

Allowances Trading Market - International Experience And Recommendations For Vietnam

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ABSTRACT

The allowances market (the mandatory market or ETS market) is considered an effective method to ensure control of greenhouse gas emissions and not hinder economic development. This article introduces the nature of greenhouse gas emissions and the allowances market. The article outlines factors that must be considered and controlled to ensure the market operates safely. The article provides some recommendations for Vietnam in building a framework for the allowances market.

Keywords: allowances, allowances market, framework on the allowances market, carbon credit

1. Introduction

Determining an appropriate legal framework for climate change in general and the carbon market, in particular, is difficult because this issue does not have much previous experience other than the principle of "the polluter pays" embodied in the Pigou tax (a concept that arose from welfare economics in the 1920s. Such a carbon legal framework cannot rely on common or civil law precedents other than the command and control standards. Therefore, the development of the legal framework related to climate change is still in its infancy (Stein, 2010). The legal framework for climate change is leaning most towards emissions markets (ETS), which are considered the main lever in reducing greenhouse gases.

The legal framework on climate change will also vary by jurisdiction. Each country will tackle the problem using a different combination of tools. The structures will also vary depending on each country's opt-in or opt-out of the treaty and on agreement on future binding targets and timetables for reducing greenhouse gases and the integration of emission markets between countries.

2. Overview of allowances

2.1. Concept of allowances

Allowances refer to a policy approach in which resource use is limited. Use licenses are then allocated, and a license trading mechanism is established (Colby, 2000). A discharge source must have the appropriate number of permits to emit a certain amount of pollutant. A source must apply for additional emissions permits if it wants to increase its emissions (Ermoliev, Michlevich, and Nentjes, 2000). Thus, an emissions allowance is a subsidy that allows an entity to emit a certain amount of pollution over a certain period. Allowances give their holders the right to emit emissions.

According to the International Financial Reporting Interpretations Committee (IFRIC) definition, emission rights are the government granting the right to participating units to emit at a certain level. Program participants can buy and sell these emission rights. Therefore, there needs to be a market for trading in emission rights (Ermoliev et al, 2000).

Emissions trading programs, the most basic of which are the SO₂ Program in the United States and the CO₂ Program in the EU, define emission rights that can be traded as "allowances." In the SO₂ Program, an emission permit is defined by the United States as "an authorization granted by a regulatory agency to an affected entity under this program, authorizing that entity to emit one ton of sulfur dioxide during or after a specified calendar

year," and "Emission permits may be transferred between designated representatives of the owners or operators of sources affected under this program and any holder of such permit," under Section 402(3) and Section 403(b) of the CAAA Acid Deposition Control Act of 1990. In the United States Ontario Program, emissions allowances (allowances) are defined as "allowing the emission of nitric oxide or permitting the emission of sulfur dioxide. In the EU CO₂ emissions trading scheme, an emissions permit is defined as "a permit to emit one ton of carbon dioxide equivalent over a specific period, valid only to meet the requirements of this Directive and is transferable by the provisions of this Directive," under Article 3(a) of Directive 2003/87/EC of October 13, 2003.

2.2. Overview of allowances market

Emissions trading "is a trading and investment activity primarily based on carbon emissions rights and their derivatives" (Zhang, 2020). Such schemes created to trade emissions are collectively known as Emission Trading Schemes (ETS), also known as "compliance markets," established by "buying" regulations." The state issues carbon emission norms for domestic businesses and industries in these markets. These allowances regulate the maximum amount of carbon owners can emit. Each permit typically allows its holder to emit one ton of pollutants such as CO₂e.

The market for trading allowances is created using two basic methods (OECD, 1989). The first is to determine the value of a unit of emissions and then to create a market for buying and selling these emissions units. Under this system, the trading of permits between polluters allows those who emit less than their allocated allowances to gain financial benefits by selling permits to those who exceed the allocated amount and need more limits.

The emissions trading market is no different from the general financial trading market regarding requirements such as establishing a trading system, trading location, transaction type and method, registration level, account opening, transaction procedures, and trade payments. Participants include emissions reduction market actors, government regulators, investors, and practitioners providing carbon accounting and regulatory services. This market also needs state supervision, "a management system that combines supervision and subordinate management... finance, statistics, energy and natural resources departments are co-management departments (Liu, 2021).

