than pollutants themselves. Looking further, excessive or unreasonable emission standards should be restricted through international conventions or international standards, and unilateral measures have no basis in international law. The "fifty-fifty split rule" avoids this problem by using a regulatory measure of 50% quota that appears to be halved to cover up the fact that it is over-adjustment.

Secondly, the enforcement measures are limited. When examining the enforcement measures of the EU ETS from the perspective of maritime law, all enforcement-related restrictions are targeted at the category of "marine environmental pollution".[3] According to the above, it is not clear whether GHG emissions fully meet the definition of "marine environmental pollution" in UNCLOS and whether UNCLOS is fully applicable.[4] The EU has set a series of legal consequences for the "fifty-fifty split rule". In addition to a fine of 100 euros per ton of carbon dioxide, if non-compliant companies fail to comply for two consecutive years or more and "other enforcement measures fail to ensure compliance", all their ships will be prohibited from entering European ports.[5]As far as the penalty measures are concerned, there is a suspicion of abuse of port jurisdiction. Taking a step back, even if carbon emissions from ships constitute pollution, Article 230 of UNCLOS stipulates that only fines can be imposed for violations related to pollution. At this level, the EU's ban on foreign ships from entering its ports is also illegal.

Finally, from the perspective of Article 218 of UNCLOS regarding the enforcement of port state jurisdiction, there are also limiting factors. Article 218, paragraph 1, stipulates that the elements of enforcement jurisdiction are that the foreign ship itself is within the jurisdiction of the port state and the basis for enforcement is "the applicable international standards established by general diplomatic conferences." Combined with the above-mentioned "legislative jurisdiction limitations", the behavior of foreign ships constitutes marine environmental pollution in the sense of general international law and poses a threat to the marine environment. There is no doubt that UNCLOS applies, but the basis for enforcement should be international rules or standards. In other words, as for the extraterritorial discharge of foreign ships that violates the EU's unilateral environmental rules or standards, the EU lacks the basis for enforcement jurisdiction.

5.1.2 Responding to Adverse Impacts Through Multiple Legal Dispute Resolution Channels

A similar situation to that of shipping is in the field of international aviation. In December 2009, the American Airlines Association (AATA) and three American airlines filed a lawsuit with the High Court of England and Wales, questioning the UK's domestic measures to implement the EU Aviation Carbon Emissions Trading Directive, and claimed that its measures violated the Chicago Convention, the Kyoto Protocol, the US-EU Open Skies Agreement and the basic principles of international customary law, and infringed on the sovereignty of non-EU countries. On December 21, 2011, the European Court of Justice ruled that Directive 2008/101/EC did not violate international conventions and international customary law. The European Court's ruling failed to quell the dispute, but instead triggered strong opposition from the international community. Although the US companies lost the case, it has inspiration and reference value for China in terms of dispute resolution. China needs to fully explore the effectiveness of the litigation dispute resolution mechanism to maintain its own development rights and interests.

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[1] See McDorman, TL., (1997). Port State Enforcement: A Comment on Article 218 of the 1982 Law of the Sea Convention. *Journal of Maritime Law and Commerce*, *28*(2), 306.

[2] Zhou Ke, (2008). *Environmental Law*. China Renmin University Press, p. 129.

[3] UNCLOS Articles 192, 193 and 237.

[4] Shi, Y., (2016). Are Greenhouse Gas Emissions from International Shipping a Type of Marine Pollution? *Marine Pollution Bulletin*, *113*(1), 188, 189.

[5] UNCLOS Article 1 (18)(c). The ban exempts only the Member State flying the flag, which must order the detention of the vessel until the company complies with its obligations.

Taking into account the reasons why the US lost the case in this case, the first conclusion is that Chinese shipping companies should avoid filing lawsuits in their own names within Chinese territory or within EU jurisdictions. According to the above analysis, whether it is UNCLOS or the United Nations Framework Convention on Climate Change and the Kyoto Protocol, the contracting parties are all subjects of international law rather than individuals under international law. Natural persons and legal persons are undoubtedly the subjects of private international law relations[1], but they cannot play a role in public international law disputes. Therefore, our country, as a subject of international law, can bring a lawsuit to the International Court of Justice based on the above-mentioned basis and reasons for litigation. Secondly, there are significant differences between the ETS for shipping proposed by the EU and my country's maritime interests. The EU's system design does not fully reflect the CBDR principles, violates the provisions of UNCLOS port jurisdiction, and is inconsistent with general principles of international law. However, international conventions in the field of international climate law do not provide for their own terminal settlement mechanisms, so my country can also activate the litigation mechanism of the International Tribunal for the Law of the Sea to resolve China-EU shipping disputes. Thirdly, in the context of our country's active establishment of the "One Belt, One Road" international commercial dispute settlement mechanism, and in view of the considerations of litigation efficiency and time, our country should also prepare and construct non-traditional methods for international environmental and maritime disputes. In recent years, "alternative dispute resolution" methods have become popular, and the importance of non-litigation dispute resolution methods, including mediation, has significantly increased in the international legal system. In international practice, international mediation has been incorporated into important international conventions such as the United Nations Charter, the Vienna Convention on the Law of Treaties, the United Nations Convention on the Law of the Sea, the Convention on Biological Diversity and the Framework Convention on Climate Change.[2] On February 16, 2023, the Preparatory Office of the International Mediation Institute was established in the Hong Kong Special Administrative Region. It should play a role in the intergovernmental negotiations between China and the European Union on the marine carbon trading dispute. It is also a good channel to connect legal dispute resolution methods with enhancing my country's political influence.

