

Electric vehicles market monitor for light-duty vehicles: China, Europe, United States, and India, 2023

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THE GLOBAL MARKET

In 2023, global sales of light-duty electric vehicles (EVs) reached more than 13 million, accounting for about 15% of new light-duty vehicles (LDVs) sold worldwide. Around 88% of EVs sold globally were in the four largest LDV markets: China, Europe, the United States, and India, which together accounted for about 63% of global LDV sales.

Figure 1 presents the light-duty EV sales share and number of EV models sold in these four major markets in 2022 and 2023. Consistent with 2022, **China** was the world's largest EV market in 2023, with more than 7 million EVs sold and a 33% sales share of new LDVs, a 9-percentage point increase from the 24% EV sales share in 2022. In **Europe**, EVs remained steady at 21% of all new LDVs sold in 2023. In the **United States**, EV sales grew to 9% of all new LDVs in 2023, from 7% in 2022. **India's** EV sales share continued to grow to 2% in 2023 from 1% the year prior.

The figure also shows the percentages of battery electric vehicles (BEVs) relative to plug-in hybrid electric vehicles (PHEVs) in each market. BEVs continued to dominate overall EV sales across all markets in 2023, albeit with some variation by market. In China, the share of BEVs fell from 78% to 69%, accompanied by an increased variety of PHEV models. In contrast, in Europe, the share of BEVs increased to 68% in 2023 from 60% in 2022. BEVs remained dominant in the United States (80%) and India (99%), with no change in the EV fleet shares in either market.

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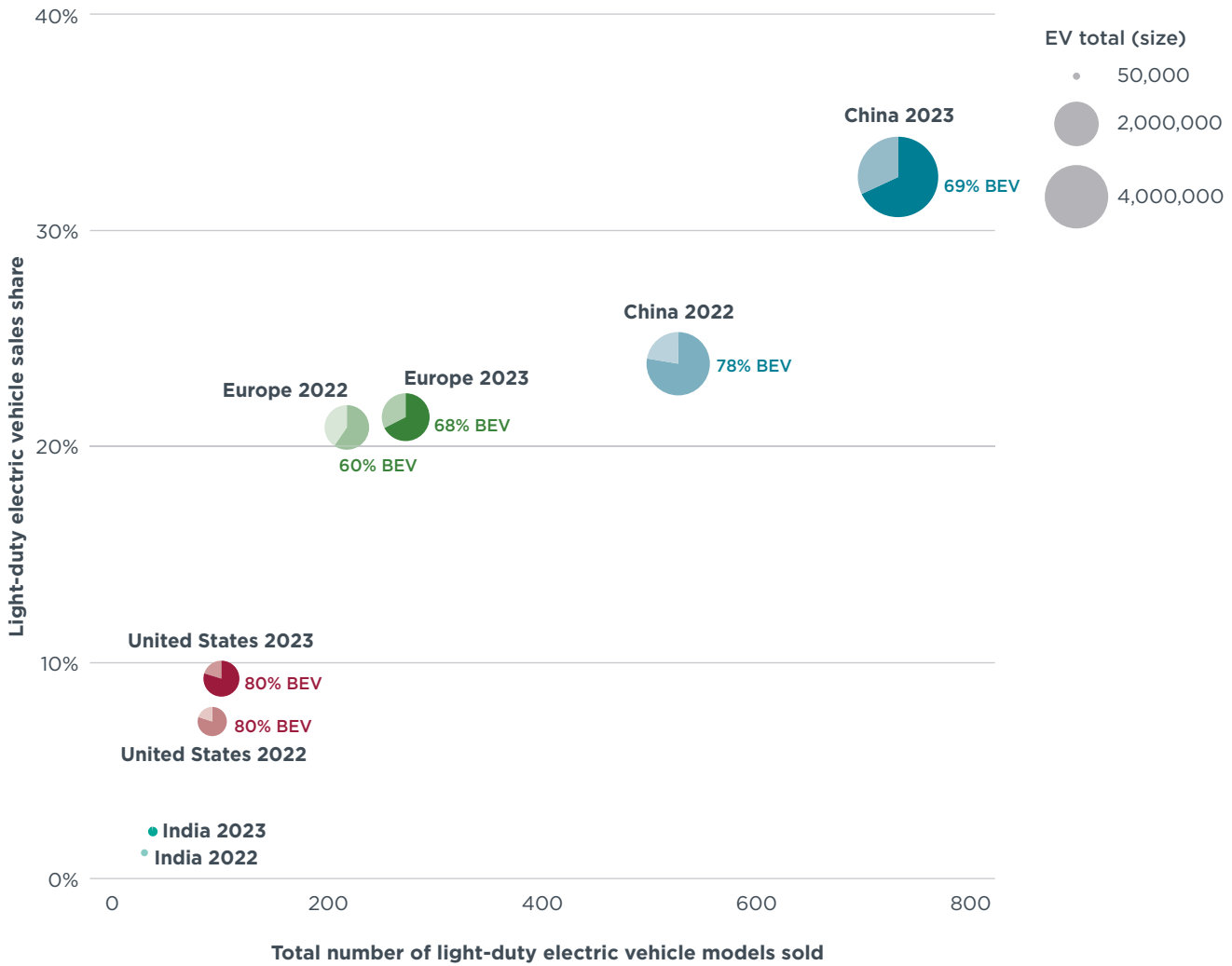
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Figure 1

Light-duty EV sales share, number of EV models for sale, and mix of BEVs and PHEVs in the four markets, 2022 and 2023.¹



