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The future of European electric vehicles

IN-DEPTH ANALYSIS

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The future of European electric vehicles

The European electric vehicle (EV) industry is facing fierce competition from China. The question is what this will mean for the future of European EVs.

This paper provides an overview of EU-China competition in this industry and presents four scenarios for the future of European EVs by 2030. Will European EVs survive, thrive or perish in the face of Chinese competition and other challenges?

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Executive summary

Europe is lagging behind the US and China in electric vehicle (EV) innovation and has become China's largest EV export market. The double pressure of Western companies moving production facilities to China and Chinese companies that are looking to Europe to sell EVs risks disrupting the European automotive supply chain. As the automobile sector generates 7 % of the EU's gross domestic product (GDP) and close to 14 million direct and indirect jobs, any threat against the sector should be taken seriously. This paper explores the future of European EVs and whether the EU car industry will manage to survive competition with China.

China has become the world's leading EV-producing country in recent years, making over half of the world's electric vehicles. The European Commission has stressed that China's rapidly rising exports of cheap EVs and growing overcapacity constitute a threat to Europe's automotive industry. China achieved its leadership position through subsidies and various competitive advantages such as its access to natural resources, its large internal market, cheap labour and cheap technologies.

The European Commission announced the initiation of EU anti-subsidy investigations into Chinese electric vehicle supply chains on 4 October 2023. This anti-subsidy probe is the largest EU trade case against China in history. The Commission concluded in June 2024 that Chinese-made EVs have benefited from unfair subsidies and implemented various provisional tariffs in response, ranging from 17.4 % to 38.1 %. In October, the Commission received the necessary support from Member States to impose definitive duties on Chinese EVs.

Stakeholders and experts have warned that tariffs will not be enough to protect EU competitiveness in the EV industry, stressing the need for investment and other measures, and that the EU needs a stronger industrial policy to this end. However, they do suggest that tariffs will help EU producers buy time in their transition towards EV production, and that tariffs may also serve to attract Chinese EV investment into the EU.

Ten policy experts in the field were surveyed for the development of four **scenarios** for the European EV industry by 2030. These scenarios are the following:

- **Cutting-edge Europe:** The EU and its EV manufacturers develop cutting-edge technologies and take a leading role in the global EV market.
- **Slow electrification:** Chinese carmakers have captured large shares of the European EV market through exports and local production as Europe lags behind.
- **Overdependence:** Europe is reliant on Chinese technology as almost all domestic European EV industry and brands vanish.
- **Sanctions spiral:** Chinese counter-sanctions following aggression against Taiwan cause massive disruption to EV supply chains.

If Europe is to steer its future to a positive outcome, it will have to use its existing policy instruments and build new ones to **promote** and **protect** its EV industry and foster meaningful **partnerships** to that end. All of this could involve a new EU industrial plan designed to stimulate electric vehicle manufacturing in Europe.

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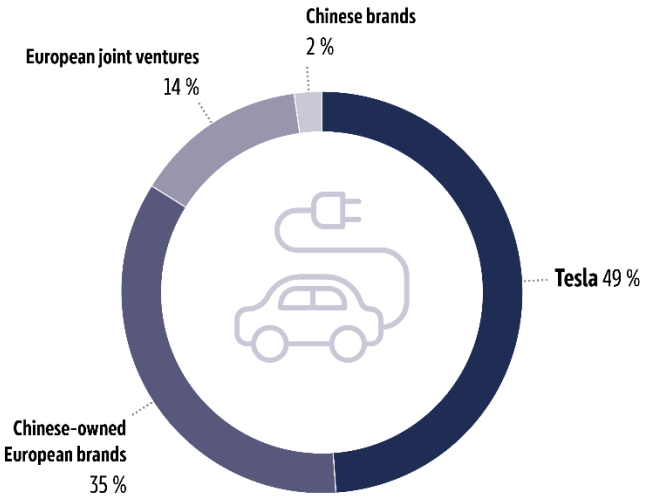
EU-China electric vehicle trade tensions

The global market for electric vehicles (EVs) is booming. It was valued at US$384 billion in 2022, and is expected to grow to US$8.8 trillion by 2030, possibly reaching as much as US$56.7 trillion in value by 2050. By 2040, 60 % of all vehicles worldwide are expected to be electric, compared to 2 % in 2020.[1]

Despite this growth, and Europe's leadership in producing cars running on internal combustion engines, most European companies are behind in EV innovation.[2] Europe is a late starter in this field and lags behind the US and China.[3] At the same time, the EU is China's largest export market, with 40 % of Chinese EV exports destined for Europe;[4] in 2022, 28 % of the EU's EVs were imported from China. Over the past 5 years, exports of European cars to China fell slightly while European imports of Chinese cars quadrupled, reversing the trade relationship in vehicles.

Western companies operating from China were the source of most EV imports from China (see Figure 1). Together with Chinese companies that are looking to Europe to sell EVs, this double pressure risks disrupting the European automotive supply chain.[5] The European automobile sector generated approximately 7 % of the EU's GDP and over 13.8 million direct and indirect jobs in 2022, and is thus a strategic sector. Any threat against the sector would affect the EU's growth, productivity and security and should therefore be taken seriously.[6]

Figure 1 – Chinese-made EV sales in Europe by producer (January 2021 - March 2022)



Data source: MERICS, using Eurostat.

1 M. Szczepański, EU-US critical minerals agreement: Building stronger supply chains together, EPRS, 2023.

2 A. García Higuera, What if the problem with cars was not their method of propulsion?, EPRS, 2024.

3 E. Feás et al., The economics and geopolitics of electric cars: a European perspective, Elcano Royal Institute, 2024.

4 E. Feás et al., The economics and geopolitics of electric cars: a European perspective, Elcano Royal Institute, 2024.

5 ABI Research, The EU Will Import Over 1 Million EVs From China in 2030, Creating Both Threat and Opportunity for European OEMs, 2023.

6 E. Feás et al., The economics and geopolitics of electric cars: a European perspective, Elcano Royal Institute, 2024.

In a press conference presenting his report on the future of EU competitiveness, former European Central Bank Director Mario Draghi emphasised that taking a laissez-faire approach to China's massive imports of electric vehicles is 'unlikely to succeed in Europe given the threat it could pose to employment, productivity and economic security'.[7] The report warns that 'China's state-sponsored competition also represents a threat to our productive clean tech and automotive industries'.[8] Draghi therefore recommends developing an EU industrial action plan for the automotive sector, covering all stages of the value chain.[9] A lack of EU action on this front could see the deindustrialisation of the European economy.[10]

In light of the observed threat of growing Chinese EV imports in Europe, this paper explores the future of European electric vehicles and whether the EU car industry will manage to survive (or even thrive under) competition with China. The following sections will present the reasons behind China's leadership in the EV sector, the Commission's anti-subsidy probe into Chinese EV imports, the European Parliament's position, expert views on the matter, scenarios for 2030 based on expert feedback and, finally, related policy considerations.

China's leadership in the electric vehicle sector

In recent years, China has become the world's leading EV-producing country. China now makes 54 % of the world's electric vehicles and an even higher share of car batteries;[11] in 2024, China's BYD became the leading producer of EVs, surpassing Tesla.[12] China's EV exports have grown at lightning speed in recent years, from just 4 % of global EV exports in 2020 to 21 % in 2022. Chinese brands' share of total EU car sales grew from 0.4 % in 2019 to 8 % in 2023, and could grow to 15 % by 2025.[13]

BYD launched China's first vehicle carrier built specifically for exporting Chinese-made cars, and there have been further investments in vehicle carriers.[14] By 2026, BYD is set to operate eight cargo ships for transporting EVs from China to Europe and other destinations.[15] The Commission argues that rapidly rising Chinese exports of cheap EVs, the sharp rise in China-based production capacity and growing overcapacity in the years ahead (due to continued high investment despite slowing domestic growth) constitute a threat to Europe's automotive industry.[16]

China has achieved its leadership position in EV production by granting subsidies and other advantages that have benefited its manufacturers; it has been providing massive state support to key sectors since the 2000s and five of the top 10 recipients in 2023 were EV or battery manufacturers. The overall subsidy spending for the whole EV sector between 2009 and 2021 is estimated to be more than $125 billion,[17] with China spending an estimated US$57 billion on

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7 European Commission, Press conference by Ursula von der Leyen, President of the European Commission, and Mario Draghi, Special Advisor to Ursula von der Leyen, on the report on the future of EU competitiveness, 2024.

