



Major Automotive Global Trends

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1. Global

New report: Lithium-Ion battery technology will continue to be dominant in EVs until the end of the decade

Lithium-Ion battery technology will continue to dominate the EV industry until the end of the decade, so forecasts the energy research department at Bloomberg in a new report published this July. According to the report, the supply of Lithium batteries for EVs will grow 4.3 times by the end of the decade from an aggregate capacity of 687 Giga-watts in 2023 to over 2,940 Giga-watts by 2030.

According to the report, in that year, Lithium-Ion batteries will capture 95% of the global market for EV batteries, while the penetration rate of solid-state batteries will be 4%.

Despite the global race for mass production of solid-state batteries, the researchers believe that it would take this technology a long time to establish itself. They claim that the expensive raw materials needed to produce such batteries will result in four to five times higher production costs, lowering the initial penetration rate and limiting the technology primarily to premium cars.

It should be noted that several large global manufacturers have already outlined a schedule for mass production of such batteries, including the energy division of Korean LG that intends to move to commercial production by 2026, and SAMSUNG SDI that announced that it would do so as well a year later. Solid-state batteries are expected to have 2 to 3 times better energy density than equivalent Lithium batteries weighing the same,



enabling EVs to have the range of petrol vehicles without adding to the car's overall weight.

Insurance companies are forced to declare EVs as “Total-Loss” due to lacking means of examining the batteries

The penetration of EVs keeps accelerating and influencing additional realms, including insurance. In June, the British research institute Thatcham Research published a new government-funded report that showed that car insurers are forced to send EVs to scrap even after only minor accidents due to insufficient information regarding the state of the damaged batteries. The research company specializing in risk management intelligence wrote that there is a substantial concern in the insurance business regarding the lack of available solutions for the maintenance and diagnostics of EV batteries.

The report examined the difference between petrol vehicles and EVs and discovered that the potential repair costs of EVs may be substantially higher than those of petrol vehicles for insurance companies.

According to the researchers, even in minor accidents where only the battery casing is damaged, the insurers often have no way of assessing the damage and announce almost new vehicles as “Total-Loss” while absorbing the insurance loss. This situation is caused by the high cost of replacing the damaged batteries with new ones, which can reach more than half the car's value after a year or two on the road. The inevitable result is a swift rise in EV insurance prices in Europe which may slow down the demand for electric cars.



Noted, at the beginning of EV penetration in the last decade, the insurance industry operated on the assumption that battery prices would drop quickly by 2025. However, surplus demand in the global market stopped the price decline and stabilized it on a high par, making repairing costly. The researchers determined that the existing Lithium battery diagnostics equipment does not provide the needed information for improving damaged batteries by replacing cells, rebuilding casing, wiring, etc.

Is the chip crisis over yet? In the auto industry, some believe it is just a temporary respite

The global auto industry is still recovering from the chip shortage crisis that has caused the production loss of millions of new vehicles in the past two years and created severe disruption in the supply chain. This year, chip supply returned to “Almost Normal” levels that cater to the demand and help production return to pre-crisis volumes.

However, some in the industry believe that this is not the end of the story and that the next chip crisis is just around the corner. An interview with the executive purchasing chips for Stellantis was published in June. In it, the executive said that the next chip crisis is inevitable since there is high demand for EVs and that the following sophisticated vehicles that will come to the market in the next few years will rely heavily on hardware and software and need many more chips.

According to him, the chip industry can supply the current demand for relatively simple components that most companies still use. However, there is a growing demand for more complicated and advanced chips.



Shortages in these may affect many models simultaneously due to the manufacturer's tendency to use shared platforms across many models.

It should be noted that the years of the crisis, 2021 and 2022, were, in fact, among the most profitable years for the auto industry. Therefore, some commentators believe the manufacturers want to create an "Atmosphere of Shortage". On the other hand, a few recent deals show that manufacturers are aligning, logistically and business-wise, to secure a chip inventory in case of a shortage in the upcoming years.

Stellantis explicitly announced in July that it had signed 10 billion euros supply contracts with chip manufacturers NXP, Qualcomm, and Infineon to secure supply until the decade's end.

