



# State subsidies for battery cell production

For information on risks and side effects, please do not consult policymakers or recipients of incentives

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Not least because they fear that the trend towards electromobility may cause losses in value added and job cuts in Germany, policymakers are debating subsidies for national battery cell production. From a regulatory perspective, supporting local manufacturing would be dubious and comes with high economic risks. On principle, German automakers ought to be better judges than policymakers, both with regard to the indispensability of battery cell manufacturing in Germany and its long-term profitability. The state is not needed, at least not as a source of subsidies.

In the years ahead, the share of electric vehicles in passenger car sales is likely to rise in many key auto markets, largely driven by stricter CO<sub>2</sub> emission limit values for new cars. Under the new rules, the EU agreed that CO<sub>2</sub> emissions per passenger car shall be 37.5% lower by 2030 than in 2021. Clearly, these targets will not be achieved without the adoption of alternative propulsion technologies. For policymakers and, increasingly, the automotive sector, electric mobility is taking centre stage. Many governments grant subsidies to purchasers of electric vehicles, and the respective charging infrastructure is also frequently supported. At the same time, the automotive industry's investments in technological progress run into billions of euros every year, even though profits per electric car sold fall short of those for traditional vehicles.

To date, battery electric cars have almost exclusively achieved substantial market shares where they are supported by high subsidies (e.g. Norway) or where vehicles with combustion engines are subject to strict regulation (e.g. China). On German roads, EVs continue eking out an existence as niche products. In 2018, battery electric cars or plug-in hybrids accounted for only 2% of new passenger car registrations. Private consumers, in particular, are as yet reluctant to buy EVs, although the purchase of electric cars is also supported in Germany, by both the government and manufacturers. Whilst long delivery times of some electric cars, in conjunction with the to-date relatively small supply, are also playing a role, low market penetration of EVs can so far above all be traced to the demand side. From today's perspective, it is difficult to say how sharply market shares will increase in the years ahead. If the CO<sub>2</sub> limit values are to be achieved in 2030, roughly one-third of new passenger cars would have to be fully electric.



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The structural changes in the sector will lead to a shift in the automotive value chain. Combustion engines, transmissions, exhaust systems and other (high-end) parts are not needed in battery electric cars. Ceteris paribus, a substantial share of value added in the automotive industry will hence be lost to the producers of battery technology. Today, the latter are primarily located in Asia, where just a few manufacturers account for around 90% of global battery cell production.

Given the crucial role of automotive industry in Germany and its strength in the combustion engine segment, there is an ongoing debate as to whether Germany needs its own battery cell manufacturing to offset the imminent losses in value added and job cuts. The federal government has, as a consequence, earmarked 1 billion euros to support production of battery cells in Germany. More than 30 companies have recently applied for subsidies from this fund, including automakers, suppliers and battery producers.

### Subsidies come with high risks

It is reasonable, from a political point of view, that the federal government considers promoting battery cell production in Germany. Who, after all, wants to be accused of standing on the sidelines when faced with potential job losses in a key industry? From the regulatory perspective, however, subsidizing local production seems dubious and comes with substantial economic risks:

- By earmarking the above subsidies, German policymakers are, on principle, pursuing a kind of "carrot-and-stick" policy. On the one hand, the strict CO<sub>2</sub> emission limit values (at EU level) are prompting automakers to invest large sums in alternative drive technologies, which has significant effects for their business model. On the other hand, premiums are granted to support demand for electric cars (which also seems disconcerting from a sociopolitical perspective), and now policymakers are toying with the idea of supporting battery cell production.
- With its focus on subsidies for electromobility, the state unduly claims expertise when it comes to deciding which alternative drive technology is best-suited to achieve the new CO<sub>2</sub> limit values. Alternatives such as synthetic fuels, natural gas (as an interim solution, at least) or hydrogen resp. fuel cells, on the other hand, are given relatively little consideration. From the current viewpoint, it looks as if battery electric mobility is indeed taking centre stage for the majority of automakers. Of all alternative drive technologies, it may therefore be the potential candidate for the mass market, not least thanks to the government's subsidies for this technology. However, it cannot be ruled out that the emission reduction target could also have been achieved by means of other technologies, and at a lower cost. Not to mention that there is scope for far more cost-effective CO<sub>2</sub> emission reductions outside the automotive sector. The problem could, for instance, be addressed by integrating the transport sector in the EU Emissions Trading System. Another striking issue is the regulation's blatant disregard for the fact that power generation for electromobility is not CO<sub>2</sub>-free.



