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The Trade–Industrial Policy Nexus for Chinese Electric Vehicle Investments in Türkiye

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Executive Summary

Türkiye's transport sector is a major contributor to greenhouse gas emissions, accounting for 23.1% of national CO₂ output. Electric vehicle (EV) adoption, while growing—over 10% of new sales in 2024—still represents just 1.13% of the total fleet, hindered by high purchase costs, limited charging infrastructure, and low domestic battery production. Chinese investment from firms such as BYD, Chery, and others presents an opportunity to rapidly expand EV manufacturing capacity, build battery facilities, and process upstream materials. Türkiye's position within the EU Customs Union, competitive labor costs, and strong automotive capabilities make it a compelling production base for Europe.

However, without strategic guardrails, Türkiye risks becoming a low-value “assembly hub” dependent on imported high-value components, vulnerable to EU trade defense measures, and exposed to technology and data security risks. The key challenge is to design an industrial policy that leverages foreign direct investment (FDI) for domestic upgrading, secures market access to the EU, and aligns with the country's decarbonization and net-zero goals.

Opportunities

Chinese EV investment can help Türkiye scale EV and battery capacity quickly, close gaps in upstream material processing, and integrate advanced battery technologies. Türkiye's extensive supplier base, dominated by SMEs, is well-positioned to transition into EV components—if supported by structured supplier development programs, joint ventures, and embedded R&D. The EU's upcoming battery passport requirements and stringent sustainability standards can act as catalysts for upgrading local suppliers' quality, traceability, and digital capabilities.

Risks

The primary industrial risk is an “assembly-only” equilibrium, where most value-added remains abroad and local technological capabilities stagnate. The Central and Eastern Europe experience with internal combustion engine manufacturing warns against high-volume but low-technology integration. Cybersecurity and data privacy concerns also arise from software-defined vehicles, especially given weaker domestic data protection standards compared to the EU. Strategically, divergent EU-Türkiye trade defense measures could restrict market access for Türkiye-based Chinese EV production unless local content rules are harmonized.

Implications for EU–Türkiye Relations

While the Customs Union removes tariffs, it does not protect Türkiye from EU trade defense instruments such as anti-dumping duties. Current EU rules do not recognize Turkish-sourced inputs as EU-origin in value-added calculations, creating a barrier for Türkiye-based EV exports. Aligning local content rules so that Turkish and EU inputs are counted jointly would allow for tariff- and duty-free access, strengthen Türkiye’s attractiveness to investors, and encourage higher local content sourcing.

Key Recommendations

1. Conditional Engagement with Chinese Capital

- Link investment incentives to staged localization targets (modules/packs → BMS → power electronics → cells).
- Mandate local R&D, supplier integration, and technology transfer as preconditions for licensing and state support.
- Prioritize joint ventures over full foreign ownership to embed engineering and design capabilities domestically.

2. Establish a National FDI Screening Mechanism

- Create a centralized authority to assess FDI in strategic sectors such as EVs and batteries, evaluating technological depth, supply chain resilience, and data security.
- Align screening criteria with EU norms to preserve Single Market access while safeguarding strategic autonomy.

3. Align with EU Regulatory and Industrial Strategies

- Harmonize with EU rules on carbon footprint limits, recycled content mandates, and digital battery passports, as well as vehicle cybersecurity requirements under NIS2.
- Participate in European battery and green industry initiatives to access funding and integrate into strategic value chains.

4. Targeted State Aid for Strategic Autonomy

- Tie fiscal incentives to measurable outcomes in domestic capacity building, workforce training, and supplier diversification.

- Avoid fragmented regional subsidy races by implementing a coordinated national industrial roadmap for EVs and batteries.

5. Secure Barrier-Free EU Access

- Negotiate with the EU to count Turkish and EU content jointly toward local content thresholds in trade defense rules.
- Ensure that qualifying Türkiye-based EVs are exempt from anti-dumping and anti-circumvention duties, strengthening both market access and incentives for higher local value addition.

Türkiye stands at a strategic crossroads: with the right policies, Chinese EV investment can accelerate decarbonization, enhance domestic industrial capabilities, and position the country as a competitive player in the European EV market. Without these measures, Türkiye risks low-value integration, regulatory friction with the EU, and strategic dependence. A disciplined, EU-aligned industrial policy that conditions market access and incentives on local upgrading is essential to maximize the benefits while mitigating the risks.

1. Introduction

Türkiye's transport sector accounts for 23.1% of national CO₂ emissions, making the electrification of mobility central to its decarbonization strategy. While EV sales exceeded 10% of new vehicle registrations in 2024, EVs make up just 1.13% of the total fleet. High purchase prices, limited charging infrastructure concentrated in western urban centers, and low domestic battery capacity are key barriers.

Chinese investment—led by BYD, Chery, and others—offers a path to rapidly scale EV production, battery manufacturing, and the processing of upstream materials. Türkiye's EU Customs Union membership, skilled workforce, and competitive costs make it attractive for these manufacturers as a production base for Europe. However, without policy guardrails, Türkiye risks becoming an assembly hub dependent on imported high-value components, with limited technology transfer and vulnerability to EU trade measures.

The policy framework calls for a conditional engagement strategy: mandate local R&D, supplier integration, and technology transfer in all Chinese EV projects; establish a centralized FDI screening body for strategic sectors; align with EU green and digital industrial standards; and negotiate EU recognition of Turkish content in EVs. Coupled with performance-based incentives and supplier capability upgrades, these measures would position Türkiye as a competitive, integrated, and resilient EV manufacturing hub while supporting its 2030 decarbonization and 2053 net-zero goals.

1.1 The Stakes for Türkiye

As the world advances toward sustainability, the electric vehicle (EV) market is emerging as a key driver of innovation and growth in the automotive industry—a cornerstone of the global economy. In this landscape, China has retained its position as the world's leading producer, manufacturing over 70% of all electric vehicles in 2024¹. The rapid expansion of domestic manufacturers has been central to this dominance, with Chinese original equipment manufacturers (OEMs) accounting for more than 80% of the country's total EV production that year. Although many new foreign direct investment plans by Chinese OEMs have been announced recently, their production abroad has not significantly

¹ International Energy Agency (IEA), "Trends in the Electric Car Industry," Global EV Outlook 2025, May 14, 2025, <https://www.iea.org/reports/global-ev-outlook-2025/trends-in-the-electric-car-industry-3>.

increased. In 2024, electric vehicle manufacturing by Chinese OEMs outside of China made up less than 2% of their total global output².

