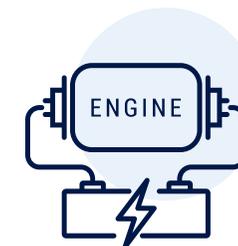


# ONGOING MOMENTUM IN THE BATTERY CELL MARKET

According to the Federal Ministry for Economic Affairs and Energy, around 30% of the global demand for battery cells should be supplied by German and European production by 2030. [1]

Current market developments show that Europe is likely to achieve this ambitious goal and that the European automotive industry can plan for battery cells from domestic production in the future.

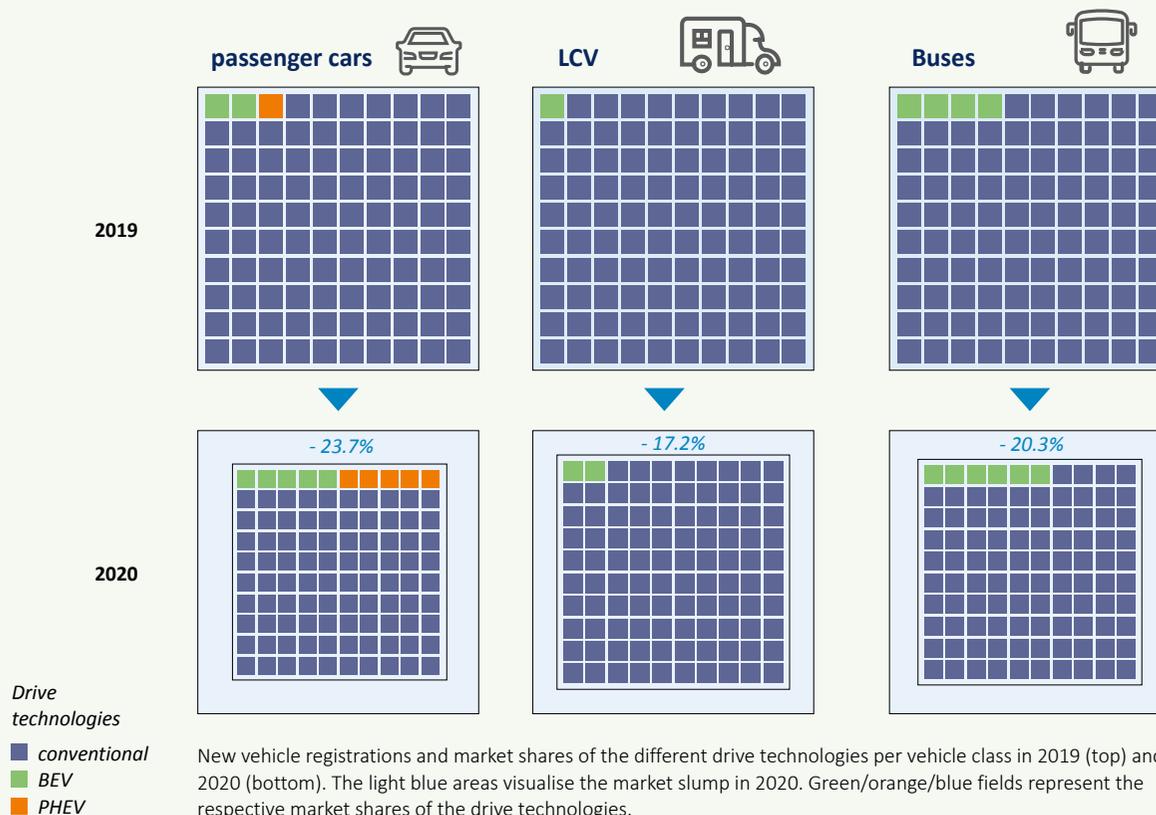


## Registrations of electrically driven vehicles increase significantly – despite contrary market development

In 2020, the European sales volume of electric vehicles increased significantly. As a result, the number of Chinese new registrations was surpassed for the first time. [2] In the European Union (EU), 144% more battery-electric vehicles and 266% more plug-in hybrids were newly registered in the passenger car (M1) vehicle class in 2020 than in the previous year. However, new registrations of electrified vehicles also increased in the segments light commercial vehicles (LCV; N1) and buses (M2/3) by 38% and 9% respectively.

Total vehicle sales in Europe in 2020 fell considerably compared with the previous year, partly due to the Covid crisis (see Figure 1). [3] Due to the simultaneous significant increase in electrically powered vehicles, their market share has more than tripled compared to the previous year for passenger cars, almost doubled for LCV and increased by almost 50% for buses (see Figure 1). [4] [5] This rapid increase in vehicle sales led to an equally sharp rise in demand for battery cells. According to an extrapolation based on new registrations in the EU in 2020, demand has risen to around 35 GWh (see Figure 2, orange box), an increase of 121% year-on-year.

