



Analysis of the China-EU Trade War in Low-Carbon Energy: A Case Study of Electric Vehicle Disputes

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Abstract. As countries worldwide strive to develop green economies, the low-carbon energy sector has gradually become a critical battleground for development and transformation, with trade wars among various actors reflecting its growing importance. The trade disputes between China and the European Union in the electric vehicle sector represent a typical case of trade conflicts in the low-carbon energy field, where the collision between trade rules and financial-economic policies offers profound analytical value and enlightening significance. This paper takes two landmark cases in the China-EU electric vehicle sector—the EU's imposition of countervailing duties on new battery electric vehicles and China's export controls on battery raw materials—as entry points. Combining rules such as the Agreement on Subsidies and Countervailing Measures (SCM Agreement) and the General Agreement on Tariffs and Trade 1994 (GATT 1994), along with previous typical WTO rulings, this paper conducts an in-depth analysis of the connections between these two cases. Through specific case analysis from both economic impact and legal basis perspectives, it examines the core points of contention and ultimately explores their significance for WTO law and China-EU economic development, discussing how industrial policies can be coordinated with WTO trade rules to promote international trade development.

Keywords: China-EU trade war; Low-carbon energy; Electric vehicles; WTO dispute settlement; Countervailing measures

1 Introduction

The global transition toward green economies is intensifying trade wars in the low-carbon energy sector. As two major players on the world stage, the trade disputes between the European Union and China in the electric vehicle sector are particularly representative, reflecting comprehensive competition throughout the electric vehicle industry chain. The DS630 case (China's complaint against the EU's countervailing measures on Chinese electric vehicles) and China's export controls on battery raw materials constitute closely linked cases within the new energy vehicle industry chain. The former centers on the EU's countervailing measures against Chinese electric vehicles, forming a trade dispute at the downstream end of the industry chain involving

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final production products; the latter focuses on the control of battery raw materials such as lithium and cobalt, representing a core segment at the upstream end of the industry chain. The subjects of dispute in both cases span the entire industry chain from upstream to downstream, covering everything from upstream battery raw materials to downstream electric vehicle products, with extensive and comprehensive coverage. Together, they constitute the trade dispute dynamics in the China-EU electric vehicle sector, offering substantial research value. Accordingly, this paper takes these two cases as starting points, examining the China-EU electric vehicle trade war from upstream and downstream perspectives, making certain predictions and judgments based on previous WTO rulings and reports, in order to comprehensively analyze their points of contention and impact.

2 Causes and Core Legal Controversies: Perspectives from the Two Cases

2.1 Case One: EU — Definitive Countervailing Duties on New Battery Electric Vehicles from China (DS630)

In October 2024, the EU ruled that China had provided illegal subsidies to its electric vehicle and upstream battery industries, thereby imposing countervailing duties of up to 35.3% on Chinese-made battery electric vehicles for a period of five years. The EU pointed out that China's central and local governments provided special grants and low-interest loans to the battery industry at rates significantly below market levels, employing various forms to subsidize the electric vehicle and battery sectors. On this basis, Chinese electric vehicles exported to the European market gained stronger competitiveness, substantially harming the interests of the European electric vehicle industry. Due to the existence of subsidy facts and injury facts, the EU conducted investigations and implemented countervailing measures.

China, however, argues that the EU's subsidy determination criteria do not comply with the Agreement on Subsidies and Countervailing Measures (SCM Agreement), and that there is a tendency toward over-expansion in the determination of subsidies to the battery industry chain, treating normal policies for the electric vehicle and battery industries as illegal subsidies. Moreover, the import of Chinese electric vehicles may not necessarily cause serious injury to the European electric vehicle industry. In November of the same year, China filed a request for dispute settlement with the WTO regarding the EU's countervailing duty measures. A provisional solution has currently been reached, but WTO proceedings are still advancing, awaiting the final panel ruling.

