

US and European EV outlook: Driving the energy transition

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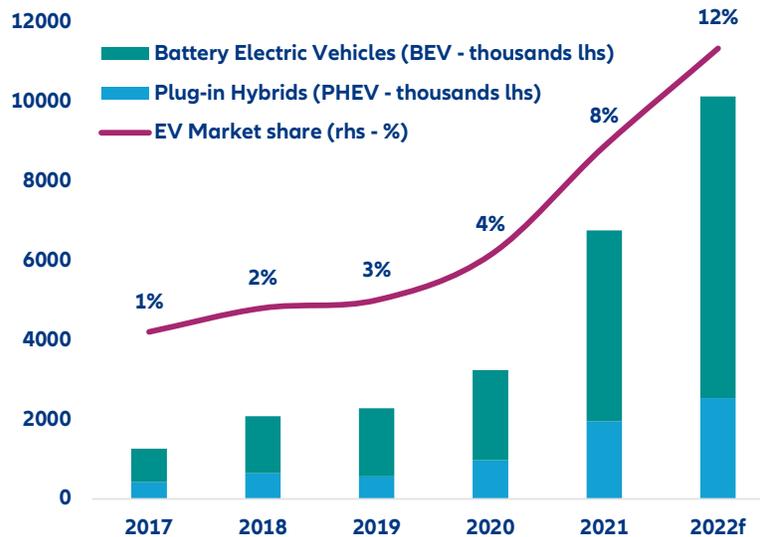
EXECUTIVE SUMMARY

- The global electric vehicle (EV) market is booming: Sales more than doubled in 2021 and market share reached around 8%. This positive momentum is likely to continue, with estimated growth of +50% in 2022. However, dynamics will be different across countries due to differing policies.
- Electrified transport investment accounted for over 36% of global energy transition investments, with its share climbing above 50% in countries such as Germany and the UK. Going forward, it should remain a key driver of the energy transition. However, to avoid a supply gap of over 500,000 tons of lithium carbonate by 2030, which would harm the deployment of EVs, the sector needs to invest in both production-boosting technologies and exploration.
- At the same time, until the market reaches a critical size, public policies will remain pivotal to accelerate the deployment of charging infrastructure and consumer adoption.

2021 was a stellar year for EVs, with global sales doubling from 2020.

In absolute terms, EV sales reached 6.75M units globally in 2021. China was the most buoyant market, accounting for almost half of global sales – a number equivalent to the worldwide total of sales in 2020. In December 2021, China New Energy Vehicle (NEV) sales accounted for 21% of total automotive sales. In 2022, as NEV subsidies will decrease by -30% before a phasing-out in 2023, the Chinese market is likely to decelerate a bit as either manufacturers or consumers will need to foot the extra costs. However, EV sales should grow by about 50% in 2022.

Figure 1 - Global electric vehicle sales



Sources: EV-Volumes, Allianz Research

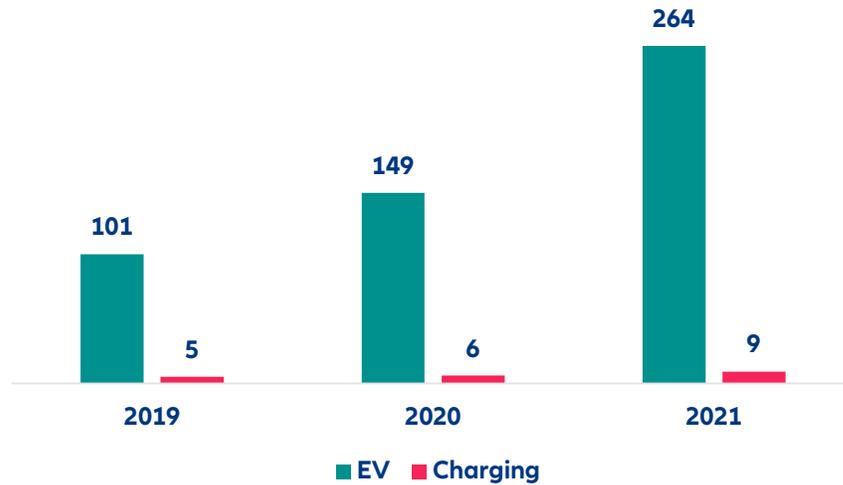
In Europe, sales have also risen sharply: in December 2021, EVs accounted for a staggering 29% of market share. As generous subsidies will remain in place this year and probably beyond, we expect EV sales to grow by about +60% in 2022. In the US, sales doubled in 2021 but volumes remain low (about 600,000 units, up from 300,000) and the market share of EVs stood at about 4% in 2021 - much lower than in Europe and China. Sales should continue to grow by about +50% in 2022 and 2023. Although we could have a positive surprise in the US. 2022 could be a breakthrough year if the Build Back Better plan is eventually passed. With subsidies of up to USD12,500 on EV purchases, the plan could be a game-changer for the market in the US.