Given recent trends in the electric car industry and its benefits—such as reducing greenhouse gas emissions, decreasing dependence on oil, improving energy efficiency, and enhancing air quality—it is no surprise that the European Union’s efforts to decarbonize road transport rely heavily on a rapid shift to electric vehicles. However, high costs and battery constraints limit EU carmakers, opening the market to more affordable Chinese EVs and investments. While this supports decarbonization and job creation, it also raises concerns about security, economic dependence, and unfair competition, leaving the EU in a strategic dilemma. Additionally, there is concern that Chinese investments may primarily generate low-skilled or simple jobs, rather than fostering higher-value employment or technological advancement within the EU automotive sector³.

Türkiye is also aiming for an electrified future, supported by strong government policies, growing local innovation, and significant global investments⁴. Like the EU, for Türkiye, EV investment, especially from China, is becoming a pressing strategic issue due to several reasons, such as domestic industrial limitations, technological dependency, regulatory misalignment with the EU, security and strategic concerns, and trade and competition pressures. This section of the policy brief aims to explain why EV investment—particularly from China—has become a growing strategic concern for Türkiye by examining the key underlying reasons.

First of all, in 2022, CO₂ emissions per capita in Türkiye accounted for 4.589 (tCO₂/capita)⁵. In the country, the transport sector accounts for 23.1% of total emissions, making it the second-largest source of CO₂ emissions in Türkiye (Figure I). Given this significant share, accelerating the shift to electric vehicles (EVs) is crucial for reducing transport-related emissions and supporting Türkiye’s broader decarbonization efforts.

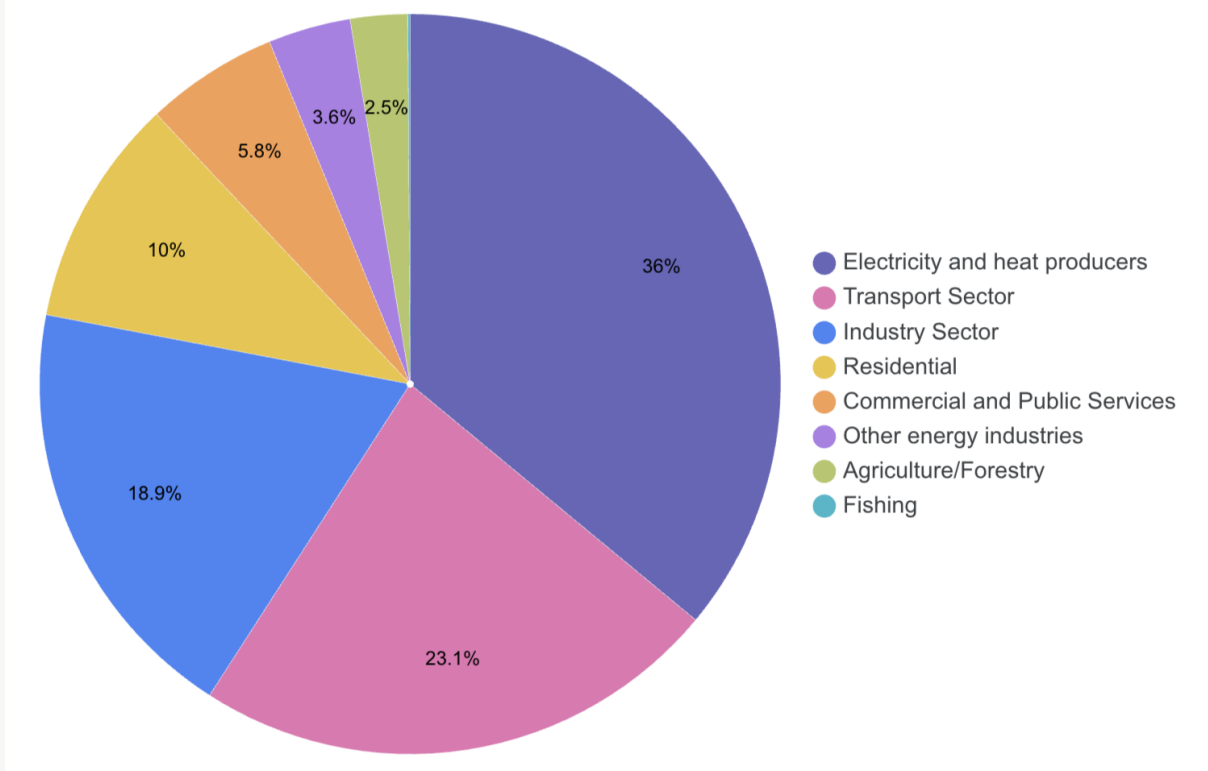
² Ibid.

³ Smart European Strategy for Electric Vehicle Investment from China, Bruegel, April 2025, <https://www.bruegel.org/policy-brief/smart-european-strategy-electric-vehicle-investment-china>.

⁴ Turkey’s Erdogan announces \$30 bln in incentives for high-tech areas,” Reuters, July 26, 2024. <https://www.reuters.com/business/autos-transportation/turkeys-erdogan-announces-30-bln-incentives-high-tech-areas-2024-07-26>.

⁵ International Energy Agency. (2024). Türkiye: Emissions. IEA. Retrieved July 31, 2025, from <https://www.iea.org/countries/turkiye/emissions>.

Figure I: CO₂ emissions by sector, Türkiye, 2022



Source: International Energy Agency. (2024). Türkiye: Emissions. IEA. Retrieved July 31, 2025, from <https://www.iea.org/countries/turkiye/emissions>.

Despite the growing global shift towards electric vehicles and the pressing need to reduce transport-related emissions, Türkiye's EV adoption is currently lagging due to high prices, limited charging infrastructure, and low domestic battery production. While government incentives such as subsidies, tax reductions, and grants for research and development exist⁶, their impact on the initial cost of EVs has been limited. High purchase prices continue to deter potential buyers.

In terms of charging infrastructure, since May 2022, Türkiye's Energy Market Regulatory Authority (EPDK) has issued 198 licenses to charging station operators, requiring each to set up 50 chargers across five regions within six months⁷. So far, 28 licenses have been revoked, and the activity status of the remaining 170 is unclear. The top ten operators control nearly half of the 21,070 charging points (individual sockets/plugs) nationwide⁸, which are distributed across a smaller number of charging

⁶ "Türkiye Elektrikli Araç Ekosistemi ve Dönüşümü – Birinci Sayı," EY Türkiye, 2024. https://www.ey.com/tr_tr/technical/ey-turkiye-yayinlar-raporlar/turkiye-elektrikli-arac-ekosistemi-ve-donusumu-birinci-sayi.

