

1. Articles



Geopolitics and electric vehicles: the rise of climate protectionism

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The electric vehicle (EV) revolution is not just a technological shift; it's a geopolitical earthquake. This article understands automobility as a crucial pillar of contemporary capitalist societies, locking the economy and society into mass car production and use. It analyses the escalating tensions surrounding EV production, focusing on the rise of China as the dominant force in the global EV market, critical mineral supply chains, and battery manufacturing. China's ascendancy presents significant challenges for European automakers striving to compete. Simultaneously, the United States adopted, under the presidency of Joe Biden, increasingly protectionist measures to bolster its domestic EV industry. This confluence of factors creates a complex geopolitical landscape, marked by competition for resources, technological rivalry, and trade disputes. Perhaps the only certainty is that the global automotive industry beyond the transition to electric mobility will be very different from the one that went into it.

Towards climate protectionism in a turbulent world

Whatever role cars eventually play in the future of mobility, it is generally agreed, at least among those recognising climate change as a real threat, that automobility needs to be electrified if we are to meet ever more stringent emissions reduction targets. However, this transition poses wider geopolitical dynamics that make electrification particularly complex. Incumbent carmakers are facing sharp challenges as they switch to electric vehicle (EV) production, especially as the supply chain is notably different and heavily dominated by Chinese state-sponsored companies. This is consequently raising concerns about economic security and protectionism in Western politics. In a conference in 2013 and in light of the environmental crisis and eventual shortage of oil, sociologist John Urry imagined two possible future scenarios in mobility: "local sustainability" and "regional warlordism" (Urban Age Electric City, 2013). The former would consist of a more localised, self-sufficient and austere way of life, due to the limitations imposed by the end of fossil fuels and internal combustion engine vehicles (ICEVs) – a scenario that, aside from austerity, resembles the "15-minute city" concept. Regional Warlordism, by contrast, is a dystopian future in which access to energy sources would become more uneven, causing armed conflicts, thus leading to disruptions in mobilities. Interestingly, the new times we are facing seem to present a hybrid of these scenarios that we might name "climate protectionism". This third scenario captures the sense that the global community has finally accepted the existential threat arising from doing little about greenhouse gas emissions, but with some irony, although we are 'all in this together', the economic reaction is to compete to dominate the industries that might offer a way out of the environmental crisis.

Events like the Covid-19 pandemic, the War in Ukraine, tensions with China and, more generally, the ecological crisis and competition for scarce minerals and fossil fuels such as lithium and natural gas are some of the most conspicuous elements on the new international stage on which scenes of growing economic protectionism are being enacted. Importantly, these shocks and tensions have deep economic implications. From a historical perspective we know that crises (whether economic, political or environmental) and wars usually result in fundamental and significant changes to the global economy. State interventionism during WWII was a precursor of subsequent Keynesian policies in post-war welfare states. Focusing on recent events, a piece in the Financial Times (Haldane, 2023) celebrated the growing militarisation taking place as a consequence of the War in Ukraine as good news, as it is seen as making Western countries economically more resilient. The EU is taking this seriously and believes that much higher military spending is needed, driven not only by concerns about the ongoing war in Ukraine (Hancock and Tamma, 2024) but also the potential destabilisation of NATO following the re-election of Donald Trump on November 2024 (Chazan and Jones, 2024).

It is in this context of geopolitical frictions that we need to assess the current transition towards electric vehicles (EVs) in the West. This transition can only be understood as part of wider processes of sociopolitical and economic restructuring; it takes place within a more or less coherent and wider strategy initiated by the 'West' that is being labelled the "Green New Deal" and which, among other things, strives to develop a higher level of economic and national security/resilience through an on-shoring of the supply-chain.