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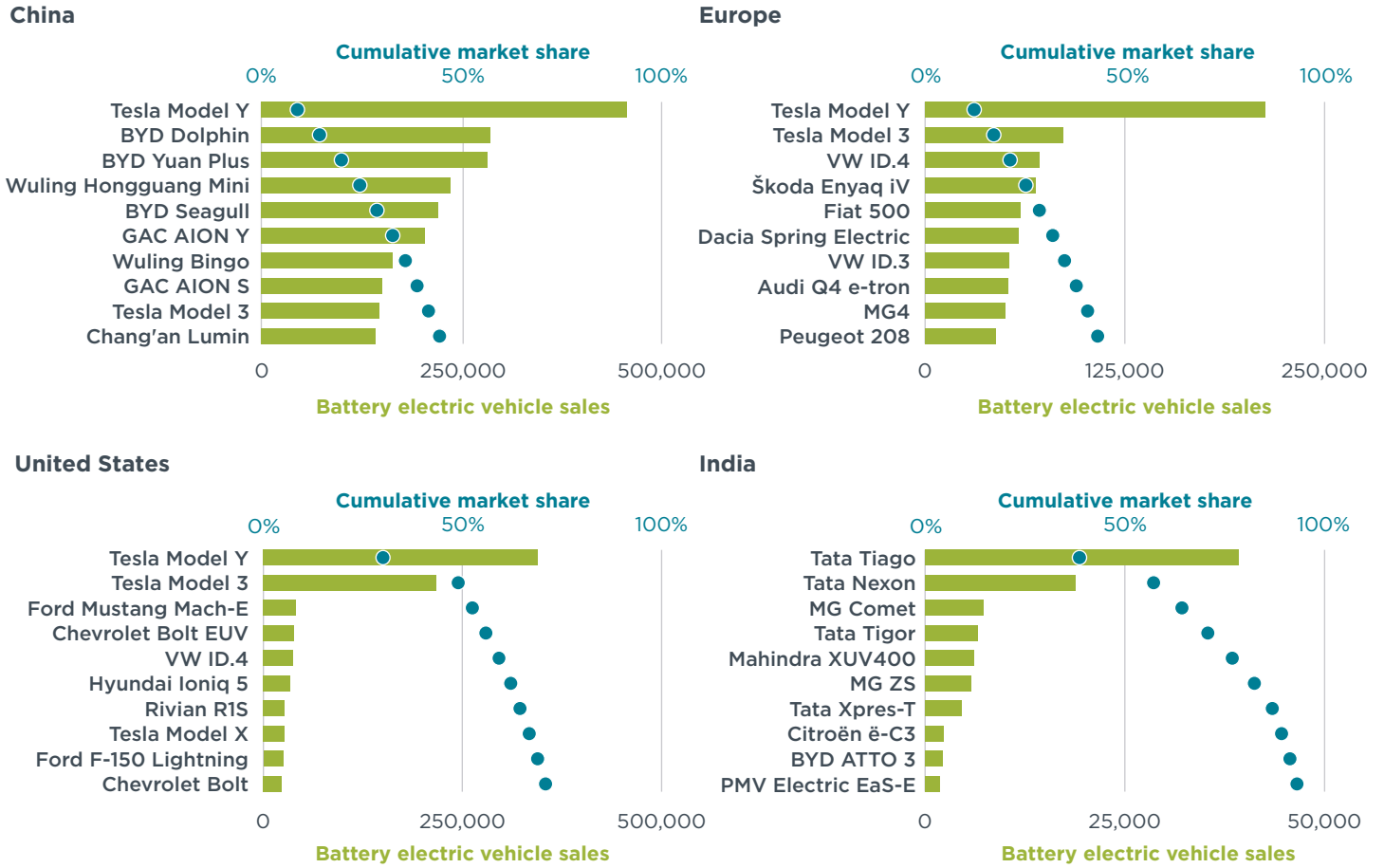
Figure 2 shows the 10 best-selling BEV models and the percentage of new BEV sales these models represent in each of the four markets in 2023. The green bars reflect the absolute number of sales of each model and the teal circles reflect their combined market share, starting from the top best-seller to the tenth. In ascending order of market concentration, the 10 best-selling BEV models accounted for approximately 43% of all BEV sales in Europe, 44% in China, 70% in the United States, and 93% in India.

In China, three manufacturers dominated sales: Tesla, BYD, and SAIC Motor (manufacturer of the Wuling Hongguang Mini). In Europe, Tesla models accounted for the highest share of BEV sales, at 17%, followed by the Volkswagen Group (14%) with four of its top-selling models: VW ID.4, Škoda Enyaq iV, VW ID.3, and Audi Q4 e-tron. Moreover, for the first time, SAIC Motor made it into Europe's 10 best-sellers list with its MG4 model. In the United States, Tesla recorded the most sales, with its Model Y and Model 3 jointly accounting for 49% of all BEV sales. In India, Tata Motors dominated the EV market with four best-selling models; its Tiago and Nexon models accounted for 57% of BEV sales in 2023.

¹ We set a minimum threshold of 10 unit sales when counting EV models to exclude models unavailable on the mass market. Particularly for China data, this effectively minimizes data-entry errors in the raw vehicle registration database.

Figure 2

Top 10 best-selling battery electric vehicle models in the four markets in 2023.

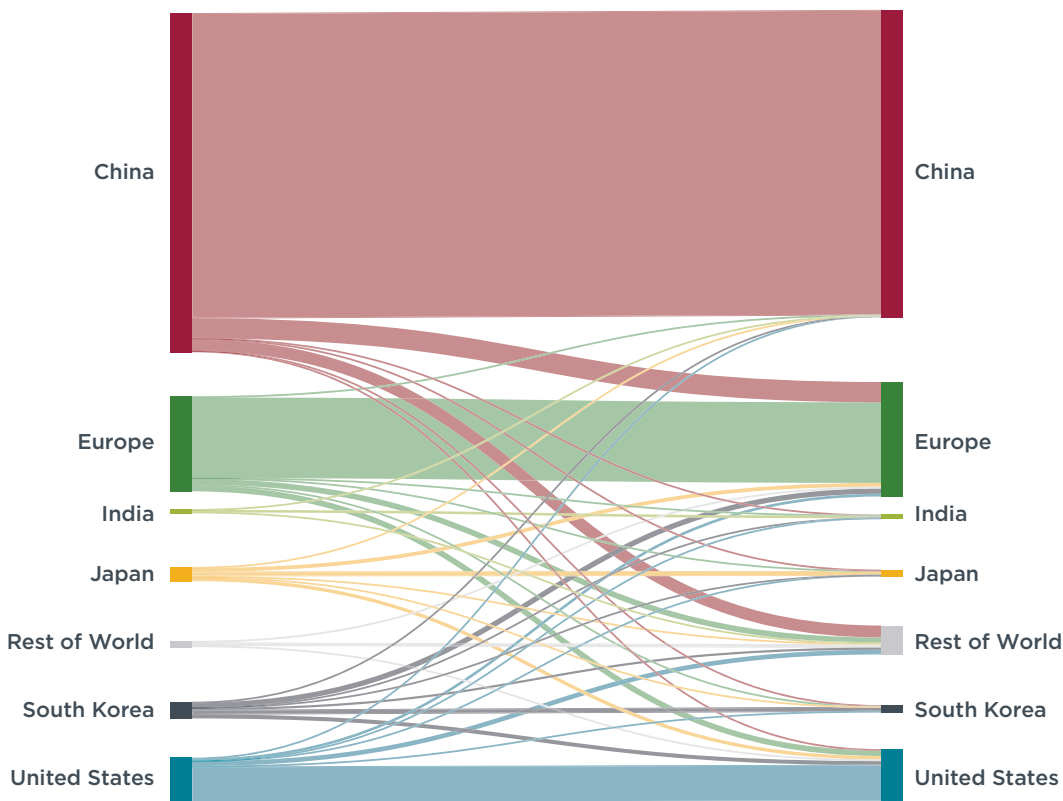


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Figure 3 depicts the flow of global production and sales of electric LDVs in 2023. China led with approximately 66% of global EV production in 2023, followed by Europe² (22%) and the United States (10%). Most vehicles produced in these major markets are sold to meet domestic market demand: In 2023, about 90% of electric LDVs produced in China, 85% of those produced in Europe, and 81% of those produced in the United States were sold domestically. Only a small number of EVs were produced in India in 2023.