⁷ Turkey's electric vehicle sector will grow slowly. Oxford Analytica. <https://www.oxan.com/insights/turkeys-electric-vehicle-sector-will-grow-slowly/>.

⁸ Operator shares can be found in EPDK's Charging Service Market June 2024 Report <https://www.lexpera.com.tr/literatur/raporlar/sari-hizmeti-piyasasi-aylik-istatistikleri-haziran-2024>.

stations (locations)⁹. However, EV owners complain about the lack of a unified app and significant price differences between operators. Besides, most charging stations are situated in car parks and shopping malls within major urban centers in western Türkiye (Figure II), which shows only a subset of these station locations.

Figure II: Electric Charging Stations Located in Türkiye



Ulaştırma ve Altyapı Bakanlığı. (n.d.). Elektrikli araç şarj istasyonlarının yer seçiminin belirlenmesi projesi. Ulaştırma ve Altyapı Bakanlığı. Retrieved from <https://www.uab.gov.tr/uploads/pages/bakanlik-yayinlari/elektrikli-arac-sari-istasyonlarinin-yer-seciminin-belirlenmesiprojesi.pdf>

Furthermore, Türkiye's domestic battery production remains limited. Although plans are underway to expand capacity—such as the lithium-ion battery plant being developed by Togg's subsidiary, Siro¹⁰—the country still depends heavily on imported batteries. This reliance on imports contributes to higher costs and limits the availability of electric vehicles in the Turkish market.

In addition to these barriers, the government is committed to increasing EV share in total vehicle production through projects like Togg¹¹. However, as shown in Figure III, the share of electric vehicles in the total fleet remains relatively low—still under 2% in 2024, at 1.13%. In terms of EV sales, their share in 2024 is just over 10%. Togg, a joint venture between six Turkish companies—two of which are state-owned—currently produces only two EV models, with the first launched in limited quantities in March 2023. The company plans to begin exports in 2025 and aims to reach an annual production capacity of 1 million vehicles by 2030¹².

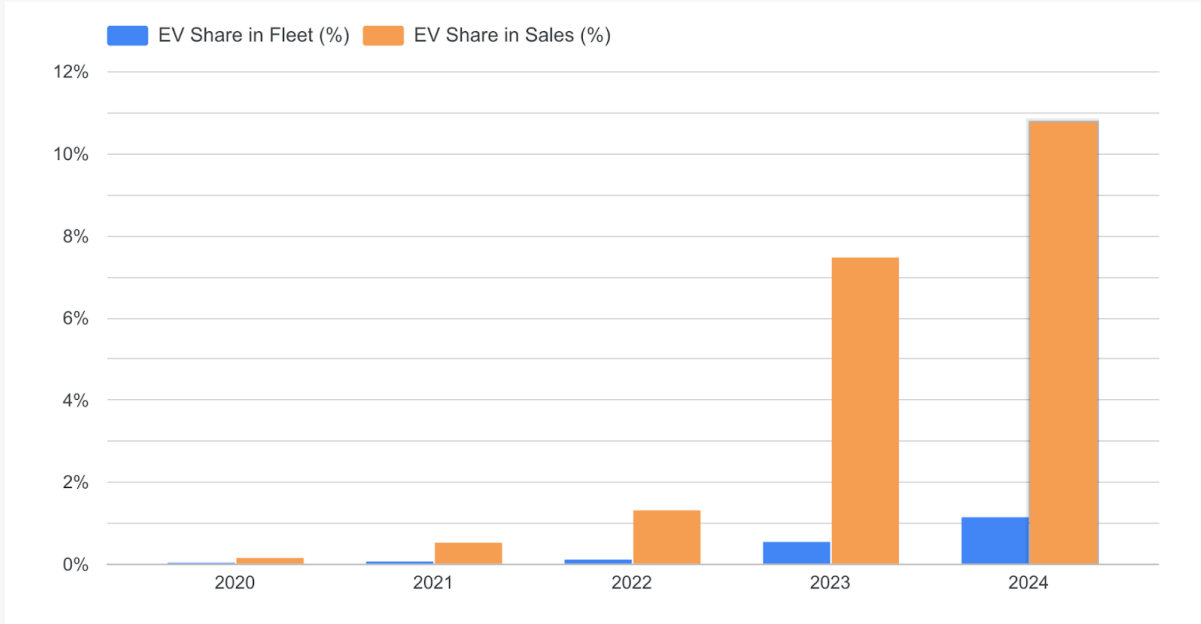
⁹ Ibid.

¹⁰ Temiz Enerji Derneği. (2023, April 25). Türkiye kendi batarya hücrelerini geliştirip üretecek. <https://temizenerji.org/2023/04/25/turkiye-kendi-batarya-hucrelerini-gelistirip-uretecek/>.

¹¹ Turkey's electric vehicle sector will grow slowly. Oxford Analytica. <https://www.oxan.com/insights/turkeys-electric-vehicle-sector-will-grow-slowly/>.

¹² Ibid.

Figure III: EV Share in Fleet (%) and EV Share in Sales (%) by Year – Türkiye



Source: Prepared by the author using recent data from the Investment Office of the Presidency of the Republic of Türkiye. (2024). Mobility Industry in Türkiye (p. 15). Retrieved from <https://www.invest.gov.tr/preview?path=%2Fde%2Flibrary%2Fpublications%2Flists%2Finvestpublications%2Fmobility-industry.pdf&view=flipbook&page=19>.

For China, Türkiye has become an attractive territory for electric vehicle (EV) production due to several interrelated factors, such as its strategic location that makes it a gateway to the European market, which is one of the largest consumers of zero-emission cars. This geographical advantage also allows the country to capitalize on its proximity to emerging markets, adding to the potential growth of domestic sales¹³. Besides, Türkiye benefits from a highly qualified workforce, including a substantial pool of trained engineers and technicians capable of contributing to the development of electric vehicles and associated technologies¹⁴. When paired with comparatively low labor costs relative to other European nations, this makes Türkiye an attractive and cost-effective hub for manufacturing¹⁵. Türkiye ranks among the largest vehicle markets in Europe, with a population exceeding 85 million and a growing domestic demand for EVs. Given Türkiye's proximity to the EU, competitive labor costs, and sizable market, Chinese EV firms such as BYD, Chery, and Skywell Group have already signaled their interest in establishing production in the country. For example, BYD, one of China's largest EV

¹³ Turkey: An Emerging Powerhouse of EV Manufacturers," Mobility Portal Europe, July 22, 2024. <https://mobilityportal.eu/turkey-emerging-powerhouse-ev-manufacturers/>

¹⁴ Turkey's EV Momentum: The Market Changes," Alexec Consulting, February 1, 2024. <https://www.alexec-consulting.com/post/turkey-s-ev-momentum-the-market-changes>.