3. Design of overall emission limits and allocation of allowances

3.1. Overall emission limit design

The market for trading emission rights is "fundamentally a matter of controlling total emissions and allocating emission rights" (Jiang, 2019). The state agency will limit the total emissions released during a specific period. This requires the ability to quantify emissions systematically, that is, correctly determine the total amount of carbon emissions by the earth's absorption capacity (Whittington, 2016). According to estimates, global carbon emissions at safe concentrations will be 450-550 ppm. The absorption rate of the carbon sink is limited to remain unchanged over the period 2006-2050, at a maximum of 127.577 million tons of CO₂ (Liu, 2014). However, countries worldwide have yet to sign specific carbon allowance agreements, so each country's carbon allowances have not been allocated internationally.

Calculating carbon quantifies human responsibility for climate change and makes that responsibility tradable (Whittington, 2016). The underlying assumption of this system is that carbon markets will facilitate emissions reductions at the lowest possible cost while development continues (Steffen et al, 2012).

3.2. Allowances allocation (primary market)

3.2.1. Free allocation of access

Free allocation refers to the allocation of emission rights to emitters without payment. This allocation is mainly done by two methods: the historical emissions approach and the benchmarking approach.

Free allocation of allowances using an emissions history approach.

The historical emissions approach is recognized in the Kyoto Protocol (Feng, 2013). This method allocates emission rights based on an emitter's past emissions. This implies that emitters only pay for the additional cost of reducing their emissions, not their entire emissions. The advantage of this mechanism is that it increases the likelihood of businesses accepting a state emissions trading plan (Baumol and Oates, 1988). This is a standard method for allocating allowances (Revesz and Stavins, 2004). This approach recognizes the vested interests of businesses with high carbon emissions, making data collection easy, with relatively little opposition. However, it also causes much controversy about its profitability from the perspective of free use of environmental resources and its regressive nature from the perspective of unfair income distribution (Liu, 2017).

Free allocation of allowances using benchmarking. Benchmarking is "an allocation method that uses an index of historical production capacity or equipment multiplied by a standard emission rate to determine the amount of allowance to which each equipment is entitled" (Xing, 2014). For the same production run, equipment with higher emissions will receive fewer emission rights. This method is considered more equitable than the historical emissions approach.

The free allocation is intended to assist businesses in addressing competition issues arising from the activities of industry participants from outside their jurisdiction. This also helps minimize the risk of carbon leakage

(Clear Center, 2022). The free allocation method is widely used in the European Union's (EU ETS) and China's carbon emissions trading systems (Refinitiv, 2023).

3.2.2. Paid allocation of greenhouse gas allowances

Paid allocation mainly includes the auction allocation method and fixed price allocation method.

First, for the allocation method through Auction, many researchers believe that this mechanism allows for effective resource allocation, reduces monopoly and manipulation, and reduces tax distortions and profiteering, even though it burdens businesses more (Eunice, 2016). In the case of an auction, each producer would have to buy emission rights to cover its emissions. This requires the polluter to pay additional costs. As a result, producers will pass these costs onto the price of their products. Emitting entities will not become more prosperous from the allocation of emission rights.

The frequency of auctions varies depending on the jurisdiction. The EU auction system is based on daily auctions through the EEX platform. In the UK, auctions are held every two weeks on the ICE Futures Europe platform. The California and Quebec ETS and RGGI programs, respectively, hold auctions every quarter, as does the New Zealand ETS through EEX.

Second, chargeable allowances allocation through the fixed price method. This approach's advantage is establishing a transition period to limit price increases and ensure the stability of the newly formed carbon trading market (Yue, 2018). However, this method needs to accurately reflect market demand and is inferior to the auction method in terms of resource allocation efficiency (Jiang, 2019). Currently, Australia and New Zealand have adopted this method.

3.2.3. Mixed allocation

The allocation of allowances can apply a mixed model, combining free and paid allocation. This allocation will gradually increase the paid rate through the auction auction and decrease the free rate.

In addition, free allocation is divided into many different carbon trading market activities by countries at various times. For example, "free allocation can also be divided into historical emissions-based method, emission rate-based baseline method, per capita equal rights method..." (Liu, 2017). Free allocation can also be divided into allocation based on the producer's exogenous criteria and allocation based on the output (Nie, 2013).