According to Article 1 of the SCM Agreement: "For the purpose of this Agreement, a subsidy shall be deemed to exist if: (a)(1) there is a financial contribution by a government or any public body within the territory of a Member (referred to in this Agreement as 'government'), i.e., where: (i) a government practice involves a direct transfer of funds (e.g., grants, loans, and equity infusion), potential direct transfers of funds or liabilities (e.g., loan guarantees); (ii) government revenue that is otherwise due is foregone or not collected (e.g., fiscal incentives such as tax credits) ..."

Based on the background of this case, it can be concluded that to determine whether a certain Chinese industrial measure constitutes a subsidy, three conditions must be met: provision by a government or government agency, financial encouragement or assistance, and benefit to the recipient. China's industrial policies in the battery sector include land use tax reductions (some regions enjoy 5-10 year land use tax exemptions), industrial land guarantees (priority land allocation, installment payments for land transfer fees, etc.), value-added tax preferences, and more. The EU argues that such industrial policies involving land preferences and tax reductions fall under the financial contributions provided by the government and foregone government revenue specified in paragraph (a)(1), satisfying the three elements of "government provision," "financial contribution," and "benefit," and therefore concludes that subsidies exist. Furthermore, the EU points out that Chinese battery electric vehicles receive subsidy benefits, resulting in lower prices, and that large-scale exports have captured market share, thereby causing adverse effects on EU industries. This satisfies the "adverse effects" and "injury to the domestic industry of another Member" provisions of Article 5 of the SCM Agreement, classifying such subsidies as actionable subsidies.

China first argues, based on paragraph (a)(2) regarding "specificity," that its industrial policies are of a general nature rather than specific, as these policies are available to all eligible enterprises across all industries and cannot meet the characteristics of specificity, thus making them inapplicable to the countervailing measures under Part V of the SCM Agreement. China emphasizes that its policies target the entire new energy industry rather than being limited to the electric vehicle or battery industries, possessing universality and non-discrimination. Therefore, the EU should not apply countervailing measures, as doing so would violate Article 1.2. Second, although Article 8 of the SCM Agreement has expired, it still holds significant reference value. According to the original text of Article 8: "2. Notwithstanding the provisions of Parts III and V, the following subsidies shall be non-actionable: ... (c) assistance to promote adaptation of existing facilities to new environmental requirements imposed by law and/or regulations which result in greater constraints and substantial financial burdens on firms," China argues that industrial policies in the low-carbon new energy sector serve environmental protection goals of green emission reduction, aligning with global governance directions rather than serving self-interest, and should therefore be classified as non-actionable subsidies. Even if they do not fall under the exceptions in Article 8, according to Article 8.1, "subsidies which are not specific within the meaning of Article 2" remain non-actionable subsidies.

Second, whether the export of Chinese electric vehicles to the European market has indeed caused material injury to the European electric vehicle industry is a causal relationship worthy of further examination [1]. According to data, the actual sales of major European electric vehicle brands show a growth trend: in the first half of 2023, Mercedes-Benz's electric vehicle sales increased by 121% [2], while Audi's pure electric vehicle sales grew by 51.2% [3]. This demonstrates that the European electric vehicle industry is trending positively. In the DS132 case (Mexico — Anti-Dumping Investigation of High Fructose Corn Syrup from the United States)[4], the United States pointed out that overall sugar consumption in Mexico's sugar industry was growing, and with sufficient profits, the import of high fructose corn syrup might not

necessarily lead to overall injury to the sugar industry. In the subsequent panel report, Mexico was found to have violated the Anti-Dumping Agreement, supporting the U.S. argument: whether material injury or threat thereof is caused requires a comprehensive assessment of the domestic industry's condition, not merely looking at import trends. If the domestic industry is performing well, relying solely on increased imports and negative price effects is insufficient to establish that the domestic industry suffered material injury due to imported products; other economic factors must also be considered. Similarly, in the DS630 case, with the continued development of the European electric vehicle industry, whether Chinese electric vehicle imports constitute a threat of material injury should be determined after further consideration of other economic factors.