¹⁵ Ibid.

manufacturers, plans to establish a PHEV production facility in Manisa with an investment of nearly \$1 billion¹⁶. The plant will produce up to 150,000 vehicles annually, create up to 5,000 jobs, and is expected to begin operations by the end of 2026¹⁷. Also, according to statements by Minister of Industry and Technology Mehmet Fatih Kacır, Chinese automaker Chery is planning to invest in Türkiye, with the proposed facility expected to be located in Samsun. The company aims to offer a diverse portfolio of 11 models, including battery electric vehicles (BEVs), by the end of 2026¹⁸. Several other Chinese brands, including Skywell, MG, and Leapmotor, have also entered the Turkish market. Skywell introduced its ET5 model in Türkiye, featuring a battery warranty of 8 years or 150,000 kilometers. In September 2024, Ganfeng Lithium, a global leader in lithium battery production, announced plans to establish a joint venture with Yiğit Akü to produce lithium-ion batteries, with an initial investment of \$500 million¹⁹.

Given the necessity for Türkiye to accelerate its shift to electric vehicles - since the transport sector accounts for 23.1% of the country's CO₂ emissions—Türkiye stands at a strategic crossroads. On the one hand, embracing Chinese investment could help overcome market barriers and support decarbonisation. Türkiye's partnership with Chinese firms could support industrial revitalization in key sectors where it currently lacks capital or technological know-how. These include battery cell manufacturing, EV motor and drivetrain systems, advanced charging infrastructure, and battery management software. On the other hand, such reliance may carry risks, including technological dependency and regulatory divergence from the EU. Against this backdrop, the following sections of this policy brief will examine the opportunities and risks associated with Chinese EV investment in Türkiye, explore the implications of these investments for Türkiye-EU relations, and conclude with policy recommendations for Türkiye.

2. Opportunities of Chinese EV Investment in Türkiye

Türkiye is at an inflection point. Chinese electric-vehicle (EV) manufacturers are localizing production in or near Europe to hedge tariffs and logistics risk. Türkiye—inside the EU Customs Union for industrial goods, with deep automotive know-how—has emerged as a prime landing spot. BYD's \$1

¹⁶ Elektrikli Araç Şarj İstasyonu Sektörüne Genel Bakış – 2025,” PwC Türkiye, 2025. <https://www.pwc.com.tr/tr/sectorler/otomotiv/elektrikli-arac-sarj-istasyonu-sektorune-genel-bakis-2025.pdf>.

¹⁷ Ibid.

¹⁸ Elektrikli Araç Şarj İstasyonu Sektörüne Genel Bakış – 2025,” PwC Türkiye, 2025. <https://www.pwc.com.tr/tr/sectorler/otomotiv/elektrikli-arac-sarj-istasyonu-sektorune-genel-bakis-2025.pdf>.

¹⁹ Investment Office of the Presidency of the Republic of Türkiye. (2024, September). Ganfeng Lithium announces USD 500 million battery investment in Türkiye. <https://www.invest.gov.tr/en/news/news-from-turkey/pages/ganfeng-lithium-announce-usd-500-million-battery-investment-turkiye.aspx>.

billion greenfield agreement (Manisa; 150,000 units/year; start by end-2026; ~5,000 jobs; with an R&D center) signals the scale and tempo of what's coming, alongside ongoing talks with other Chinese makers²⁰.

Simultaneously, EU regulatory alignment is tightening. The new EU Batteries Regulation (EU) 2023/1542 phases in carbon-footprint rules and a digital battery passport from February 18, 2027, for EV and industrial batteries (>2 kWh), pushing traceability and lifecycle data deep into supplier tiers. Volvo's early "first" battery passport for the EX90 shows where compliance is headed.

For Türkiye, the strategic question is not whether to welcome Chinese EV investment—but how to shape it. Done well, it accelerates the green transition, expands exports, and upgrades domestic capabilities. Done poorly, it risks locking the economy into assembly-only roles with thin value added and new compliance frictions in the EU. What follows: (i) scaling up EV and battery capacity, (ii) how to leverage technology transfer and the supplier ecosystem, (iii) the concrete risks—especially industrial hollowing-out—and the guardrails to avoid them.

2.1 Scaling Up EV and Battery Capacity

Türkiye has limited battery production capacity. Although the country's first lithium-ion battery facility, SIRO, was launched in 2021 through a 50/50 joint venture between Togg and Chinese firm Farasis Energy in Gemlik, Bursa province, production remains in its early stages, with capacity still scaling up²¹.

About upstream material processing, in 2020, Türkiye launched its first lithium production facility, the Eti Maden Lithium Carbonate Production Plant in Eskişehir²². However, initial output is small—10 tons per year, with plans to scale up to 600 tons annually over the next three years. The lithium is intended for use in electric vehicle batteries, as well as in phones and tablets. Furthermore, despite having resources like boron and graphite, the country lacks established facilities to refine and process these into cathode or anode materials suitable for lithium-ion batteries.

²⁰ Reuters. (2024, July 8). China EV maker BYD to build \$1-bln plant in Turkey.

²¹ MIT Technology Review, "China Report: How a Chinese battery company powers Turkey's home-grown EVs," April 5, 2023, <https://www.technologyreview.com/2023/04/05/1071006/china-report-how-a-chinese-battery-company-powers-turkeys-home-grown-evs/>.

²² Invest in Türkiye. (2020, December 28). Türkiye launches first lithium production plant. <https://www.invest.gov.tr/en/news/news-from-turkey/pages/turkey-launches-first-lithium-production-plant.aspx>.

