

Policy Paper

The Visegrad Power Bank

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Introduction

The volatility of oil prices and recurring geopolitical tensions in some of the most important producing countries, growing environmental and climate problems and stricter emissions standards combined with technological advances have led to a resurgence of the electric car. An important milestone was the launch of the Tesla Roadster in 2008—the first mass-produced electric car, equipped with lithium-ion batteries. From that point, the number of electric vehicles has continued to grow. In 2015, it crossed the barrier of 1 million registered electric cars. A year later, the 2 million mark was easily passed.

This pace of change in the automotive sector and the number of cars sold will only continue to increase. According to estimates of the International Energy Agency (IEA), by 2030 there will be between 56 and 200 million electric cars worldwide. Bloomberg New Energy Finance predicts that by 2025, electric cars will be as cheap as gasoline vehicles with global electric fleet hitting 530 million vehicles by 2040. USB, a Swiss bank, is even more bullish pointing towards price parity in Europe already in 2018. In the most aggressive projection, a Dutch bank, ING, claims that all new cars sold in Europe will be electric within less than two decades.

Particularly interesting is the e-mobility development in China, a country that has for years been struggling to build up its car manufacturing industry. It seems that the electric car gave China an



unexpected opportunity to change the situation and disrupt the global car market with its incumbent producers.

The quality and price of the electric car today are determined by the quality and price of batteries. Major electric battery factories are located in South East Asia and the United States with data on new investments in this area only confirming the pattern. Europe is clearly out of the picture, lagging behind the leaders.

If we want to keep the car industry in Europe in the long-run, we need to change our focus. Europe must create legal conditions pushing European car manufacturers to make the necessary local investments in new technologies. Global competition today does not mean designing a better internal combustion engine. This already belongs to the past. The main battlefield now is where decisions are made on a truly clean, zero-emission car that is connected to the network, powered by electricity and in the longer run autonomous.

On 8 November 2017, the European Commission came up with the clean mobility package. It seems that all global trends ravaging the automotive industry have been ignored. The Commission decided to gently nudge the European car industry towards the new reality. This polite treatment may end up in tears as the global e-mobility leaders in this race for the car of tomorrow drove off from the traffic lights in the fashion usual for electric motors, leaving clunky Europe far behind. European car brands could soon share the fate of former continental giants such as Alcatel, Ericsson or Nokia. But there is a hope in the east.

Visegrad countries are slowly waking up to the new electrification trend. The Polish government's strategic document setting objectives for the whole economy—Responsible Development Plan—provides a platform for e-mobility development. A number of implementing documents have been proposed. The country has the ambition to become one of the pacesetters in the global value chain of e-cars and e-buses manufacturing, already sporting a leading electric bus manufacturer in Europe—Solaris. It supports the European Commission in pushing for a joint European answer to American and Chinese lithium-ion battery gigafactories. Hungary also sees e-mobility development as a way to boost economic growth. It tries to establish a supplier industry inter alia through spurring internal demand. In 2016, around €6.5m was spend for subsidising sales of e-cars. Slovakia also features an electric vehicle subsidy scheme and is home of GreenWay, an uncontested leader in the region in fast charging infrastructure development. In the Czech Republic, the two largest companies, carmaker Škoda Auto and energy giant ČEZ, are keen on the idea. They work together to develop both electric cars and infrastructure. Global battery producers recognise the region as a suitable place for investment. V4 countries already host Samsung (Hungary), LG Chem (Poland) and A123Systems (the Czech Republic) and more investment decisions are expected soon.

The region clearly carries some similarities to China. It has a strong manufacturing base, but apart from the Czech Republic, it never quite managed to catch up with the global automotive trends. The e-mobility disruption gives the region a powerful opportunity. There is a clear potential to build at least some of the value chain of a battery-powered car of the future in the region. The European Commission's coy move to limit the damage to the European car industry could turn out to be a blessing in disguise. The fundamentals to catch the Western neighbours are in place. It's up to decision makers to build on them.