² Europe includes the 27 Member States of the European Union and the four members of the European Free Trade Association (Iceland, Liechtenstein, Norway, and Switzerland).

Figure 3
Global production and sales of electric LDVs by market, 2023.



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GLOBAL BEV SPECIFICATIONS

This section analyzes the specifications of BEVs sold by the top 20 global automakers (for a full list of these automakers and their vehicle specifications, see Appendix B). These automakers account for large majorities of BEV sales in each market: China (78%), Europe (98%), the United States (95%), and India (85%).

Figure 4 illustrates the distribution of BEV sales across eight LDV classes in each market in 2022 and 2023. The y-axis represents the share of each vehicle class available in the market, categorized under three main vehicle segments: light commercial vehicles (purple); sport utility vehicles (SUVs)/multipurpose vehicles (MPVs) (red); and non-SUV passenger cars, subdivided into four segments: large, midsize, compact, and mini/subcompact (shades of blue and gray).

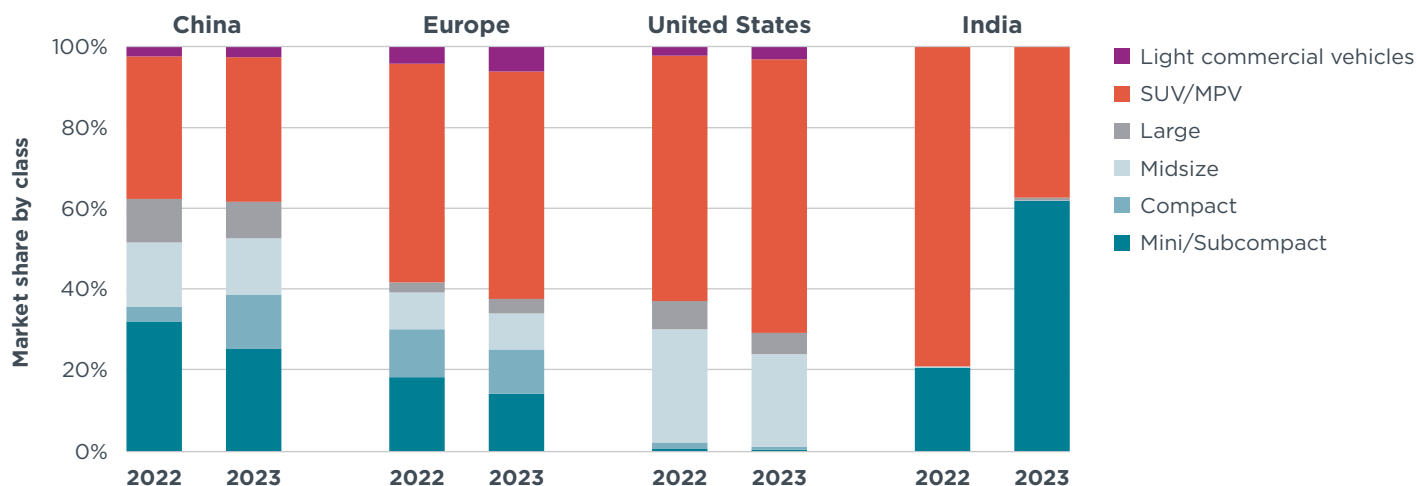
The composition of BEV sales by segment varies across the four markets and changed slightly between 2022 and 2023.³ Electric SUVs/MPVs were the most sold vehicle segment in China in 2023, accounting for nearly 36% of BEV sales. This was lower than the SUV/MPV share in China’s total sales of LDVs of all powertrains (50%). Meanwhile, the share of BEV mini/subcompact passenger cars in China—the second-largest vehicle segment, by sales, in successive years—decreased from 32% of BEV sales in 2022 to 25% in 2023.

In Europe, SUVs/MPVs similarly made up the largest share of BEV sales (56%), which was higher than the 48% SUV/MPV share of all LDV sales in the market in 2023.

³ We use MarkLines data to estimate the share of SUVs/MPVs among light-duty vehicle sales in China, Europe, and the United States in 2023.

Meanwhile, in the United States—where SUVs comprise nearly all sales in the SUV/MPV segment—the share of electric SUVs/MPVs grew from 61% in 2022 to 68% in 2023 and surpassed the 60% SUV/MPV share of all U.S. LDV sales. Mini/subcompact passenger cars and SUVs dominated the Indian BEV market; because a limited number of BEV models are available in India, small changes in sales lead to large changes in the market distribution between the two segments between years.

Figure 4
Market share by vehicle segment in each market, 2022-2023.