8 European Commission, The future of European competitiveness – A competitiveness strategy for Europe, 2024.

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10 L. Fix and H. Crebo-Rediker, China's Double Threat to Europe: How Beijing's Support for Moscow and Quest for EV Dominance Undermine European Security, Foreign Policy, 2024.

11 A. García-Herrero, Following a boom, China's electric vehicle industry now faces weak domestic demand and heightened geopolitical risk, Bruegel, 2023.

12 H. French, China's Global EV Domination Is Just Beginning, Foreign Policy, 2024.

13 C. Boullenois, A. Kratz and R. Goujon, Opening Salvo: The EU's Electric Vehicle Probe and What Comes Next, Rhodium Group, 2024.

14 J. Webster, China has become an electric vehicle export behemoth. How should the US and EU respond?, Atlantic Council, 2024.

15 H. French, China's Global EV Domination Is Just Beginning, Foreign Policy, 2024.

16 C. Boullenois, A. Kratz and R. Goujon, Opening Salvo: The EU's Electric Vehicle Probe and What Comes Next, Rhodium Group, 2024.

17 D. Lilkov, Who's Afraid of Chinese Electric Vehicles and Clean Tech?, Wilfried Martens Centre for European Studies, 2023.

subsidies for electric and hybrid vehicles between 2016 and 2022. While these purchase subsidies were due to be withdrawn in 2023 after 11 years, they have now been extended until at least 2027.

Support for manufacturing ranges from direct production subsidies to discounted prices for electricity, raw materials and batteries, as well as preferential loans and the provision of cheap land.[18] Other alleged practices include cheap loans from state-owned banks, state support for innovation activities, and protectionism.[19] In addition, Chinese manufacturers benefit from research support and tax incentives.[20]

Government support and incentive policies to give Chinese EV firms a competitive edge began two decades ago when the EU automotive industry was still focused on combustion engine vehicles. Chinese EV research and development objectives were integrated into the 10th 5-year plan (2001-2005) and 11th 5-year plan (2007-2010). Accelerating EV development became one of the 'leapfrog development' priorities of the 12th 5-year plan (2011-2015) and the EV industry was identified as one of the seven strategic industries. The 2015 'Made in China 2025' strategy includes EVs as one of the 10 strategic industries in which China seeks global leadership by 2049, with the goal of 80 % of EVs to be made in China by 2025. A variety of subsidies were used to scale up EV production, boost market penetration, build EV charging station infrastructure and achieve global leadership.[21]

China's EV subsidies from 2010 to 2022 encouraged local producers to achieve economies of scale long before European producers.[22] Central and provincial governments have both been active in providing subsidies,[23] cheap capital sources and inputs such as cheap electricity and land, as well as fast licenses and approval processes for China-based producers. China tied purchasing subsidies for EVs and batteries to local production, thus effectively excluding foreign producers from the market, and restricted market access for foreign producers in other ways.[24]

Subsidies are not the only reason why Chinese EVs are sold so cheaply. The reason they are sold at 20 % below the price of European-manufactured EVs is partly because Chinese manufacturers control the whole value chain from mining to sales;[25] China has access to an abundance of natural resources, including minerals and rare earths.[26] High production volume accompanied the concentration of critical mineral supply chains and EV infrastructure in China, with localised supply chains lowering the cost of production. China's cheap labour and technological innovations also help keep production costs down.[27]

China's cost advantage furthermore arises from advanced and lower-cost battery technology and availability of IT and AI expertise,[28] while tough competition between Chinese brands on the

18 E. Feás et al., The economics and geopolitics of electric cars: a European perspective, Elcano Royal Institute, 2024.

19 T. Andersen, Chinese EVs in Europe: A Threat to European Automakers?, International Centre for Defence and Security, 2023.

20 H. French, China's Global EV Domination Is Just Beginning, Foreign Policy, 2024.

21 G. Grieger, EU anti-subsidy probe into electric vehicle imports from China, EPRS, 2023.

22 D. Lilkov, Who's Afraid of Chinese Electric Vehicles and Clean Tech?, Wilfried Martens Centre for European Studies, 2023.

23 U. Dadush, Rippling out: Biden's tariffs on Chinese electric vehicles and their impact on Europe, Bruegel, 2024.

24 G. Sebastian and F. Chimits, 'Made in China' electric vehicles could turn Sino-EU trade on its head, Mercator Institute for China Studies, 2022.

25 E. Feás et al., The economics and geopolitics of electric cars: a European perspective, Elcano Royal Institute, 2024.

26 D. Lilkov, Who's Afraid of Chinese Electric Vehicles and Clean Tech?, Wilfried Martens Centre for European Studies, 2023.

27 D. Lilkov, Who's Afraid of Chinese Electric Vehicles and Clean Tech?, Wilfried Martens Centre for European Studies, 2023.

28 U. Dadush, Rippling out: Biden's tariffs on Chinese electric vehicles and their impact on Europe, Bruegel, 2024.

domestic market has driven prices down to levels unimaginable elsewhere.[29] China also has extremely cheap energy prices due to its use of dirty coal.[30]

Another reason for the disparity between European and Chinese EV production capabilities can be found in differences in strategy. While Europe promoted the adoption of sustainable vehicles on the demand side, China promoted both use and production of EVs. Europe furthermore focused on hybrid vehicles, while China, without an existing car industry to defend, went all out on fully electric vehicles, which led to a competitive advantage in this sector.[31] China also relies on a very large internal market to achieve economies of scale, giving it another competitive advantage.

The tariffs discussed below may incentivise further Chinese investment in EV and battery production in Europe; Hungary has become the primary destination for Chinese EV investments.[32] Chinese investment in EV production in Europe, including cooperation between EU brands and Chinese companies, may be welcomed and provide relief in the trade relationship with China. However, if their production is seen to undercut European rivals, these investments may come under scrutiny, triggering, for instance, cases under the EU's Foreign Subsidies Regulation. Chinese companies could also face a backlash if their investment remains concentrated in China-friendly countries such as Hungary.[33]

The Commission's anti-subsidy probe into Chinese EV imports

On 4 October 2023, the European Commission published a notice of initiation of EU anti-subsidy investigations into EU imports of EVs from China. This had already been announced by Commission President Ursula von der Leyen during her State of the Union Address on 13 September 2023, in which she said that the 'global market is flooded with cheaper electric vehicles', the price of which 'is kept artificially low' due to 'huge state subsidies'. The probe comes after a surge in EU imports of EVs from China, dwarfing other Chinese export markets,[34] and is the largest-ever EU trade case against China.[35] The probe also stands out in that it was started at the Commission's own initiative and not following a formal request from industry stakeholders.[36]

Anti-subsidy probes determine whether there is evidence that a non-EU country offers subsidies to industries exporting products to the EU that cause or threaten to cause injury to EU industries manufacturing similar products without benefiting from such subsidies. Such probes are politically sensitive as they target state behaviour, and are thus less often used than anti-dumping probes, which only target companies. After investigations lasting a maximum of nine months, the Commission imposed provisional, and after 13 months definitive, tariffs for five years. These may be renewed for a similar period once a review proves that the injury persists.[37] For definitive tariffs to be adopted, Member States have to accept the tariffs based on a qualified majority of votes. The Commission received the necessary support from Member States to go through with the tariffs on 4 October 2024.[38]

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29 H. French, China's Global EV Domination Is Just Beginning, Foreign Policy, 2024.

30 D. Lilkov, Who's Afraid of Chinese Electric Vehicles and Clean Tech?, Wilfried Martens Centre for European Studies, 2023.

31 E. Feás et al., The economics and geopolitics of electric cars: a European perspective, Elcano Royal Institute, 2024.

32 A. Kratz et al., Dwindling investments become more concentrated – Chinese FDI in Europe: 2023 Update, Rhodium Group and Mercator Institute for China Studies, 2024.

33 G. Sebastian, N. Barkin and A. Kratz, Ain't No Duty High Enough, Rhodium Group, 2024.

34 G. Grieger, EU anti-subsidy probe into electric vehicle imports from China, EPRS, 2023.

35 G. Sebastian, N. Barkin and A. Kratz, Ain't No Duty High Enough, Rhodium Group, 2024.

36 G. Sebastian, N. Barkin and A. Kratz, Ain't No Duty High Enough, Rhodium Group, 2024.

37 G. Grieger, EU anti-subsidy probe into electric vehicle imports from China, EPRS, 2023.

38 European Commission, Commission proposal to impose tariffs on imports of battery electric vehicles from China obtains necessary support from EU Member States, 2024.