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The Czech Republic

The government plan for e-mobility development in the Czech Republic includes a 1,200-strong charging stations network to be deployed by 2020. However, these are to be built by private sector and not from public funds. Until 2014, only standard charging stations were available. Since then, over 150 fast charging points have been constructed, accompanied by about 400 standard speed points. Some of the stations were financed by the EU funds, namely the Connecting Europe Facility or CEF.

Two largest companies, carmaker Škoda Auto and energy giant ČEZ, are also keen on the electrification of transport. They work together to develop both electric cars and infrastructure. Škoda plans to produce around 500,000 cars a year by 2025, powered partly or wholly by electricity. A battery producer, A123Systems, already has a factory in the Czech Republic adding to the friendly e-mobility ecosystem.

In 2015, the Czech government decided to implement a support scheme with limited purchase subsidies to speed up the push for electric cars. This move created a rapid increase of registered electric vehicles. Over 550 electric cars were put on Czech roads in just one year. However, the scheme proved to be short-lived and as the allocated financial resources were exhausted, registrations dropped to 360 cars in 2016 and 330 in 2017,¹ reaching 1,300 full electric (BEV) and plug-in electric (PHEV) cars in total or 0.2% of the Czech car stock. BMW i3 is the most popular electric car in the country with an almost 18% share in this market segment.

¹At the end of September.

Although direct subsidies were scrapped, two financial incentives for electric cars remain. Buying a new car means benefits from an exemption on a purchase tax. Electric cars used for business purposes are also exempt from a road tax. In addition to these country-wide incentives, a number of local municipalities provide free parking in city centres for battery-powered vehicles.

Electrification of public transportation is slow. No major investments are planned and electric buses have been introduced only as pilot or demonstration projects. There are no cities in the Czech Republic where internal combustion engine cars are banned or their circulation is limited. However, some cities are considering establishing some form of low emission zones in the near future, which would further boost e-mobility.

Hungary

Hungary is the most advanced country in the region in terms of regulation and incentives for electric vehicles. The government adopted e-mobility policies and measures in 2014, creating a friendly environment for the market development. Furthermore, the work is under way on a new, comprehensive, e-mobility legislation confirming the government's dedication to the project and providing large-scale state support for electric cars and charging infrastructure. The new regulations are planned to enter into force in early 2018.

In terms of infrastructure, by mid-2017 over 150 publicly available standard speed stations and 50 fast-charging points were in place. To develop the charging infrastructure in an orderly fashion, in March 2016 the government established a special



government agency called e-Mobi. It was tasked with the construction of 300 charging stations throughout the country in 2017. The programme will carry on in 2018, although no targets have been agreed. Moreover, to further accelerate development of the network, the state directly procured 1,700 chargers within a dedicated framework contract.

A granting scheme was also established for municipalities with over 15,000 inhabitants. With a subsidy covering all costs, municipalities could install an additional 200 charging stations in the next 12 months.

Newly registered electric vehicles in Hungary are exempt from registration tax and annual circulation tax. In addition, company car tax has been set to 0%. In September 2016, the government introduced a support scheme for purchasing electric vehicles with a total budget of €7 million that could be replenished with additional €10 million. The scheme guarantees a €5,000 grant for purchasing a battery powered car. Some producers, including Nissan and Peugeot, introduced additional discounts of €2,000 and €5,000 respectively, complementing state subsidy.

Many Hungarian municipalities have adopted incentives for electric cars including free parking and a possibility to drive on bus lanes. Moreover, Hungary is the only country in the region where e-mobility has been recognised as a solution to the problem of air quality. Electric cars have been granted traffic allowance during smog alerts and electric car-sharing and electric taxi systems have been set-up. As regards to the electrification of public transportation, so far, a limited number of pilot projects have been implemented introducing electric or hybrid buses. In such a pilot project in Budapest, 20 electric buses are now being tested.