Most compliance markets, such as the California, EU, and UK schemes, have free allocations to specific sectors, typically sectors where carbon leakage may occur. Other industries are often required to pay fees in the primary market through auctions or secondary market buybacks.

3.3. Authority and method of allocation

The state builds a system for allocating greenhouse gas allowances and retains the right to allocate. From a central perspective, the attribution path includes bottom-up and top-down attribution models. From the perspective of attribution hierarchy, attribution pathways include single-level and multi-level attribution models.

The bottom-up allocation model refers to regionally decentralized reporting of their carbon allowance programs, aggregated and approved by the central government for initial allocation in two stages first implementation of EU greenhouse gas allowances. The top-down allocation model is the opposite, in which total greenhouse gas allowances are set, and the central government allocates the allowances. For example, In China, the Ministry of Ecology and Environment (MOE) approves the allowances of major emitters under China's interim approach. The bottom-up allocation method is suitable for building allowances at the early stages of a carbon trading system when there is no practical experience and no historical emissions data applicable to countries. Each region has differences in resources, economic development level, industrial structure, energy consumption structure, size, and population density (Jiang et al, 2017). Meanwhile, the top-down allocation method can strictly control the total allowances, which is beneficial for macroeconomic control and a degree of fairness among certain regions but requires the central government to operate economically.

4. Allowances trading market (secondary market)

4.1. Registration activity

In addition to mechanisms to ensure market stability, many jurisdictions have established ETS registries. They are used to ensure that all issued emission allowances are accounted for accurately, avoiding double accounting. They track ownership of allowances held in electronic accounts, much like a bank records information about all its customers and their accounts and transactions. In doing so, registries strengthen market surveillance and data quality by tracking emissions allowances' transfer, use, and disposal. In some jurisdictions, program data and market activity may be publicly accessible, further contributing to increased market transparency (IOSCO, 2022).

Typically, the ETS registry records the accounts of trading entities. These include transactions between account holders, a list of companies allocated allowances, the amount of allowances allocated, and details of all CO₂ emissions allocated.

In 2012, the European Commission established the Union Registry to ensure the correct accounting of European allowances issued under the EU ETS. In the UK, allowances are held on the UK ETS Register and are managed by the Registrar. Under the RGGI program, acquisitions, transfers, retirements, and surrenders of allowances are tracked on the RGGI CO₂ Allowance Tracking System (RGGI COATS) platform. The California program uses a platform-based reporting tool called Cal e-GGRT to manage emissions data reporting, certification, submission, and verification. All entities participating in the California program must also have an account with Compliance Instrument Tracking System Services (CITSS). CITSS tracks allow access from the time of issuance by jurisdictions through ownership, transfer, and eventual removal of allowances (IOSCO, 2022).

4.2. General code of conduct and supervision activities

In the EU ETS, the European Commission issued a directive establishing a trading mechanism for greenhouse gas allowances in 2003 (2003/87/EC). After accumulating experience, this directive was revised for improvement and expansion in 2009 (2009/29/EC). To ensure the quality of reports and the accuracy of relevant data provided by program participants, the European Commission issued regulations on monitoring and reporting (601/2012, MRR) and verification and recognition of verifiers (600/2012, AVR) separately in 2012. In addition, to improve the management efficiency of member states, unify statistical methods, and connect MRR and AVR, the European Commission also issued a series of guidelines and forms, including emissions reports, verification reports, and improvement reports.

For commodity derivatives transactions on exchanges, Market Regulation Authorities should regularly collect information on the following:

- Real-time contract pricing throughout the trading day;
- Daily transaction information;
- Daily reports on high-value transactions.

The information collected must allow the Market Regulator to identify each holder. Market regulators must be able to compile information about holders quickly to identify positions under common ownership or control. In the United States, RGGI and California ETS are subject to regulations that include participant registration requirements and accountability provisions. EU and UK regulatory requirements govern the relationship between market intermediaries and their customers, such as customer classification and conflicts of interest. They also set standards for trading venues in the secondary trading of financial instruments to ensure that the market operates well and has high standards of integrity. Trading venues are also required to have adequate arrangements, resources, and processes to monitor the compliance of members and participants with the issued rules. This includes monitoring submitted orders, cancellations, and transactions made by members (IOSCO, 2022).