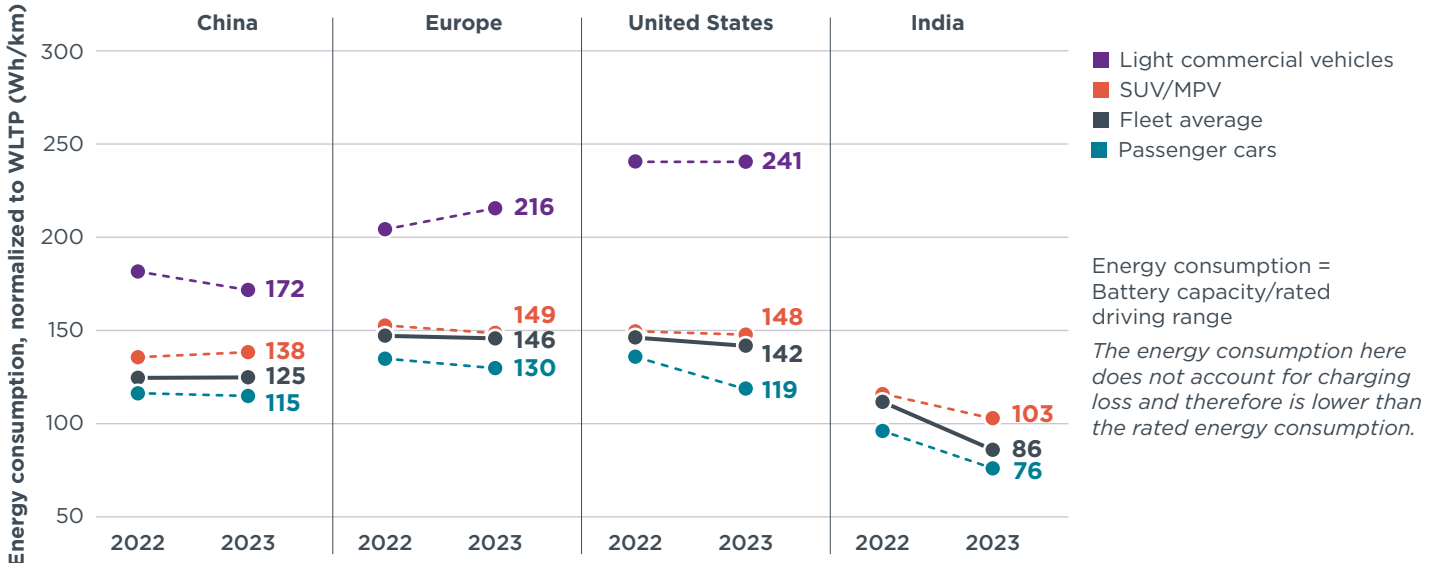
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Figure 5 compares the sales-weighted average of energy consumption of BEVs sold in each market, normalized to the Worldwide harmonized Light vehicle Test Procedure (WLTP) in watt-hours per kilometer (Wh/km). As rated energy consumption data are not equally available in all markets, we calculated the energy consumption of each BEV model by dividing the net battery capacity by the certified driving range, which usually results in lower energy consumption values compared with rated values that take account of charging losses. The y-axis displays the energy consumption values of the LDV fleet (solid black line) and the trend for 2022 and 2023 by segment for passenger cars (teal blue), SUVs/MPVs (red), and light commercial vehicles (purple).

On average, fleet energy consumption in China (125 Wh/km) and India (86 Wh/km) are lower than in Europe (146 Wh/km) and the United States (142 Wh/km). The SUV/MPV vehicle segment has 15%–36% higher energy consumption than passenger cars across the four markets. While fleet-average energy consumption held steady from 2022 to 2023 for China and Europe, it dropped 26 Wh/km for India and 5 Wh/km for the United States. The increase in the energy consumption of light commercial vehicles in Europe and the decrease in India’s fleet average is attributable to a fluctuation of sales by model.

Figure 5

Average energy consumption, normalized to WLTP, by vehicle segment in each market, 2022–2023.



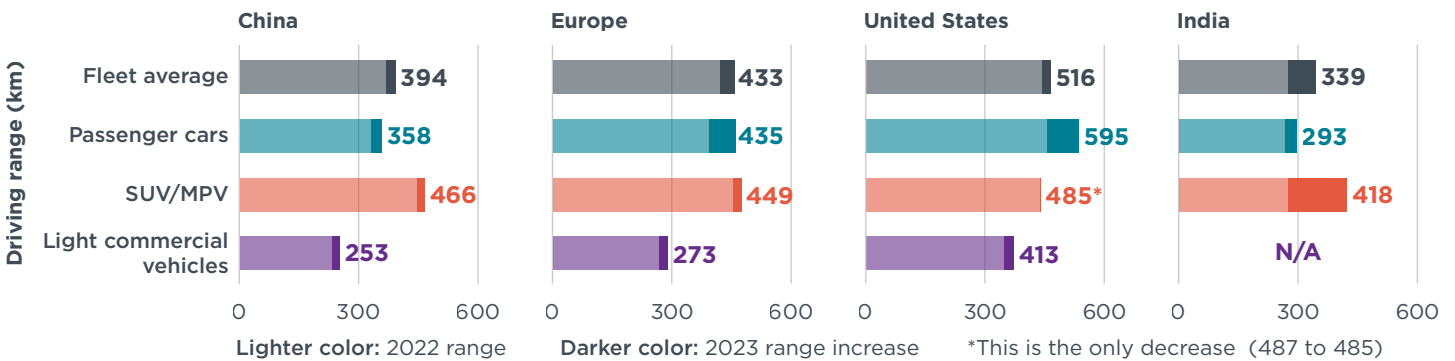
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Figure 6 illustrates the sales-weighted average of the certified driving range of BEVs sold in each market, normalized to WLTP in kilometers. The driving range is the certified distance a BEV can travel on a full charge without recharging and reflects the driving range values under laboratory testing, which are generally lower than the real-world label values. A consistent method is used to standardize the range values of different test cycles to the WLTP-equivalent driving range using conversion factors (as detailed in Appendix B). The four panels in the figure depict the average driving range for each market in 2022 and 2023. Lighter portions of the bars represent 2022 driving ranges; darker portions represent driving range increases from 2022 to 2023; transparent portions in the U.S. bars represent driving range decreases from 2022 to 2023.

On average, the driving range increased in all segments compared to 2022. U.S. vehicles have the longest average driving range across all segments. Average passenger car driving ranges in the United States (595 km) and Europe (433 km) were longer than in China (358 km) and India (293 km). Average SUV driving ranges were similar across the four markets, ranging from 418–485 km. Meanwhile, light commercial BEV models continued to have shorter ranges in China, Europe, and the United States and negligible sales in India (which is not shown in the figure).

Figure 6

Average driving range, normalized to WLTP, by vehicle segment in each market, 2022–2023.