A strong state support scheme combined with a headline objective of a 30% share of electric cars (only BEV) in the state fleet by 2030 and a direct

purchase of 200 electric cars by the government push the market forward. By mid-2017, over 3,000 BEVs and PHEVs have been registered, reaching a 1.2% share of the market. Nissan Leaf is the most popular electric car with a 28.4% share of the market closely followed by BMW i3 (24%).

Poland

The Polish government approached the issue of e-mobility in a structured manner. A document called 'Package for Clean Transport' was tabled, which is in fact a set of three separate papers constituting the e-mobility development strategy. These cover broad measures to speed up electrification of transport until 2025 with an aspiration in mind of 1 million e-vehicles on Polish roads by that date, some of them manufactured in the country. With that in mind, a programme has been launched to design a new brand of Polish electric car.

The strategy also describes how a charging network will be deployed consisting of 6,400 public charging points and contains a detailed list of planned legislative measures. An important component of the strategy is a new fund for low-emission transport that should be established to finance e-mobility projects.

Developing e-mobility in Poland will help in delivering a number of important policy objectives. It will reduce dependence on imported oil, assist in the modernisation of the electricity sector and improve air quality in cities. Investing in e-mobility, if done properly, can also push Poland up in the automotive industry value chain and create new suppliers including ICT companies and designers.

The existing charging infrastructure in Poland is very scarce. Only around 300 stations are in place and there is no support scheme to speed up the network development neither at the state nor at

the local level. Charging services are underdeveloped and most providers lose money on powering cars. Once the fund for low-emission transport is established in 2018, it will provide co-financing for developing the planned 6,400 public charging stations.

In terms of incentives for motorists, there is no financial aid measures in place at the moment. Few cities provide free parking for electric cars. Wrocław is pioneering the first fully electric, municipal car-sharing system with more than 150 Nissan Leafs and 15 Nissan eN200 LCVs. The project is backed up by over 50 public charging stations. In the near future, the government intends to implement an excise duty exemption for electric car purchase and speed up amortisation of these vehicles for business entities.

Poland is very determined to develop the market of electric buses. The local company Solaris and Swedish Volvo have their factories in Poland. Another start-up Polish e-bus manufacturer, Ursus, is slowly ramping up sales.

To further enforce the electric bus manufacturing base, the government intends to impose on local authorities a binding target of 20% electric vehicles in the public transport fleet. This will have to be achieved by 2025. Both the EU structural funds and the new fund for low-emission transport will provide support for municipalities purchasing electric buses.

At the end of Q3 2017, there were around 700 fully electric cars registered in Poland with BMW i3 heading the pack.

Slovakia

In November 2016, the Slovakian government announced its objective to reach 1,000 registered electric vehicles by the end of 2017. Similar to the

Czech Republic, the development of a charging network in the country will not be aided by public funds. However, strong incentives exist for motorists willing to switch to electric transportation.

Despite the lack of state support for the infrastructure, the number of public charging stations is constantly growing. Approximately 100 fast chargers and 350 standard speed chargers are in operation. An unquestionable leader in the infrastructure deployment is a local company—Greenway. Apart from growing its charging network in Slovakia, it is fast becoming a regional champion with projects in Poland and the Czech Republic (see box).

Greenway— a local e-mobility tiger

Greenway is an innovative, private company established in 2011 in Slovakia. It is active on three markets, Slovakia, the Czech Republic and Poland. Currently their services cover two main areas: construction and operation of charging stations (standard fast and ultrafast) and renting of electric light-trucks.

Greenway was awarded two separate grants under the Connecting Europe Facility, for the Green Hubs Project and the Central European Green Corridors Project. Within the agreed contract, Greenway has to construct a network of fast charging stations in Slovakia and Poland along the TEN-T corridors (Trans European Transport Network). By the end of 2018, over 200 fast charging stations will be operational in Poland and over 30 in Slovakia. In addition, 10 electricity storage points will be constructed to support the charging network.