The share of Chinese EVs sold in Europe recently jumped from 1 % to 8 % and could soar to 15 % by 2025, according to the Commission. While two-thirds of imports from China are from EU and US firms manufacturing in China, Western carmakers' share of global EV markets has trended downwards while Chinese manufacturers have trended upwards. This has brought back memories of the EU being flooded over a decade ago by cheap Chinese solar panels that pushed European manufacturers out of the market. A sense of urgency persists for the EU to pre-empt a similar fate for its EV industry.[39]

The EU's anti-subsidy probe comes at a time when the trade deficit with China is at an all-time high, having reached €400 billion in 2022, linked in part to practices that call for the use of trade defence instruments to level the playing field. It also comes at a time when a growing dependency on Chinese EV imports runs counter to the economic security strategy's emphasis on de-risking, as well as the proposed Net Zero Industry Act designed to enhance the manufacturing of strategic net-zero technologies. On the other hand, the EU's phasing out of internal combustion engine vehicles by 2035 and boosting of its green transition spurs EV demand that Chinese EV firms are eager to tap into as China's economy continues to slow down.

Raising tariffs on Chinese EV imports can prompt retaliation.[40] Indeed, on 8 October 2024 China announced tariffs on French cognac in an effort to punish Paris, as it was viewed as the primary supporter of the Commission's anti-subsidy investigation. Large-engine vehicles, and agricultural products such as pork and dairy risk being the next European sectors to be targeted by Chinese retaliatory duties.[41]

Views in Europe's automotive industry on the anti-subsidy probe are mixed. Depending on their level of exposure to the Chinese market and on their potential alliances with Chinese carmakers, some carmakers welcome extra protection, while others, including major German manufacturers, fear potential reprisals and favour alternatives to promote the competitiveness of European industry through, for instance, reduced energy costs and reduced bureaucracy.[42] French leaders and carmakers view the probe as an opportunity to bring manufacturing jobs back to Europe and to increase European resilience in green technologies.[43] French carmakers have a share of only 0.4 % of the Chinese market while German carmakers have 17 %.[44]

The EU is not the only one raising its tariffs on Chinese EVs. On 14 May 2024, US President Joe Biden announced new tariffs on Chinese imports including a rise from 27.5 % to 100 % on electric vehicles. This increase comes despite the fact that Chinese EV imports were already very marginal on the US market.[45]

On 12 June 2024, the European Commission announced that its investigation had concluded that Chinese-made EVs benefit from unfair subsidies. In response, various provisional tariffs were implemented by 4 July, namely 17.4 % for BYD, 20 % for Geely and 38.1 % for SAIC, as well as 21 % for other EV producers that cooperated with the investigation and 38.1 % for those that did not cooperate.[46] On 20 August 2024, the Commission announced that, following a review requested by the company, tariffs on Chinese-made Tesla car imports would only be 9 %, down from 21 %. In its

39 G. Grieger, EU anti-subsidy probe into electric vehicle imports from China, EPRS, 2023.

40 G. Grieger, EU anti-subsidy probe into electric vehicle imports from China, EPRS, 2023.

41 C. Gijs, K. Verhelst and J. Chetrit, China's hit at EU brandy sparks fear of all-out trade war, Politico, 2024.

42 E. Feás et al., The economics and geopolitics of electric cars: a European perspective, Elcano Royal Institute, 2024.

43 C. Boullenois, A. Kratz and R. Goujon, Opening Salvo: The EU's Electric Vehicle Probe and What Comes Next, Rhodium Group, 2024.

44 V. Sabelová, EU Moves to Address the Chinese EV Subsidies, But More Needs to Be Done, China Observers in Central and Eastern Europe, 2023.

45 U. Dadush, Rippling out: Biden's tariffs on Chinese electric vehicles and their impact on Europe, Bruegel, 2024.

46 European Commission, Commission investigation provisionally concludes that electric vehicle value chains in China benefit from unfair subsidies, 2024.

investigation, the company was found to receive less subsidies than the companies originally reviewed. The duty for BYD, Geely, and SAIC, together with other companies that did not cooperate with investigations, was also slightly lowered to 17.0 %, 19.3 %, and 36.3 %, respectively. China's commerce ministry said it was 'firmly opposed to and highly concerned' about the outcome of the investigation.[47] On 4 October 2024, the Commission's proposal to impose definitive countervailing duties on EVs from China obtained the necessary support from EU Member States for the adoption of the tariffs.[48]

Apart from subsidies in EV manufacturing, the Commission has started to look for unfair Chinese advantages in the manufacturing of key components, namely chips. Starting in May 2024, the Commission has been questioning microchip suppliers and carmakers about whether there is a dependency on China in the supply of legacy chips, the low-tech microchips that are commonly used in cars, including EVs. The EU fears that subsidised Chinese firms will take over supply in the EV boom, as automotive chips have so far been produced by leading European firms.[49]

European Parliament position

The European Parliament's resolution of 16 January 2024 on competition policy welcomed the Commission's announcement of its anti-subsidy investigation into Chinese EVs, emphasising the importance of the effective implementation of EU instruments on foreign subsidies to ensure the mitigation of potentially distortive effects on the single market.[50] Various texts adopted by Parliament also emphasise the importance of EVs for the EU's clean energy transition.[51] Regarding industrial policy and clean technologies, in its resolution of 25 April 2024 on the Net Zero Industry Act the European Parliament stressed that 'A strong manufacturing base is a key element in securing access to net-zero technologies and maintaining quality jobs in the Union. That requires that the Union preserve its competitiveness, including through innovation, in particular with regard to clean technologies.'[52]

On 8 October 2024, following a statement by the Commission, Parliament debated the crisis facing the EU's automotive industry, potential plant closures and the need to enhance competitiveness and maintain jobs in Europe.[53] Valdis Dombrovskis, European Commissioner for Trade, made an opening statement in which he assessed the situation facing the European automotive industry. He stated that, in the global race to net-zero technology, Europe cannot afford to fall behind and lose its competitive edge. He went on to say that Europe needs to redouble its efforts so that the electrification pathway remains viable and accepted and that the Commission wants to ensure Europe remains a global leader in the automotive industry.

The ensuing debate displayed diverging views among parliamentarians. Some group speakers said that focusing solely on electric cars was a dead end and a competitive disadvantage, and that instead all technologies were needed in a broad mix, including climate-neutral fuels. Others identified EV technology – in which China was taking the lead and outpacing its European competitors, who for

47 P. Blenkinsop and K. Abnett, Tesla to get lower EU tariff on its Chinese-made EVs, Reuters, 2024.

48 European Commission, Commission proposal to impose tariffs on imports of battery electric vehicles from China obtains necessary support from EU Member States, 2024.

49 P. Haeck, Europe eyes car chips as next battleground with China, Politico, 2024.

50 European Parliament, resolution of 16 January 2024 on competition policy – annual report 2023, 2024.

51 See, for instance, European Parliament, resolution of 15 December 2021 on the implementation of the Energy Performance of Buildings Directive, 2021; European Parliament, Amendments adopted on 14 March 2023 on the proposal for a directive of the European Parliament and of the Council on the energy performance of buildings, 2023.

52 European Parliament, legislative resolution of 25 April 2024 on the proposal for a regulation of the European Parliament and of the Council on establishing a framework of measures for strengthening Europe's net-zero technology products manufacturing ecosystem (Net Zero Industry Act), 2024.

53 European Parliament, The crisis facing the EU's automotive industry, potential plant closures and the need to enhance competitiveness and maintain jobs in Europe (debate), 2023.

too long had placed their bets on combustion engines – as the future of the European automotive industry. In their view, rolling back legislation will not help the automotive sector.

Consequently, different approaches to remedy the situation were favoured. One side called for a withdrawal of fines for producers who do not meet emission targets, an immediate lifting of the ban on combustion engines from 2035, and reverting to openness to technology instead of bans. The other side called for high ambitions and intensified cooperation through investments in the European battery industry to create flagship projects and in joint undertakings to make European EVs competitive again and to secure quality jobs, support local economies and reduce Europe's dependencies on external powers. Others called for a renewed strategy for the automotive sector with a clear long-term direction, a fair automotive transition fund to support the most affected regions in their transformation, financial incentives, a robust infrastructure and a tax system that is favourable to electricity, and a firm response to international competitors who subsidise their industry and compete unfairly on the European market. However, others said that protection only made sense if Europe kept its targets for cars on emissions and doubled down on electrification, flanked by making EVs affordable through social leasing, with corporate fleet targets, and big investments in charging infrastructure.

