# Research on the Compliance of Green Subsidy Policy in International Trade-Based on WTO Rules

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Abstract: The green subsidies have become important policy tools for economic green transition in the context of the severity of global climate governance and the increasing trade protectionism. This article analyses the compliance challenges of the green subsidy policy. After a comparison between different nations through case analysis and literary review of the WTO jurisprudence, the research discovers that differentiated strategies of various countries are easier to cause trade distortions because of the uncertainty in the rules of WTO judicial interpretation and scope of application. Considering the results, this article presents three paths. compliance strategies should be made at the enterprise level. The state-level should design policies rationally. As for the international part, it's necessary to promote WTO mechanism reform. The research provides theoretical support and practical reference in optimization of green subsidy policy, attaching great importance to balancing the environmental objectives and trade rules under the multilateral trading system.

## 1 INTRODUCTION

With the increasing awareness of environmental protection and sustainable development in the world, more and more countries are altering their goals to develop new energy industries, curb climate change and promote sustainable production and consumption. Take China as an example, its competitiveness in the global market has realized remarkable change recently by granting large amounts of subsidies for new energy vehicles (NEVs) industry in the links among upstream, midstream and downstream, which is beneficial to low-carbon energy transformation (LCE) (Fang, & Zhou, 2022). The United States provides $400 billion within a decade through Inflation Reduction Act of 2022 (IRA) in order to fuel the development of clean energy and green technology (Buccella et al., 2024). The European Union released the Foreign Subsidies Regulation (FSR) to make sure that fair competition and energy transformation go smoothly (Gam & Papaefthymiou, 2023).

Green subsidy policy refers to the economic incentives measures provided by the government or public institutions for enterprises, industry and customers, whose objective is to protect the environment, reduce pollution, support the application of low-carbon technologies and advocate sustainable development with financial instruments. While its core aim lies in the initiative of correcting the market failure in environmental governance and guiding the flow of resources to the low-carbon field (Eurostat, 2023). With the trend of green transformation and globalization, Governments have adopted green subsidy policies one after another to accelerate the development of clean energy, renewable energy and environmental-friendly industries (Charnovitz, 2014). However, these policies may lead to international trade disputes. GATT was formally incorporated into the WTO system in 1995. In 1994, SCM was concluded in Uruguay Round Negotiations to provide a mechanism to settle down subsidy disputes without distorting international trade (Cim & Esty, 2024). WTO has been performing constraints on the subsidy policies all the time from GATT to SCM, but there are still certain limitations in terms of green subsidies. Moreover, it is easy to generate compatibility problems in practical terms.

Nowadays, research on green subsidy policy is ubiquitous. Academic circles commonly believe that from the perspective of economic advisability, green subsidies can foster public interest, produce positive externality (Charnovitz, 2014) and to a certain extent help to increase social benefits (Nagy et al., 2021). As



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for the topic of what effects green subsidies have on international trade, one research points out that the lack of clarity in green subsidies usually triggers irrational subsidy competition, then results in trade disputes (Sun & Peng, 2023). However, the systematic analysis and comparison of subsidy policies or concrete cases are still lacking.

This research aims to fill the above-mentioned blanks by applying such methods as literature review, case analysis, comparative analysis and so on. Through systematic analysis of specific cases of major economies, this article better understands the similarities and differences of green subsidy policies in different countries. Then it investigates potential issues and how these policies influence international trade under the WTO rules. Finally, the article figures out the contribution that different districts account for the international trade, as well as how these policies interact, and provides a reference for the improvement of WTO subsidy rules.