Taking into consideration the lack of upstream material processing and limited domestic battery production, Chinese firms can help fill these gaps rapidly, as they did in Eastern Europe, leveraging economies of scale and technology. For example, in 2022, China's CATL established a major battery

cell factory in Debrecen, Hungary—its second European battery plant—with an investment of \$7.34 billion to build a 100 GWh facility²³. The plant is expected to supply batteries to major automakers and significantly boost local battery manufacturing capacity. Chinese firms such as CATL, EVE Energy in Hungary, and Zijin Mining in Serbia have introduced advanced battery technologies to Eastern Europe, including lithium iron phosphate (LFP), nickel manganese cobalt (NMC) chemistries, and high efficiency gigafactory production processes. These investments have not only enhanced local manufacturing capabilities but also enabled technology transfer through on-the-job training, exposure to global R&D standards, and collaboration in areas such as factory automation and energy storage systems. However, recently, some sources indicate that BYD is delaying mass production at its Hungarian plant and is increasingly focusing on Türkiye, where production is expected to ramp up more efficiently due to favorable conditions²⁴. Production at the plant in Manisa, western Türkiye, is expected to far exceed 150,000 cars in 2027, with BYD planning to greatly increase output again in 2028, according to sources. However, BYD did not respond to requests for comment.

Given Türkiye's limited battery manufacturing capacity and lack of upstream material processing (e.g., lithium, cathode), bridging these gaps is crucial if the country aims to meet its 2030 decarbonisation goals and 2053 net zero emissions target - particularly through the implementation of green transformation projects in the transport sector²⁵. This is also important if Türkiye wants to remain competitive in the EU market, considering that nearly 85% of Türkiye's automotive exports go to EU countries²⁶. As such, Türkiye should position itself as one of the leading countries in responding to the electric transformation of the automotive industry.

²³ Contemporary Amperex Technology Co. Limited (CATL). (2022, August 12). CATL to build second European battery plant in Hungary. <https://www.catl.com/en/news/983.html>.

²⁴ BYD to delay mass production at new Hungarian plant, make fewer EVs, sources say," Reuters, July 22, 2025, <https://www.reuters.com/business/autos-transportation/byd-delay-mass-production-new-hungarian-plant-make-fewer-evs-sources-say-2025-07-22/>.

²⁵ T.C. Ulaştırma ve Altyapı Bakanlığı. (n.d.). *Ulaşım da Net Sıfır Emisyon*. <https://emisjonsuzulasim.uab.gov.tr/tr/ulasimda-net-sifir-emisyon>.

²⁶ Otomotiv Sanayii Derneği (OSD). (2022). Türkiye otomotiv sanayinde dönüşüm: Elektrifikasyon, mobilite ve ötesi [Report]. https://www.osd.org.tr/saved-files/PDF/2022/02/08/OSD_Disruptive_Report_Final.pdf.

2.2 Technology Transfer and Supplier Ecosystem

Where Türkiye starts: a dense supplier base with Tier-2/3 depth

Türkiye's auto supplier ecosystem is large and internationally integrated. TAYSAD represents 540+ suppliers, covering ~85% of sector output and ~80% of exports—evidence of breadth and export orientation. The national investment agency counts ~1,100 component suppliers serving OEMs in Türkiye, with 50–70% localization common at OEMs—important because EV programs can build on existing vendor relationships.

SMEs dominate the real economy and thus any upgrading strategy: SMEs account for ~70.5% of employment (2023) according to TurkStat, implying that supplier-capability policies will have wide labor-market spillovers. This means that with targeted capability support and incentives tied to higher-value EV components, many Turkish Tier-2/3 SMEs can move from conventional parts into EV modules, power electronics, thermal systems, precision-machined parts, and data/traceability services.

How to make spillovers real: joint ventures + embedded R&D/process engineering

The empirical literature is clear in that productivity spillovers from FDI are strongest through backward linkages (foreign firms buying from local suppliers) and are more likely when there is shared ownership and operational cooperation—e.g., JVs and supplier-development with codified standards—rather than stand-alone, wholly owned greenfields that source imports.

SIRO (Farasis–Togg) provides Türkiye with a relevant EV-era anchor. SIRO began module/pack production in Gemlik in 2023 and is building a cell factory (foundation stone laid April 2023) on a 60-hectare site, targeting cell mass production in 2026 and 20 GWh/year by 2031, with an on-site cell lab. This is the template for embedded engineering teams and process know-how transfer that moves beyond assembly.

This can be the framework for tying future Chinese OEM/Tier-1 deals to JV designs that (a) co-locate process engineering, test labs, and BMS/software teams; (b) commit to progressive local sourcing from audited Turkish suppliers; (c) make supplier qualification a joint KPI for incentive disbursement.

Structured supplier upgrading: proven models to scale

Türkiye has piloted Supplier Development Programs (SDPs) with multilateral support. The IFC/World Bank designed a pilot SDP with the Ministry of Industry and Technology to diagnose suppliers, implement improvement roadmaps, and link verified upgrades to procurement opportunities. This

“diagnostics + coaching + deals” structure is the right framework for EV-era quality, traceability, and process capability.

To ensure that incoming Chinese EV investment translates into real capability gains for Turkish suppliers, these supplier development programs should be designed as OEM-led clusters, grouped by specific vehicle platforms. Within each cluster, suppliers would work together to meet essential quality and process standards—such as APQP/PPAP, IATF 16949, and environmental/energy certifications (ISO 14001 and ISO 50001). These clusters should also serve as practice grounds for meeting EU battery passport data requirements, so suppliers can collect and manage traceability, carbon footprint, and lifecycle information in a coordinated way.

Alongside this, programs should embed on-the-job training and short, targeted digital production sprints. These sprints could cover areas like manufacturing execution systems (MES), statistical process control (SPC), equipment calibration, and energy metering. Public support—whether grants, tax relief, or training subsidies—should be tied to auditable performance gains in key metrics: First Pass Yield (FPY), Overall Equipment Effectiveness (OEE), Cost of Quality (COQ), and readiness to generate life-cycle assessment (LCA) data.

Finally, to encourage investment in capability upgrades, the program could include concessional supply-chain finance—low-cost or guaranteed financing made available to suppliers who meet predefined capability milestones. This approach is common in multilateral development bank programs and can give SMEs the liquidity needed to implement quality, digital, and environmental upgrades without straining their balance sheets.

EU alignment as a capability pull: the battery passport

From 18 February 2027, the EU will require a digital battery passport for all electric vehicle batteries and industrial batteries above 2 kWh, as set out in Regulation (EU) 2023/1542. This passport—accessible via a QR code—will store verified information on the battery’s origin, carbon

footprint, performance, and recycled content. Guidance on its format and rollout schedule is already available, and early adopters such as Volvo have introduced working versions ahead of the deadline.

