Brexit and electro-automotive in the EU

By the conceptual team of Global Arena Research Institute

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"Working and conceptual papers" are analytical reviews of existing resources, including academic literature, think tank analyses, and inputs from formal institutions such as the World Bank, European Commission, and OECD. They are not intended to present original research but rather to build a background for developing research concepts used in data-driven analytics. Originally intended as internal working material, these papers are published when they are deemed to be of broader public interest. This paper is part of a series of "conceptual papers" produced as part of a project supported by the International Visegrad Fund and Konrad Adenauer Stiftung in Prague.

Introduction

The UK had long been expecting to exit from the EU since 1975, when the nation held a referendum on the question: " Do you think the UK should stay in the European Community (Common Market)? Majority of the voters were in favour of the nation staying and the centre-left Party split over the issue with the pro-Europe wing forming the Social Democratic Party.

In the interests of protecting Britain's financial sector, David Cameron became the first UK prime minister to veto a EU treaty in 2011. In May 2015, Cameron started renegotiating the UK-EU relationship, including changes in migrant welfare payments, financial safeguards and easier ways for Britain to block EU regulations. In February 2016, he announced the results of those negotiations, and set June 23 as the date of the promised referendum. On the referendum scheduled date, the majority voted in favour of leaving the European Union.

On 29 March 2017,Prime Minister Theresa May formally triggered Article 50 and began the two-year countdown to the UK formally leaving the EU (commonly known as 'Brexit'). However, on March 30, 2019, Parliament rejected May's EU withdrawal agreement and set a new deadline of October 31, 2019. On 19 October 2019, the Prime Minister's new Brexit deal was lost on amendment in the Commons. In accordance with the European Union (Withdrawal) (No. 2) Act 2019 – commonly known as the 'Benn Act' – the Prime Minister wrote to European Council president Donald Tusk, to request an extension to the Brexit process. On 28 October 2019, EU Ambassadors agreed a further Brexit extension to 31 January 2020.

On 23 January 2020, the European Union (Withdrawal Agreement) Act 2020 received Royal Assent. This is the legislation that will implement the withdrawal agreement negotiated by the UK and the EU. At 11pm on 31 January 2020, the UK left the EU and entered a transition period during which the UK continued to follow EU rules while the two sides negotiated their future relationship. During this transition period, the Uk agreed to settle its financial obligations to the EU, estimated to be about £30-39 billion, which included contributions to the EU budget and other commitments. The agreement established a Joint Committee and a dispute resolution mechanism to oversee the implementation of the agreement and resolve any issues that might arise. The first meeting of the joint committee took place on Monday 30 March 2020. At 11pm on 31 December 2020, the transition period ended and the United Kingdom left the EU single market and customs union.

The Northern Ireland Protocol was created to prevent a hard border between Northern Ireland (which is part of the UK) and the Republic of Ireland (an EU member). It effectively keeps Northern Ireland aligned with some EU rules, particularly those related to goods, to ensure a frictionless border. This has been a contentious part of the agreement, with ongoing negotiations and disputes over its implementation. The UK left the EU Customs Union, which meant it could establish its own trade policy. However, under the Northern Ireland Protocol, Northern Ireland would continue to follow certain EU customs rules.

The Political Declaration, which accompanied the Withdrawal Agreement, set out the framework for future negotiations on trade, security, and other areas. After the transition period, the UK and EU continued negotiations, resulting in the Trade and Cooperation Agreement (TCA), which came into effect on January 1, 2021. This agreement governs the future trading relationship between the UK and the EU, with zero tariffs and quotas on goods, cooperation on security, and various other arrangements, but it does not cover services, which are a significant part of the UK economy.

Brexit in relation to the automotive industry

The European automotive industry is highly integrated, with complex supply chains that stretch across the continent, and that benefits from border and tariff free access across the Single Market. Production often relies on 'just-in-time' delivery, which could have been severely disrupted by a no-deal Brexit. Fortunately, the last-minute trade deal between the UK and the EU provided some relief by preventing the imposition of 10% tariffs on exports and imports that would have been catastrophic for the industry. However, three of the world's largest carmakers are calling for a renegotiation of the Brexit deal because they are struggling to meet the TCA 's "rules of origin" which require 40% of an electric vehicle's parts by value to originate in the UK or EU in order for it to qualify for trade without tariffs.This threshold is due to rise to 45% next year and then in 2027 it will increase to 55% and the battery pack will have to come from the UK or EU.

