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CENTRAL EUROPE'S CRUCIAL ROLE IN THE EV BATTERY INDUSTRY

Analysis of the CEE region's fast-growing EV battery scene and its future business potential

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Over recent years, Central & Eastern Europe has become the European Union's key supplier of batteries for electric vehicles (EVs). Already known for the vast number of automotive investments, CEE countries have turned their attention to embracing Europe's economic transition through one key element – the production and distribution of EV batteries.

Poland and Hungary have taken the lead in the ongoing transformation of the European automotive industry. The Polish and Hungarian governments have courted foreign investments to grow their local battery industry from various directions and now play crucial roles in the global EV supply chain.

Realizing their potential in the green transition, several other CEE countries have also been seeking ways to develop their domestic battery production capacities.

While short-term setbacks over the looming economic downturn, Russia's war against Ukraine, the energy crisis and global market challenges will inevitably hit the industry, the EV battery sector is poised for future growth as European demand for EVs is likely to accelerate in the long run, bringing opportunities for international investors across the CEE region.

Below, Aretera provides further insight into the state of the CEE EV battery industry, with short-term and long-term implications of investing in the region.

This memo will cover:

- the transformation of the automotive industry and the rising significance of the battery sector,
- the role of Central and Eastern Europe in the global EV supply chain,
- the key regional markets and recent international investments,
- the opportunities and challenges regarding the region's battery industry.

TOWARDS A GREEN AUTOMOTIVE FUTURE

Central & Eastern Europe (CEE) is a well-known target location for the global automotive industry. Largely due to the competitive advantage the region holds over Western Europe, the sector has been booming in CEE, with a vast number of companies now firmly present across the region's key economies, primarily in Poland, Romania, Hungary, the Czech Republic, Slovakia and Serbia.

In recent years, electric cars (EVs), on which the automotive industry has been focusing more extensively both in the region and beyond, have shown tremendous growth potential. Last year, the number of EV sales in the European Union – the world's largest electric vehicles market after China – stood at 2.3 million, showing a 66% increase from 2020 and adding up to 34% of all EV sales in 2021.

This comes as the European Union has banned the sale of new gasoline and diesel-powered cars by 2035, opening the way to phase out all non-electric car sales. This landmark EU decision presents the global EV industry – as well as CEE countries – with considerable opportunities as automotive and parts production plants are gearing up for the transition to produce solely EVs.

CEE ECONOMIES PLAY A KEY ROLE IN EV BATTERY SUPPLY CHAIN

While CEE countries are lagging behind their Western European peers when it comes to the domestic use of EVs, governments across the region are seeking ways to increase the EV sales in their respective countries. At the same time, some CEE economies – Poland and Hungary, in particular – are actively building strategies to become part of the transformation of the automotive industry itself.

To this transformation, the production of EV batteries is a key contributor; an industry that could become even more critical in the European Union's green transition as the European bloc aims to become the first fully carbon neutral continent by 2050 under its European Green Deal strategy.

Over the years, Poland and Hungary have become key suppliers to the European and global electric car markets by emerging as the main regional economies focused extensively on EV battery manufacturing, a trend driven primarily by major Asian investors.

Poland is home to Europe's (so far) largest EV battery plant in Europe and one of the largest in the world. Located in western Poland and employing 10,000 people, the Wrocław plant of South Korean LG Chem's LG Energy Solution (LGEG) has a manufacturing capacity of 70 GWh/year – a massive volume that is set to reach 115 GWh/year, more than 60% of the EU's EV battery demand in 2021.

EV battery production capacity has seen similarly rapid growth in Hungary. As of January, an estimated HUF 2800 billion (€6.8 billion) has been invested into the Hungarian economy during the last decade, with the local EV battery production scene dominated by (primarily) Chinese, South Korean and Japanese companies.

The latest addition to the Hungarian EV battery scene is the recently announced future battery plant from China's CATL, the world's largest battery maker, which will build a 100 GWh/year producing plant in the city of Debrecen. Chinese EV manufacturer NIO will also build its first European plant in Hungary that will supply battery swap stations to its entire European network.

REGIONAL MARKETS AIM TO CATCH UP

Neighbouring Slovakia is also following the regional EV battery trend. Inobat, a recently founded and homegrown start-up, has been receiving high attention from international investors for its R&D and sustainability solutions for the battery industry. The company is now focusing on a future production site in Slovakia and its R&D potential, as well as on its international partnerships and expansion across Europe. This comes as Volvo Car Group recently announced its plans to build a €1.2 billion worth EV plant, the fifth in the country, which remains the world's largest per capita car producer.

Skoda's EV battery plant at Mladá Boleslav in the Czech Republic has been among the latest additions to the regional market. The plant has recently launched the production of batteries for modular electrification toolkit vehicles, with Skoda – the Czech brand of the German Volkswagen Group – aiming to manufacture EVs and their components in all three of its plants in the country.

Romania is also seeking to develop its domestic battery industry and the country's grand coalition government is working currently with EU partners to train workers and achieve national and European climate and circular economy targets. In June, the Romanian government held talks with German company Varta to explore the possibility of building a €1 billion worth battery plant in the country.