Stakeholder and expert views

The following section provides an overview of stakeholder and expert views on European EVs and the EU's anti-subsidy probe against China, through a compilation of summaries of published works on the subject.

Tech intelligence platform **ABI Research** writes that, with EU car exports to China having waned slightly but with Chinese car imports to Europe having quadrupled, the trade flow is being reversed. It warns that, with both Chinese EV vendors looking to the European market and Western manufacturers moving manufacturing to China, these sources of competition could disrupt automotive supply chains in Europe.[54]

The **Elcano Royal Institute** argues that, while Europe is late in the race for technological supremacy in the field of EVs and is lagging behind China and the US, which can offer more subsidies, the growing exports of European EVs to the US suggests not all is lost. It views the anti-subsidy probe as a warning to China of the need to negotiate the future development of trade flows and of firmer actions to be taken in the absence of such talks. The challenges it identifies for the EU to stay in the race are reducing the cost of electricity, securing the supply of semiconductors and critical minerals, stimulating demand and greater competition, and designing a more active industrial policy including the use of EU funds.[55]

The **Bruegel** think tank argues that, regardless of whether the anti-subsidy probe results in tariffs on Chinese electric cars, the existence of the probe suggests the need for Europe to develop a new green industrial policy to enable the development of a competitive EV industry and clean tech ecosystem.[56]

A second Bruegel report writes that China's retaliation against potential tariffs could include a WTO anti-subsidy investigation targeting European subsidies that have been ramped up since the pandemic. China could also try to persuade European governments that the investigation led by the Commission should be withdrawn, but this will be less likely as it is the Commission and not the industry that has filed the case. It concludes that Europe's dependence on China is now greater than

[54] ABI Research, The EU Will Import Over 1 Million EVs From China in 2030, Creating Both Threat and Opportunity for European OEMs, 2023.

[55] E. Feás et al., The economics and geopolitics of electric cars: a European perspective, Elcano Royal Institute, 2024.

[56] A. Sapir, S. Tagliapietra and J. Zettelmeyer, Making the most of Europe's anti-subsidy probe into Chinese electric vehicles, Bruegel, 2023.

during the solar panel probe in 2014, and that the potential fallout is greater as China has since strengthened its position as a global power as well as its power to retaliate. At the same time, the stakes are higher for the EU given the importance of its automotive sector, so it will not be easily deterred, even if the risk of retaliation has become greater.[57]

Another Bruegel report argues that countervailing tariffs should be no higher than the level of objectively calculated Chinese subsidies and should be accompanied by an EU-China working group to monitor EV subsidies with a view to cancelling them over a specific period. In another move designed to maintain positive EU-China relations, it also calls on the EU to welcome Chinese investments in the battery and EV sector in Europe. If the European market were to be flooded by Chinese EVs, the EU could still enact WTO-compatible safeguard tariffs.[58]

Clean transport and energy advocacy association **Transport & Environment (T&E)** writes that the EU needs a strong industrial policy to stop China from undermining its automotive industry. For Europe to be a leader in the global EV industry, it suggests that the EU must hold on to its target to phase out combustion engine sales by 2035, leverage the power of the single market by enforcing stronger sustainability criteria and put tariffs on EV imports receiving subsidies, and ramp up its funding for innovative clean technologies through a new EU Green Investment Plan.[59] T&E also warns that one in four EVs sold in Europe in 2024 will be made in China. It suggests that investment in ramping up local EV production and subsidising European battery supply chains should accompany tariffs if European manufacturers are to compete with Chinese brands in the EV market.[60]

In 2022, the **Mercator Institute for China Studies (MERICS)** think tank warned that the EU's growing Chinese EV imports could reverse the Chinese-European automotive trade relationship. It writes that Europe has become China's main market for EV exports, exports that benefit greatly from Chinese market-distorting policies. It suggests that the EU should consider responding with the use of trade defence instruments, as a failure to respond could mean the loss of Europe's industrial heartland, including countless jobs and innovation capacity.[61] A 2021 MERICS report likewise warned that Chinese subsidies could distort the global EV market.[62]

A book by the **European Trade Union Institute (ETUI)** warns that further employment risks and growing inequalities may appear if European manufacturers focusing on high-end SUVs continue to abandon the lower market segments of EVs and leave these to foreign competitors. It suggests that, to make electric cars available to all and not just those who can afford high-end models, industrial policy initiatives and subsidies should favour small entry-level EVs which will, in turn, generate jobs and avoid a loss of European sovereignty in the automotive market.[63]

The **Institute for Emerging Market Studies (IEMS)** writes that the EU was the first to encourage the use of sustainable cars and, to a lesser extent, to produce them. The focus was on hybrids instead of fully electric cars due to the interests of existing European automotive companies. China meanwhile focused on fully electric cars and focused subsidies on production rather than consumption. While China dominates battery supply chains, South Korea and Japan are strong competitors. IEMS posits that the EV sector could soon look similar to that of semiconductors in the

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57 A. García-Herrero, How might China hit back over the EU's electric vehicle anti-subsidy investigation?, Bruegel, 2023.

58 U. Dadush, Rippling out: Biden's tariffs on Chinese electric vehicles and their impact on Europe, Bruegel, 2024.

59 J. Poliscanova, A smart industrial policy to fast-charge Europe's electric vehicles revolution, Transport and Environment, 2024.

60 Transport and Environment, One in four EVs sold in Europe this year will be made in China – analysis, 2024.

61 G. Sebastian and F. Chimits, 'Made in China' electric vehicles could turn Sino-EU trade on its head, Mercator Institute for China Studies, 2022.

62 G. Sebastian, In the driver's seat: China's electric vehicle makers target Europe, Mercator Institute for China Studies, 2021.

63 B. Galgóczi et al., On the way to electromobility – a green(er) but more unequal future?, European Trade Union Institute, 2023.

sense that it becomes a source of geopolitical tensions with increasing interest for producers to diversify their supply chains. It warns that countries that have benefited from Europe's leadership in the automotive sector will need to get their act together to start producing EVs and ensuring the supply of their components.[64]

The **European Council on Foreign Relations (ECFR)** warns that Chinese EV brands pose serious security issues which the EU and Member State governments must swiftly address. EVs continuously collect significant amounts of data and Chinese EVs in Europe could therefore enable surveillance by the Chinese government. Policymakers need to think about the extent to which and by whom these cars can and cannot be used due to security concerns, and the market needs to be properly regulated before the share of Chinese EVs in Europe has become too large to regulate. A balance should be found between mitigating security risks and maintaining openness to EVs from non-EU countries to advance the green transition.

The ECFR advises the EU and Member State governments to slow down the arrival of Chinese EVs in Europe through revised technical requirements and data transparency rules. Policymakers should then oblige manufacturers to prove that Chinese state authorities are not able to interfere in data processing. EV production in Europe should also be incentivised to boost the availability of non-Chinese EVs in the market. The anti-subsidy probe will not solve the issue; Europeans will have to quickly decide whether they trust Chinese companies to drive the digital and green transition and, if not, what to do about it.[65]

Another report by the ECFR describes 'how Europe should fight the electric vehicle wars'. It likewise emphasises that Europe needs more than tariffs if it wants to prevent overdependence on Chinese EVs. China controls strategic positions at every stage of the EV value chain, from mining raw materials to battery production and final assembly, making it almost indispensable to Europe's green transition. Moreover, Chinese industrial policy will produce overcapacities that could strangle healthy global competition in EV technologies. The report posits that, to reduce China's dominance in the EV industry, Europe needs to de-risk through commercial and industrial cooperation with its partners to friend-shore elements of the EV value chain. It also says that the EU should employ economic security tools such as foreign direct investment (FDI) screening to ensure foreign investors strengthen rather than corrode Europe's industrial base. Financial support is needed for segments where risks are greatest, such as raw materials, and targeted financial incentives can bridge the gap in price differences between Chinese and European or de-risked suppliers. It concludes that Europe should take a broader approach to de-risk from Chinese EVs without harming its green ambitions.[66]

Geopolitical Intelligence Services (GIS) estimates that China's EV subsidies are so multifaceted that the EU probe would have a very hard time disentangling and calculating them. As with Europe's dependence on Russian energy, the EU's dependence on Chinese batteries and other green energy supplies will soon become equally problematic. However, not all EU Member States are equally keen to crack down on trade with China; for example, the German automotive industry sells nearly one-third of its outputs in China. Moreover, Western companies operating in China have been benefiting from Chinese subsidies as well, which will likewise complicate the EU's subsidy investigation. Due to the influence of German car companies that are concerned about potential Chinese retaliation, Berlin may prove to be the largest obstacle to the subsidy probe. France remains a proponent of the investigation, as French car companies have a smaller market share in China. The subsidy probe will

64 A. Garcia Herrero, The Future of Electric Vehicles in Asia, Institute for Emerging Market Studies, 2022.

65 J. Oertel, Security recall: The risk of Chinese electric vehicles in Europe, European Council on Foreign Relations, 2024.

