

Near-term, German EV registrations about to decline – but boom will not end^{*)}

Mainz, February 1, 2023 | Dieter Wermuth

In the January edition of *Wirtschaftsdienst*, an economic policy magazine, Ferdinand Dudenhöffer and his colleague Helena Wisbert of the Duisburg CAR (Center Automotive Research) institute predict a sharp reduction of EV registrations this year and next. For the time being, the boom has ended. But I am convinced that it is just a dent in a steeply rising trend and that the rapid expansion of the market will continue from about mid-2024. For environmental reasons, the German government, as well as many others, are determined to gradually stop the sale of cars with internal combustion engines (ICE-cars). From 2035 onwards, such cars can no longer be sold in the European Union. Clients will then have no choice – they have to switch to EVs. The Scandinavian countries are showing us where we are heading.

EV registrations in 2021^{*)}

	'000	per 100,000 inhabitants
Norway	148	2,737
Sweden	136	1,306
Denmark	66	1,127
Germany ^{**)}	690	829
Switzerland	54	620
Belgium	70	604
Finland	30	541
Netherlands	94	536
United Kingdom	310	462
France	310	454
China	3,300	234
Italy	138	233
Canada	87	227
New Zealand	10	201
USA	630	190
South Korea	91	176
Spain	68	144
Australia	20	79
Greece	7	66
Poland	18	47
Japan	45	36
Mexico	4	3
Brazil	7	3
India	12	1
World	6,600	84

^{*)} BEV and PHEV

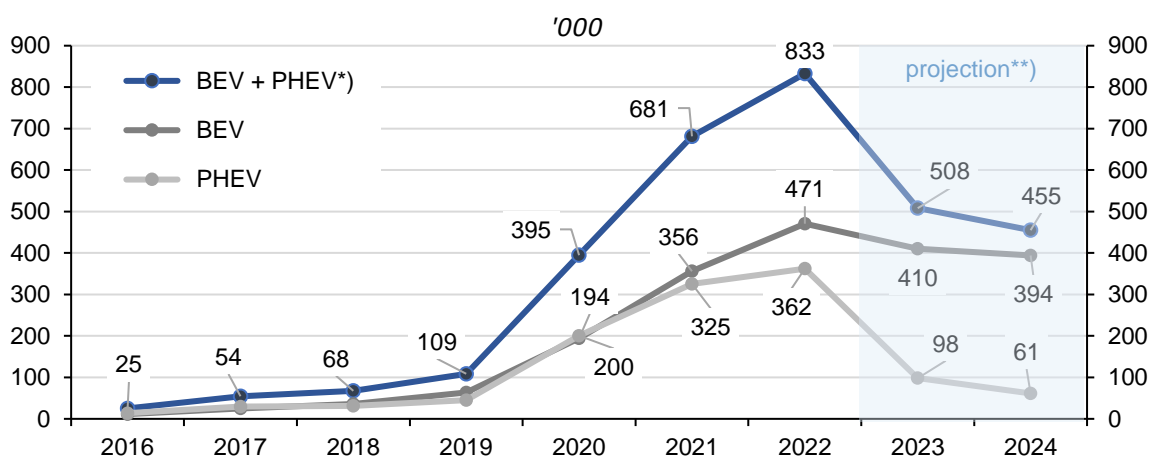
^{**)} the number of new electric cars registered in 2022 was 833,000, i.e. 988 per 100,000 inhabitants

source: IEA, own calculations

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The CAR authors list three main reasons for the coming slowdown of the EV market: 1. starting this January, subsidies for electric cars will be reduced significantly, or even be eliminated altogether, which raises their prices by 11 to 33 percent between 2022 and 2024, depending on the model. Small, and thus the most affordable cars will suffer most. Their existing disadvantage will increase. For hybrids, the end of subsidies will be their death bell. 2. household electricity prices are now about 60 euro cents per kilowatt-hour, and 70 cents at public charging stations and are thus twice as high as before the energy crisis. Driving an EV is no longer unbeatably cheap. 3. the production costs of batteries, the main cost component, will rise significantly because raw materials such as lithium-hydroxide, cobalt, nickel, manganese and phosphor have become very expensive.