The price of materials has soared especially for electric car batteries thus making carmakers unable to afford the planned UK and EU production minimums. One statement from Stellantis was that if the industry is unable to rely on sufficient UK or European batteries, they will be at a major disadvantage in the market. In 2021, there was a notable increase in the prices of battery metals, which persisted toward the end of the year, particularly for lithium, nickel, and graphite. Original Equipment Manufacturers (OEMs) have been impacted by these surging raw material costs, which have influenced the market and led companies like Ford and BYD to commit to iron-based Lithium Iron Phosphate (LFP) technology due to strong lithium and nickel prices

This means that their cars won't be able to compete with cheaper rival models from east Asia. Which in turn makes the UK lag behind EU countries in attracting battery.making capacity investments. This has been seen by a marked reduction in investment in the UK automotive industry post-Brexit, dropping from an average of £4 billion a year between 2012-2015 to only £1.1 billion between 2016-2019. This in turn makes the employment sector vulnerable too, for the automakers can choose to relocate to continental Europe if they can't comply with the local content requirements or lack the necessary battery capacity in the UK.

Battery cell production challenges

The European Battery Alliance (EBA), with significant funding, aims to build a third of global battery cell production capacity in the EU by 2030 which is challenging at the moment. These challenges stem from various areas:

Supply and Demand balancing: In 2017, the European Commission had warned about the serious risk for Europe to become irreversibly dependent on battery cell imports. The EBA must then ensure there are enough gigafactories in the pipeline to meet the anticipated surge in EV demand. In 2021, there was a substantial increase in the number of electric passenger vehicles in the EU compared with 2020 (+76%).

Financial and Geographical Distribution: Securing financial support and achieving a fair geographical distribution of activities among EU Member States and industry partners is a significant hurdle. Although substantial public finance is available, coordinating and agreeing on the distribution of these resources and projects is complex. The EU automotive maker's primary choice has been to seek East Asia incumbents to invest in battery cell production in Europe, so as to reduce the costs of production.

Manufacturing Capacity Targets: According to forecasts, the European EV market would need 500-600 GWh per year by 2030. Though the lithium-ion battery cells production capacity has been developing rapidly, it hasn't reached the desired target, having subsidiaries of non-EU companies currently owning most of the manufacturing sites. However, it is projected that by 2025, EU-based companies would account for as much as 56% of overall EU production capacity. Below is an analysis showing the planned additional production capacity and how it would spread across the EU member states.

Market Entry Barriers: The European industry faces high barriers to entry due to the lack of experience in large-scale cell manufacturing and the incumbents' established knowledge and partnerships. Building the required know-how and establishing new partnerships, especially international ones, are crucial.

Ensuring Ethical and Sustainable Production: Battery manufacturing is energy-intensive (70-80 kWh needed to produce a 1 kWh battery capacity), and it is based on a number of critical raw materials that are predominantly sourced outside of Europe under poor traceability systems. Integrating sustainability and ethical considerations into the production process adds another layer of complexity.

Source: Critical Materials Factsheet | university of Michigan

In response to the challenges faced in the battery market, the European Commission has taken measures to boost the electric vehicle (EV) battery industry's growth. This includes a 3.5 billion dollar subsidy to encourage more battery production within Europe and several planned major battery plants to meet anticipated demand. These efforts, alongside the existing production rate increase and the reduction in battery prices, are considered crucial for the continued demand for electric vehicles. Despite the material cost pressures, the EV battery market in Europe is on a rapid growth trajectory, with an expected compound annual growth rate (CAGR) of more than 21% by 2027. This indicates a strong market outlook and the potential for scale economies and technological advancements to help manage and mitigate cost increases over time. For an overview of the factories in Europe, including annual capacity and production timelines where available, have a look here.

Academic articles

Köllner, C. (2018). What Brexit Means for the Automotive Industry. ATZ worldwide, 120(3), 10-15.

Looking at the complex interrelationships when it comes to car manufacturing, those manufactured in the UK, 60% of its components are imported. In the case of Germany, the industry also is dependent on imports and its partnership with the UK. The researcher pointed out that without a good free trade agreement, Brexit will affect the close cooperation between the EU and Britain negatively. Britain is observed to be a significant contributor in the industry to the EU member states, especially Germany. The researcher analysed that with a hard Brexit, the sales and turnover would plummet and the car manufacturers would face major challenges.

The significance of the UK in the automotive industry is highlighted by it being the second-largest European market for passenger cars and light commercial vehicles. The production of motor vehicles and car parts in Germany is particularly closely intertwined with the UK, given that around 20% of all German automobile exports end up in the UK.