2. USA

The Biden administration continues to promote "Green" car regulations. American auto manufacturers are starting to oppose

The "Green Spirit" flowing from the American administration regarding consumption and emissions regulations is facing opposition from the American auto industry. In July, GM gave a statement claiming that it is doubtful whether it and additional American manufacturers will be able to meet the new federal emission regulations promoted by the EPA (Environment Protection Agency).

GM claims the regulation means that at least 50% of American car models must be electric or "Electrified" by 2030. GM spokesperson said that the



company is worried about the lack of coordination between different American agencies in charge of car regulation in the US, which may hinder the manufacturer from meeting the administration's demands, even if they meet the EPA demands.

Noted, GM declared already in 2021 that it intends to stop marketing petrol cars by 2035. However, it later updated the message and said it is "Convinced that it can reach a goal of a product line with 50% EVs by 2035".

According to the EPA recommendations, the average emissions of US manufacturers will be lowered by 56% between 2027-2032. The EPA estimates that by 2030, 60% of new cars sold in the US will be electric, an average reduction of 13% yearly. The only way for the manufacturers to meet this goal is by adopting an aggressive plan to shift to EVs. However, lobby groups representing large American automakers are pressing for adopting more moderate goals such as 40-50% EVs by 2030.

The American House of Representatives is trying to revive the regulation of the autonomous car that has been "On Ice" for the past five years

The regulation for autonomous vehicles in the US has been rolling in the administration's corridors for almost a decade, encountering political or technical obstacles time after time. Now, the American House of Representatives aspires to revive the legislation and, in July, conducted a hearing for a new draft proposal proposed by the Republicans after five years of no progress. The proposal aims to broaden the existing regulation



for “Ordinary” cars in the US to make driving autonomous vehicles possible. At the same time, the legal defenses for drivers will be expanded accordingly.

According to the suggestion, “Autonomous vehicles have many benefits including reduction of traffic accidents, expanding the mobility of handicap people, reducing parking shortage and reduction of greenhouse gas emissions”. The hearing, held at the House of Representatives Technology and Information Committee, bore the headline “A framework for autonomous driving: improving safety, quality of life and basic mobility in the US while defeating China”.

The proposal gained the support of various elements in the US, including the UAW, which claimed that the proposal promotes technology that puts the workers first and emphasizes the need for high standards of safety in driving.

A more decisive reaction came from the head of the relevant committee in Congress that said, “The freezing of the legislation in the past two congress terms of office has put the US in danger of losing its’ leading position in the field of autonomous driving to China. To ensure that Americans will be able to reap the benefits of self-driving technology, we must formalize comprehensive national legislation that will place the foundation for the safe implementation of autonomous vehicles”.

On the other hand, other lobbies in the US keep trying to delay the legislation and call Congress to “Make US roads safer and not to grant free



access to vehicles that are technologically un-proven and without legislation”.

US Federal institutions intend to equip this year with EVs in hundreds of millions of dollars

The American administration is trying to prove that it is not only demanding from others but also from itself regarding purchasing EVs. In July, the American media reported that the administration intends to buy 9,500 new EVs during the 2023 budget year – more than three times the amount from last year’s budget.

According to the governmental accountability office (GAO), 26 federal agencies that comprise 99% of all existing agencies approved their intention to buy EVs this year for 470 million dollars. Additionally, hundreds of millions of dollars will be allocated to building charging infrastructure. The allover cost is 200 million dollars higher than the alternative of buying an equivalent amount of petrol cars.

That being said, the purchase still faces a few obstacles. Last year, for instance, almost half of the intended purchasing of EVs for the governmental fleet was canceled due to the manufacturer’s inability to supply the cars because of the chip crisis. Also, with an extensive fleet, the federal Customs and border protection announced that according to its estimates, EVs could not support enforcement activities in extreme conditions such as those near the US borders.



In 2021, President Biden issued a directive that ordered all federal agencies to stop buying petrol cars by 2035 and replace all the US government fleet in the US with petrol and plug-in engines by 2027.