## 2 LITERATURE REVIEW

Centering around the economic advisability of green subsidy policy, one of the researchers proposes that not only can it reduce the costs of clean energy technology, gaining a strong competitiveness in market, but it allows social resources to follow the direction of high-efficiency industry so that the global energy structure successfully transforms (Charnovitz, 2014). Such interpretation provides an important reference to further understanding green subsidy policy and a different angle for subsequent research. Some researchers analyzed how carbon emission reduction policies can become a potential strategic trade policy tool by constructing a model that includes two exporting countries adopting environmental policies such as taxes and subsidies in third-country markets, discovering that reducing pollution through subsidies benefits all the stakeholders under certain conditions (Buccella et al., 2024). Moreover, other scholars have noted that in most cases, the market fails to reflect the true value of the environmental resources because of existing public attributes, but the green subsidies guide enterprises and individuals to make proper use of environmental resources through economic incentives (Nagy et al., 2021).

Regarding the effects derived from international trade, one research has mentioned that WTO rules lack clarity in some clean energy subsidies. Hence, the government would unconsciously break the rules as they cannot access the compliance of those policies, resulting in unfair competition (Charnovitz, 2014). Some scholars have claimed that under WTO rules, countries had better weigh the relationship between compliance and economic objectives when implementing green subsidy policies to ensure that policies are consistent with international trade rules and green development (Fang & Zhou, 2022). Additionally, some scholars suggested international communication and cooperation are important to promote the transparency, fairness and sustainability of green subsidy policy making and implementation, thereby reducing trade friction and promoting the healthy development of global trade.

## 3 COMPLIANCE ANALYSIS OF GREEN SUBSIDY POLICY UNDER WTO FRAMEWORK

### 3.1 Definition of Green Subsidy Policy

Under the GATT, there are definitions of transparency requirements and additional requirements for the export and periodic check of primary products in Article 16. It emphasizes that fair competition requires the government to disclose the subsidy policies and countries should negotiate whether to limit them when there is a conflict with the interests of the contracting states. Meanwhile, the general exception part of Article 20 makes strict provisions on special areas such as environmental protection and public health, resource preservation, and non-discrimination principles. According to the SCM, the types and implementation conditions of subsidies include prohibited subsidies directly linked to export performance or import substitution, and actionable subsidies that have specificity and would cause damage to the interests of other countries.

According to the domestic and foreign literatures, this article summarizes that green subsidy policy is a key mechanism to coordinately promote environmental goals and economic development in order to balance environmental legitimacy and trade fairness, which financial intervention is carried out in many fields such as renewable hydrogen energy, new energy vehicles, and lithium battery with the aim of correcting the excessive waste of resources in traditional markets, promoting green technology research within enterprises, and alleviating the lower effect of low-carbon transformation on vulnerable industries or groups.

Green subsidy policies such as research and development (R&D) support, production-side

stimulation, consumption incentives, and environmental protection goals are widely used all around the world. For example, in Shanghai Lingang New Area, China, the government provides R & D support at a ratio of 10% ~ 30% of investment to encourage some breakthroughs in new energy storage technology projects. The Chinese government has introduced a policy called “Two New” to promote the penetration rate of new energy vehicles to exceed 50% (Zhu, 2024). The Inflation Reduction Act (IRA) and the Chip and Science Act of the United States plan to subsidize the green energy and semiconductor industry by $700 billion within ten years, mentioning that 40% of the key minerals in electric vehicle batteries should come from North America, and the local manufacturing can enjoy tax credit once they reach the standard. The EU provides full funding of 7.81 million euros for all-solid-state lithium battery R & D projects through the 'Horizon Europe' fund. In 2022, photovoltaic subsidies will reach 25 billion euros, supporting the research and development of ultra-thin film technology and perovskite facilities. Through the 'Recovery and Resilience Fund' (RRF), it provides up to 87.9 billion euro for industrial chains such as electric vehicle R & D, manufacturing, and charging facilities. The EU Carbon Border Adjustment Mechanism (CBAM) imposes carbon tariffs on imported high-carbon products such as steel and cement. France provides an 'ecological subsidy' of 27% for the purchase price of electric vehicles. (WTO Law Research Society of China Law Society Center for WTO Legal Studies,2024) Spain 's 'MOVES III' plan allocates 150 million euros to support the installation of charging facilities. Brazil implements the Low Carbon Agriculture Program plus (ABC+), which provides low-interest loans to farms that adopt no-till farming and agroforestry systems (United States Development of Agriculture, 2024).