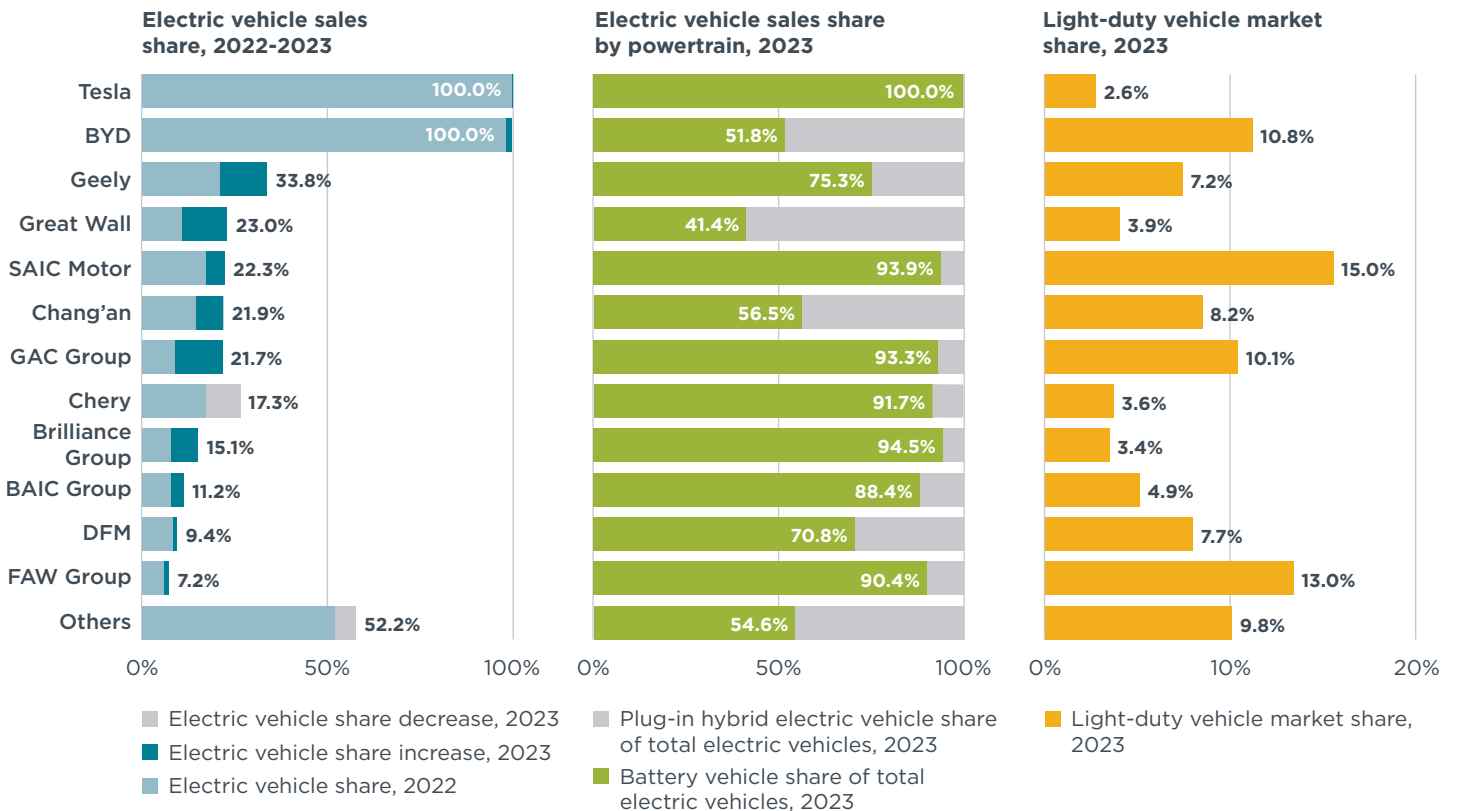
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CHINA

In 2023, around 7.5 million new electric LDVs were sold in China, representing 33% of new LDV sales in the country. Figure 7 shows EV market trends in China at the manufacturer level. The left panel shows the changing EV share of total LDV sales for each manufacturer from 2022 to 2023; the light blue portions of the bars represent 2022 EV sales shares while darker blue (or gray) portions represent the increase (or decrease) in sales share from 2022 to 2023. The middle panel illustrates the technology mix of EVs sold by each manufacturer, with BEVs in green and PHEVs in gray. The right panel reflects each manufacturer's share of the overall LDV market (considering all powertrains) in 2023.

Figure 7

Light-duty EV sales share, technology mix, and market share by manufacturer in China.



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Key highlights for China in 2023 include:

- » BYD continued to lead light-duty EV sales in China, accounting for approximately one third of all sales. Aside from BYD and Tesla, which only sell EVs, Geely led among legacy automakers, with nearly 34% of its LDV sales being EVs, a 13-percentage point increase from 2022.
- » Of China's 12 major LDV manufacturers, nine showed an increase in their EV sales share between 2022 and 2023. Along with Geely, GAC Group and Great Wall grew the fastest, with 13- and 12-percentage point increases over 2022, respectively.
- » BEVs remained dominant in China's EV market, making up 68% of EVs sold in 2023. All manufacturers except Great Wall sold more BEVs than PHEVs. BYD, as the only all-electric automaker, saw a slight increase in its BEV share from 50% in 2022 to 52% in 2023. Meanwhile, Great Wall saw a large jump in PHEV sales share from approximately 10% in 2022 to 59% in 2023 after introducing several PHEV SUV/MPV models.