For Türkiye, this is not simply a compliance detail; it is a market access condition for exporting EVs to the EU. It also serves as a practical “design brief” for how Turkish suppliers—especially in Tier-2 and Tier-3—should prepare their data systems.

Supplier Development Programs (SDPs) must integrate data, traceability, and life-cycle assessment (LCA) capabilities from the outset. This includes tracking material provenance, recycled content, and energy and emissions data at the production stage, so that by 2027, Turkish suppliers can feed EU-grade information seamlessly into OEM systems, avoiding bottlenecks or market-entry delays.

3. Risks of Chinese EV Investment for Türkiye Risk landscape (why “assembly-only” is the wrong equilibrium)

The global EV battery chain remains highly concentrated in China. Latest IEA data show China at ~85–90% of cathode capacity and >90% of anode capacity; China produced well over three-quarters of battery cells in 2023–24. If Türkiye scales EV assembly without localizing modules/packs, BMS, power electronics—and eventually cells—domestic value added will stay thin and exposure to external shocks will rise.

This is not just technical; it’s regulatory. From Feb 2027, EV batteries sold in the EU need passport-grade traceability and carbon data. Opaque upstream chains translate into higher compliance costs, delays, or even market-access friction for Turkish-assembled EVs.

At the macro level, OECD work documents a marked rise in import-dependency concentration since the late 1990s, with China’s share of OECD import dependencies in strategic goods rising from ~4% (1997-99) to ~15% (2020-21). The same work warns against swinging from single-partner dependence to autarkic reshoring, which harms resilience and GDP; the right answer is openness + diversification + capability-building.

3.1 Industrial Hollowing-Out and Low Value-Added Traps

Risk 1 — Assembly-hub lock-in

If Türkiye limits itself to body shop/paint/final assembly while batteries, e-axes, inverters, BMS, and software arrive as kits, domestic value added (DVA) stalls. Given China's concentration in cells and battery materials, this lock-in risk is real—even when production is “local”. Türkiye's SIRO JV shows the transition path clearly: modules/packs are local today; cells are targeted for 2026; 20

GWh by 2031. Unless new deals replicate and accelerate this upstream pivot, EV growth will mostly lift imports.

The way to mitigate this risk would be to stage localization ladders (module/pack → BMS → power electronics → cell) and link each stage to incentive tranches and supplier-development deliverables.

Risk 2 — The CEE precedent (high volume, thin capabilities)

Central/Eastern Europe's ICE-era boom offers a cautionary tale: strong integration but persistently modest domestic value-added and limited spillovers to local SMEs when countries sit downstream in GVCs. The OECD Slovakia case synthesizes the problem; the CEE research literature (e.g., Pavlínek) characterizes the “integrated periphery” pattern that EV transition could entrench without local R&D and supplier linkages.

Türkiye needs to require co-located R&D/design, shared process teams, and joint supplier qualification programs as conditions for incentives; measure progress with TiVA-style DVA indicators over time. (OECD TiVA provides the baseline dashboards for Türkiye's foreign vs. domestic VA in autos.)

Risk 3 — IP-light licensing and black-box tech

CKD/SKD or pure licensing without domestic IP generation or embedded engineering rarely builds competitiveness. The FDI spillovers literature shows vertical (backward) linkages—not arm's-length licensing—drive productivity gains for local firms. Policy should therefore favor JV structures with shared development and local problem-solving, not just payroll.

Risk 4 — EU compliance friction (battery passport as gatekeeper)

From Feb 18, 2027, EV/industrial batteries need a digital passport with verified carbon and origin data. OEMs already moving (e.g., Volvo) are setting expectations for all EU-bound supply. If Turkish operations depend on opaque sub-tiers, verification and re-engineering costs will erode the very advantage Türkiye has as an EU-facing base. Türkiye needs to brace for battery passport readiness.

3.2 Data and Cybersecurity Vulnerabilities

As EVs have become software-defined products, foreign direct investment (FDI) in electronics and technology introduces specific risks concerning data security and unauthorized access to sensitive information²⁷. The growing presence of Chinese state-owned enterprises (SOEs) in this space further amplifies these concerns. While locally assembled vehicles in Türkiye must comply with national technical standards - often aligned with EU regulations - embedded hardware and proprietary software often remain opaque, creating persistent cybersecurity vulnerabilities that are difficult to detect and mitigate²⁸.

Furthermore, cellular connectivity, which enables a manufacturer to update a car's operating software—known as an “over the air” capability—could allow data to be exfiltrated²⁹. In other words, a modern vehicle equipped with over-the-air updates - filled with computers, multiple radios, Lidar sensors, and an external camera—has the potential to be transformed into a tool for surveillance³⁰. Even a mobile phone connected via a charging cable or Bluetooth can create an additional data source that may be accessed or exploited. User data, over-the-air updates, and other telematics functions raise cybersecurity concerns—especially for individuals working in sensitive industries or political and government positions.

In addition to these vulnerabilities, Chinese firms operating in Türkiye must comply with Türkiye's Personal Data Protection Law (KVKK). However, KVKK is not as comprehensive or stringent as the EU's General Data Protection Regulation (GDPR), creating a less robust data protection environment that may be more susceptible to exploitation.

²⁷ T. Gu, “Restrictions on Chinese SOE Investments for Data Security Reasons: The Case of Australia,” *Chinese Journal of Transnational Law*, 2(1), 2025, pp. 14–38. Available at: <https://doi.org/10.1177/2753412X241270432>.

²⁸ Simone Tagliapietra, Cecilia Trasi & Gregor Sebastian, “A smart European strategy for electric vehicle investment from China”, Bruegel Policy Brief No. 21/2025 (16 July 2025), available at: <https://www.bruegel.org/policy-brief/smart-european-strategy-electric-vehicle-investment-china>.

²⁹ Dan Milmo, “‘Source of data’: Are electric cars vulnerable to cyber spies and hackers?”, *The Guardian*, April 29, 2025. <https://www.theguardian.com/environment/2025/apr/29/source-of-data-are-electric-cars-vulnerable-to-cyber-spies-and-hackers>.

³⁰ Ibid.