Initial forecast: US passenger cars market continues its recovery trend in July

The US passenger car market keeps recovering at an increasing pace. In July, it registered an increase of 18% in deliveries to 1.33 million units, including fleets, revealing the early monthly forecast of S&P Global. The current delivery rate reflects yearly deliveries of 16.1 million vehicles.

According to the forecast, passenger car deliveries kept growing in July due to continuous demand from fleets and a rise in demand in the private sector. As a result, the research company upped its yearly forecast to 15.4 million units compared with 15.1 units in the previous estimates.

However, the researchers mention that the economic environment is still obscure, and the actual condition will be determined by the ability of the customers to purchase new cars given the high-interest rates, credit limitations, and high prices. On the other hand, the company estimates that improving production volumes in the industry will bring about a quick accumulation of unsold inventories, creating pressure for price reduction. The company assesses that the book of unsold inventories in the US in July was around 1.87 million cars, a significant increase compared with a list of less than a million at last year's chip crisis.

The researchers mention that EV sales continued to keep a 7.6% market share in the US and will continue to grow in the yearly summary as well.



However, they warn against monthly volatility in these car prices due to the “Price War” in the segment initiated by Tesla.

New market research: many US customers express willingness to purchase an EV, but not many buy

The willingness of US customers to buy EVs is much higher than the actual purchases, claims new market research published by the research division of auto trade giant Cox Automotive. The research studied the relationship between EVs among customers and dealers and discovered a lack of readiness regarding sales and service to EVs among dealers.

The main findings show that the declared willingness of customers to buy EVs is proliferating. 51% of respondents said they are considering purchasing a new or used EV, compared with 38% only in 2021. However, the market share of EVs is expected to reach only 8% of the total new car sales and only 1% of used car sales.

According to the report, the EV inventory is rapidly growing in large parts of the US due to over-optimism on the dealers' side regarding the demand. During June, the average number of EVs that “stood” at the dealer’s lots was 100 days – almost double that of a petrol car.

The main problem is the high prices, and 43% of respondents mentioned that EVs are too expensive. On the other hand, other barriers are dropping, and only 32% cited a lack of charging infrastructure as a reason to avoid buying, compared with 40% in 2021. Almost 53% of the customers said that they believe EVs will significantly replace petrol cars, but only 31%



of dealers believe that. Nearly 82% of the dealers said that they are obligated by the manufacturers to invest significantly in preparation for marketing EVs.

Despite their doubts, dealers still view EVs as a substantial growth area for their business in the future, both for EV sales and service. However, they feel they need more guidance and practical support from the manufacturers, especially in battery technology, maintenance, and charging infrastructure. One of their main problems is the lack of diagnostic tools to analyze the state of the batteries and their potential actual range.

3. China

A new Chinese government policy document calls to continue and incentivize the penetration of new energy vehicles in years to come

While the world is preparing to reduce tax incentives for green vehicles to defend the fading income from taxing cars and fuel, the Chinese government keeps embedding them in its long-term strategy.

This month, a long-term “Policy Document” was published in China, placing an increase in sales of New Energy Vehicles (NEVs), namely EVs and PHEVs, alongside broad investments in the supportive infrastructure, as a goal for the next few years.

The document, signed by 13 governmental offices, including the Ministry of Finance and the “Supreme Reform Committee” which is the most



influential in China, formulates a gradual outline to stop producing ICE cars in China and accelerate their replacement with EVs.

The first step in that direction is extending the exemption of EVs from purchasing taxes until 2027, at least. Also, massive budgets will be invested in the electric grid to support EV charging in remote rural areas. The government will also encourage the operators of battery charging and swapping network operators to reduce prices, and gradually there will be incentives to produce cheap and accessible NEVs.

As part of the decision to gradually stop using ICE cars, the government intends to increase the EV purchasing quotas for local government in the different districts and aid in developing the used EV market in China. The document does not elaborate on what concrete steps will be taken now and which will be determined later.

In the first half of 2023, the passenger car market in China registered a growth of 3% to 9.52 million units, while NEV sales grew by 37% compared with last year. Analysts in China mention that the price war ignited by Tesla at the beginning of the year pushed prices down but so far did not “Reboot” the NEV segment as many hoped.