66 T. Gehrke and F. Medunic, High-voltage trade: How Europe should fight the electric vehicle wars, European Council on Foreign Relations, 2023.

buy more time for Europe to promote its own EV producers, while Chinese EV companies will appear in the EU as investors.[67]

The financial consultancy **ARC Group** estimates that tariffs will reduce sales of Chinese EVs in the EU and may prompt Chinese producers to diversify into untapped regions, to focus on the domestic market or to establish production facilities within the EU. Tariffs will increase prices of EVs for consumers and may dampen market demand in the EU, thus posing challenges for the growth of Europe's EV market. Overreliance on tariff protection could furthermore stifle self-improvement and competitiveness among local industries, and worsen relations between China and the EU. To enhance competitiveness, EV producers should increase investment in research and development rather than rely on tariffs.[68]

Estonian think tank the **International Center for Defense and Security (ICDS)** writes that adding tariffs to Chinese EVs will not necessarily make them uncompetitive in Europe as the price difference with European-built EVs is greater. It notes that European carmakers lack incentives compared to the US and China to advance on car electrification projects. European carmakers are furthermore hindered by a legacy of and infrastructure for producing internal combustion engine vehicles, in contrast to China, which has built production facilities from the ground up. It emphasises that the real challenge for Europe is to increase the competitiveness of its EV sector, something which will not be achieved through tariffs against China. What is thus needed is a comprehensive programme to stimulate the development of competitive EV production. If the EU does not act fast enough, 14 million jobs could be at risk.[69]

The **Rhodium Group** similarly warns that tariffs in the 15-30 % range will not be enough to discourage China-based EV producers from exporting to the European market, as their profit margins are large enough to absorb the tariffs; tariffs of 40-50 % or even higher would be needed to make the European market unattractive for Chinese producers. It therefore argues that the EU may need to turn to alternative means to protect the European automotive industry, such as restrictions based on trustworthiness or on environmental or national security-related factors. However, the tariffs could stop European carmakers producing EVs in China from shifting more and more production capacity to China, as they have lower profit margins.[70]

Another Rhodium Group report anticipates that, following tariffs on Chinese EVs, Chinese batteries, heat pumps, wind turbines and many other Chinese green tech industries benefiting from subsidies may become targeted by the EU in the years ahead. The level of success in the EV case could make or break such additional action by the EU. In an extreme scenario, China could respond to the measures by restricting exports of critical minerals that are needed for EV production as well as EV-related components. Such policies could accelerate de-risking efforts in Europe. The report concludes that, while China could take strong countermeasures, it will seek to avoid the escalation of trade tensions with Europe.[71]

MIT Technology Review reports that Chinese competition in the EV market could be the end for well-known European brands like Volkswagen. This could affect not just Germany but also eastern and central European countries where car parts are made. It anticipates that, if geopolitical tensions continue to grow, Chinese EV brands may be pushed out of the European market, forcing Chinese brands to focus on smaller markets like Southeast Asia, South America and the Middle East. On the other hand, the probe could be seen as an invitation for Chinese companies to invest and set up

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67 J. Zhang, The Gordian Knot of China's EV subsidies, Geopolitical Intelligence Services, 2023.

68 ARC Group, EU Implements Tariffs On Chinese Electric Vehicles: Evaluating Impact On Market Dynamics, 2024.

69 T. Andersen, Chinese EVs in Europe: A Threat to European Automakers?, International Centre for Defence and Security, 2023.

70 G. Sebastian, N. Barkin and A. Kratz, Ain't No Duty High Enough, Rhodium Group, 2024.

71 C. Boullenois, A. Kratz and R. Goujon, Opening Salvo: The EU's Electric Vehicle Probe and What Comes Next, Rhodium Group, 2024.

operations in European countries as a way to avoid the tariffs. Other countries with ambitions to produce EVs may follow Europe and impose tariffs on Chinese EV imports, the report concludes.[72]

The Polish **Centre for Eastern Studies (OSW)** writes that France is interested in raising customs duties on Chinese EVs to protect its own industries while Germany fears retaliation against its automotive companies active in China. While France is prepared for a trade dispute, Germany would like to avoid it. However, both Germany and France are interested in increasing subsidies for the transition towards electromobility. They will lobby to raise limits on permitted State aid to attract investments, especially in the field of chips and batteries for EVs, and to bring the level of support closer to that in the US under the Inflation Reduction Act.[73]

The Washington-based **Atlantic Council** warns that leaving Western EV supply chains in the hands of China poses economic and strategic risks. It urges Washington, Brussels and other capitals to engage in a comprehensive and thorough evaluation of the risks associated with Chinese EVs. As exports are rising sharply, policymakers in Washington and Brussels do not have a lot of time to examine the security risks of Chinese EV imports and engage in interim risk mitigation measures before all costs and benefits are properly understood.[74]

Another report by the Atlantic Council states that the EU's tariffs on Chinese EVs are the opening salvo of a longer-term debate on whether Europe should become more or less protectionist and tough on China. The tariffs on SAIC, which is state-owned and has not yet opened a site in Europe, are higher than BYD and Geely, which are private companies that have opened sites in Europe; one purpose of the tariffs is to incentivise Chinese manufacturers to open production sites in Europe. The downsides of tariffs and potential retaliation, namely increased costs and reduced options, will eventually become apparent to consumers.[75]

China Observers in Central and Eastern Europe (CHOICE) reports that more needs to be done than imposing tariffs on Chinese EVs, as this will be ineffective without also addressing the competitiveness of European producers. Chinese carmakers can build an EV for approximately €10 000 less than European carmakers. Europe's limited supply of raw materials needed for the production of batteries, in contrast to China's significant control of the global supply chain, gives China the upper hand in affordability of and innovation in EV batteries. Anti-subsidy tariffs will not increase European competitiveness and will make EVs more expensive. The EU should focus on making the production of EVs in Europe more efficient and less costly, not on pushing out competition with China.[76]

The **Wilfried Martens Centre for European Studies** also warns that, even if tariffs are implemented, Chinese EVs will still be cheaper than European EVs. Europe suffers from high labour costs, volatile energy prices and mounting regulatory requirements. The Green Deal and Europe's industrial policy should be recalibrated to boost European growth and mobilise large-scale private investment. With the probe, the EU is at least finally moving away from its naivety towards China.[77]

The **European Union Institute for Security Studies (EUISS)** estimates that tariffs will push Chinese EV producers to build EV factories in the EU. Tariffs will also buy more time for European producers to start producing more EVs. As other countries have already imposed tariffs, the EU must follow as

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72 Z. Yang, Europe is about to crack down on Chinese electric cars, MIT Technology Review, 2023.

73 K. Popławski, The Franco-German dispute over China's electric vehicle expansion in the EU, Centre for Eastern Studies, 2023.

74 J. Webster, China has become an electric vehicle export behemoth. How should the US and EU respond?, Atlantic Council, 2024.

75 Atlantic Council, Europe is gearing up to hit Chinese EVs with new tariffs. Here's why, 2024.

76 V. Sabelová, EU Moves to Address the Chinese EV Subsidies, But More Needs to Be Done, China Observers in Central and Eastern Europe, 2023.