The implementation of these subsidies has played an active role in green technology development, industrial upgrades and market demand stimulation. However, some policies may lead to problems like technology monopoly, overcapacity, price competition and trade disputes, which need to be balanced and coordinated in the process of policy formulation and implementation.

## 3.2 Case Analysis of Subsidy Policy Practice Among Countries

In the Sino-US Wind Energy Subsidy case (Canada-Renewable Energy/Canada-FIT, 2023), the compliance debate focused on import substitution subsidies and the applicability of Article 20 of GATT 1994. Based on WTO rules, the United States accus that China 's subsidies, funding or incentives to enterprises with domestic products violate the provisions under the SCM agreement, while China tries to invoke Article 20 of GATT 1994 to defend itself, arguing that it’s in line with the exceptions to environmental protection in this article because its subsidy measures are aimed at protecting the environment. The case not only affects the trade pattern between China and the United States but also impact the trade order of the global renewable energy industry and hinder the efforts of international cooperation to cope with climate change and energy crisis.

In the EU 's Anti-Subsidy Investigation of Electric Vehicles against China (European Comittion, 2023) the compliance disputes mainly focus on whether the local component requirements constitute import substitution subsidies. The European Commission believes that China 's subsidies to BYD and Weilai at the production end and export section seriously distort the market competition and cause 'serious damage' to the EU industry, which violates the 'specificity' in Article 2 of SCM and the provisions of Article 5. China advocates that the subsidy is in line with the public goal of 'carbon neutrality', and the EU cannot clearly prove that the subsidy causes industrial damage. On the one hand, China has higher cost when entering the European market, while on the other hand, the EU also faces China 's anti-dumping investigation response.

In addition, it’s obvious that there is a particularity among the cases. For example, China 's new energy products are blamed for domestic overcapacity with the reason that the 'New Three' exports are using 'low-price dumping' to transfer excess capacity. The EU level is superimposed on the subsidies of member states, but due to coordination problems, it is easy to generate double subsidy mechanism risks and green barrier adversity. The localization requirements of the US green subsidy policy are greatly affected by the political cycle, and fluctuate with the change of government, resulting in long-term investment uncertainty of enterprises.

## 3.3 Analysis on the Compliance and Limitations of Green Subsidy Policy

Based on the above research and analysis of green subsidy policies, it is obvious that there are certain uncertainties in the interpretation and application of WTO rules. Firstly, the WTO rules have an

ambiguous definition of subsidies, and both the implementation mechanism and judicial interpretation are often uncertain. The decisions of the dispute settlement body (DSB) are often subjective, which makes it difficult for member states to determine whether they are in compliance with the rules when implementing policies. Moreover, the appellate body is prone to suspension, but the interim appeal arbitration (MPIA) lacks coercive force, fragmentating the adjudication standards. Secondly, there is a conflict between the specificity identification standard and the green subsidy target in the structure of WTO rules. According to the SCM agreement, subsidies need to meet the 'specificity' standard before they can be sued. However, green subsidies often cover multiple industries with environmental protection goals while their actual beneficiaries may be concentrated in specific areas, resulting in being identified as 'factual specificity'. Third, the current SCM agreement does not make a distinction between environmental protection subsidies and traditional industrial subsidies, resulting in green policies often classified as "actionable subsidies" and corresponding green subsidies "exception clauses". The application threshold of environmental protection exceptions in Article 20 of the GATT is at a high level. It is necessary to pass the "necessity test" and prove that the measures are non-discriminatory, but green subsidies are often questioned and discriminated against for the choice of policy tools.