When environmentalism collides with geopolitics

In Europe the pure-ICE phase out dates are led by Norway (2025). The EU has committed to interim targets with a final date of 2035. Sales of pure EVs rose to 14.6 % in 2023 (ACEA, 2024) but in 2024 the trend reversed, as the share of battery electric vehicles fell to 13.6%, with total car registrations increasing by 0.8% (ACEA, 2025). In the UK, battery-only EVs fared better. The new government elected in 2024 committed to return the end-date for ICEs, softened by the previous administration, to 2030. However, although EV market share (19.6%) in 2024 was three percentage points higher than in 2023 (SMMT, 2025), the first annual target (22%) of the Government's 'Zero Emission Mandate' was not achieved. The target for 2025 (28%) was looking challenging.

In contrast to the EU and UK where the policy of progressive substitution of ICEVs by EVs continues to receive official backing, Trump has already cancelled Biden's executive order mandating that 50% of new vehicles sold in 2030 be electric (Noor and Pengelly, 2025). He also called for the elimination of allegedly unfair subsidies that prioritise EVs over other technologies (Financial Times, 2025). Trump's stance on international trade policy is also expected to increase global tensions (Jolly, 2025). Supply-chain issues could become even more important if new US tariffs challenge the rise in offshoring production to south and east Asia. The fact that this strategy is not just a mere economic restructuring was expressed by Joanna Szychowska (head of the EU Commission's Automotive and Mobility Industries Unit) who in an interview with the scholar Thea Riofrancos said that onshoring a supply-chain is "as much an economic project as political" (Riofrancos, 2023, p. 33).

It is thus not a coincidence that in October the European Commission finally enforced tariffs on EVs imported from China. Similarly, it is no coincidence that the mastermind behind the Inflation Reduction Act (IRA) – the flagship of Biden's administration to on-shore the supply-chain for a green economy through subsidies and protectionist policies, at risk under Trump's government – was the national security adviser to the president, Jake Sullivan. According to the historian Grey Anderson, "for its conceptors, the logic governing the new era of infrastructure spending is fundamentally geopolitical" (Anderson, 2023).

The impossible balance between local consumption and global production

So then, what is at stake in this electric transition? The real challenge for the European auto industry – as it moves from targeting early adopters to the mass market – lies in manufacturing affordable EVs, defined in terms of proximity to ICEV equivalent prices, as the industry has always relied upon its commodities being consumed by the working and middle classes (Campbell, 2023a). And in this respect Europe may have made the commitment but has started late and is 'playing catch-up'. The tariffs it has imposed on EVs produced in China reflect the policy conflict between wanting to transition fast, but not having restructured the 'domestic' auto-sector quickly enough. Hence, the tariffs (variable, but maximum 45%) are much lower than the across-the-board 100% imposed by the US and Canada, leading some commentators to suggest they can at least in part be absorbed by a Chinese auto industry desperate to export but 'shut out' of North America (Blenkinsop, 2024). Nonetheless, the EU tariff policy still lacked political support from all member states (IISS, 2024), due in Germany to concern about retaliation on its auto exports, whilst some other states were concerned for other commodities (Demarais, 2024).

At the centre of the growing trade dispute is the view that the Chinese 'electrification miracle' reflects extensive direct and indirect subsidies. Financial support, alongside many years of long-term industrial planning, have made China the biggest producer and consumer of a genuine range of EV types through on-shoring its supply-chain – a rather impressive achievement, considering the country was far from being a traditional car manufacturer. For instance, as the graphic below shows, in 2023 nearly 60% of worldwide refined lithium – needed to manufacture electric batteries – is processed in China (United Nations Conference on Trade and Development, 2024). Its electric battery production capacity is higher than the rest of the world's combined – about 75% of global capacity (BloombergNEF, 2022) and Chinese company CATL produces around 37% of all world batteries (Kang, 2024).

