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China's New Energy Vehicle Production and International Trade Development: From Scale Expansion to Structural Upgrading

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Abstract: China has emerged as the world's largest producer and exporter of new energy vehicles (NEVs), a trajectory shaped by deliberate industrial policy, supply-chain consolidation, and shifting trade dynamics. This paper examines the co-evolution of China's NEV production system and its international trade performance, arguing that the country's export surge since 2024 is not merely a volume phenomenon but a structural response to domestic market maturation, global demand differentiation, and escalating trade barriers. Drawing on industry association data, policy documents, and trade analyses, the paper first traces the policy instruments—particularly the dual-credit system—that converted early subsidies into durable manufacturing scale. It then analyzes export patterns, showing that while Europe remains a high-value destination, emerging markets such as Brazil and Southeast Asia are absorbing a growing share of Chinese NEVs. The paper further examines how tariff pressures from the European Union have accelerated a strategic shift from finished-vehicle exports toward local assembly, technology licensing, and ecosystem-level internationalization. The analysis concludes that China's NEV trade advantage rests less on price alone than on an integrated industrial ecosystem, yet its sustainability depends on managing external resistance and avoiding overreliance on export channels to absorb domestic overcapacity.

Keywords: new energy vehicle; international trade; industrial policy; export; localized internationalization

1. INTRODUCTION

The global automotive industry is undergoing a transition whose speed and geographic center have surprised most forecasts. China, a latecomer to conventional internal combustion engine vehicles, has become the pivotal actor in electrification. In 2025, China produced 16.626 million NEVs and sold 16.49 million, with NEVs accounting for 47.9% of all new vehicle sales; by September of that year, monthly NEV market share had exceeded 50% for four consecutive months, marking what the China Association of Automobile Manufacturers (CAAM) described as a new stage of NEV dominance in the domestic market. In the same year, China exported 2.615 million NEVs, more than double the 1.284 million exported in 2024.

These figures invite a question that this paper addresses: what explains the coupling of China's manufacturing scale with its rapid internationalization, and what structural tensions does that coupling generate? The argument advanced here is that China's NEV production and trade development are two sides of a single industrial-policy logic. Production scale was built through sequenced regulation and supply-chain deepening; trade expansion followed as domestic demand growth decelerated and as firms sought outlets for capacity that the home market could no longer absorb at previous rates. The export boom, in turn, has triggered defensive responses abroad, which are now pushing Chinese firms toward a more localized and technology-intensive form of internationalization.

2.BUILDING THE PRODUCTION BASE: POLICY SEQUENCING AND SUPPLY-CHAIN DEPTH

China's NEV production advantage did not emerge from a single policy instrument. It was constructed through a phased sequence: early research and demonstration funding, consumer subsidies, and—crucially—the dual-credit system introduced in 2017 and implemented from 2019. The dual-credit policy requires automakers to meet corporate average fuel consumption targets and to earn NEV credits proportional to production; firms in deficit must purchase credits from surplus firms, creating a market-based compliance mechanism that replaced the "carrot" of direct subsidies with the "stick" of regulatory obligation. The quota has tightened steadily: the NEV credit requirement rose to 38% in 2025 and is set at 48% for 2026 and 58% for 2027, compelling even reluctant manufacturers to expand electrified output.

The result has been a production system of extraordinary depth. Chinese firms controlled approximately 70% of the global EV battery market in 2025, with CATL alone holding a 39.2% share and BYD 16.4%. This battery dominance is not incidental to vehicle exports: it lowers unit costs, shortens development cycles, and gives Chinese automakers leverage in technology licensing—BYD has licensed its blade battery technology to Hyundai and its e-platform to Toyota, while seven ASEAN countries have adopted its charging standard. The competitive advantage, in other words, is systemic rather than firm-specific, resting on coordinated battery chemistry, component supply, and vehicle integration.

3.TRADE EXPANSION AND ITS CHANGING GEOGRAPHY

With rapid EV industry China's NEV exports more than doubled in 2025, and the momentum continued into 2026, with first-half exports reaching 2.355 million units, up 120% year on year. The geography of these exports, however, is more differentiated than aggregate figures suggest. Europe remains the most strategically significant market: Chinese-made vehicles accounted for 6% of EU auto sales in the first half of 2025, and BYD outsold Tesla in Germany and the United Kingdom during that year. Yet the fastest growth is occurring elsewhere. Brazil became a leading NEV destination, with exports growing nearly 400% in the first quarter of 2026, while Thailand, the Philippines, and Australia have emerged as substantial markets. Russia, by contrast, absorbs mostly conventional fuel vehicles rather than NEVs,

reflecting a demand structure shaped by local fuel prices and charging infrastructure.

This geographic diversification is partly a response to trade defense. In late 2024, the European Union imposed countervailing duties on Chinese battery electric vehicles ranging from 7.8% to 35.3%, arguing that subsidized imports threatened European producers. Rather than retaliating, the two sides negotiated a price-undertaking mechanism in January 2026, under which Chinese exporters can avoid the duties by committing to minimum import prices. The episode reveals a paradox: even as tariff barriers rose, Chinese brands continued to expand market share in Europe, suggesting that their competitiveness rests on product attributes—range, smart features, and cost-performance—rather than on price alone.

4.FROM EXPORTS TO LOCALIZED INTERNATIONALIZATION

The tariff experience has accelerated a strategic reorientation. Chinese automakers are increasingly moving beyond finished-vehicle exports toward local manufacturing, technology licensing, and brand building. GAC Group, for example, operates knockdown plants in Southeast Asia and targets high-end intelligent NEVs in Europe, aiming for 250,000 exports in 2026 and one million by 2030. XPENG delivered over 45,000 vehicles overseas in 2025, with Europe contributing nearly half, and has announced a plan to enter Latin America by 2028. This shift is not simply a workaround for tariffs; it reflects a recognition that sustained market access requires embedded presence—local employment, supplier networks, and compliance with evolving technical standards. The European Union has explicitly linked investment commitments to the approval of price undertakings, further incentivizing Chinese firms to localize.

5.STRUCTURAL TENSIONS AND LIMITS

The export-led model faces two constraints. Domestically, NEV retail demand softened in early 2026, with April retail sales falling 5% year on year and China’s share of global passenger NEV sales declining from 68.3% to 61%. The reintroduction of a 5% purchase tax on NEVs in January 2026 and the phased withdrawal of subsidies signal a deliberate cooling of the home market, making exports an increasingly important relief valve for capacity. Externally, the risk is that trade defense expands beyond battery electric vehicles to plug-in hybrids and range-extenders, and that price-undertaking mechanisms impose upward pressure on export prices, compressing margins. The sustainability of China’s NEV trade position therefore depends on whether firms can convert scale advantages into brand equity and localized production before external resistance and domestic demand constraints erode the export window.

6.CONCLUSION

China’s NEV production and trade development represent a case of industrial policy successfully creating a manufacturing ecosystem, followed by market forces pushing that ecosystem outward. The dual-credit system and battery supply-chain depth built the production base; domestic market maturation and global demand for affordable electrification drove exports; and trade barriers are now forcing a transition from export-led to investment-led internationalization. The outcome will depend less on whether China can produce NEVs at scale—that capacity is established—than on whether its firms can navigate an increasingly fragmented trade regime while maintaining the cost and technology advantages that made their international expansion possible in the first place.

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