Commercial EVs and e-buses are segments that are yet to take off; despite growing in double digits, volumes remain very limited. Most electric bus sales still take place only in China, with other countries still lagging behind.

Despite the strong sales growth, charging infrastructure investment is still sluggish.

In 2021, global EV-related spending (vehicles and charging) grew by over +75%. While in previous years, they represented a small fraction of global investments in the energy transition, in 2021 they accounted for over 36% of total investment, with investment in renewable energy accounting for about half. In some European countries, such as Germany and the UK, electrified transport investments accounted for over 50% of total energy transition investments. We expect electrified transport to remain a key component of energy-transition investments in the coming years. However, these investments are strongly skewed towards the purchase of new vehicles (see Figure 2) and investments in charging – both public charging and home charging – need to pick up in order to sustain the transition. For instance, in the EU, there were about 230,000 public charging stations in 2021; this is barely one station for every 10 EVs sold just in 2021. As recently as in 2014, the EU stated that there should be a [maximum of 10 EVs per public charging station](#) within the area and it has a target of over 1mn stations by 2025. This underscores the steep road ahead.

Figure 2 – Global electrified transport investments (USD bn)

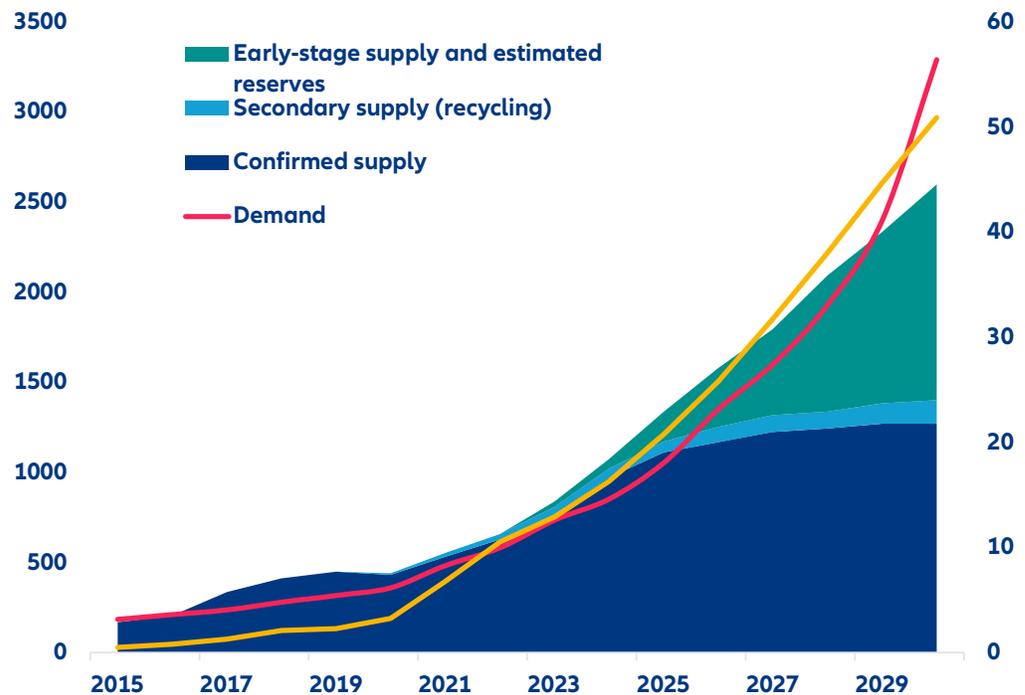


Sources: Bloomberg NEF, Allianz Research

In addition, the sector needs to ramp up investments to address the limited supply of lithium – a key commodity in traction batteries. With stellar growth in EVs, demand for lithium has surged: while lithium demand for batteries accounted for about just a quarter of total demand in the early 2010s, it is expected to represent 95% by 2030. As EVs are expected to account for about 50% of light vehicle sales by 2030, with over 50mn cars sold annually by then, the supply of lithium will have to keep up. The supply increased by almost a third between 2020 and 2021, and 90% of it came from just three countries (i.e. China, Australia and Chile). According to current estimates and the projected rise in EV demand, the global economy could face a supply gap of over 500,000 tons by 2030 based on currently known reserves (see Figure 3).