Sources : UNCTAD, OEC

Not only that: some experts forecast that Chinese battery producers might dominate the European market by the beginning of the next decade (Dempsey and Campbell, 2022) - though Chinese players have been dealing with overcapacity issues due to global slowing in demand for EVs in the last year (Li, Inagaki and Dempsey, 2024). This is consequently seen as a threat to the EU's independence and resilience. While the US is decidedly shifting towards decoupling from China through aggressive protectionist policies, Europe seems forced to accept some level of dependence: September 2024 saw flagship European projects such as the Swedish Northvolt in major financial difficulties (Bryant, 2024), with particular implications for the German car industry, whilst CATL is expected to become the largest battery producer in Europe by 2030, when around 44% of gigafactories in Europe would be owned by Chinese capital (Waldersee, 2023). Ironically, all the claims and narratives about protecting local industry do not hinder agreements between Stellantis and CATL to build new gigafactories in Europe (Campbell, 2023b), a further sign of the tension between producing affordable EVs and breaking away from Chinese imports and investment. Moreover, Volkswagen announced in October it plans to close three factories in Germany; the company has never closed any factories on its national territory in its 87-year history (Inagaki and Nilsson, 2024).

Turbulence and uncertainty in the age of electrification

The situation in the automotive industry is however very dynamic and subject to change. A technological breakthrough like the development of solid-state batteries would lengthen the driving range for a given size and weight of battery, and cut charging times. But it is Japan's Toyota that is thought to hold most of the patents for solid-state batteries (Pollard, 2024). Commercialising the technology would revolutionise the current state of affairs in the industry, as the dominance of the battery market could shift from its current leaders: BYD, CATL and Tesla (Inagaki et al., 2023).

A disruptive alternative beyond green automobility - where public and active mobility would be predominant instead of private cars - is suggested as a solution by some scholars, activists and politicians (Morgan, 2020; Freemark et al., 2022; Riofrancos et al., 2023). Though the environmental effects of such a change can be assumed to be positive, the proposal encounters some serious problems. First, locked-in car geographies have made automobiles effectively a necessity until such times the spatio-connectivity reality is changed. Riofrancos et al. (2023), in their proposal to reduce lithium-dependency and foster public and active transport, suggest that the proportion of the US population living in low-density areas (mainly suburbs) would need to shift from 62% currently to 10%, through focussing the future population in medium-density areas (cities). However, this is to imply massive migration, which seems unrealistic as a matter of public policy in a democratic country, except over a very long term and with a strong and inflexible strategic planning framework, highly unlikely in a US that despite raising barriers to the outside, emphasises deregulation at home.

And second, the auto industry is a strategic sector critical to both employment and GDP. If most Western governments have already set a decarbonisation agenda that mainly consists in a transition to EVs, this is because threatening the profitability of carmakers and their supporting industries is such a political and economic risk. Several carmakers seem confident that Western governments will, despite current policy stances to the contrary, postpone decarbonisation targets if concerns about market share and profits continue to grow (Campbell, 2024).

In any case, even with policy adjustments, it seems likely that not all the carmakers that dominated the market in the past century will survive the turbulence, at least in the form we have known them. More generally, as 'socio-technical' transitions are not independent from socioeconomic and political processes, then a concrete understanding of the global situation, combined with reference to the relevant foreign and industrial, as well as transport and climate change policies, is key for researchers to comprehend how the electric transition in transport might evolve.

**The authors, at the Centre for Transport & Society, UWE Bristol, are currently researching the possible scenarios for an electric transition in the UK and the EU through an approach seeking to understand the reality of the multiple actors who shape the system of automobility.*

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Mobility

For the Mobile Lives Forum, mobility is understood as the process of how individuals travel across distances in order to deploy through time and space the activities that make up their lifestyles. These travel practices are embedded in socio-technical systems, produced by transport and communication industries and techniques, and by normative discourses on these practices, with considerable social, environmental and spatial impacts.

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Active Mobility

Active mobility refers to all forms of travel that require human energy (i.e. non-motor) and the physical effort of the person moving. Active mobility occurs via modes themselves referred to as "active," namely walking and cycling.

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