Holweg, M. (2019). Death by a thousand cuts: The strategic outlook for the UK automotive industry beyond Brexit. University of Oxford. Dostupné z.

By 2019, the UK car industry has already lost 9% of its volume due to Brexit. These disinvestments are likely to be irreversible. The researcher forecasted that production of manufacturers going forward would be down by 17% compared to pre-referendum levels. The researcher pointed out that the damage to manufacturing would be induced by the friction in the supply chain stemming from the Brexit agreement. The strategic danger is a continued loss of scale in UK automotive manufacturing that will lead to a slow “hollowing-out” of the skill and supply bases.

Yi, C. D. (2022). Economic impacts of UK's free trade agreements with Korea, Japan, and EU as a breakthrough of Brexit. The Manchester School, 90(5), 541-564.

With the UK-Korea-EU Free Trade Agreement (FTA) and the UK-Japan-EU FTA, the gross domestic products of the UK, Korea, Japan, and the EU will increase. The UK's exports to Korea and Japan, and Korea's exports to the UK, Japan, and the EU will increase in some manufacturing sectors, particularly the automotive sector. Likewise, Japan's manufacturing exports to the UK and the EU will grow. However, UK and Japanese exports to the EU and Korea, respectively, will decline in this sector. There will be positive welfare effects on the UK, Korea, and Japan, but negative welfare effects on the EU, China, and the rest of the world (ROW). While UK imports from Korea and Japan and Korean imports from the UK and the EU will both increase and have mixed trade creation and diversion effects, UK imports from the EU will decrease in the manufacturing sectors. Korea's imports from Japan will decline, but Japan's imports from the UK, Korea, and the EU will increase due to trade creation and diversion effects. China's imports from Korea and Japan will decline, whereas China's imports from the UK and the EU will increase. EU imports from Korea and Japan will increase due to trade creation and diversion effects, but EU imports from the UK, China, and the ROW will decline in most manufacturing sectors.

Bridge, G., & Faigen, E. (2023). Lithium, Brexit and Global Britain: onshoring battery production networks in the UK. The Extractive Industries and Society, 16, 101328.

As demand for electrical energy storage scales, production networks for lithium-ion battery manufacturing are being re-worked organisationally and geographically. The UK - like the US and EU - is seeking to onshore lithium-ion battery production and build a national battery supply chain. Governmental, industrial and research actors are engaged in securing battery mineral materials and developing battery manufacturing capacity, in the context of the country's exit from the EU and a perceived 'global battery race' in which geopolitical goals shape links with new and old partners.The researchers identified the primary global networks of lithium mining and refining, battery chemical production, technology development and finance in which the UK's battery manufacturing capacity are increasingly embedded. They foreground the role of the UK state, and how it has sought to assemble discrete capacities in automobile manufacturing, battery R&D, materials chemistry, minerals exploration, mining and green finance into a national battery sector. The researchers mobilised a Global Production Network (GPN) perspective to highlight the cross-border geographical and organisational structures through which onshoring is taking place. The GPN research extended to the role of the state by showing how the UK's growing lithium networks intersect with a plural and differentiated state accumulation project of green industrial transformation. The paper outlines the selective nature of this state accumulation project, highlights instances of coupling creation as the state seeks to strategically couple regional assets with firms in GPNs, and points to a convergence of industrial and innovation policy characteristic of the entrepreneurial state.

Bailey, D. (2020). Brexit, Batteries and Building Cars: Rules of Origin in the Auto Industry after Brexit.

The European Automobile Manufacturers' Association (ACEA) – the trade body that represents major EU auto makers – has pressed the EU to "reconsider its position" on the Rules of Origin that will be used to decide whether goods will qualify for tariff-free trade, and has warned that elements of the EU's current position are "not in the long term interests of the EU automotive industry". In particular, ACEA has requested that the EU reduces the percentage of components in a car that must be either European or British for the vehicle to qualify for the benefits of any EU-UK trade deal. The UK requested special arrangements for BEVs whereby 70% of parts could come from non UK and EU sources with only 30% 'local' content.

This paper was produced by the conceptual research team of the Global Arena Research Institute (GARI) as part of the preparatory work for utilizing GARI's signature digital twin of the globalized environment. Supported by the International Visegrad Fund and the Konrad Adenauer Stiftung, GARI is at the forefront of integrating leading-edge computing technologies with socio-economic and political analysis. These internal conceptual working papers lay the foundation for our digital twin's application, offering critical insights and frameworks that enhance our understanding and foresight into global and local processes across various domains, including economy, trade, politics, defense, society, energy, and the environment.