Based on the above analysis, the core points of contention in the DS630 case are primarily: (1) whether certain Chinese industrial policies accused by the EU possess specificity, thereby determining the type of subsidy based on this concept to judge whether they are actionable and whether Part V of the SCM Agreement applies; (2) whether there is a corresponding causal relationship between Chinese electric vehicle imports and injury to the European electric vehicle industry. According to previous rulings, in addition to the DS132 case, the DS211 case (Egypt — Definitive Anti-Dumping Measures on Steel Rebar from Turkey) [5] and the facts of European electric vehicle development all suggest that the causal relationship in the second point of contention will likely be found not to exist by the panel. Therefore, the core issue for discussion in this case may be whether China's various policies are specific. From an economic perspective, due to industrial policies such as land and tax benefits, China has lower production costs, and electric vehicles exported to Europe are sold at lower prices with stronger market competitiveness, squeezing some of their market space. Following this case, China may accelerate technological updates and upgrades, continue to promote the localization strategy of building factories in Europe to reduce trade barriers and disputes, and advance export compliance; the EU will continue to protect its domestic industries while balancing market efficiency, which is conducive to global low-carbon trade governance.

2.2 Case Two: China's Export Controls on Battery Raw Materials

In July 2025, China implemented export controls on key battery raw materials such as lithium and cobalt in response to the EU's countervailing investigation. China placed lithium salts, cobalt, and refined products on the control list, requiring export license applications and strengthening verification of end-users and supply chain security. The EU believes this measure violates Article XI of the GATT 1994, which concerns the "General Elimination of Quantitative Restrictions." However, China may argue that this measure is non-discriminatory, as the export controls apply not only to the EU but also to other countries such as the United States with equal effect. According to Article XX of the GATT 1994, these controls aim to safeguard national security and ensure sustainable resource utilization, falling within WTO exception clauses. To date, this case has not been formally brought to the WTO dispute settlement mechanism.

According to Article XI of the GATT 1994: "No prohibitions or restrictions other than duties, taxes or other charges, whether made effective through quotas, import or export licences or other measures, shall be instituted or maintained by any contracting party on the importation of any product of the territory of any other contracting party or on the exportation or sale for export of any product destined for the territory of any other contracting party." The EU points out that China's establishment of export licenses falls under "establishing export licenses to restrict the exportation or sale for export of products destined for the territory of other contracting parties," constituting a quantitative restriction measure. Other measures also produce effects equivalent to quantitative restrictions, creating *de facto* export barriers, thereby violating Article XI of the GATT 1994.

In response, China may invoke Article XX of the GATT 1994 for defense. China may argue that as non-renewable resources for battery raw materials, lithium and cobalt warrant reference to Article XX: "Subject to the requirement that such measures are not applied in a manner which would constitute a means of arbitrary or unjustifiable discrimination between countries where the same conditions prevail, or a disguised restriction on international trade, nothing in this Agreement shall be construed to prevent the adoption or enforcement by any contracting party of measures: ... (g) relating to the conservation of exhaustible natural resources if such measures are made effective in conjunction with restrictions on domestic production or consumption," arguing that export controls are "measures relating to the conservation of exhaustible natural resources," implemented in conjunction with a series of domestic mineral resource development restrictions and green policies, satisfying the requirement of being "made effective in conjunction with restrictions on domestic production or consumption," based on national objectives of protecting natural resources and the environment.

However, this case of China's export controls on battery raw materials bears high similarity to the DS431 case (China - Measures Related to the Exportation of Rare Earths, Tungsten and Molybdenum). In the 2012 DS431 case, China imposed export restrictions on various forms of rare earths, tungsten, and molybdenum, including export duties, export quotas, minimum export price requirements, and export licensing requirements. The United States filed a complaint on March 13 [6]. The U.S. argued that China's establishment of annual total export quotas and other measures violated Article XI of the GATT 1994 by imposing quantitative restrictions; China's imposition of 5%-20% tariffs on various forms of rare earths, tungsten, and molybdenum products violated Paragraph 11.3 of China's Accession Protocol regarding the "elimination of export duties," artificially raising trade barriers and significantly increasing raw material costs for downstream high-tech industries, creating unfair competitive advantages for China's domestic industries. In this case, China invoked Articles XX(b) ("measures necessary to protect human, animal or plant life or health") and XX(g) ("measures relating to the conservation of exhaustible natural resources") of the GATT 1994 to defend itself, arguing that export controls were for sustainable resource utilization and pollution reduction, falling within the general exceptions of the GATT. After final rulings by the panel and the Appellate Body, China was found to have lost the case. China's export duties on rare earths and molybdenum first violated China's Accession Protocol; second, the export quotas violated Article XI of the GATT 1994. The panel