5.2 Political Settlement Should Be Based on International Cooperation

The dispute over the right to speak on climate change is related to the country's development prospects.[3] The report of the 20th CPC National Congress emphasized the need to "actively and steadily promote carbon peak and carbon neutrality". Major adjustments and reconstructions of international shipping carbon emission rules will have a profound impact on China's goal of becoming a shipping power. China's position emphasizes the special national conditions of developing countries in terms of historical emissions and current development stage, while the EU's proposal fails to fully take this into account, leading to a conflict of interest.

From the perspective of political logic, the "fifty-fifty split rule" is the result of the conflict between the external environment and the internal policy shift and is itself a product of political compromise. In order to further expand its compromise, as far as China is concerned, simply condemning and boycotting cannot achieve the goal. As an important source of GHG emissions from shipping, non-EU countries, including China, have their legal basis, but the political power formed by international cooperation cannot be ignored. China can respond to the challenges brought by the EU's unilateral measures by strengthening bilateral, regional and multilateral mechanisms. Specifically, first, emission reduction cooperation should be promoted through bilateral shipping agreements. The "carbon market club" established by bilateral market docking can produce greater environmental benefits and reduce the negative impact of carbon leakage.[4] Secondly, actively use international public platforms such as the "Belt and Road" to promote China's emission reduction propositions and standard systems to gradually align with international standards.[5] At the same time, China should adhere to the CBDR principle, protect the interests of various shipping economies in a differentiated manner, and gain recognition from the multilateral international community. Efforts should be made to contribute to the new stage of the

[1] Li Shuangyuan, Ou Fuyong, (2018). *Private International Law*, 5th edition. Peking University Press, p. 161.

[2] China International Cooperation Center, (2024, March 30). International Mediation Institute: China's Solution for Peaceful Settlement of International Disputes. https://www.icc.org.cn/trends/mediareports/1615.html.

[3] Han Liqun, (2021). The Historical Origins, Positions of All Parties and Development Prospects of Carbon Neutrality. *International Research Reference*, (7), 36.

[4] See Hu Wangyun, (2023). The Club Model of Global Climate Governance under the Paris Agreement and Its Functions and Risks. *Pacific Journal*, (2), p. 38.

[5] See Chen Hongyan, (2020). Free Trade Agreement: A New Path to Enhance my country's Institutional Voice in Global Climate Governance. *Legal Science*, (2), p. 170.

development of the CBDR principle. In terms of implementing the basic principles, it is recommended to refer to the legislative structure and specific provisions of the Paris Agreement and advocate the establishment of the principle of "voluntary emission reduction" for shipping carbon emissions, rather than the "mandatory emission reduction" model set by the Kyoto Protocol. Finally, given that the EU's "fifty-fifty split rule" may face application challenges in many aspects. China should uphold the global governance concept of consultation, co-construction and sharing, promote the international cooperation mechanism for shipping carbon trading led by IMO, and include the shipping industry in the multilateral carbon emissions trading system, continue to play an important role in carbon trading tools, and promote the smooth circulation of shipping carbon emission quotas and carbon credit transactions.

6. Conclusion

The only significant advantage of the "fifty-fifty split rule" is that it represents a "softer" form of extraterritorial jurisdiction compared to 100% emissions coverage. However, the 100% coverage of the EU ETS for intercontinental shipping does not necessarily constitute a violation of international law, but is a concession based on the international political environment. In order to avoid the risk of an international boycott, as was the case in the international aviation industry, the EU chose a solution that was relatively safe politically but imperfect both legally and economically. It is not difficult to see that the new EU ETS for shipping regulations show a trend of adapting to emerging systems and international multilateral cooperation. However, its expansionary characteristics are still significant, and the risks it brings to China's shipping industry cannot be ignored. In order to achieve the "dual carbon" goals while avoiding the negative impact of the EU's unilateral measures, my country should adopt a model that combines legal means with political solutions, actively seek legal restrictions related to the International Law of the Sea and the International Convention on Climate Law, and play the important role of political means in international dispute resolution.

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