Figure 1: European vehicle market 2020 compared with the previous year



### Battery demand in Europe is expected to increase more than tenfold by 2030

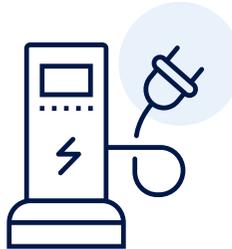
Assuming that total vehicle production in the EU increases from the current level of around 16 million to around 17 million vehicles p.a. by 2030, the battery cell demand can be extrapolated for three different market ramp-up scenarios, as visualised in Figure 2:

The conservative scenario, which assumes a production share of electric vehicles of 22% in 2030, calls for a battery cell demand of about 200 GWh/a in 2030. In the progressive scenario, a share of 40% of electric vehicles is assumed, resulting in a battery cell demand of approx. 380 GWh/a in 2030. In the very progressive scenario, an electric vehicle production share of 81% is assumed, leading to a battery cell demand of about 760 GWh/a in 2030. [6]



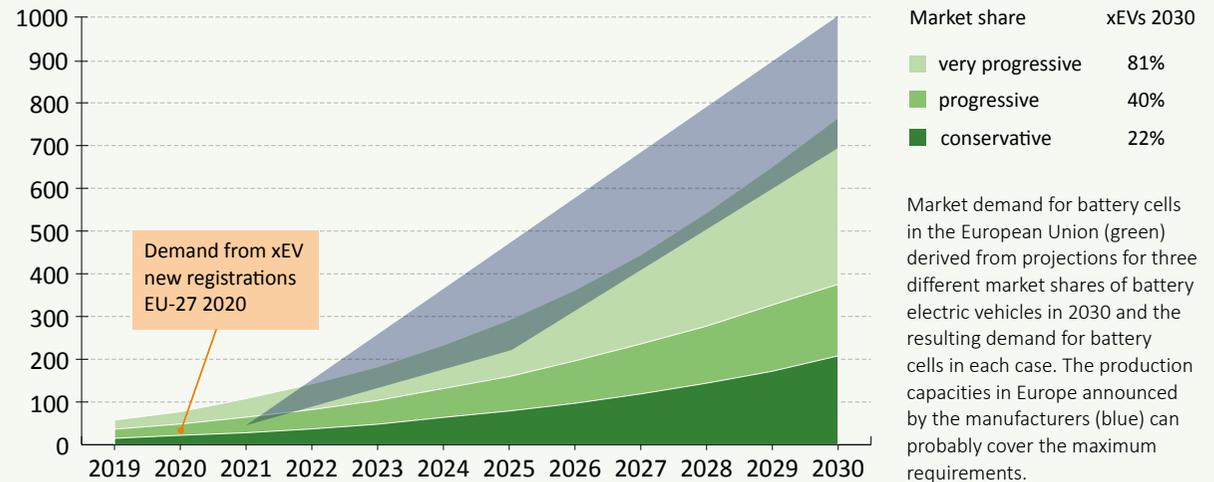
### Enormous build-up and expansion of production capacities in Europe

In order to meet the growing demand for battery cells, production capacities worldwide and especially in Europe are being massively expanded. Numerous new production sites are already in operation, under construction or at least in planning. While global production capacities currently amount to 320 GWh/a, they are expected to reach 1,490 to 3,610 GWh/a by 2030. In Europe, manufacturers have announced production capacities between 697 and 959 GWh/a in 2030.



Depending on the scenario considered, the European share of global production capacity will increase from currently 15% to 27% or up to 47%, strongly dependent on the degree of

**Figure 2: Battery cell demand and production capacity in Europe**  
Gigawatt hours per year



implementation of the announced Chinese production capacities.<sup>1</sup>

### Sufficient supply of battery cells in the coming years

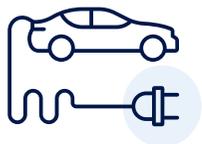
The comparison of the demand scenarios in the vehicle sector with the projected European production capacity

for 2030 underlines that the demand of the European market can very likely be met with cells produced in Europe even in the very progressive scenario.<sup>2</sup> Assuming an average battery capacity of 55 kWh per vehicle, the announced production capacities could provide 12.5 to 17.5 million battery electric

<sup>1</sup> Expansion stages assumed as assured (1,490 GWh/a) versus planned (3,610 GWh/a): European share of global production capacity in 2030 is 47% (assured) versus 27% (planned).

<sup>2</sup> It should be noted that the above requirements relate only to vehicle production. The demand caused by stationary storage and consumer electronics is not taken into account here. However, it is assumed that these will only account for a relatively small share of around 20 % in 2030.

vehicles. However, it must be taken into account that the announced production capacities are ideal considerations, assuming that the manufacturing plants run at full capacity without producing defective goods.



According to a current projection, the total global demand for batteries for electric vehicles, stationary storage and consumer electronics will amount to around 2,200 GWh/a in 2030. Consequently, around 32% of the global demand can be met by the European production capacity assumed to be secured for 2030. [7]

In view of the increasing demand, European production capacities are adequate and necessary to serve the domestic market. Should the more conservative scenarios regarding demand come to pass, battery cells produced sustainably in Europe would also be available for the global market.

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