Green subsidy policy will certainly reshape the global trade pattern. In terms of market access, some countries increase green trade barriers by setting strict environmental protection standards and certification procedures, limiting the entry of products from other countries, which may lead to higher market access costs. In terms of trade, countries reduce the cost of their products through subsidies to make them more price competitive in the international market, thus putting pressure on similar products in other countries, but this pressure will be passed on to consumers and increase their burden. In terms of international investment, some countries attract investment in green industries by providing subsidies to promote the development of their own green industries, but this may also lead to the outflow of investment from other countries and aggravate the tendency of capital hedging.

# 4 THE OPTIMIZATION PATH OF GREEN SUBSIDY POLICY COMPLIANCE

## 4.1 Compliance Coping Strategies at the Enterprise Level

As the direct beneficiaries of green subsidy policies, enterprises need to actively participate in the formulation of international standards and compliance review mechanisms to anticipate policy risks and ensure their competitiveness in international trade. For example, enterprises can influence the formulation of international standards through industry associations or direct participation under the WTO frame framework. When faced with unfair trade barriers or subsidy disputes, Amicus Curiae Briefs are suggested because that makes full use of the WTO dispute settlement mechanism to safeguard their own interests (McDaniel & Matthews, 2024).

## 4.2 Policy Design and Risk Aversion at the National Level

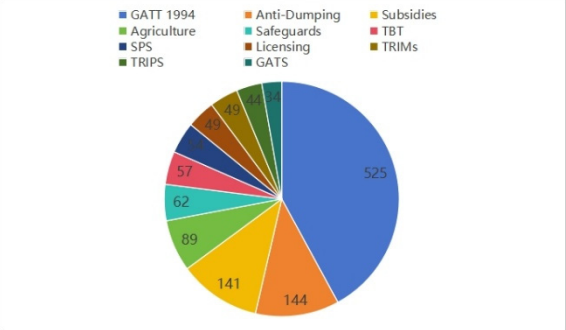
Governments should give priority to supporting basic R & D and non-specific subsidies when designing green subsidy policies. For example, policies such as carbon tax returns can encourage technological innovation, avoid excessive support for specific enterprises, and reduce the risk of trade disputes (McDaniel & Matthews, 2024). In addition, the green subsidy policy is designed to avoid the terms directly linked to exports as much as possible, while strengthening the quantitative assessment of the environmental benefits of subsidies to ensure that the subsidy policy can not only promote green development but also conform to WTO rules and reduce trade risks. In the process of policy implementation, the state needs to strengthen the quantitative assessment of environmental benefits to ensure that subsidy policies can truly bring about environmental improvement and can prove their compliance through scientific data support.

## 4.3 Promote WTO Rules Reform at the International Level

According to World Trade Organization data, as of December 31, 2024, a total of 631 consultation requests had been circulated to WTO members, of which 141 disputes were related to subsidy claims under WTO agreements. The data in Figure 1 shows that, in general, the application of various agreements

under the WTO dispute settlement platform reflects the hot and difficult issues in different fields of international trade. GATT 1994 accounts for the largest number of related disputes, reaching 525 due to its involvement in basic trade rules and industrial policies. Agreements such as Agriculture and Safeguards have also caused more disputes due to the sensitivity and complexity of specific areas. It can be seen that promoting the reform of WTO rules is the key to ensuring the compliance of green subsidy policies.

In view of the limitations of WTO rules, first of all, revise the SCM agreement and add the green subsidy exception clause to provide a clear legal basis for green subsidies to reduce disputes caused by vague rules. Secondly, seeking cooperation with international institutions such as OECD, IMF and the World Bank to promote transparency and information sharing of subsidy issues, establish a multilateral environmental subsidy transparency mechanism, promote communication and coordination among countries on subsidy policies, and reduce trade frictions caused by information asymmetry (Organization for Economic Co-operation and Development, 2023). Finally, establishing a complete framework or agreement to deal with climate change as soon as possible and incorporating green subsidies into the framework of global climate governance can provide broader support and recognition for green subsidy policies. The Annex 2 of the Agreement on Agriculture policy serves as a reference which allows green subsidy exemption litigation that meets the conditions of carbon emission reduction intensity as the benchmark, covering the whole industry, and regularly accepting third-party environmental benefit audits (Wang et al., 2021)




Data source: WTO

Alt Text for the figure: The figure reflects the number of cases of various disputes under the WTO.