77 D. Lilkov, Who's Afraid of Chinese Electric Vehicles and Clean Tech?, Wilfried Martens Centre for European Studies, 2023.

it would otherwise become the central destination for China's overcapacity. While the EU should protect its firms against unfair Chinese competition, protective measures must not lead to complacency on the side of industry. Innovation and the production of good and affordable products are the only ways in which EU industries can lead the way in green technologies.[78]

The **Centre for Strategic and International Studies (CSIS)** reports that the tariffs on Chinese EVs are unlikely to reduce imports significantly. Even with the tariffs, BYD would still generate higher EV profits in the EU than in China. Chinese carmakers are also expected to accelerate their expansion of European manufacturing in response to the tariffs. The tariffs could elevate EV prices in Europe and reduce demand, while China could respond with retaliatory tariffs on European cars and other goods. Beijing has threatened to target areas like food, agriculture and aviation as well as cars, and already announced an anti-dumping investigation into European liquor in January 2024 which is expected to affect French cognac. The EU's measures allow access to and competition with low-cost Chinese technologies. It remains to be seen whether the EU can find a balance between starting a trade war and failing to stop the flood of low-cost imports from BYD and others.

Economic and financial analysis platform **ING THINK** writes that, while tariffs that the EU plans to impose on EVs from China could slow down the bloc's decarbonisation goals, it is unlikely to slow down China's EV exports to Europe. The tariffs will not stop the growth of Chinese brands in Europe but will promote the localisation of EV manufacturing in Europe. Hybrids are omitted from the tariffs, so Chinese brands may choose to ship more hybrids to Europe. The tariffs could also give European carmakers more time to develop their value chains and produce cheaper and better EVs. However, China will likely respond with tariffs that will raise trade barriers between the EU and China.[79]

The **Bertelsmann Stiftung** reports that the EV tariffs adopted by other countries, including the US, Turkey and Brazil, will direct more of China's overcapacity exports in this field to Europe. If permanent tariffs are imposed on Chinese EVs, this needs to be further substantiated by additional measures to promote competitiveness of production at home, as Chinese brands will remain competitive even with the tariffs. Such measures could include tax relief, support for R&D, local content requirements in public procurement, ESG requirements and reducing energy prices. China's reaction to the tariffs will probably remain limited as it is motivated to prevent another round of counter-sanctions or a trade war with the EU. The most likely target will be agricultural products, especially from France and Spain.[80]

[78] J. Teer and L. Trakimavičius, Here is how to Protect the EU against Chinese Electric Vehicles and Wind Energy, European Union Institute for Security Studies, 2024.

[79] E. Manthey and R. Luman, What EU tariffs on Chinese electric vehicles could mean for the energy transition, ING THINK, 2024.

[80] C. Jungbluth, Electric Vehicle Tariffs: The EU's 'Made in China' Predicament, Bertelsmann Stiftung, 2024.

Table 1 – Summary of stakeholder and expert views

Assertion	**Shared by expert institution**
Tariffs are not enough to protect EU competitiveness in this field; investment and/or other measures are needed	ARC Group, T&E, ECFR, ICDS, Rhodium Group, CHOICE, Martens Centre, EUISS, CSIS, ING THINK, Bertelsmann Stiftung
The tariffs may serve to attract Chinese investment into the EU	MIT Technology Review, Atlantic Council, EUISS, ING THINK
Tariffs will help EU producers buy time in their shift towards EVs	GIS, EUISS, ING THINK
The EU needs a stronger industrial policy to support European EV production	Elcano Royal Institute, Bruegel, T&E
The EU-China automotive trade flow risks being reversed	ABI Research, MERICS
China wants to avoid escalation of trade tensions with the EU	Rhodium Group, Bertelsmann Stiftung
Chinese EVs pose serious cyber security risks	ECFR
The EU may target other Chinese green technologies following EVs	Rhodium Group

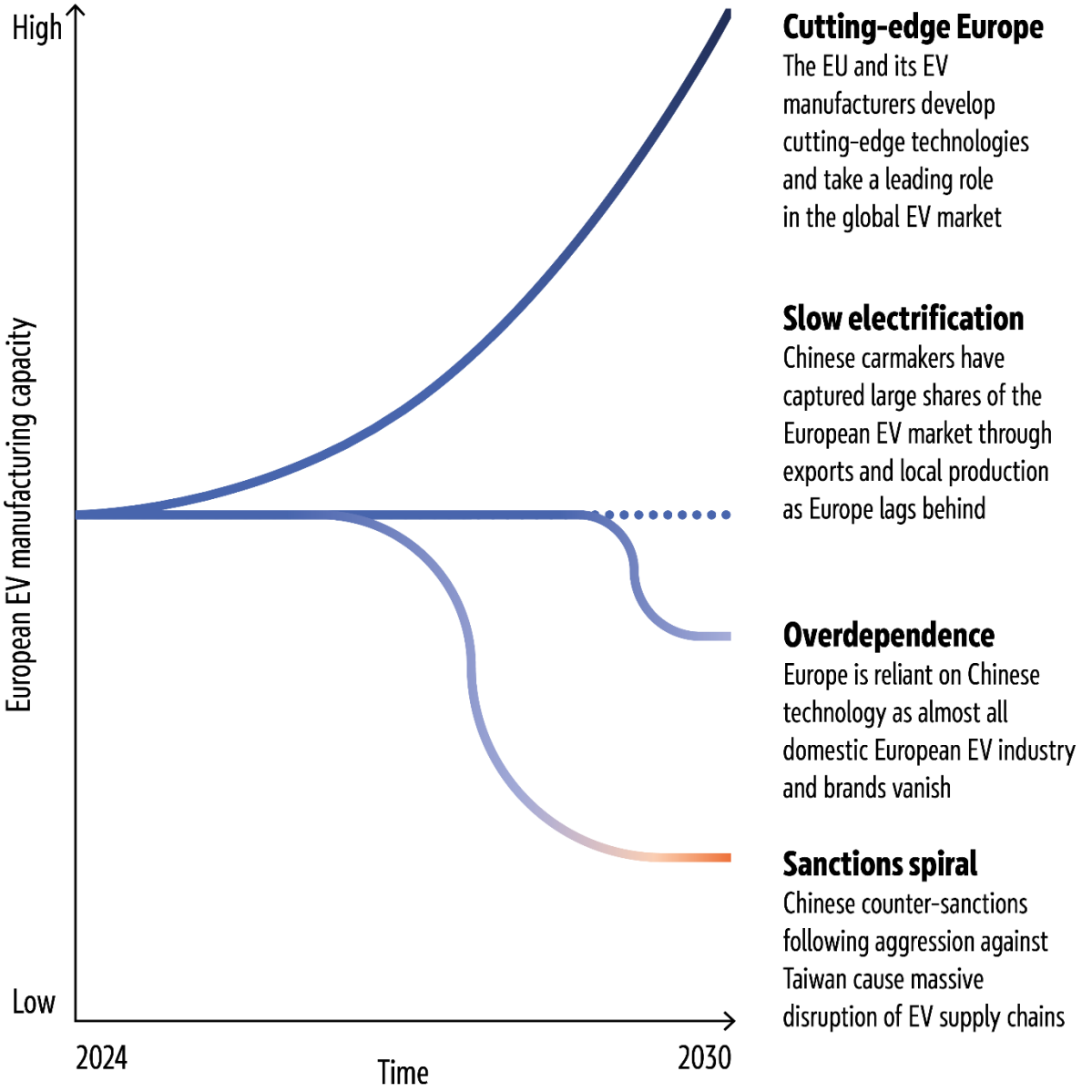
Source: EPRS.

Scenarios for 2030

Overview

Four scenarios for 2030 were developed based on the survey input from 10 policy experts on the European electric vehicle industry. The survey was conducted in June and July 2024 and the policy experts surveyed were selected from among the stakeholders and experts that authored the works summarised above. The 'cutting-edge Europe', 'overdependence' and 'slow electrification' scenarios were formulated based on their hopes, fears and expectations for the industry by 2030. A final 'sanctions spiral' scenario was based on potential wildcard events suggested by the policy experts. Here, most policy experts underscored elements of a scenario in which Chinese hostilities against Taiwan led to a severing of EV supply chains with China. Figure 2 provides an overview of the four scenarios.

Figure 2 – European EV scenarios for 2030



Source: EPRS.