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- A serious risk exists on the demand side. Despite subsidies, it is as yet difficult to predict how quickly, and to what extent, private consumers, in particular, will switch to electric cars in the years to come. If demand picks up only slowly, (global) battery cell production ought to face an overcapacity challenge. So, what benefits would one-off subsidies provide?
- On the supply side, a factor arguing against subsidies is that Germany is not the best site for battery cell production in the medium to long term, as the headstart of Asian suppliers is immense, in terms of knowhow (and as regards access to natural resources). Should production evolve into a "commodity", with its particularly strong emphasis on economies of scale, Asian countries would have a clear edge, as experience from other sectors shows. One example that leaps to mind is the evolution of solar industry in Germany and China. That the Asian countries will also (continue to) support their local battery cell production is by no means an unlikely scenario. Another negative factor is the relatively high energy intensity of battery cell production, which puts Germany with its high electricity prices (Energiewende) at a disadvantage. In light of the above, Germany would arguably not be in the position to supply global markets. Start-up subsidies would hardly help to alleviate Germany's disadvantages as a manufacturing site for battery cells. In any case, battery cell production in Germany would be highly automated, which suggests that the positive job effects would fall short of policymakers' hopes.

### Automotive industry should decide for itself, based on economic considerations

On principle, German automakers ought to be better judges than policymakers, both with regard to the indispensability of battery cell manufacturing in Germany and its long-term profitability. A singular one-billion state subsidy – if not followed by further incentives – should not influence the general judgment. Prior to prospects of national production funding, companies' enthusiasm was rather muted resp. initial production rollouts failed. There were probably good economic reasons for this lack of vigour. If these grounds no longer hold water, it would be in the hands of German industry to reset the stage. The state is not needed, at least not as a source of subsidies. Furthermore, German industry ought to have more conclusive answers than the government when it comes to deciding whether activities such as materials research, system integration or other electromobility-related operations may outperform local battery cell production in terms of profitability. Although Asian producers have a headstart in battery cell manufacturing, no company has an unassailable lead with regard to electromobility as a whole. It is also noteworthy in this context that the path to electromobility is evolutionary, as global demand for cars with combustion engines – including plug-in hybrids – will continue to pick up in the years ahead. Thanks to this evolutionary nature, there is room for adjustment.

Ultimately, a fundamental problem of German and European climate policy is that it not only defines the climate targets but also specific instruments (e.g. subsidies, limits, bans, quotas), thereby running the risk of setting the technological path on which these targets can be achieved. This approach undermines the efficiency and effectiveness of climate policy. Economists have

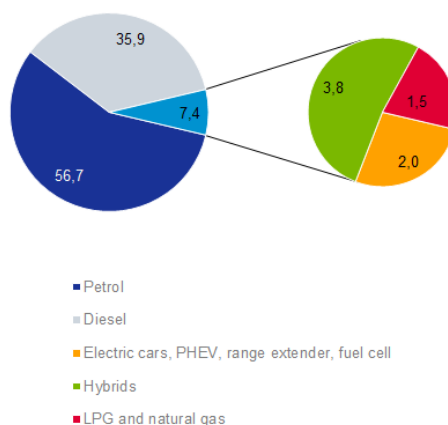


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therefore been calling for more market-based instruments (e.g. expansion of emissions trading or CO<sub>2</sub> tax) for many years.

### Electromobility still a niche sector

Share of fuel types/drive technologies in new passenger car registrations in the EU, 2018, %



Source: ACEA

Original in German published on April 18, 2019: "Staatliche Förderung der Batteriezellenfertigung: Zu Risiken und Nebenwirkungen fragen Sie nicht Politiker oder Subventionsempfänger"

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