4.3. Transparency of information in the market

Registries also play an essential role in promoting market integrity and facilitating regulatory oversight. In the EU, an essential part of the registry operation is the Register. The transaction log automatically audits and records all transactions between accounts in the Union Register. All of this information is confidential but can be accessed for free by the public after three years. The UK also has similar regulations (UK ETS, 2023).

Within RGGI, an independent monitor, Potomac Economics, will produce a quarterly public and market monitoring report, shedding light on the holdings of emissions allowances and the need for subsidies at this level (IOSCO, 2022).

In California, the authority provides a wide range of information on all aspects of the emissions trading program. Information from verifying greenhouse gas emissions through allocations, offsets, compliance, auction announcements, results, use of auction proceeds, market data, and enforcement is available. Among the publicly available reports are emissions allowances allocation summaries, offset credit issuance tables, summaries of compliance instruments held in CITSS, and summaries of transfers of allowances and offset between entities in CITSS (IOSCO, 2022).

In New Zealand, public reports also detail greenhouse gas emissions and removals reported by participants for their registered activities in the NZ ETS. This information is published in the ETS Participant Emissions Report. The annual reporting period is calculated from July 1 to June 30 of the following year. Publication of this report began in 2020 to help improve the transparency of the ETS. In addition to this public report, information about each NZ emissions allowances auction is published by NZX in the form of a newsletter, providing key statistics on prices, participants, and sellers. This dashboard also compares some information about secondary market prices with auction clearing prices. Information on transaction trends, volumes, transfers, private holdings, and historical data is also published by the Environmental Protection Agency from the ETS registry (IOSCO, 2022).

In addition, jurisdictions often create rules on position and transaction reporting to increase market transparency and better oversight by regulators. Additionally, to enhance regulatory clarity and predictability, several existing ETS have established transparency requirements regarding (i) the overall cap on carbon emissions projected by the government, (ii) the amount of subsidy intended to be provided free of charge, (iii) the amount of subsidy intended to be auctioned; and (iv) the bidding mechanism.

In the EU, emissions allowances markets must carry out the following reports:

Report transactions on emissions allowances and their derivatives to financial market supervisory authorities. Transaction reports include whether allowances are obtained through price tags or transfers on the secondary market. The details in these reports are the primary source of information used by EU authorities for their market surveillance activities and enforcement of market abuse regulation.

Position reporting: Trading venues must comply with two types of position reporting obligations. One is the weekly positions report, which gives aggregated positions held by different groups of people on different emissions allowances or their derivatives with different breakdowns (long and short positions, hedging versus unhedged positions). This weekly position report is publicly accessible. The second is a daily breakdown of emissions allowance holdings (ESMA, 2021).

The EU requirements set out above also apply in the UK, as the current UK Financial Services Act is based on EU law and was applied before the UK left the EU. In the UK ETS market, secondary market trading is subject to transparency requirements and various types of reporting, including pre- and post-trade reporting, order reporting, and suspicious transaction reports (STOR). The structure of the rules applicable to allowances under these requirements is the same as for other financial instruments and is tailored to the specifics of emissions allowances transactions.

4.4. The rules prevent fraud, insider trading, and price manipulation

Jurisdictions have introduced rules to avoid market abuse. For example, the MIFID II/MIFIR and MAR regimes apply to spot carbon and derivatives markets in the EU and UK. Market abuse regulations mainly prohibit insider trading, illegal disclosure of inside information, and market manipulation. This applies to behavior in both primary and secondary markets. This regime is the same as that applied to other financial instruments.

In the ETS market in the United States, at the regional level, the California government conducts market surveillance and analysis and works closely with the independent Market Supervisory Authority, the Supervisory Analysis Authority, to monitor and oversee auctions as well as all emissions allowances holdings and trading. Activity in related markets is also monitored and analyzed. Market manipulation or disruption may be subject to civil and criminal penalties. RGGI participating countries have also established their respective programs' legal frameworks and monitoring mechanisms. This includes (i) Identifying attempts to exercise market power, collusion, or price manipulation in auctions and secondary markets, (ii) Making recommendations regarding proposed rule changes, and (iii) Assessing whether auctions are conducted by notified rules and procedures.