Without robust vehicle-type approval protocols and clear data localization requirements, Chinese EV investment in Türkiye may present crucial cybersecurity and data privacy risks. Weak regulatory oversight can allow vehicles with unverified or opaque software and hardware systems to operate, potentially exposing them to remote access or manipulation. In the lack of data localization laws, sensitive user and operational data may be transferred to foreign servers, raising concerns about unauthorized surveillance or even state-sponsored espionage. These risks are particularly acute in contexts such as public EV charging networks and fleet management systems—where large volumes of mobility and logistical data are processed—making them attractive targets for exploitation.

3.3 Strategic Dependency and Geopolitical Exposure

Türkiye's dependence on China for key raw materials like lithium and cobalt poses risks amid US-EU-China geopolitical tensions, potentially limiting Türkiye's access to Western supply chains. While the Türkiye-EU Customs Union removes tariffs, divergent trade defense policies allow the EU to impose duties on Turkish EV exports, especially those made by Chinese firms, due to strict local content rules that do not fully recognize Turkish inputs. To mitigate these challenges, Türkiye should prioritize negotiating with the EU to harmonize local content and anti-circumvention rules, enabling Turkish EV producers to benefit from tariff-free and duty-free access. This alignment would boost investment, promote local value addition, and strengthen Türkiye's position as a regional EV manufacturing hub.

4. Implications for EU–Türkiye Relations

The effectiveness of Türkiye's industrial and trade policy on electric vehicles will be impacted by the panoply of measures that have been implemented by the EU targeting this industry. The reason is that the manufacturing capacity to be created in Türkiye by way of Chinese investments is also targeting European markets. In other words, the investment rationale in Türkiye as a regional production hub is linked to the expectation that these vehicles can then be exported without trade barriers to EU countries.

In reality, this expectation needs to be nuanced. The Türkiye-EU Customs Union, which has been in existence since the end of 1995, has indeed lifted tariff barriers in bilateral trade. Another major advantage of the customs union arrangement is that, unlike a free trade area, trade is not conditioned on rules of origin. That major advantage was possibly one of the motivations for Chinese electric car manufacturers to move production to Türkiye. In simple terms, the customs union arrangement would

allow for tariff-free exports from Türkiye to EU markets without any limitations on local content thresholds.

That being said, although the Customs Union binds the two parties to a common commercial policy, it has not led to a harmonization of trade defense policies. In other words, as things stand, the EU and Türkiye can and do have completely disparate trade defense policies. They can initiate trade defense

actions like anti-dumping duties or countervailing duties on their own. Interestingly, they can also invoke these measures against each other. So, exports from Türkiye, even if tariff-free, can still be within the scope of EU trade defense measures and be liable for additional duties.

This difference matters as the EU are increasing its trade protectionism on electric vehicles, as illustrated in the aforementioned analysis. It is therefore important to understand whether and under which conditions electric cars produced in Türkiye by Chinese manufacturers will get barrier-free access to the European market.

Under current circumstances, the EU is likely to treat Türkiye as just another country for the purpose of trade defense measures. Unless a different regime is negotiated, exports from Türkiye to the EU of Chinese-made electric cars will be subject to all the prevailing instruments and conditions of trade protection, with the exception of industrial tariffs.

Given that local content thresholds are currently in force in the application of trade defense measures for exports of electric vehicles to the EU, this requirement will also exceptionally apply in bilateral trade in electric vehicles. It is important to note that this is the same regime that EU policy makers have enforced regarding the trade rules affecting the Hungary-based EV production plant of BYD.

The key difference between the rules to be applied to this plant and any Türkiye-based EV manufacturing plant will be the treatment of local content. For the Hungary-based plant, all EU-sourced input in the final product will be counted towards fulfillment of the local content threshold. And yet, without a new negotiated regime, the same advantage will not be extended to Türkiye-based manufacturers relying on Türkiye-sourced supplies. Even if a manufacturer surpasses the statutory threshold for local content based on the portfolio of its Türkiye-sourced input, under current

conditions, the EV export will still be considered as a non-EU origin product and be the subject of the more restrictive and penalizing trade protection measures.

Going forward, therefore, a key consideration is the convergence of local content rules. In other words, Türkiye will have an interest in persuading the EU that EVs manufactured in Türkiye should be exempted not only from tariffs but also from trade protection measures on the basis of a minimum share of Turkish and/or EU content. This aim should become a major objective for Turkish authorities in their ongoing discussions with EU policymakers on trade policy. The main focus should be on a joint

understanding of the implementation in the EU of anti-circumvention rules. At present, according to Bruegel, “duties could be extended to cover parts and components if more than 60 percent of a vehicle’s value originates from China, or if EU value added falls below 25 percent—thresholds that are consistent with EU anti-circumvention rules (Regulation (EU) 2016/1036)”³¹. The aim, therefore, should be to exempt Türkiye-based production from the application of anti-circumvention rules provided that the threshold for local content and value-added calculations takes into account the contributions made by both EU member states as well as the Turkish economies.

The codification of such an agreement would greatly enhance Türkiye’s attraction as a destination for Chinese FDI in electric vehicles. But more importantly, it will strengthen the Turkish authorities' hand in streamlining and enforcing an industrial policy in this sector that focuses on improving the prospects for local value added with higher local content (defined as Turkish + EU origin supplies) and enhanced knowledge transfer and innovation spillovers in EV manufacturing. This outcome will create the right incentive for Chinese manufacturers to shift more rapidly towards a sourcing arrangement that prioritizes a strategy of higher local content. Because then, it is only by fulfilling these conditions that these manufacturers will be able to export tariff-free and duty-free to EU markets.

5. Policy Recommendations for Türkiye

5.1 Conditional Engagement with Chinese Capital

To ensure that foreign direct investment (FDI) supports national industrial development, Türkiye should adopt a conditional engagement strategy when dealing with Chinese capital in the electric vehicle (EV) sector. This entails mandating local employment, supplier integration, and R&D

³¹ Simone Tagliapietra, Cecilia Trasi & Gregor Sebastian, “A smart European strategy for electric vehicle investment from China”, Bruegel Policy Brief No. 21/2025 (16 July 2025), available at: <https://www.bruegel.org/policy-brief/smart-european-strategy-electric-vehicle-investment-china>.

investment as prerequisites for obtaining operational licenses or accessing state incentives. Moreover, Türkiye should prioritize minority or equal-stake joint ventures - such as the Chery–Ebro partnership in Spain³² or the CATL - Ford licensing agreement in the United States³³ –rather than allowing full foreign ownership, which may limit knowledge transfer and domestic capacity building. Investment screening should also go beyond job creation metrics and evaluate the potential for technological upgrading and industrial spillovers. Such a disciplined approach can help Türkiye leverage Chinese investment without compromising its long-term industrial sovereignty or its regulatory alignment with the European Union.

