



The geopolitical, technological, economic, environmental, political, and social dilemmas facing the Hungarian battery industry

Summary

April 2024

Hungary is linked to the automotive industry's transformation not through the digital revolution but through the fuel revolution. The country is a significant global player in the production of the currently dominant lithium-ion battery and has become the fourth to fifth largest automotive battery producer in the world.

Globally, China is the market leader in the production of electric car batteries in all segments of the value chain - from mining, materials research, development, manufacturing, and final assembly to recycling. Only China has made the market breakthrough enabling manufacturers to finance their research and development (R&D) activities from sales. As a result, the Chinese domestic market is dictating global trends in e-cars, with the Chinese state playing a crucial role in the domestic development and international expansion of Chinese manufacturers.

Global market and geopolitical environment

The United States and Europe are facing similar dilemmas: what will happen to their positions in the traditional car industry? How can we boost electromobility in line with climate protection goals and reduce their competitive disadvantage vis-à-vis China, while at the same time ensuring that the automotive transition does not cause a shock to the labor market and that broad sections of society are willing to support the change? How can the dependence on raw materials and the environmental and health risks of the battery industry be reduced? Finally, in what areas could European manufacturers come up with innovations that would give them a competitive edge again?

Car manufacturing, and therefore car battery manufacturing, is a cyclical industry. Global demand has not yet returned to the levels seen before the COVID-19 pandemic and energy crises. In both the US and Europe, there are increasing trends that would rather slow down the transition to avoid the disruption of social peace and industry. In the US, Joe Biden has set a target to increase the share of electric vehicles in total vehicle sales to 67% by 2032. Europe would ban the sale of new cars with non-zero emissions from 2035. In recent months, both targets appear to have softened.

In the US, the Biden administration would allow the continued production of internal combustion engines and has also relaxed emission limits. In Europe, Euro7 regulations are the saving grace for conventional vehicles, at least for now. At the same time, both continents would invest in research to transform combustion engines into clean technologies and help existing clusters of manufacturers and suppliers to survive.

An important difference between the US and Europe is that the former has imposed restrictions on Chinese car trade and technology transfers to protect their markets and geopolitical interests, keeping Chinese electric cars out of its internal market with high tariffs. The EU also recognizes that it must reduce its vulnerability in this area, and started investigating the market-distorting effects of Beijing's state subsidies, while it seeks to build capacity along the whole value chain, including R&D activities. However, for now, Europe continues to seek cooperation with China, recognizing that it cannot yet bring European electromobility up to the required level without China. As a result, Chinese battery factories are being built not only in Hungary and the Central Eastern European region, but also in Germany.

Technological dilemmas

Several alternatives are being developed to replace the lithium-ion batteries currently in use, including lithium and non-lithium-based solutions. As battery production costs account for forty percent of the

manufacturing costs of electric cars, the fundamental question is how to cut these costs. Another important objective is to ensure that production and recycling are not as polluting as it is today. Mass-production-ready solutions include lithium-silicate technology and, among non-lithium batteries, graphene batteries and aluminium-ion batteries.

Despite these innovations, as of now, only lithium-ion battery factories are planned to be built in Hungary. Given the size of the capacities and the dynamic development of battery technologies, a significant risk is identified as to whether the plants will be able to adapt in the event of technological change.

Economic dilemmas

The development of the battery industry in a country such as Hungary, where the automotive industry is so important, is an economic and technological imperative. Batteries are heavy and some parts are very fragile, so transporting them over long distances is not advisable. Another argument in favor of battery factories is that they help replace jobs lost or transformed in the automotive industry. Although the Fraunhofer Institute calculates that the overall labor requirements for the production of e-cars are not much lower than in the conventional car industry, the distribution is different. For Hungary and the other V4 countries, the transition could still make a big difference in terms of employment, as most of the sites are not involved in car manufacturing but in activities related to engine and powertrain parts production. Thus, up to more than 40% of jobs could be transformed, and almost as many could disappear over the next ten years. In other words, battery factories are bound to have a labor-absorbing effect. It remains a question whether the battery industry will tap into the local workforce or rely more on skilled guest workers from third countries.

