



## Electric Cars in Germany—Drive against the Current

Aleksandra Gawlikowska-Fyk

*The electrification of transport is one of the key tasks of Germany's economic policy. It aims to protect the global position of the German industry and accelerate the implementation of Energiewende. However, the traditional automotive sector will slow the turn to electric cars, voicing the need instead for the "decarbonisation" of the diesel engine to natural gas. For Poland, the German electromobility change could be an opportunity to promote common solutions in the EU, but presents a challenge to Polish suppliers connected to Germany's automotive industry.*

Germany's automotive sector, its largest industry, has to deal with the development of the electric vehicle market. Until now, it had not been a priority for German car producers. But the global expansion of electrically powered vehicles, the need to reduce CO<sub>2</sub> emissions in German transport, and, above all, the disclosure of "dieselgate"—Volkswagen's deceptive emissions controls—has forced the industry to start to feel the negative effects of the change. Although electric cars account for less than 1% of the market, the *Verkehrswende*—the change from carbon fuel-based German transport—is about to begin. Its immediate cause is the desire to maintain the global competitiveness of the German automotive industry and to protect jobs in Germany. In the long term, however, the pressure on changes in transport will increase through the German decarbonisation policy, *Energiewende*, which, basically has omitted this sector until now.

**A Turn in the Automotive Industry.** Electromobility, or the development of electric drivetrains for cars, is the biggest global challenge for traditional carmakers. In Germany, this challenge is especially significant because the automotive sector, which is based on the production of cars with an internal combustion engine, accounts for up to 20% of the country's industrial output, or 5% of GDP, and 14% of employment (850,000 people). More than 200,000 people are employed manufacturing these engines. Cars are the most important items in German exports (11%, with car parts at 16%), generating revenues of €150 billion a year and giving Germany a world-leading position with 22% of the market. The majority of production (75%) is directed to foreign markets.

Until now, the diesel engine was Germany's *Exportschlager*, but the situation began to change with the disclosure in the U.S. of Volkswagen's fraud. The company had installed software that falsified official emissions measurements. It turned out this was the case with other manufacturers of diesel cars, too. As a result, the demand for diesels has fallen and many countries are considering banning them. Among the frontrunners of such restrictions is China—the biggest potential market for electric and hybrid cars, which combine the traditional and electric drivetrains (amounting to 40% of global demand), and Germany's largest competitor. The Chinese firm BYD Auto sells the most e-cars in the world, and the Chinese authorities have mandated that every manufacturer include at least 8% of this type of cars in their market inventories. Germany lost its advantage against China in the photovoltaic panels market (solar) and does not want to repeat that scenario.

Discussion about restrictions on diesel cars is taking place also in Germany. In 2016, the Bundesrat called for new rules, however, the resolution is not legally binding. In the recent election campaign, a ban on selling diesel cars after 2030 was called for by the Greens. Munich (BMW's headquarters) and Stuttgart (the headquarters of Mercedes and Porsche) are considering banning the most polluting cars within the city.

**Towards *Verkehrswende*.** The strongest pressure on changes in transport comes from outside the industry. The German energy transformation policy assumes that by 2020, total energy consumption should drop by 10% and greenhouse gas emissions by 40% compared to 1990. So far, the transport sector has not made any progress in reducing its CO<sub>2</sub> emissions—the level is almost the same as in 1990. Moreover, in the years 1990–2016, energy consumed by transport increased by 10%. As a result, the sector now accounts for 18% of German emissions, 5 percentage points more than in 1990. Transport is the main reason Germany will not achieve its 2020 target: emissions are forecast to fall by 32% instead of 40%, despite reductions in the power sector, industry, housing, and even in agriculture. The pressure on changes in transport will therefore increase so the sector can meet its target share of the 55% reduction expected by 2030. Hence, the German federal government is planning to mandate a reduction of transport's CO<sub>2</sub> emissions by as much as 40–42%.

Electromobility will contribute not only to reducing carbon fuel usage in transport but also increased compatibility with renewable energy sources, whose role in the German energy mix is constantly growing. E-cars can support these changes because they can function as energy storage devices, holding excess energy from the grid and returning it during shortages.

**One Million Electric Cars.** In 2009, the federal government set a target number of electric vehicles: one million by 2020. Although the pressure on their development accelerated in 2011, the plan did not have sufficient support instruments, and hence the expected emission reductions did not follow. Only in 2016 did the government introduce financial incentives—a €4,000 discount when buying an electric car (€3,000 for hybrid cars). However, the high price of e-cars and lack of developed charging infrastructure (in 2016 in Germany, there were about 7,400, mostly slow-loading, recharging points) resulted in slow sales, such that out of 45.8 million cars, only 200,000 are electric or hybrid cars, with the former amounting to less than 80,000.

Most of all, however, German manufacturers have not been interested in expanding their electric vehicle lines—only BMW's i3 model was popular worldwide. Only now are they starting to alter their strategy to produce more e-type models, invest in rapid-charging stations, or even, like Volkswagen, announce the construction of a battery factory. The aim is to maintain the competitiveness of German motorisation and to keep jobs. The automotive industry, however, adamantly points out that electrification is just one way to reduce emissions in transport and promotes an alternative solution—the decarbonisation of the diesel engine, first by conversion to natural gas (LNG/CNG). The car manufacturers argue this is the only strategy that will not undermine the position of this key German industry. Some already have concluded strategic alliances with the gas sector (e.g., Volkswagen and Wingas). Like the power sector, natural gas is a transition fuel—one that is cleaner than petrol or diesel, but more accessible than charging stations for electric cars.

**Perspective.** Inadequate progress in the implementation of *Energiewende* and Germans' fear of losing competitiveness in motorisation will speed up the discussion on changes in the country's transport policy. A reduction of more than 40% in this sector will not only be confirmed, but one can expect (especially if the new government is joined by the Greens) an even more ambitious strategy, including electrification support instruments, such as tighter emissions standards and carbon-offset pricing in transport. Yet, because of the strategic importance of the automotive sector to the German economy and the desire to protect jobs (which is the focus of corporations co-managed by employees, like Volkswagen), it will promote a transitional solution—the conversion of diesel-fuelled internal combustion engines to natural gas. As a result, two visions of *Verkehrswende* will emerge in Germany: an ambitious and revolutionary one of electrification but without an action plan, and an equally ambitious but evolutionary one based on the existing structure (and infrastructure) of the sector, the decarbonisation of the internal combustion engine.

Maintaining the competitiveness of the German automotive industry is in Poland's economic interest because of the role of Polish subcontractors in the supply chain. Poland, like Germany, also wants electromobility, which may present the opportunity to jointly promote solutions at the EU level. Both countries are involved in talks on building a European battery factory. The challenge, however, may be the Europeanisation of some German ideas, such as setting a price on CO<sub>2</sub> in transport. Plans to increase the role of natural gas in transport may also be an additional argument for the German federal government to secure gas supplies, including through Nord Stream 2, which Poland opposes.