ruled that the primary purpose of China's measures was not purely resource protection but rather ensuring raw material supply for downstream domestic industries [7]. Export controls could not serve the purpose of environmental protection or conservation of exhaustible natural resources, and China failed to prove the "in conjunction with restrictions on domestic production or consumption" requirement under Article XX(g), as domestic extraction and consumption were not subject to equally strict restrictions, thus failing to meet the legitimacy requirements of Article XX(g).

Considering the similarity between the DS431 case and China's export controls on battery raw materials, we can conduct an analogical analysis of this case based on the DS431 ruling. In both cases, China's export control measures on rare earths and other resources and on lithium and cobalt are highly similar, both including the establishment of export licenses and other measures. From this analogy, it can be inferred that if this case is brought to the WTO dispute settlement mechanism, it will likely be found to constitute quantitative restrictions on raw materials, violating Article XI of the GATT 1994. As important strategic resources, rare earths, tungsten, molybdenum, lithium, and cobalt play significant roles in the new energy sector. China may continue to invoke Article XX of the GATT 1994, but if evidence remains insufficient, it will likely fail to establish the legitimacy of applying the general exception clause, just as in the DS431 case.

In summary, the core point of contention in the raw materials export control case is whether China's measure falls within the scope of GATT exception clauses (i.e., whether Article XX resource and environmental exceptions can be applied), requiring a determination of whether to apply the general provisions of Article XI of the GATT 1994 or the exception provisions of Articles XX and XXI. However, based on inferences from previous WTO rulings, if the EU brings this case to litigation, China will likely be found to have lost the case, just as in the DS431 case.

According to reports from the European Commission and the Joint Research Centre, China controls approximately 65%-70% of global lithium refining capacity, and the EU is highly dependent on these Chinese processed products [8]; approximately 80% of the EU's lithium supply depends on imports, with China being one of its main sources [9]. Although China's export controls are not specifically targeted at Europe and are non-discriminatory, it is precisely because the EU is highly dependent on Chinese lithium exports that the EU has shown a relatively strong reaction. After China implemented the controls, the EU's key battery raw materials will be severely undersupplied, significantly affecting its battery, electric vehicle, and related industries, which is detrimental to its economic development. The European Association of Automotive Suppliers (CLEPA) revealed that multiple European component factories and production lines have been forced to close, with the industry chain being quite fragile. As industry chain costs soar and production capacity is constrained, causing dramatic reactions in European capital markets, this has objectively pushed up production costs for the global new energy industry. At the same time, trade restrictions will accelerate Europe's local capacity construction, objectively promoting European capacity development.

3 Economic and Legal Impacts of the China-EU Battery Sector Trade War

The two major events—the "EU's imposition of countervailing duties on new battery electric vehicles" and "China's export controls on battery raw materials"—as typical cases, centrally reflect the trade war pattern in the China-EU low-carbon energy sector. Overall, the EU's trade war measures are concentrated downstream, specifically manifested as countervailing duties (i.e., tax collection); while China's trade war measures are concentrated upstream, specifically manifested as raw material controls (i.e., source of raw material supply chain). The countermeasures from both China and the EU cover the entire industry chain and present an offensive-defensive symmetrical pattern. After the EU imposed countervailing duties on China, China correspondingly restricted the export of battery raw materials. Due to its high dependence on Chinese raw material exports, the EU was strongly impacted and took the lead in expressing dissatisfaction, alleging that China violated WTO law. These two cases are inseparable, jointly demonstrating the logical chain of the China-EU electric vehicle sector trade war.