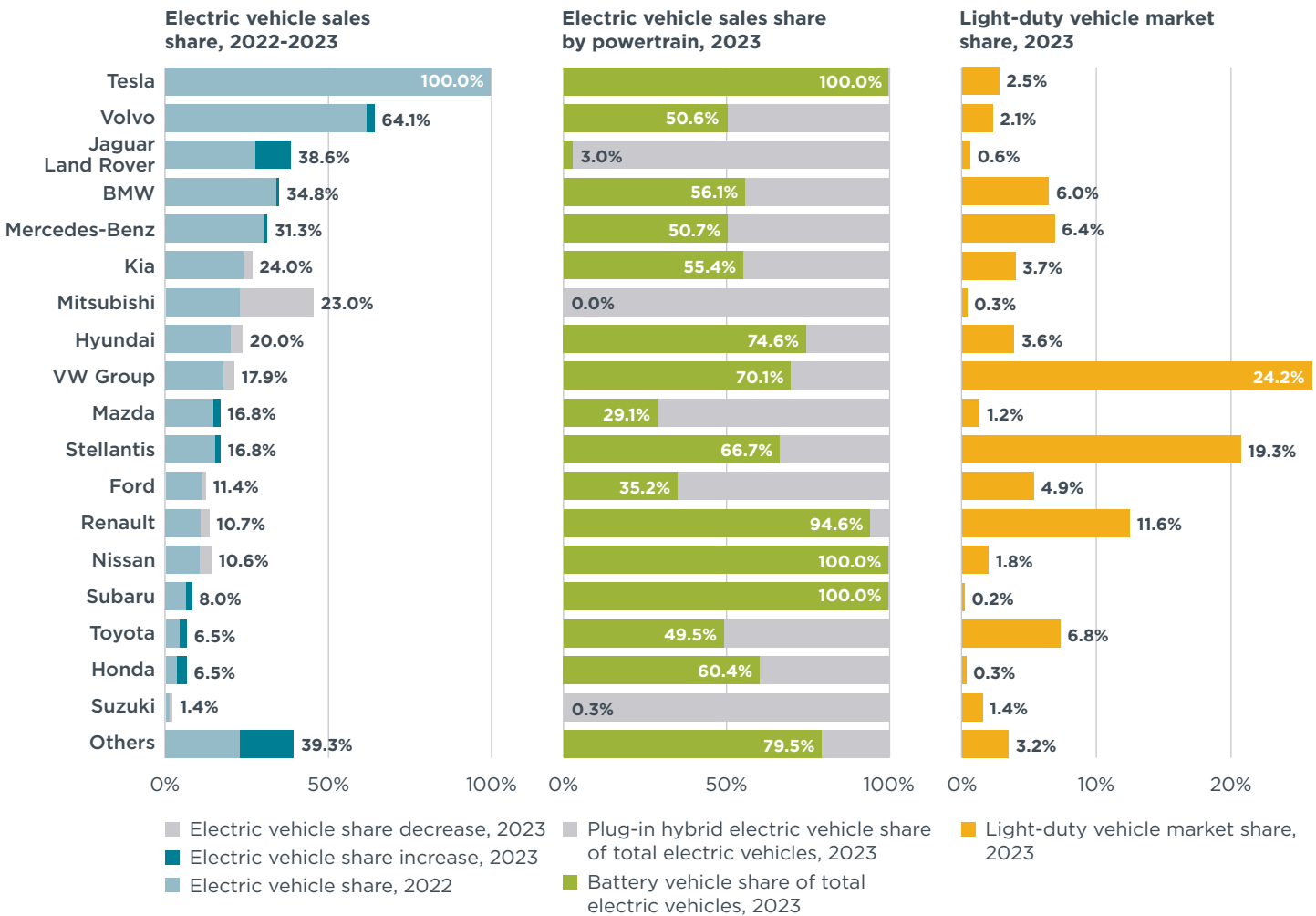
» With a 33% EV market share, China outpaced the 20% by 2025 EV target set in the government's *New Energy Vehicle Industry Development Plan (2021 to 2035)*.⁴ Indeed, China is on track to meet the goal announced by the State Council in early 2024 of 45% new energy vehicle penetration by 2027.⁵

EUROPE

Approximately 21% of LDVs sold in Europe in 2023 were electric, unchanged from the previous year. Figure 8 shows EV market trends in Europe at the manufacturer level. The left panel shows the changing EV share of total LDV sales for each manufacturer from 2022 to 2023; the light blue portions of the bars represent 2022 EV sales shares, while darker blue (or gray) portions represent the increase (or decrease) in sales share from 2022 to 2023. The middle panel illustrates the technology mix of EVs sold by each manufacturer, with BEVs in green and PHEVs in gray. The right panel reflects the overall LDV market share of each manufacturer in 2023.

Figure 8

Light-duty EV sales share, technology mix, and market share by manufacturer in Europe.



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4 State Council, "国务院办公厅关于印发新能源汽车产业发展规划 (2021-2035年) 的通知 [Notice on printing and issuing the development plan for the new energy vehicle industry (2021-2035)]," October 20, 2020, http://www.gov.cn/zhengce/content/2020-11/02/content_5556716.htm.

5 State Council, "中共中央 国务院关于全面推进美丽中国建设的意见 [Opinions of the Central Committee of the Communist Party of China and the State Council on Comprehensively Promoting the Construction of a Beautiful China]," December, 27, 2023, https://www.gov.cn/zhengce/202401/content_6925405.htm.

Key highlights for Europe in 2023 include:

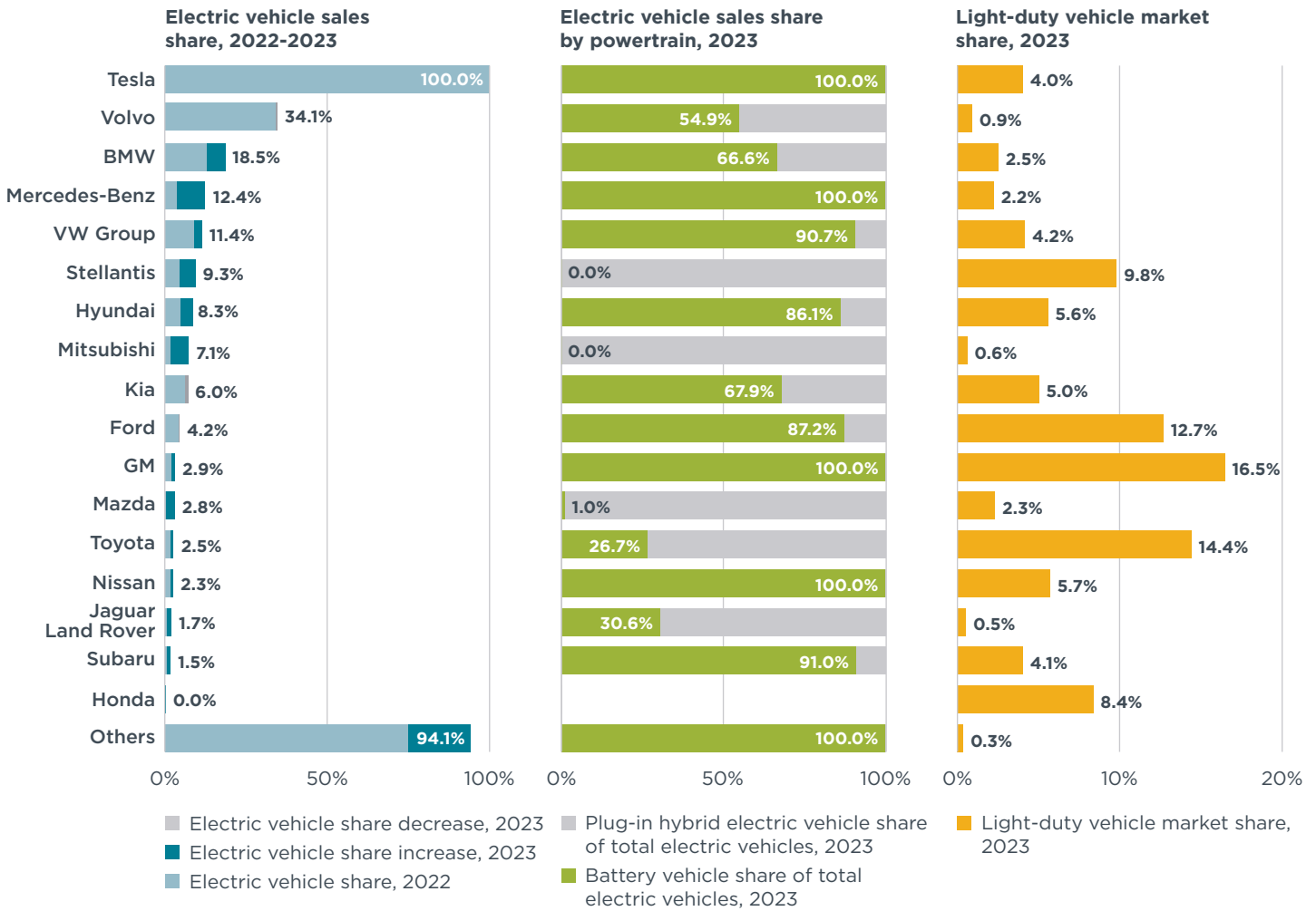
- » Volvo, Jaguar Land Rover, BMW, and Mercedes-Benz, among others, had higher EV sales shares than in 2022. Following Tesla, Volvo and Jaguar Land Rover led with EV sales shares of 64% and 39%, respectively, attributable to the increasing number of PHEVs sold in 2023. BMW and Mercedes-Benz saw slight increases in light-duty EV sales shares, to approximately 35% and 31%, respectively, with BEVs accounting for over half of each manufacturer's sales.
- » Eight of the remaining manufacturers, including those with higher LDV market shares such as VW Group and Renault, saw drops in EV sales shares. The sharp decrease in EV sales share for Mitsubishi was largely due to the drop in sales of one of their two PHEV models, the Eclipse Cross.
- » Smaller manufacturers, grouped as "Others" in this briefing, increased their collective EV sales share to 39%, from 23% in 2022. This is primarily due to the increase in EV sales from SAIC's MG, which accounted for more than half of the EV sales of smaller manufacturers. Remaining sales came from newcomers, including Lucid, Great Wall, and SsangYong, though the overall market share of smaller manufacturers remained negligible.
- » Europe's PHEV sales share declined from 40% in 2022 to 32% in 2023, though PHEVs continued to make up a significant sales share of automakers with high shares of EVs, including Volvo (49%) and Jaguar Land Rover (97%). Other automakers recorded considerable declines in PHEV sales shares from 2022 to 2023, including Toyota (67% to 50%), Mercedes-Benz (59% to 49%), and BMW (55% to 44%).
- » Stagnant growth in the European market could partly be attributed to a lack of pressure to meet more stringent CO₂ emission standards, which do not take effect until 2025. Looking ahead, a shifting policy landscape is expected to contribute to a further drop in PHEV sales share among EVs, as the anticipated adjustment of the PHEV factor in 2025 leads to higher type-approval CO₂ values of PHEVs, the phase-out of PHEV purchase subsidies, and the introduction of high taxes on PHEVs in some EU Member States.

UNITED STATES

In 2023, approximately 1.4 million EVs were sold on the U.S. market, marking the first year in which sales surpassed 1 million. This represented approximately 9% of new LDVs sold in 2023, a 2-percentage point increase over 2022. Figure 9 shows EV market trends in the United States at the manufacturer level. The left panel shows the changing EV share of total LDV sales for each manufacturer from 2022 to 2023; the light blue portions of the bars represent 2022 EV sales shares while darker blue (or gray) portions represent the increase (or decrease) in sales share from 2022 to 2023. The middle panel illustrates the technology mix of EVs sold by each manufacturer, with BEVs in green and PHEVs in gray. The right panel reflects the 2023 LDV market share of each manufacturer.

Figure 9

Light-duty EV sales share, technology mix, and market share by manufacturer in the United States.



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Key highlights for the United States in 2023 include:

- » In 2023, EV sales shares increased for most manufacturers. Following Tesla, Volvo had the second highest EV sales share (34%), followed by Europe-based manufacturers BMW, Mercedes-Benz, and VW Group (19%, 12%, and 11%, respectively). Volvo, Kia, and Ford saw slight EV sales share declines from 2022.
- » The top three manufacturers by LDV sales (GM, Toyota, and Ford) saw moderate EV sales share increases. However, their shares remained low, at 3%, 3%, and 4%, respectively.
- » EV sales of smaller manufacturers, grouped in the “Others” category, increased to nearly 94%, as all-electric manufacturers such as Rivian and Lucid continued to expand and newer companies such as the U.S.-based GEM and GM subsidiary BrightDrop and Vietnam-based VinFast entered the market in 2023.
- » Most manufacturers sold more BEVs than PHEVs, although two manufacturers—Stellantis and Mitsubishi—sold only PHEVs, while Mazda sold nearly all PHEVs (99%).
- » Federal and state policies in the United States are paving the way for future EV market growth. At the federal level, industry investments and consumer incentives in the Inflation Reduction Act⁶ and the U.S. Environmental Protection Agency

⁶ Peter Slowik et al., *Analyzing the Impact of the Inflation Reduction Act on Electric Vehicle Uptake in the United States* (Washington, DC: International Council on Clean Transportation, 2023), <https://theicct.org/publication/ira-impact-evs-us-jan23/>.