To go the distance on EVs, two levers need to be pushed to increase production: (i) investing in new technologies (e.g. direct lithium extraction) and (ii) increasing exploration.

Figure 3 – Global lithium supply and demand (thousand tons of lithium carbonate)



Sources: MineSpans, McKinsey, Allianz Research

The regulatory push needs to address lingering issues.

Policymakers are well aware that transport is a key sector for greening economies. Many national and regional governments have already penciled in dates for the phasing-out of internal combustion engine sales (e.g. from 2030 to 2040 for most European countries, 2035 for Canada and the states of New York and California etc.). In addition, over a third of the recent US infrastructure plan was designed to fund the greening of the transportation sector through subsidies. And the EU Fit for 55 legislation aims at cutting the cord between the transport sector and fossil-fuel dependence, emphasizing the use of cleaner, emission-free technologies and alternative fuels.

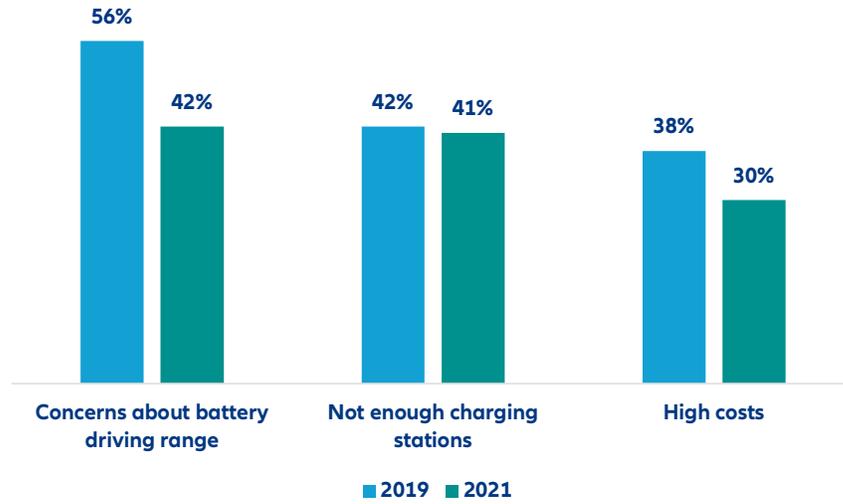
Nevertheless, there remains a sizable funding gap. Our previous research has shown that although about EUR13.4bn per year would be dedicated for charging infrastructure across the EU-27, this is not enough to meet the EU’s aspirations to limit global warming to 1.5°C¹. An additional EUR4bn per year through 2030 will be needed.

Governments also have a role to play in addressing two of the biggest concerns for consumers: charging infrastructure and costs (see Figure 4). In particular, they need to address three key issues: (i) reducing the regulatory burden to accelerate approvals of permits to build chargers, (ii) upgrading the electrical grid to cope with new demand and (iii) alleviating costs as a 350-

¹ See our report [Transport in a zero-carbon EU: Pathways and opportunities](#).

kilowatt (kW) charger can cost over EUR100,000 in Europe. Overall, public policy will remain pivotal in the coming years until the market reaches a critical size.

Figure 4 – Consumers' biggest concerns about buying or leasing a BEV



Sources: *Alix Partners, Allianz Research*

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