German registration of new EVs



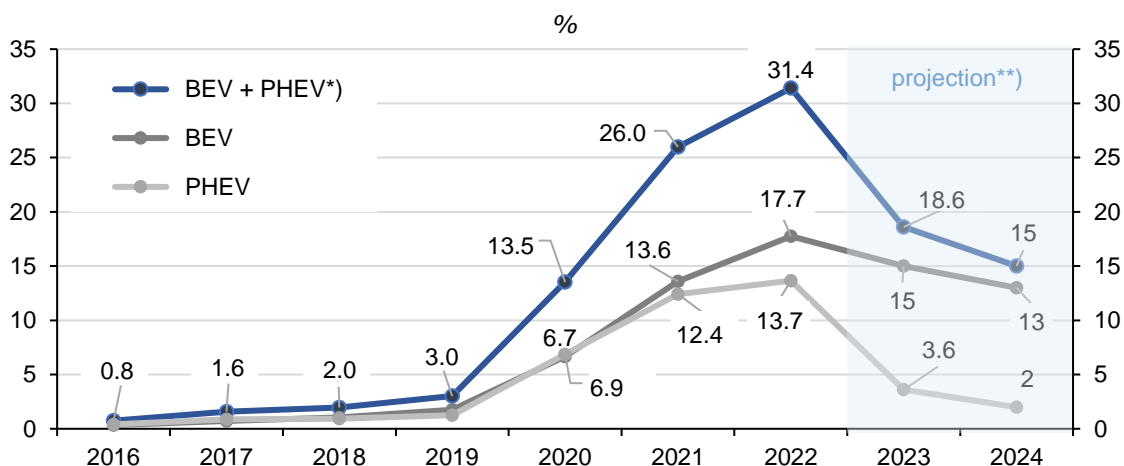
*) BEV = battery electric vehicles, PHEV = plug-in hybrid electric vehicles – **) see Dudenhöffer, F. & H. Wisbert (2023): Dürrezeit für das Elektroauto steht bevor, Wirtschaftsdienst 1/2023

source: Kraftfahrt-Bundesamt; own calculations, design & research: Uwe Richter

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Whereas 833,000 new EVs had been registered in 2022, an increase by a factor of 7 ½ since 2019, the number will fall to 455,000 in 2024, or be no less than 45 percent, according to the forecast of Dudenhöffer and Wisbert. Of these, only 61,000 will be hybrids.

EV share in total new car registrations in Germany



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The most important actor by far on the EV market is China. Since the country has acknowledged that it cannot realistically compete against the producers of cars with internal combustion engines – and because the environment is in a terrible state – the government has moved full speed into the production of electric vehicles. Globally, more than half of all new EVs are now registered in China. If European, American, Japanese and South Korean car makers want to survive they have to study the plans of the Chinese planners. They have obviously realized that the future belongs to cars powered by electric batteries. In the meantime, capital spending in this segment is huge.

The reduction of German subsidies is certainly a major reason why EV sales will do poorly this year and next. But markets in other countries, including those without subsidies, are also facing headwinds these days: international supply chains are not functioning smoothly anymore. EV producers are often simply not able to deliver. Catchwords are the port of Shanghai and the war in Ukraine.

While battery prices have indeed increased somewhat recently, the long-term downtrend is unbroken. According to a study on Bloomberg, in terms of 2020 prices, the cost of a capacity of 1 kWh was \$600 in 2014. In 2024, it will have fallen to \$94, and to \$59 by 2030. These are the wonders of mass production and technological progress. In addition, producers such as Tesla are increasingly switching to batteries on a lithium-iron-phosphate basis which do not require cobalt and nickel. The race is on to reduce the dependence on expensive rare earths – and thus also on China. Overall, the share of battery costs in the total cost of an EV will decline further and will be no longer the decisive factor. Take the Fiat 500: in Germany, it costs about €35,000 to buy one – of this, only €6,000 are accounted for by its 42 kWh battery.

As to the cost of operating an EV, assume the owner of a car with an internal combustion engine drives 14,000 kilometers per year, burns 8 liters of gasoline per 100 kilometers and pays €1.90 per liter. This adds up to €2,128 a year. An EV, on the other hand, will need €1,512 for the same distance, assuming an average electricity price of 60 eurocents which translates into monthly savings of about €51. Some Germans will be able to profit from the recently introduced electricity price brake of 40 cents per kWh – it reduces the annual cost to €1,008 and leads to an increase of the monthly cost advantage to €93.

Moreover, insurance costs and car-related taxes are lower for EVs while prices for used cars are higher than for ICE-cars. It is also highly likely that electricity prices will fall in the long run. The marginal costs of energy from renewable sources is almost zero while the output and share of renewables in total electricity production is increasing steadily.

I do not think that spending money on expanding EV production capacities will turn out to be an expensive misallocation of resources. It is just the other way around: firms which invest too little cannot survive.

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