Cutting-edge Europe scenario

Situation

In the cutting-edge Europe scenario for 2030, EU institutions and national governments of the main car-producing EU Member States manage to develop a multifaceted strategic policy approach, outlined below, to better stimulate the development of domestic EV production capabilities. As a result, Europe's automotive manufacturers have re-shored some of their EV production capabilities back to the continent and are able to offer cost-competitive EVs that increasingly rely more on locally manufactured technologies, including batteries. Europe's EV industry is capable of building and selling cars in Europe with the same or better quality and price as their Chinese competitors and which are significantly cheaper than internal combustion engine cars. The EU and its EV manufacturers are able to develop leading technologies and acquire a leading role in the global EV market. This contributes to the green transition and creates industrial manufacturing jobs in the EU. European carmakers not only meet and comply with their target of reducing CO_2 emissions from new cars by 55 % but they exceed these targets by bringing more affordable models to the market. Most carmakers stick to their previously announced voluntary targets to electrify, so that EV sales in 2030 are between 60 % and 80 % of total sales.

European carmakers compete on an equal footing with Chinese and other brands from third countries on the European market and in international markets. They have adapted to competition after a transition period and increased their competitiveness, including through technology transfers from Chinese EV makers which have come to produce in Europe. Close to 50 % of Chinese electric cars sold in Europe are produced on European soil; European automotive manufacturers retain a market share of close to 60 %. Both American and Chinese EV producers are well established as local manufacturers in the EU and also account for a large share of EVs sold in the EU, making the EV industry highly competitive and internationally integrated. A variety of manufacturers produce EVs in various European countries, relying on a supply chain that is heavily concentrated and largely located in Europe.

How things unfolded

Europe used a well-coordinated mix of trade defence instruments and other measures at EU and national levels, including: import tariffs on those EVs subsidised overseas;, positive incentives for manufacturing, such as corporate subsidies and tax reliefs; buyer incentives; market regulation; local content requirements in public procurement, such as in the electrification of public transport; environmental, social and governance (ESG) requirements for supply chains; and continued support for the energy transition. The EU's strategy for EVs included large-scale investment in research, innovation and charging stations. The EU also set a target to fully electrify European corporate fleet sales by 2030.

This caused a change in the mind-set of European automotive CEOs and boards from fear and lobbying for protection to a determination to produce high-quality EVs at far lower cost than previously. Automotive manufacturers were willing and able to produce a series of entry-level EVs that are cost competitive vis-à-vis Chinese EVs and did not merely focus on premium EVs, which carry higher profit margins, as they had in the early 2020s. European low-cost EVs made electrification affordable to all, the production of which was promoted through policy incentives.

The EU market remained open to Chinese competition both through imports and FDI. Chinese EV companies were allowed to invest in Europe through joint ventures and Chinese EV companies were obliged to draw from local European suppliers and share technologies. FDI screening and regulation of foreign subsidies made sure that Chinese investments into Europe served the EU's industrial base. The EU encouraged inward FDI from both the US and China and maintained low tariffs on the import of EVs and batteries, retaining only those that can be justified by overseas subsidies.

The international order

In this scenario, the global order consists of multiple blocs with different standards and regulations. The EU has successfully positioned itself next to the US and China as the world's third major bloc. It is a strong geopolitical player that speaks with one voice and asserts its interests vis-à-vis China and the US. To be able to compete in fragmented markets, companies have to localise production and supply chains, which causes FDI to skyrocket.

There is no trade war with China and dialogue with the US is smooth, with tensions around the IRA resolved and with the WTO experiencing a revival. The global order has become more cooperative. EU-China dialogue progresses, economic security is less of a concern, and the WTO is reinvigorated as a renewed global economic governance institution. The WTO continues to operate and the EU and all other major economies observe and follow WTO rules.

Overdependence scenario

Situation

In the overdependence scenario for 2030, Europe is entirely reliant on Chinese technology with no domestic European EV industry to speak of. Since the mid-2020s, Europe's energy transition has slowed down as a result of dwindling public financial support in an economic crisis and the need to further provide weapons to Ukraine and re-build Ukraine after the victory against Russia. As a result, Europe's EV industry entirely depends on foreign supply chains; significant parts of the production of EVs and EV value chain activities are located in regions outside the EU. European EV brands have become nearly extinct, with just a few surviving in the premium segment. For Chinese carmakers, Europe has become the most important export market, with Chinese EVs accounting for 80 % of the EU's EV imports. This creates substantial new dependencies for the EU's green transition, which China uses at will to achieve its policy goals.

European manufacturers continue to delay and hold back supply of affordable EVs in order to maximise sales of profitable SUVs. This dynamic delayed the transition for the European EV industry and ceded market share to Chinese and other manufacturers, with detrimental impacts for Europe's industrial and social fabric. Tens of thousands of workers and engineers in the automotive sector and ancillary industries were laid off, and Europe closed down a good part of its industrial base. In what were once Europe's economic powerhouses, social costs rose while tax revenues shrank.

In response to public opinion, EU Member States adopted a reduced multiannual financial framework, leading to cuts in the EU budget for investment in research and future technologies. EU manufacturers missed their 2030 decarbonisation targets and preferred to pay fines, publicly calling for the rolling back of targets. European carmakers failed to undergo the necessary transition to compete with Chinese EVs, also due to distorted competition, as China exported its non-market system to Europe. Societal pushback is demonstrated by widespread protests against the EV transition.

Concerns over economic competition slowed down electrification. The 2024 tariffs against Chinese EVs established a false sense of security for European automotive manufacturers, who therefore did not upgrade the quality of their vehicles or lower their prices. High prices for low-quality European EVs meant that consumers stuck with internal combustion engine vehicles, as was the case in the US. Moreover, Europeans did not want to buy EVs as there were not enough charging stations. As a result, Europe's automotive industry is completely decimated, with European EV manufacturers being wiped out by Chinese and American competition. China and the US dominate the market and nationalism in the EU makes it impossible to implement an effective common European industrial policy.

How things unfolded

Against the backdrop of a trade war with China and US isolationism, the dependency of some EU producers on the Chinese market posed a barrier to developing relevant policy responses at EU and national levels. Instead, some Member States preferred to develop 'privileged' trade relations with the two dominant powers, and some sought exemptions from or ignored their contribution to achieving the Paris Climate Agreement goals, but together they failed to develop a long-term vision of economic security. A lack of European unity, lack of resolve in pushing forward the energy transition, lack of budgetary means and lack of vision on economic security caused this situation, as well as Europe's inability to do long-term industrial planning and unwillingness to step up its EV ambitions. In addition to this, manufacturers' determination to transition towards EVs was further undermined by speculation around a potential delay to the electrification of the transportation sector and hopes that the internal combustion engine phase-out and linked transition costs could be delayed. New political decisions rolled back on longer-term CO_2 targets for carmakers and called off the 2035 date for de facto full electrification of new car sales.

The EU failed to protect the EV industry effectively against Chinese non-market practices. This was mainly due to Member States' lack of unity and long-term strategic thinking. Short-term national and sectoral interests dominated decision-making, with Member States and large corporations vying for special treatment from China. The EU was not able to deploy its overhauled toolbox, which was thus degraded to a 'paper tiger'. EU policies to attract or manage foreign investments were not united, and there was no genuine EU industrial policy focus on strengthening key aspects of the EV value chain. The EU also lost its once leading role as a standard maker and increasingly became a standard taker.

The international order

The US and China are the dominant economic powers and the EU is no longer a strong global actor. The US and China are locked into permanent rivalry and develop an increasingly strident 'my country first' mentality. Each superpower uses any available means to draw third states closer and position them as representatives of its interests vis-à-vis its rival. Trade regions are fragmented and global trade conflicts are becoming more intense. The EU's economy is not capable of producing European champions. European countries must rely on the US and China to build critical infrastructure and are thus completely dependent on the superpowers.

There is a trade war with China, as a result of which imports of Chinese electric vehicles are blocked and EVs become substantially more expensive in the EU, so their market penetration is slow and the fight against climate change is substantially delayed. The trade war with China starts with EVs but soon extends to other areas. There is also a trade war between the EU and the US. The US turns isolationist while China turns more aggressive towards the EU, which causes tensions to increase. Trade between the EU and the US on the one hand and China on the other has been reduced considerably; the result is fragmentation and the prevalence of hostile trade blocks.

The WTO has become completely ineffective. Multilateral structures such as the UN and WTO, built up over decades, are in danger of collapsing altogether. WTO rules erode and lose relevance as the EU, the US and China do not abide by its rules, and international cooperation collapses. There is a lack of European and foreign direct investment in industrial policy and EVs. The EU is so fragmented that it does not reach agreements to support the industry; coming to an agreement becomes more onerous because Member States value loyalty to themselves and the two superpowers over European unity. The EU is even at risk of disintegrating.