At the secondary market level, because the CFTC has broad enforcement authority to pursue commodity price manipulation in interstate commerce, the agency will have the authority to bring actions against individuals or organizations believed to be involved in price manipulation. The CFTC will also be able to obtain information about emissions allowances holdings. Exchanges must adhere to several core rules to ensure that contracts are not easily manipulated, monitor trading to prevent manipulation, price distortion, and disruption of settlement processes, and impose position limits or liability levels on speculators.

5. Vietnamese law on greenhouse gas allowances market and some recommendations

5.1. Vietnam's legal framework allows allowances market

5.1.1. issue total greenhouse gas allowances

Clause 3, Article 91, Law on Environmental Protection 2022 stipulates the authority of the Prime Minister to promulgate a list of fields and establishments emitting greenhouse gases that must conduct a greenhouse gas inventory, updated every two years based on the proportion of greenhouse gas emissions, conditions, and socio-economic development situation.

The Prime Minister has issued, together with Decision No. 01/2022/QĐ-TTg dated January 28, 2022, a list of fields and facilities that must inventory greenhouse gases. The list is updated every two years according to the criteria specified in Decree No. 06/2022/ND-CP. These facilities have annual greenhouse gas emissions of 3,000 tons of CO₂ equivalent or more. Based on the goals and roadmap for reducing national greenhouse gas emissions and the results of the greenhouse gas inventory in the most recent inventory period of greenhouse gas emitting facilities, the Ministry of Natural Resources and Environment submits to the Prime Minister The government issues total greenhouse gas allowances by period and annually (as prescribed in Clause 8, Article 141, Law on Environmental Protection 2020).

The basis for determining greenhouse gas allowances includes (i) National strategy on climate change and other related development strategies and plans; (ii) Results of national, sectoral, and facility-level greenhouse gas inventories on the list that must be inventoried; (iii) Roadmap and methods to reduce greenhouse gas emissions by the country's conditions and international commitments.

5.1.2. allocation and recovery of access

Subjects allocated access are greenhouse gas emitters on the list that must conduct a greenhouse gas inventory (and have the right to exchange and buy and sell on the domestic carbon market). Greenhouse gas emission establishments may only emit greenhouse gases within the allocated allowances. In case there is a need for

emissions exceeding the allocated allowances, they can buy allowances from other subjects through the domestic carbon market (Clause 4, Article 139, Law on Environmental Protection 2020).

The authority to allocate greenhouse gas allowances belongs to the Ministry of Natural Resources and Environment, based on the total greenhouse gas allowances approved by the government (Clause 8 and 10, Article 139, Law on Environmental Protection 2020).

The allocated greenhouse gas allowances will automatically be recovered by the Ministry of Natural Resources and Environment when facilities stop operating, dissolve, or go bankrupt. The state encourages establishments to voluntarily pay back unused greenhouse gas allowances, contributing to the national emission reduction goal.

At the end of each commitment period, facilities must pay for greenhouse gas emissions exceeding the allocated greenhouse gas allowances after applying auctions, transfers, and loans. Borrow and use carbon credits to offset. In addition to payment, greenhouse gas emissions exceeding the allocated allowances will be deducted from the allocated allowances for the following commitment period (Clause 3, Article 19, Decree No. 06/2022/ND-CP of the Government regulates the mitigation of greenhouse gas emissions and protection of the Ozone layer).

5.1.3. Trading greenhouse gas allowances

Greenhouse gas allowances, once allocated, will be traded on the domestic carbon exchange. Each unit of greenhouse gas allowances equals 01 ton of CO₂ equivalent. The Ministry of Natural Resources and Environment must confirm greenhouse gas allowances to trade on the exchange. Greenhouse gas allowances certification is the basis for carrying out the transaction (Clause 2, Article 18, Decree No. 06/2022/ND-CP of the Government regulates the mitigation of greenhouse gas emissions and protection of the Ozone layer).