The Hungarian government cites the stimulus effect of the battery factories in its support for them, but there is considerable debate among experts. Critics argue that having cheap energy and labor and low taxes as the main attractions of a country for an industry does not help the country escape the middle-income trap. While the high value-added areas in the battery value chain are R&D, design, value chain construction, sales, brand value creation, and marketing, Hungary would be best placed for manufacturing and assembly. According to the battery industry, this is only the entry point, on which higher value-added activities can build.

The establishment of battery factories is heavily subsidized by the Hungarian state. The payback period for state aid is very long: according to Dóra Gyórfy's calculations, the expected tax revenues could pay back the state aid in between 7.5 and 17 years.

It is expected that by the mid-2020s, the capacity will be able to produce ten times more batteries than domestic car manufacturers need. These batteries would be sold to car manufacturers in Western Europe. The extent to which and for how long the European car industry will be reliant on such large Chinese capacities is a risk.

Environmental dilemmas

As priority investments of national economic importance, these developments fall outside the jurisdiction of the basic regional building, water, and environmental authorities, making it very difficult to stop them from the outside.

In addition to labor, land, energy, and water are critical elements in battery production. The country does not have a comparative advantage in any of the necessary conditions for battery production. Battery production involves a number of environmental risks, both for the population and for workers. Not only is there no independent Ministry for the Environment, but the powers of the inspection authorities have been curtailed. At the same time, the future obligation to recycle batteries is a threat to Hungary, as the toxic waste of used batteries could be brought back to the country.

Political dilemmas

The Orbán government, otherwise sensitive to political communication, neglected to prepare social communication regarding the battery industry investments. The government only started to communicate about the battery industry when people living around existing plants began to confront local politicians and the press about environmental damage and worker accidents. Local residents held scandal-plagued public meetings demanding the closure of the Chinese or South Korean factories, which were also criticized by NGOs and opposition parties.

Because of the Hungarian battery industry's reliance on Eastern resources, the government is keen to cite developments in the industry as a result of its Eastern Opening foreign policy and economic strategy. The Eastern Opening announced in the early 2010s was essentially a political product, with meager real-world economic results. The battery industry won't help the eastern market expansion of the domestic industry either, as the output of the battery industry is also directed toward Western Europe.

The Orbán government's openness to cooperation with Chinese, South Korean, and Russian companies creates geopolitical risks and conflicts of interest. This kind of openness is not necessarily unique in the European Union, but it is accompanied by unique communication. "To catch up, Hungary needs a model of globalization" that focuses not on "disconnection" but on "connectivity", and on strengthening ties, writes the prime minister's political director Balázs Orbán. While the European Union would like to see closer cooperation between member states to improve its competitiveness, Hungary prefers to assert its sovereignty, go its own way, and try to bring as many elements of the battery value chain as possible to Hungary. However, European coordination would be needed to efficiently utilize battery capacities on the continent.

The government continues its usual scapegoating tactics against the opposition on the issue of battery factories: because it believes that there is a national interest in the investments of East Asian multinationals here, anyone who opposes this is going against the national interest. The government also responds by attacking "the left" when environmental concerns are raised, even if the resistance against the battery factories was not started by the opposition parties, but by local residents and civil society, including local journalists, who had direct experience of the daily anomalies of the factories. These were then joined by locally interested activists from each party who helped to raise the profile of the protest and make the battery plants' polluting operations and factory accidents a national issue.

From the opposition parties, Momentum and the two Green parties, Párbeszéd and LMP were the first political forces to be active. They based their response mainly on critical expert opinions: battery plants are highly polluting, noisy, and require too much water. Hungary's energy industry is not conducive to such investments, and battery factories have the lowest added value in the entire value chain, so their return on investment is doubtful.

Opposition parties have become active, especially after the announcement of the CATL investment in Debrecen. They have initiated opposition debate days, local and national referendums, public interest

data requests, preliminary environmental and impact assessments, etc. However, their initiatives were regularly blocked by the relevant decision-making bodies through administrative means. In Debrecen, LMP would have had the opportunity to succeed with a local referendum initiative after two of their questions were approved by the local electoral commission in 2022, but they did not start collecting signatures, instead, they aimed for a national referendum, which they could not get through. As this eventually foundered, the abandonment of the local referendum in Debrecen was more than a tactical error. A local vote could have affected all other investments. Nevertheless, the 'anti-battery factory coalition' is standing in the Debrecen local elections - and this will certainly be the main theme of the local campaign.

The study was supported by the Friedrich Ebert Stiftung.