Car export from China breaks historical record H1 2023

Car export from China keeps breaking new records. Initial data from the Chinese auto manufacturers union reveals that between January and June, China exported 2.14 million vehicles, an increase of 75.7% compared with last year and almost 70% of all yearly export in 2022. Out of which, in the



first half of 2023, 534,000 NEV were exported, an increase of 160% compared with last year. SAIC group led the export with 530,000, almost 70% of all Chinese brands. The group even announced its intention to establish a European production hub; the location is still undetermined. SAIC exported to Europe 200,000 vehicles since the beginning of the year, in second place is Chery with 398,000 cars, most of them with petrol engines.

However, these impressive numbers are still no threat to the Western car market. According to the export figures, almost 56% of the cars exported from China in H1 were cheap small vehicles from category A0 shipped to third-world countries. In addition, 182,000 of the exported vehicles were made by Tesla, which captured almost 34% of the export of NEVs from China in the first half of the year. Also, the largest export market for Chinese cars was Russia, with 287,000. However, that was primarily due to the vacuum created once Western car brands decided to withdraw from Russia following the invasion of Ukraine. The car export to Western Europe was limited and captured less than 5% of the total.

New research, the Chinese are conquering the EV market in south-east Asia with a market share of 75%

Chinese EV manufacturers in the USA and the EU are still minor, but they are expanding in Southeast Asia's critical and developing market.

New research from Counterpoint Research firm published this month reveals that at the beginning of the year, Chinese-made EVs caught almost 75% of the sales in this segment in Southeast Asia. Their primary market



is Thailand, whose government started recently offering incentives to EV buyers and, at the same time, subsidies to manufacturers that intend to produce EVs in the country.

Thanks to these steps, a massive export of EVs from China to Thailand started with at least three manufacturers, BYD, Great Wall, and NETA, announcing that they intend to open production and assembly lines in Thailand. By the end of the decade, Thailand wants to shift 30% of its yearly car production, which stands at 2.5 million units, from petrol and diesel to electric propulsion.

The research has shown that the sales of EVs made in China rose in Southeast Asia from 38% last year to 75% this year, including Tesla's export from China. However, the penetration rate of EVs in East Asia is still lower than in the rest of the world at 3.8%. According to the research firm, it will rise to 6% this year.

4. South-Korea

Price increases and high-interest rates are starting to slow down the growth pace of the EV market

While in China and Europe, the sales of EVs continued to soar in the first half of the year at an accelerated pace, South Korea registered a slowdown for the first time. EV deliveries in the country grew during the first half of the year by only 13.7% compared with 63.8% last year.



South Korean analysts provide a few reasons for this slowdown, primarily due to price increases due to the cut in governmental subsidies that since 2018 were halved. Inflation also pushed prices up. As of today, EVs in Korea are 30-40% more expensive than equivalent ICE models. Another reason for the slowdown is the lagging of the charging infrastructure behind the EV sales pace, damaging the charging convenience.

The South Korean auto industry marks AI as a high-priority objective

The importance of AI as a means of development, manufacturing and marketing of future car models and services continues to seep into the Korean auto industry and receives governmental encouragement and guidance. On July 25th, the South Korean government announced the formation of an “Industrial Alliance for Artificial Intelligence” that includes twenty of the largest corporations in Korea, including Kia and Hyundai Motors, that hold most of the Korean auto market.

According to the announcement made by the Korean trade office, the goal of the alliance is to promote the use and assimilation of AI technologies in all industries at a quick pace. The coalition will engage in a few areas at the same time, mostly in applications of machine vision and everything that has to do with the regulation of the technology and the prevention of abuse.

Today, the use of AI in the auto industry is still relatively limited and includes mainly machine vision and machine learning algorithms for ADAS and control and voice activation in the interior. AI is more common



in China, especially in advanced EVs that include many AI-based information and entertainment apps.