Bulgaria is also aiming to catch up with its regional peers: most recently, German EV manufacturer Next.e.Go Mobile confirmed its plans to build a plant which will produce up to 30,000 vehicles per annum from 2024. Elsewhere in the region, Slovenia's aluminum manufacturer LTH Castings launched a €50 million EV battery plant in 2021 which will fuel the green transformation of the EV production of Germany's BMW Group.

COUNTRIES WITH LARGEST EV BATTERY PRODUCING CAPACITIES

Rank	Market	LIB Battery Production Capacity (GWh)	Share of World Total (%)
#1	China	558	79
#2	US	44	6.2
#3	Hungary	28	4
#4	Poland	22	3.1
#5	South Korea	18	2.5
#6	Japan	17	2.4
#7	Germany	11	1.6
#8	Sweden	4	0.6
#9	UK	2	0.3
#10	Australia	1	0.1
	Rest of the World	1	0.1
Total		**706**	**100**

(Source: S&P Global, 2021)

HUNGARY & POLAND TAKE THE LEAD

Largely due to the scarcity of global lithium supplies, China, which remains the largest market for EVs, has been dominating the world's battery market. In Europe, however, Poland and Hungary maintain a unique position and are among the top European battery exporters, closely behind Germany, the largest on the continent. After China and Germany, Hungary is the only other country where all the three premium German car manufacturers – BMW, Volkswagen and Audi – are present, while Poland hosts factories for Volkswagen, Fiat, Toyota and Opel.

Poland remains the largest CEE exporter of EV batteries, with the value of its lithium-ion batteries having reached €6.5 billion in 2021. Besides South Korea's LGEG, several other producers – including SK Innovation's SK Hi-Tech Battery Materials, fellow South Korean-owned KET Poland, Foosung and Enchem, and Belgian parts maker Umicore – have opened production sites in the country, with many of the industry's local investors expected to develop and expand their local operations as global demand for EVs increases.

Hungary started seizing the opportunities provided by the automotive industry's transformation well before its regional peers. In 2017, the country's government aimed to make Hungary a "battery-producing super-power", a goal that will likely be reached in the coming years. In addition to the HUF 2800 billion (€6.8 billion) of EV battery investments attracted as of January, the Hungarian government has secured close to a dozen additional foreign investments, pushing this figure to HUF 6100 billion (€14.8 billion). This means HUF 3300 billion (€8 billion) in new investments attracted in just during six months, the largest of which is CATL's recently announced giga-factory.

The Polish and Hungarian governments are both actively providing various and often large-scale incentives to court international investors. Warsaw has largely focused on South Korean and European investors, while Hungary has also been courting larger Chinese investors, as well. These investments could play a crucial role in both countries as the European economy experiences a massive slowdown, largely due to Russia's war against Ukraine and the deepening energy crisis.

LARGEST RECENT BATTERY INVESTMENTS IN HUNGARY

Company	Country of Origin	Location	Establishment	Worth (EUR)
CATL	China	Debrecen	2022-present	7.3 billion
SK Innovation	South Korea	Komárom	2018-2021	2.5 billion
Samsung SDI	South Korea	Göd	2017-2021	1.9 billion
W-Scope	South Korea	Nyíregyháza	2022	720 million
LG Chem/Toray	South Korea/Japan	Nyergesújfalu	2021-2022	655 million
EcoPro BM	South Korea	Debrecen	2022-present	641 million
Toray/Zoltek	Japan	Nyergesújfalu	2018-2019	384 million

(Source: Hungarian Investment Promotion Agency)

OPPORTUNITIES AND CHALLENGES AHEAD

Central & Eastern Europe, which has already emerged as the continent's battery supplier, is well-positioned to become a key region in the global EV battery industry. Although this unique situation results from a necessary transformation as several of the region's economies are heavily dependent on the performance of the automotive and related industries, stepping up battery manufacturing could also contribute significantly to economic growth and sustainable job creation.

In the short term, however, there are a number of factors that could negatively impact the battery industry. These necessarily include the current economic downturn, semiconductor shortages, challenges in the world's Chinese-dominated supply chain, the looming European recession, as well as higher energy prices for an industry (that is heavily energy-intensive) and a potential short-term setback in demand for high-value vehicles.

At the same time, the long-term EV (and battery) outlook remains encouraging and holds further business opportunities for international investors eyeing the CEE region as the European battery production capacity is yet to catch up with increasing demand. Recent data shows that Europe is expected to overtake China in EV production by 2030, with demand for batteries set to increase to 1300 GWh by 2035.

While the EV battery industry could prove essential in Europe's green transition, current and prospective investors will also have to consider the environmental implications of production lines, comply with corresponding EU and national regulations, as well as meet European expectations on tackling climate change in the industry.

Certain foreign investments from Asia (particularly from China) might also face EU scrutiny as the European bloc aims for strategic economic resilience and economic self-reliance. European Commission President Ursula von der Leyen recently stated that the EU must avoid falling into dependency on China with scarce raw materials, which is why the EU's executive body is working on a so-called European Critical Raw Materials Act. The EU also aims to increase its global market share of semiconductors – one of the most crucial components of BEVs – to 20% by 2030 through the European Chips Act for the same reason, signalling that geopolitical rivalry and geoeconomic competition could also impact the industry's future.

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