Battery powered electric cars purchased in Slovakia benefit from a reduced rate of tax on motor vehicles. However, the most important support mechanism in the country is a dedicated €5.2 million fund tasked with supporting the deployment of electric cars. The fund is a good

example of cooperation between the government and the private sector. While €5 million is provided by the state, an additional €200,000 comes from the resources of the Automobile Industry Association. These resources are used to subsidise the purchase of electric cars. Every customer buying a new electric car receives a grant of €5,000, while those buying hybrid plug-in cars get €3,000. Only new, full-electric or plug-in vehicles up to 3.5 tonnes purchased in Slovakia are eligible. Grants are available to individuals, business entities or local authorities. The contribution is spread over 3 years from the date of registration in order to prevent speculative exports abroad. The support scheme is in the pilot phase that will end by January 2018 or until the allocated budget is depleted.

The fund boosted the market of electric cars in Slovakia. With approximately 700 full-electric and hybrid plug-ins, electric vehicles registered 0.35% of the car stock in mid-2017. The leader in this market segment is Nissan Leaf with a 17.5% share.

Many municipalities exempt or provide discounts to electric vehicles as regards to parking charges. This is the only regional measure supporting e-mobility as no low emission zones are in place nor planned. Electric buses gain market slowly, with hybrid engines being the most preferred option due to the lack of well-developed charging infrastructure.

Romania

Until recently, Romania featured a limited regulatory support and no subsidies for electric cars. However, the situation is changing fast with the government stepping up its efforts to promote e-mobility.

The charging infrastructure is at an early stage of development. Less than 100 standard speed charging stations and only 13 fast-speed are in

place. In order to stimulate the development of the charging network, the government plans to provide some support to the private sector. The work is in progress and a dedicated support scheme should be operational in early 2018.

In terms of incentives for motorists, in 2016 the government decided to introduce direct grants for the purchasing of electric cars. The grants amount to €4,450 for a fully electric car (BEV) and €1,100 for a plug-in hybrid (PHEV).

No specific incentives have been provided so far for the electrification of public transportation. Some small-scale pilot projects are under way, exploring the potential of the wider use of electric buses.

The market in Romania is still in its initial phase with only around 400 BEVs and PHEVs registered by mid-2017. A highly-priced Mercedes GLCe and GLEe are on the top in terms of sales. However, the local producer, Dacia, could quickly gain a significant market share launching already advertised affordable electric cars. Known for their reasonable pricing, Dacia vehicles could become a hit not only in Romania but in the CEE region.

Bulgaria

Bulgaria is one of least developed countries in the region in terms of e-mobility. Moreover, the government does not plan to introduce any dedicated policies nor measures to develop e-mobility. The only support measure in place is the exemption from circulation tax for electric vehicles.

Publicly available charging infrastructure is very limited with only 20 standard speed and 4 high-speed charging stations in operation. Without any state support, only private projects push the market forward. The most important one is the

first inter-urban road with full charging coverage for electric vehicles operating since June 2017. The road from Sofia to Kulata, the busiest route to Greece, is equipped with 3 charging stations. The infrastructure was built by eMobility International through its integrated Eldrive platform. The company aims to develop e-mobility on the Balkan Peninsula by building a network of rapid charging stations (DC) and standard stations (AC) in cities and along the trunk roads of Bulgaria, Romania, Macedonia, Greece and Albania.

In terms of registrations, a surprisingly large number (800) of electric vehicles drive on Bulgarian roads considering the state of infrastructure and the lack of support schemes.

Estonia

Estonia was the first country in the world to put in place a country-wide charging network and by 2012, they had already brought over 500 electric cars to the market.

In March 2011, the Estonian government sold its CO₂ emission credits generated under the Kyoto Protocol to the Mitsubishi Corporation. The proceeds were used to start the Estonian e-mobility programme (ELMO). The goal of the programme was to speed up the spread of electric cars in Estonia and to facilitate meeting the objective to increase the use of renewable energy by 2020. The programme consisted of three parts.