5. Europe

Vehicle delivery figures in Europe H1 2023

During July, the ACEA published the delivery figures for H1 2023, and the overall picture is relatively optimistic. The end of the “Chip Crisis” and the return to almost total capacity manufacturing in the auto industry helped a 17.6% leap in deliveries compared with last year. Aggregate deliveries added up to 6.59 million units and rose in all five large markets in Europe, including Spain (24%), Italy (22.8%), Britain (18.4%), France (15.4%), and Germany (12.8%). However, these figures are still lower than pre-COVID H1 2019.

Petrol cars (36.3% of the market) and hybrids (24.3%) kept leading the sales in the EU. In the EV segment, sales leaped from 10.7% to 15.1% for the first overtaking diesel, settling for 13% after many years of leading European sales.

In June alone, sales in the EU rose 19% to 1.27 million units. Sales of EVs leaped by 55% compared with last year and added 209,000 units.

Global Data research firm estimates that sales of passenger cars in the EU will add up to 11 million units in 2023, almost a quarter less than pre-COVID 2019 sales. The company’s analysts estimate that the market’s



“Rebound” in H1, caused by the increase in supply, will fade in H2 due to negative macro figures, high car prices, and a decrease in demand. According to them, at some point during H2, the increase in production and supply will meet the decline in order, and a lower balance of sales will be created. Analysts are skeptical of the claims made by some of the manufacturers, saying that they will never go back to the old ways of sacrificing profitability to drive sales. They believe that if the sales and market share of the manufacturers will drop significantly, so will the prices.

The EU is formalizing a regulation to improve the auto industry’s “Circular Economy”

At the beginning of June, the EU Commission delivered a proposal for a new regulation that will increase the “Circular Economy” in the auto industry in all phases, from development to manufacturing and recycling at the end of use.

In a message attached to the new proposal, the commission claims that the regulation will result in long-term savings in production energy, lower dependence on imported raw materials, and promote more sustainable business models. The commission estimates that the proposal will increase the overall earnings of the auto industry by 1.8 billion US\$ by 2035, create many more jobs, and increase the income stream from waste management in the recycling industry.

The commission estimates that this regulation will also significantly decrease greenhouse gas emissions and recycling of vital raw materials.



The new regulation should come instead of the existing EU “End of Life Vehicles Directive” and will be discussed in the European parliament.

As expected, the new regulation was received coldly by the ACEA, which expressed its concern that “The regulation will duplicate or complicate existing auto industry’s regulations and operational outlines as far as sustainable planning”. The union claims that the car recycling supply chain of the European auto industry already had an unusual ratio of 85% recycling with re-use of 10% of the raw materials and energy used for production.

The union release said that “The regulation places ambitious goals for the recycling content, but European auto manufacturers believe that the legislators should focus instead on formalizing a clear and consistent legislation that will balance between existing and contradicting regulations regarding waste, products, and regulation on car chemicals”.

The European Parliament approves legislation to expand EV and hydrogen charging infrastructure in the next decade

At the beginning of July, the European Parliament approved new legislation for expanding EV and hydrogen charging infrastructure across the EU. The legislation is based on the guidelines agreed upon between the EU and its member states in March.

According to the agreements, from 2026, EV drivers driving along the main routes in the EU will be able to find a charging station, slow or fast, at least every 60 kilometers. As for truck and bus charging, it was agreed



that fast charging stations would be installed along main transportation routes in the continent at least every 120 kilometers. It was also decided that by 2031 there will be at least one hydrogen fueling station every 200 kilometers along the main traffic routes.

The legislation is supposed to take effect six months from the end of the process. It also regulates the payment model in the charging stations and says that users of alternative fuel (electricity or hydrogen) can pay quickly in the charging stations using credit cards or cordless means of payment without requiring a subscription to a service. The charging price will be displayed clearly according to kW/h or Kg in the case of hydrogen. The EU also approved new legislation on marine fuels that requires a reduction of 90% in CO₂ emissions from ships over 5000 tons upwards by 2050, compared with 2020 figures.