Activities performed on the trading floor include auction, transfer, borrowing, payment of greenhouse gas allowances, and use of carbon credits to offset greenhouse gas emissions. Facilities can bid for additional greenhouse gas allowances in addition to allowances allocated during the same commitment period. Facilities can carry over unused greenhouse gas allowances from the previous year to subsequent years within the same commitment period. Facilities can borrow greenhouse gas allowances allocated for the following year for use in the previous year within the same commitment period. Facilities can use carbon credits from projects under carbon credit exchange and offset mechanisms to compensate for greenhouse gas emissions that exceed the allocated greenhouse gas allowances for a period. The amount of carbon credits to offset emissions must be at most 10% of the total allocated greenhouse gas, allowing (Clause 3, Article 19, Decree No. 06/2022/ND-CP of the Government regulates the mitigation of greenhouse gas emissions and protection of the Ozone layer).

5.1.4. Authority to manage greenhouse gas allowances markets

The Ministry of Finance is responsible for building and establishing a carbon credit exchange and promulgating a financial management mechanism for carbon market operations. Meanwhile, the Ministry of Natural Resources and Environment presides and coordinates with relevant ministries to organize the pilot and official operation of the carbon credit exchange and manage, monitor, and supervise the market; regulate activities connecting the domestic carbon credit exchange with regional and world carbon markets; regulate the implementation of carbon credit exchange and offset mechanisms; Develop propaganda materials and carry out capacity building activities for carbon market participants.

Ministries, ministerial-level agencies, and Provincial People's Committees are responsible for coordinating with the Ministry of Natural Resources and Environment and the Ministry of Finance to implement regulations and activities to promote carbon market development; Organize dissemination and propaganda on mass media to raise community awareness about the carbon market. Second, policy decisions affect the operation of the emissions allowances market and influence price fluctuations.

Third, activities such as registration, monitoring, reporting, and information transparency are essential for the secondary trading market to be effective.

Finally, macroeconomic conditions are essential for determining critical factors in the design of any market, including greenhouse gas allowances markets (IOSCO, 2022).

5.2. Comments and recommendations on improving Vietnam's law on greenhouse gas allowances markets

The operation of greenhouse gas allowances markets in several countries and regions highlights several important issues that need attention as follows:

First, the market for greenhouse gas allowances depends on accurate and consistent calculations of total emissions. On that basis, artificial scarcity can be created by placing allowances below recorded emissions levels. If allowances are provided more than actual levels, then the supply and demand dynamics of price setting cease to make sense.

Second, policy decisions affect the operation of the emissions allowances market and price fluctuations in the market.

Third, activities such as registration, monitoring, reporting, and information transparency are essential for the secondary trading market to be effective.

Finally, macroeconomic conditions are essential for determining critical factors in the design of any market, including greenhouse gas allowances markets (IOSCO, 2022).

Therefore, Vietnamese law should implement a greenhouse gas allowances market based on the following requirements:

First, the emissions allowances trading system should be implemented in stages, with each stage clearly defining the relevant parties' respective goals and responsibilities. In the first phase, emissions allowances trading should only be implemented for industries with significant emissions in certain areas. This will help Vietnam accumulate experience to move towards a complete emissions allowances trading market in the future. Second, in the early stages of implementing emissions allowances transactions, free allocation is appropriate and necessary to proactively create incentives for businesses to comply with emissions limit regulations.

Third, the total allowances should not be allocated; a certain proportion should be retained. This retained portion is used as a market regulation tool.

Fourth, allowance trading procedures should be simplified to increase market efficiency and flexibility.

Fifth, regulations should be developed to regulate the following issues: (i) Principles and rules related to the allowances market, including the use of allowances transactions, and subjects eligible for allowances participate in transactions. (ii) Instructions for measuring and inventorying actual emissions of emitting organizations; (iii) Allowances valuation and trading margin; (iv) Build a database system on the carbon market, establish transaction, post-transaction, and financial infrastructure. (v) There is a need for accounting methods allowances that clearly define the issue of whether accounting for allowances through free allocation is any different from through auctions or transactions on the carbon market. Nowadays, ISO 14064 is a globally recognized standard and is used as the primary basis for assessing or verifying corporate Greenhouse gas compliance (Tan, 2023). Vietnam can refer to this standard to evaluate businesses' compliance with greenhouse gas emissions by the allocated allowances.