The first part was the buying of 507 Mitsubishi i-Miev electric cars by the Ministry of Social Affairs. The ministry was appointed to lead by example and prove the concept of e-mobility.

The second part was the development of the support system for individuals and companies buying battery powered electric cars and plug-in hybrids. This task was assigned to the Ministry of Economic Affairs and Communications. The scheme was successfully implemented in July 2011 and lasted until August 2014.

The third part of the project was the development of charging infrastructure covering the whole country. The network of fast charging stations was constructed by ABB with a number of principles in mind:

- all roads with dense traffic are covered,
- the distance between quick charging points is no more than 40–60 km,
- suitable and frequently visited places are considered as locations for quick charging stations, e.g. petrol stations, cafes, shops, etc.,
- all settlements with over 5,000 inhabitants are provided with a fast-charger,
- in towns, charging points are built in locations where people move anyway—for example, next to shopping centres, petrol stations, post offices, bank buildings, parking lots, etc.

In total, 167 fast chargers were built—102 located in towns and 65 on main roads with sufficient traffic.

The ELMO project lasted between 2011 and 2014 and resulted with the registration of over 1,000 battery powered vehicles. In 2012, the electric cars had an impressive 2.5% share of the total market. Unfortunately, after its completion, the government gave up further investment in e-mobility. Sales of electric cars dropped to 40 in 2015, 50 in 2016 and 20 so far in 2017. Despite the decision of Estonia to discontinue ELMO, the country has the most robust charging network in Europe taking into account the total length of public roads and the number of inhabitants.

Summary

The overall promising assessment of the operating environment implies a positive outlook for the future, given the different stage of e-mobility advancement in specific countries.

Hungary seems to be the current leader of the region in terms of regulatory and incentives environment, while Poland (Solaris Bus, Ursus SA, Volvo Bus & Coach), the Czech Republic (Skoda) and Romania (Dacia) are the leaders in terms of manufacturing capacity.

The CEE countries have not yet tapped their existing e-mobility potential. However, the good news is that it isn't too late to start, and today's laggards can still become tomorrow's leaders. For the whole region, rapid development of e-mobility could mean joining the vanguard of the automotive sector. The sleeping giants of Western Europe could be still caught and even left behind. The soft proposal of the European Commission makes that even more possible.

Eastern and Central Europe has a number of issues where electric cars could help. Cutting dependence on imported oil is one, improving air quality is another. The climate policy dimension would be another factor. Clean cars could deliver a lot of bargaining power in Brussels.

The opportunity is there and the foundations are solid. On the other hand, there is still a lot of work to turn this opportunity into a win. Poland has great ambitions, but all regulations are still in development. The Czech Republic and Slovakia are too small to turn e-mobility as the kernel of their economies. Bulgaria and Romania suffer from low purchasing power. Estonia is a living example of lost opportunity.

All the above should be used as lessons learned and forged into advantages. But the most important point is quite clear, all countries of the region are quite similar and would benefit from e-mobility most when working together. Previous joint initiatives were short and few. E-mobility development might be a welcome change.

Recommendations

1. It makes sense to set up a dedicated cross-functional e-mobility team, both in each country, but crucially at the regional (V4+) level. It will help in driving forward the issue and addressing problems in a strategic and structured manner.
2. A clear, target-based strategy is needed together with measures to put it into practice. An important part of the strategy must be the awareness rising among the public. Another essential element should be the infrastructure development plan with sufficient budget earmarked for that. Without state support, infrastructure deployment will be delayed affecting the rest of the e-mobility agenda.
3. Dedicated support for motorists is crucial. Low-cost e-mobility programmes do not work.
4. Due to the Commission's soft proposal on emission reduction, CEE countries should push for higher standards creating opportunities for home manufacturers.

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