Slow electrification scenario

Situation

In the slow electrification scenario for 2030, tariffs have risen and widened on Chinese EVs and inputs like batteries. Chinese FDI in the EU and its neighbourhood has risen in an attempt to avoid tariffs, and there are more conditions placed on these investments to support the EU industrial base. Chinese carmakers have captured large shares of the European EV market through exports and local production, the latter having significantly increased in importance. China has a 25 % share of the EU's EV market but with much of this share manufactured inside Europe. There will be an increase in Chinese investment in the European green sector, joint ventures and licensing deals in the EV, battery and other segments of the supply chain in Europe and close trading partners. This integrates European companies further with Chinese ones, which could bring technological and cost advantages but could also present some security risks. Some European carmakers have been able to undergo necessary transition and adaptation and are able to compete with Chinese and US carmakers in terms of technology, innovation and customer experience. Others have been squeezed out of the market.

By 2030, European industry is capable of producing good EVs at a reasonable price. As the EV market took off from 2025, as new CO_2 targets kicked in, carmakers brought to market more affordable models below €25 000. Most models have reached price parity with internal combustion engine equivalents due to more efficient manufacturing processes and falling battery prices. This led to growing consumer acceptance, also as range and charging ceased to be issues.

European industry is able to adapt to the EV revolution but it is lagging behind American and Chinese producers. European manufacturers account for roughly 40 % of the market while the rest is taken up by American and Chinese cars. EV sales in Europe follow what is required by mandatory CO_2 targets for carmakers, which are equal to 55–60 %. There are large differences across Member States concerning the level of penetration of EVs.

How things unfolded

The increased FDI, which is a positive trend, was the result of careful use of tariffs and political negotiations with China. The EU's policy was characterised by a strategy of either doing 'business as usual' or the attempt to somehow 'muddle through' and pursue half-hearted policies without any radical steps. This was despite the fact that extraordinary times require extraordinary decisions and that Europe's carmakers have never faced a more pressing deadline.

The EU continued to apply tariffs against Chinese imports at a reasonable level and it continued to allow FDI by Chinese EV manufacturers, both of which were important to provide sufficient incentives to European producers to improve the quality and price of their EVs. There is still not enough investment in EVs at national and European levels and there is still a consumer backlash against EVs given their high prices and the lack of effective purchase subsidies.

The EU imposed countervailing duties on Chinese imports for a period of 5 years, but only hesitantly took adequate additional measures to strengthen the EU as a business location and to incentivise European carmakers to make effective use of this period to increase their competitiveness. Measures were mostly taken for security reasons (not to increase competitiveness), as the awareness of China as a security threat had substantially increased in Europe. Therefore, the EU followed to some degree the trend towards national security evident in the US, banning some

Chinese products, also along EV supply chains, from the European market. This included requiring more local content in strategic and critical sectors, and not always sticking to WTO rules.

The international order

In this scenario, great power rivalry and economic security continue to dominate the international economic agenda. The Western democracies (the US, the EU, and their partners) confront an authoritarian power bloc led by China's one-party state. In 2030, relations are less friendly than before, with less trade between the G7 countries and China but not a complete breakdown of relations nor a complete ignorance of multilateral rules. There is an increasingly isolationist US, and tense but stable Sino-European relations. There is fragmentation of the global economy, new trade barriers and deglobalisation, which affects the EV sector.

The EU remains a powerful economic actor with a decent automobile industry, capable of exporting cars. China and the US implement strategic industrial- and trade-policy measures to facilitate the transition of their domestic automotive sectors to EV production. As others follow, government intervention in the automotive industry becomes a global trend.

Sanctions spiral scenario

Situation

In the sanctions spiral scenario for 2030, China responds to a speech by the Taiwanese president referring to Taiwan as being independent by invading and capturing Taiwan's Kinmen Islands off the coast of China. The US responds by putting its Pacific fleet on high alert and by implementing massive economic sanctions against China. The EU responds with more selective economic sanctions targeting China's high tech sectors. China responds to the European sanctions with counter-sanctions blocking the export of EV batteries, components and critical raw materials needed for the production of EVs. In a matter of weeks, European EV production grinds to a halt. China refuses to relinquish the islands in the following years despite the huge economic toll that the sanctions are taking. Many European EV producers gradually go bankrupt as EU relief funds do not suffice to keep them afloat. Due to a lack of EVs, the green transition is delayed.

How things unfolded

The situation is the result of decades of built-up tensions erupting into military aggression due to a final provocation crossing a red line. Chinese Communist Party anxiety about Taiwan slipping away provided the necessary determination to counter talk of independence with military aggression. The occupation of the Kinmen Islands was a sufficiently high threshold for the EU to overcome divisions and to follow the US in implementing sanctions. As this could not remain unanswered in Beijing, Chinese leaders decided to target European EV supply chains in an effort to punish Europe but not further escalate tensions.

The international order

As China maintains its occupation of the Kinmen Islands, the US and Chinese militaries remain in a stand-off. In the years to follow it could only take one more incident for the nations to be at war. The sanctions exchanged between China, the US and the EU cause a major global recession. Russia supports China and after the Kinmen invasion they form a formal military alliance against NATO, the other major power bloc in the world. The result is a cold war between authoritarian and democratic nations across the world that could erupt into a hot war at any moment.

Policy considerations

Which of the above scenarios is most likely to happen in the future depends on how well European policymakers and corporations are able to develop and safeguard European EV manufacturing capabilities in competition and cooperation with foreign producers. The key challenge will be to prevent more domestic European producers from moving production capacity to China while encouraging Chinese and other foreign producers to set up EV production facilities in Europe and share their technologies. Considerations on how to enhance European EV capacities could follow the European economic security strategy's priorities, namely to promote, protect and partner.[81]

Promote: As noted by experts, the EU could promote EV production within Europe through a Clean Industrial Act that subsidises and stimulates European EV manufacturing. President von der Leyen pledged to introduce a 'Clean Industrial Deal' early in her second mandate to help Europe decarbonise, industrialise and 'create lead markets in everything from clean steel to clean tech'.[82] Mario Draghi also called for an EU industrial plan for the European automotive sector.[83] Such initiatives could include measures to bring more EV and EV battery manufacturing to Europe. One positive measure would be to tie purchase subsidies for EVs to local manufacturing requirements to avoid subsidising foreign-made vehicles; the EU could particularly promote the production of small and affordable entry-level EVs. Another challenge will be to help attract Chinese investment into Europe while ensuring that those investments build up rather than erode the European EV ecosystem, through, for instance, local content requirements for Chinese manufacturers in Europe.[84] Use of the foreign subsidies regulation, use of subsidies, extending tariffs to imports of EV components and other regulations concerning Chinese investment could help ensure that Chinese technologies are shared, local content is used, local jobs are created and cybersecurity risks are managed.[85] EU efforts should furthermore promote the de-risking and diversification of EV battery, component and critical raw material supply chains to decrease Europe's dependence on China, as such dependencies can easily become weaponised. This pillar builds on existing EU initiatives that serve to enhance investment in its green and digital transition, such as NextGenerationEU and the Chips, Critical Raw Materials and Net Zero Industry Acts.

Protect: Trade defence instruments including anti-subsidy tariffs and other measures could help shield European EV manufacturers from unfair competition and cybersecurity threats. Protecting Europe's EV industry can be achieved through better deployment of existing trade defence instruments, including the foreign subsidies regulation, FDI screening regulation and cybersecurity measures such as the EU risk assessment of connected vehicles.[86]

Partner: Partnering with countries such as the US, Japan, India and South Korea will be necessary to enhance the opportunities for European EV manufacturers. Such cooperation should involve countries that share the same concerns to enhance cooperation on economic security, resilient and sustainable supply chains, and an international rules-based economic order. This would, for instance, be done through enhancing and finalising free trade agreements, Global Gateway investments, the trade and technology councils with the US and India, high-level economic dialogue with Japan, and multilateral cooperation. Partners could help with de-risking and diversifying European EV supply chains and attracting foreign investment, expertise and collaboration in this sector.

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The European electric vehicle (EV) industry is facing fierce competition from China. The question is what this will mean for the future of European EVs.

This paper provides an overview of EU-China competition in this industry and presents four scenarios for the future of European EVs by 2030. Will European EVs survive, thrive or perish in the face of Chinese competition and other challenges?

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