REFERENCES

1. Böhm, Steffen and Misoczky, Maria Ceci AND Moog, Sandra. 2012. "Greening Capitalism? A Marxist Critique of Carbon Markets". *Organization Studies* 33 (11):1617–1638.
2. Bradbury, M. 2007. "An Anatomy of an IFRIC Interpretation". *Accounting in Europe Journal* 4:109–122.
3. Baumol, WJ and WE Oates. 1988. *The Theory of Environmental Policy*, Cambridge University Press, 2nd ed.
4. Cao Tan. 2023. "Methods for calculating and managing greenhouse gas emissions". *People's Electronic Magazine*. Retrived September 29, 2023 (<https://nhandan.vn/phuong-phap-tinh-toan-quan-ly-phat-pregnancy-when-dental-business-post768768.html>).
5. Colby, BG. 2000. "Cap-and-Trade Policy". *Land Economics* 76(4):639.
6. CLEAR Center. 2022. What is Carbon Leakage?. Retrieved September 29, 2023 (<https://clear.ucdavis.edu/news/what-carbon-leakage>).
7. Eunice Cai. 2016. Research on the auction mechanism of carbon emission rights. Jilin University.
8. European Securities and Markets Authority. 2021. Preliminary report Emission Allowances and derivatives thereof. Retrived September 29, 2023 (https://www.esma.europa.eu/sites/default/files/library/esma70-445_7_preliminary_report_on_emission_allowances.pdf).
9. Ermoliev, Y, Michlevich, M. and Nentjes, A. 2000. "Markets for Tradeable Emission and Ambient Permits: A Dynamic Approach". *Environmental and Resource Economics* 15:39–56.
10. Feng Cuihua. 2013). Research on the main legal issues of the initial allocation of carbon emission rights. Southwest University of Political Science and Law.
11. Huiqin Jiang. 2019. Research on the initial allocation of carbon emission rights. Zhejiang University of Technology.
12. Huiqin Jiang, Xinxiao Shao, Xiao Zhang, and Jianqiang Bao. 2017. "A Study of the Allocation of Carbon Emission Permits among the Provinces of China Based on Fairness and Efficiency". *Sustainability*, 9(11):1–17.
13. Jerome Whittington. 2016. "Carbon as a Metric of the Human". *Political and Legal Anthropology Review*, 39(1): 46.
14. IOSCO. 2022. Compliance Carbon Markets Consultation Report.
15. Lina Zhang. 2020. Impact of carbon emissions trading on renewable energy development. University of International Business and Economics.
16. Liu Mingming. 2021. "Achievements, concerns, and countermeasures of China's carbon emissions trading practice". *Journal of Anhui Normal University* 49(3):120.
17. Liu Ke. 2017. "Study on carbon allowances allocation and its impact on the spatial transport pattern of coal in China Beijing," *Green Innovation: The Power Source of Enterprise Sustainable Development (Special Issue of Sustainable Journal)*, 7–8.
18. Nie Li. 2013. Game analysis of carbon emission trading in China, Capital University of Economics and Trade, 39.

19. OECD. 1989. *Economic Instruments for Environmental Protection*.
20. Revesz, RL and RN Stavins. 2004. "Environmental Law and Policy". *The Handbook of Law and Economics*, Elsevier Science.
21. Sun Yue. 2018. *Study on the EU Carbon Emission Trading System and Its Price Mechanism*. Jilin University.
22. Stein, Leslie A. 2010. "The Legal and Economic Bases for an Emissions Trading Scheme". *Monash University Law Review* 36(1):192.
23. Tietenberg, T., M. Grubb, A. Michaelowa, B. Swift and ZX Zhang. 1999. *Int' Rules for Greenhouse Gas Emissions Trading: Defining the Principles, Modalities, Rules and Guidelines for Verification, Reporting and Accountability*. UNCTAD/ GDS/GFSB/Misc.6.
24. The UK Emissions Trading Scheme Registry. 2023. *UK ETS Public Reports*. Retrieved September 29, 2023 (<https://reports.view-emissions-trading-registry.service.gov.uk/ets-reports.html>).
25. Xing Na. 2014. *Study on the initial allocation mechanism of carbon emission allowances in EU*. Jilin University.
26. Yang, Liu. 2014. *Carbon dioxide emission rights allocation*. Shandong University.
27. Refinitiv. 2023. *Carbon Market Year in Review 2022*. Retrieved September 29, 2023 (<https://www.politico.com/f/?id=00000186-c718-d9f3-abef-cf5c8e660000>).