The EU promotes legislation to expand the use of electric trucks

On July 12th, the EU Commission presented the parliament with new proposals to make commercial transportation by trucks and trains more efficient and sustainable. The main recommendation is to compensate zero-emission trucks, mainly electric and hydrogen, for their high curb weight by increasing their GVW. The commission suggests reformulating the weight and length limits for heavy trucks.

The assumption behind the suggestion is that technological progress will significantly decrease zero-emission truck curb weights. Therefore, their commercial efficiency in the future will be greater than those of trucks with



diesel engines, increasing the motivation to swap diesel with electric or hydrogen trucks. Until that happens, there is a need for incentives.

The proposal will be discussed in the European Parliament and the EU Commission as an additional stage of the legislation process. According to its presenters, millions of tons of merchandise are being hauled on land in Europe each day, creating significant greenhouse gas emissions. The proposal will ensure that these goods will be transported in the most environmentally friendly way possible. This is the second move of the commission on its' way to formulating legislation in this area. In February this year, it published its proposals for placing new and stricter standards for truck and bus CO2 emissions. Among other things, it requires the manufacturers of urban and city buses to decrease the average emissions by 100% by 2030 or stop producing petrol and diesel buses.

Britain tightens regulation on EV charging infrastructure operators

Britain, one of the leaders in EV charging infrastructure in Europe, began adopting new regulations that tightened the supervision of EV charging infrastructure operators and the level of service in the charging stations in the country.

The regulation places a new obligatory standard in light of many technical failures and service disruptions in charging stations. According to the regulation presented by the government as a draft at this stage, fast charging stations will have to give 99% reliability on average each year and include real-time status updates. All charging stations with 50 kW



capacity and upwards will be included in the “Fast Charging Stations” definition.

All charging stations in Britain, including “Slow” ones with a capacity of 8 kW or more, will have to include contactless means of payment such as credit cards, payment apps, etc., in addition to their apps for subscribers. Charging station operators will have to display updated charging prices per kW/h in a clear and accessible manner.

It is suggested that violating the regulation will result in up to 10,000 BP fines for every station that does not meet the regulative demands. Once regulation takes effect, operators will be given a one-year extension to adjust to the new standards. Operators will be given two years for wireless and contactless payments and “Roaming” options.

6. Israel

Government offices mulling a new reform to promote the use of electric trucks in Israel

In July, it was published that the Ministry of Environmental Protection, the Ministry of Finance, and the Energy Ministry are formulating a plan to encourage the penetration of electric trucks into Israel. Contrary to passenger cars, where the penetration rate of EVs surpassed 17% this year, penetration of electric trucks to Israel has been up until now negligible apart for a few pilots and experiments.



In the transportation sector, it is often mentioned that despite diesel trucks contributing heavily to environmental pollution, no exterior economic incentives may lead operators to favor electric trucks over diesel. The main tax incentive for passenger cars, reduced purchasing tax, is irrelevant to trucks that don't pay purchasing tax.

On the other hand, electric trucks often have lower payloads than equivalent diesel trucks due to their high curb weight, which is affected by the weight of the batteries. Their purchasing price is higher, their depreciation rate is unknown, and they demand investments in fast-charging infrastructure.

Therefore, regulators worldwide, including in China and the EU, are proposing an array of "Positive" and "Negative" incentives to expand their penetration into the market. The positive incentives that are also being examined in Israel are, among others, accelerated depreciation rates, increasing GVW to compensate for high curb weights, government subsidies for those purchasing specific models and weights, mandating governmental institutions to buy a certain percentage of electric trucks out of their overall purchasing, establishment of designated public charging stations for heavy trucks and more. The negative incentives include expanding the ban on diesel trucks, especially distribution trucks, from entering dense urban areas and driving during certain hours.

It should be noted that each quarter, the number of electric trucks in different tonnage that have European regulations and thus can be imported to Israel, is growing. Most of the activity now focuses on the urban



distribution of electric light trucks with ranges between 250-350 kilometers. However, at the same time, several European and Chinese manufacturers launched new electric trucks with a GVW of 17 tons and more, which also comply with European regulations. Such trucks can be used in Israel also for inter-city transportation due to the relatively short distances compared with Europe.

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