5.2 National FDI Screening Mechanism

To safeguard Türkiye’s strategic industrial trajectory, it is vital to establish a centralized investment review authority under the auspices of the Presidency’s Investment Office and the Ministry of Industry and Technology. This body would assess foreign direct investment (FDI) through the lens of both economic security and industrial policy, with particular attention to critical domains such as EV software systems, battery cell sourcing, and data processing infrastructures. Beyond evaluating traditional metrics like job creation, the mechanism would closely examine technological depth, supply chain integrity, and data sovereignty. Moreover, aligning this national screening framework with the emerging European Union FDI norms—especially the Security & Public Order criteria outlined in Regulation (EU) 2019/452³⁴—would help preserve Türkiye’s access to the Single Market while reinforcing resilience against strategic dependencies.

5.3 Alignment with EU Regulatory and Industrial Strategy

To future-proof its green industrial agenda, Türkiye should closely track and harmonize with evolving EU regulations on batteries—such as carbon footprint limits, recycled content mandates, and battery passports—as well as emerging vehicle cybersecurity frameworks under NIS2. The EU Batteries Regulation introduces third-party verified carbon footprint declarations starting mid-2025, mandatory battery passports for some battery types by early 2026, and for electric vehicles by 2027, and strict recycled content targets (e.g., for lithium, cobalt, and nickel) increasing through 2031³⁵. Simultaneously, the NIS2 Directive, in force since October 2024, imposes strong cybersecurity

³² Chery–Ebro joint venture in Spain launches vehicle production, Xinhua News, November 25, 2024. <https://english.news.cn/20241125/b1a67c0d3d2041b59daf394903a5ef4e/c.html>.

³³ “Ford plans to make EV batteries in U.S. with Chinese company that developed the tech,” NPR, August 8, 2023. <https://www.npr.org/2023/08/08/1192557960/ford-plans-to-make-ev-batteries-in-u-s-with-chinese-company-that-developed-the-t>

³⁴ Regulation (EU) 2019/452 of the European Parliament and of the Council of 19 March 2019 establishing a framework for the screening of foreign direct investments into the Union, Official Journal of the European Union L 79 I, 21 March 2019. <https://eur-lex.europa.eu/eli/reg/2019/452/oj/eng>.

³⁵ Philip Blenkinsop, “Europe set to miss potential for battery material recycling,” Reuters, December 11, 2024. https://www.reuters.com/world/europe/europe-set-miss-potential-battery-material-recycling-2024-12-11/?utm_source=chatgpt.com.

requirements on automotive and transport sectors - including risk management, incident response, and supply-chain resilience³⁶. Türkiye would benefit from proactively participating in IPCEI-style (Important Projects of Common European Interest) initiatives focusing on batteries - such as EuBatIn - or seeking co-financing from the European Investment Bank (EIB) or the Innovation Fund; the EU's new €3 billion battery support package (via EIB and InvestEU) underscores the scale of support available for such strategic investments³⁷. Establishing a Green Industry Compatibility Office would help ensure new Turkish green-tech investments are future-proofed and aligned with the EU's regulatory path and industrial ecosystems.

5.4 State Aid and Incentives for Strategic Autonomy

To secure long-term strategic autonomy in the battery and EV sector, Türkiye should condition investment incentives—such as tax breaks, land allocation, and R&D support—on outcomes like domestic capacity building, vocational training, and supplier diversification. Under the HIT-30 High-Technology Incentive Program, Türkiye has already earmarked substantial support: a \$5 billion package to ramp up electric vehicle production, \$4.5 billion to develop battery manufacturing, and additional funding for semiconductor and solar-cell manufacturing³⁸. However, to avoid an unproductive “subsidy race” among regions, the government should instead adopt a unified national battery and EV industrial roadmap with transparent and performance-based criteria. Recent regional incentive schemes - offering up to 25 % in machinery cost funding, tax relief, and land incentives to underdeveloped provinces—demonstrate both the potential and the risks of fragmented incentive structures³⁹. By aligning incentives toward strategic public goals and coordinating them nationally, Türkiye can foster equitable, sustainable industrial development that supports both green transformation and autonomy.

5.5 Securing Barrier-Free EU Access for Türkiye-Based EVs

Türkiye's Customs Union with the EU removes tariffs and bypasses rules of origin, but it does not shield Türkiye-based EV manufacturing from EU trade defense measures such as anti-dumping or anti-circumvention duties. Currently, even high Turkish local content is not treated as EU-origin in value-

³⁶ What is the NIS 2 Directive?, The NIS 2 Directive | Updates, Compliance, Cyber Risk GmbH website. <https://www.nis-2-directive.com/nis-2-directive.com>.

³⁷ European Commission and EIB announce new partnership to support investments in the European battery manufacturing value chain,” European Investment Bank Press Release, December 3, 2024. <https://www.eib.org/en/press/all/2024-484-european-commission-and-eib-announce-new-partnership-to-support-investments-in-the-european-battery-manufacturing-value-chain>.

³⁸ Turkey's Erdogan announces \$30 bln in incentives for high-tech areas,” Reuters, July 26, 2024. <https://www.reuters.com/business/autos-transportation/turkeys-erdogan-announces-30-bln-incentives-high-tech-areas-2024-07-26>.

³⁹ William Sellars, “Turkey offers incentives to support regional industry,” AGBI, June 3, 2025. <https://www.agbi.com/industry/2025/06/turkey-offers-incentives-to-support-regional-industry/>.

added calculations, meaning EV exports from Türkiye can still face significant trade barriers. To safeguard market access and strengthen its position as a regional EV production hub, Türkiye should negotiate with the EU to align local content rules so that Turkish- and EU-sourced inputs are counted together when determining compliance with EU thresholds. This alignment would exempt qualifying Türkiye-based EV production from trade defense measures, allowing tariff- and duty-free exports to the EU. Such a regime would not only increase Türkiye's attractiveness for Chinese EV investment but also create strong incentives for manufacturers to increase Turkish and EU content, enhance local value-added, and promote technology transfer and innovation. In turn, this would support Türkiye's broader industrial policy objectives in the EV sector, positioning the country as a competitive and integrated player in the European electric mobility market.



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