Figure 1. Agreements raised in WTO disputes (1995-2024).

# 5 CONCLUSION

Through analyzing the practical situations of green subsidy policy in international trade and combining with the interpretations under the WTO rules, this article on the one hand finds that the policies which have both similarities and differences are widespread used. However, the existing rules still have limitations and ambiguities and pose challenges to determine the compliance of green subsidy policy. On the other hand, by comparing the related cases happened in China, the United States and the European Union, it is concluded that green subsidy policy generally face compliance risks and is prone to trade disputes. The optimization path for the compliance of green subsidy policies requires the joint efforts of enterprises, countries, and the international community. Enterprises need to actively participate in making international standards and making use of the dispute settlement mechanism. Countries need to design reasonable subsidy policies to avoid triggering trade disputes. The international community should promote the reform of WTO rules, providing legal foundation and transparency mechanisms for green subsidies.

# REFERENCES

Buccella, D., Fanti, L., & Gori, L. 2024. Green subsidies as strategic trade policy tools. Environmental Economics and Policy Studies 26: 741–757.

Carbon Border Adjustment Mechanism. [n.d.]. Taxation and Customs Union. https://taxation-customs.ec.europa.eu/carbon-border-adjustment-mechanism_en.

Charnovitz, S. 2014. Green subsidies and the WTO. World Bank Policy Research Working Paper No. 7060. doi:10.1596/1813-9450-7060.

Cima, E. & Esty, D.C. 2024. Making international trade work for sustainable development: Toward a new WTO framework for subsidies. Journal of International Economic Law 27(1): 1–17.

Eurostat. 2023. Environmental statistics and accounts in Europe. Eurostat Statistics Explained. Available: Environmental subsidies and similar transfers statistics | System of Environmental Economic Accounting.

Fang, M.M. & Zhou, W. 2022. Greening the road: China's low-carbon energy transition and international trade regulation. Leiden Journal of International Law 35(2): 357–378.

Gam, L. & Papaefthymiou, A. 2023. The EU foreign subsidies regulation: Green subsidies treading the line between the FSR, state aid, and WTO law. Competition Policy International. Available: https://www.competitionpolicyinternational.com/wp-

content/uploads/2023/05/5-THE-EU-FOREIGN-SUBSIDIES-REGULATION-GREEN-SUBSIDIES-TREADING-THE-LINE-BETWEEN-THE-FSR-STATE-AID-AND-WTO-LAW-Liliane-Gam-Argyrios-Papaefthymiou.pdf.

Nagy, R.L. et al. 2021. Green capacity investment under subsidy withdrawal risk. Energy Economics 98: 105259.

Natural Resources Conservation Service. 2025. Environmental Quality Incentives Program.

Shi, X. et al. 2024. The EU's industrial subsidy policy for lithium batteries, photovoltaic products, and electric vehicles in the name of green transition. WTO Legal Studies Blue Book.

Sun, A. & Peng, D. 2023. Revisiting WTO subsidy rules in a changing global landscape: Problems and prospects. Journal of WTO and China 13(3): 23–44.

United States Department of Agriculture. 2021. ABC Plus: Brazil's new climate change adaptation and low carbon emission in agriculture plan.

Zhu, Y. [n.d.]. The "two new" support policies are fully launched: Policy Interpretation. China Government Network. https://www.gov.cn/zhengce/202409/content_6976037.htm.