These two cases also reveal the adaptability deficiencies of existing WTO law in the low-carbon energy sector. Since the core rules and provisions of WTO law were formulated during the traditional industrial era with limited involvement in green industries, many provisions are not fully adapted to the low-carbon energy sector, lacking specific rules for new issues such as carbon footprint regulation. In practical application, this easily leads to disagreements and definitional ambiguity. For example, the scope of application of Article XX of the GATT 1994 regarding resource and environmental protection exceptions needs further clarification; otherwise, in low-carbon energy trade, it may conflict with other provisions, intensifying trade disputes. The existing rules of WTO law show a trend of lagging behind the development of global green industries. Traditional trade rules easily confuse green regulation with green trade barriers, creating situations of "using old rules to explain new measures," resulting in a disconnect between theory and reality and triggering legal controversies. Therefore, WTO law should further clarify the scope of application of various provisions and establish specific rules for the low-carbon green industry sector based on actual conditions, regulating new types of measures in the new energy field.

Furthermore, the trade war between China and the EU also reflects the divergence in rules between developed and developing countries. Developed countries represented by the EU possess advanced technological advantages and standard advantages with overall high regulatory levels; developing countries represented by China have relatively backward technology and standards, unable to meet certain high standards, forming implicit discrimination. For example, after the EU promulgated the Batteries Regulation (EU) 2023/1542 and proposed implementing the "Battery Passport" system, new contradictions emerged between China and the EU, directly pointing to the development stage gap between developed and developing countries. Developing and developed countries find it difficult to reach consensus on development priorities, with both sides struggling to coordinate environmental priorities and economic priorities. Therefore, WTO law should continue to refine trade rules between developed and

developing countries, reducing disguised discrimination formed due to different development stages, thereby promoting the stable development of multilateral trade.

From an economic benefit perspective, in the short term, the trade game between China and the EU will lead to rising export costs, compliance costs, and other expenses for all parties, with external pressure causing internal elimination and renewal within industries. After the EU implemented the "Battery Passport" system, green trade barriers increased, raising market access thresholds, and approximately 25%-30% of small and medium-sized battery enterprises will be forced to exit the EU market due to inability to bear compliance costs. However, from a medium to long-term perspective, external pressure can effectively drive technological upgrading in the China-EU battery industry and pushing companies to increase R&D investment in low-carbon technologies, circular manufacturing, and green processes—ultimately contributing to sustainable, high-quality green development across the sector. In 2024, the R&D investment of 140 listed companies in China's lithium battery industry chain was approximately 123.5 billion yuan, with the industry's overall R&D investment reaching 5.66% of operating revenue [10]; in 2024, EU electricity and renewable energy enterprise R&D investment increased by 19.8% year-on-year, with capital expenditure growing by 17.8% [11], both reflecting significantly improved investment and enthusiasm for technology R&D among various enterprises.

Meanwhile, to circumvent trade barriers and stay close to terminal markets, localized capacity construction is accelerating, enhancing countries' autonomous capabilities and further adjusting the global battery industry layout. For example, Chinese leading enterprises such as CATL [12] and BYD [13] have built or are building large overseas production bases in Germany, Hungary, and other countries, reducing cross-border transaction risks through localized production. Driven by China-EU trade disputes, the global battery supply chain is gradually shifting toward a "China-EU dual center," promoting the development of global green economic transformation. At the same time, this will also cause a general rise in cross-border trade costs. Furthermore, the paradigm of world trade competition will undergo transformation and upgrading, with the focus of competition shifting from prices and tariffs to green standards for resource sustainability and circular utilization. This represents a change in global trade competition logic, where countries no longer use traditional tariff prices as competitive methods but rather place greater emphasis on compliance with green institutional rules in major markets such as the EU.

4 Conclusion

The China-EU trade war in the low-carbon energy sector demonstrates that electric vehicles and battery raw materials have become both strategic industrial assets and focal points of WTO legal controversy. The DS630 dispute highlights unresolved questions about subsidy specificity, injury, and causation, while the battery raw-materials dispute shows the difficulty of reconciling export controls with GATT exceptions. Overall, these disputes are likely to raise compliance costs in the short term,

but they may also accelerate technological upgrading, localized production, and the formation of greener trade governance rules in the long term.

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