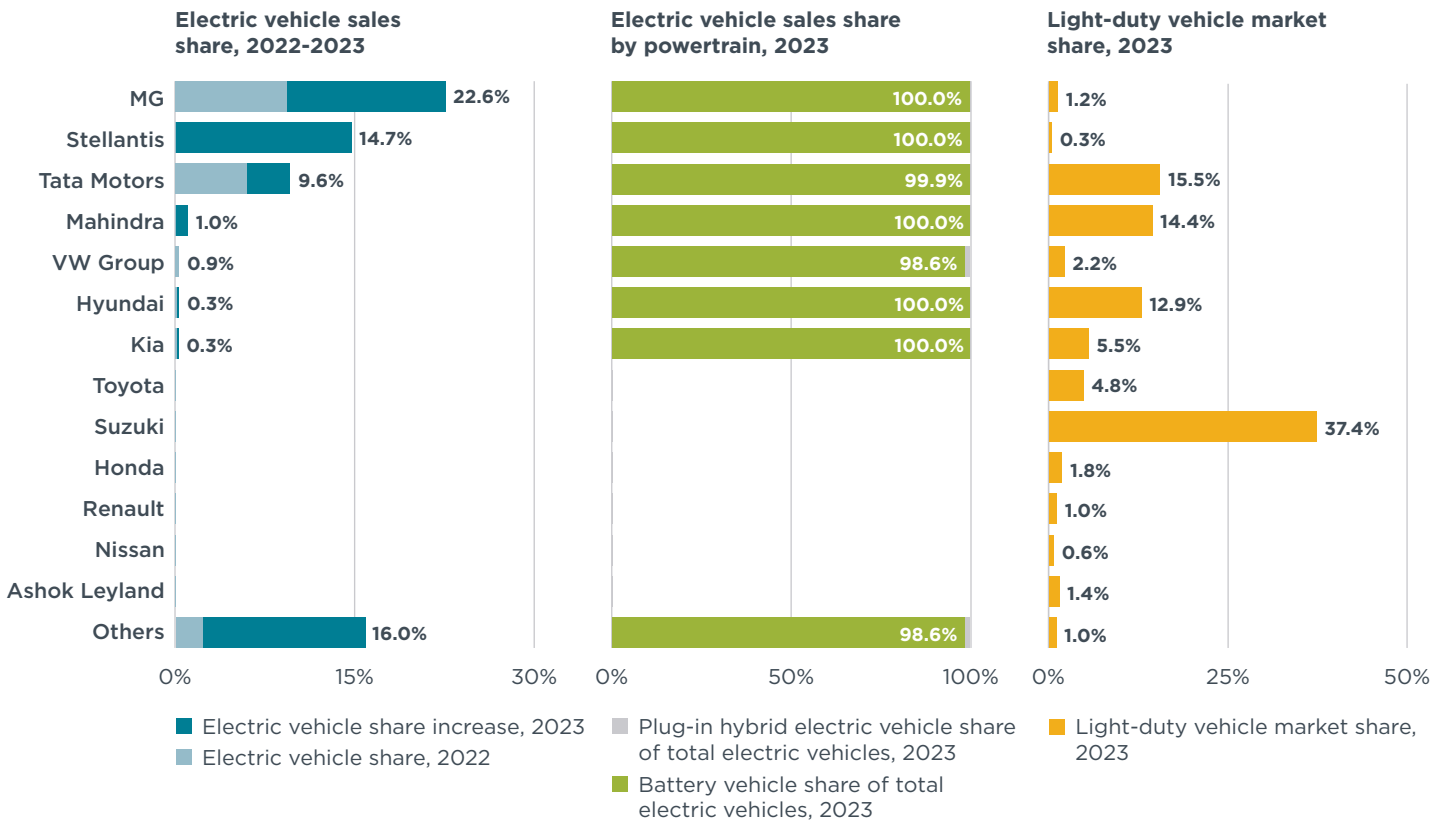
(EPA)'s multi-pollutant emission standards for light- and medium-duty vehicles for 2027 and beyond, finalized in March 2024, are expected to accelerate EV sales.⁷ The EPA projects the latter rule to result in a 53% EV sales share (44% BEVs and 9% PHEVs) among new light-duty vehicles by 2030 and a 69% EV sales share (56% BEVs and 13% PHEVs) nationwide by 2032.⁸ At the state level, California and 13 additional states have adopted the Advanced Clean Cars II regulation that requires an increasing number of zero-emission vehicle sales toward 100% by 2035.

INDIA

In 2023, nearly 102,000 EVs were sold in India, double the total in 2022. EVs accounted for 2% of the country's LDV market. Figure 10 shows EV market trends in India at the manufacturer level. The left panel shows the changing EV share of total LDV sales for each manufacturer from 2022 to 2023; the light blue portions of the bars represent 2022 EV sales shares while darker blue (or gray) portions represent the increase (or decrease) in sales share from 2022 to 2023. The middle panel illustrates the technology mix of EVs sold by each manufacturer, with BEVs in green and PHEVs in gray. The right panel reflects the overall LDV market share of each manufacturer in 2023.

Figure 10

Light-duty EV sales share, technology mix, and market share by manufacturer in India.



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7 EPA, "Final Rule: Multi-Pollutant Emissions Standards for Model Years 2027 and Later Light-Duty and Medium-Duty Vehicles," 2024, <https://www.epa.gov/regulations-emissions-vehicles-and-engines/final-rule-multi-pollutant-emissions-standards-model>.

8 EPA, "Final Rule."

Key highlights for India in 2023 include:

- » All manufacturers that sell EVs increased their EV sales shares from 2022. MG's EV sales share grew from 9% in 2022 to 23% in 2023. Stellantis came second in EV sales share, at 15%, though it accounts for a small percentage of the overall LDV market. Tata Motors recorded an EV sales share of nearly 10%. Mahindra, the third-leading LDV seller in 2023, similarly continued to increase its EV sales, although such vehicles represented only 1% of its LDV sales. Meanwhile, Suzuki, India's largest automaker, accounted for 37% of the country's LDV market but sold no EVs in 2023.
- » Tata Motors, India's second-largest automaker, accounted for 68% of India's light-duty EV sales, a decrease from 83% in 2022. This drop was primarily due to the increasing number of EVs from other brands, including Mercedes-Benz, BMW, BYD, and smaller manufacturers such as PMV Electric (maker of India's popular two-seater microcar). Combined, manufacturers in the "Others" category made up approximately 16% of the Indian light-duty EV market in 2023, a jump from 2% in 2022.
- » Nearly all EVs sold in India were BEVs. Although PHEVs have entered the Indian EV market, they accounted for approximately 0.2% of total EV sales. These PHEVs mostly belong to luxury brands, including Jaguar Land Rover and BMW, which are sold at higher price points, limiting their mass market adoption.
- » BEV adoption in India has consistently trended upward in recent years. Its future trajectory will depend in part on two upcoming policies: the third phase of the Faster Adoption and Manufacturing of Hybrid & Electric Vehicles (FAME) scheme and the next phase of India's fuel consumption standards. In addition, in March 2024, India announced a large reduction of the import duty on EVs for automakers that commit to invest a minimum of approximately USD \$500 million in India's domestic manufacturing within the next 3 years.⁹ This policy will likely affect sales by non-domestic brands in the coming years.

⁹ Ministry of Commerce and Industry, "Government Approves E-Vehicle Policy to Promote India as a Manufacturing Destination for E-vehicles," Press release, March 15, 2024, <https://pib.gov.in/PressReleasePage.aspx?PRID=2014874>.

APPENDIX A: LIGHT-DUTY ELECTRIC VEHICLE MARKET PERFORMANCE

Table A1 presents electric LDV market shares by technology for the passenger car (PC) and light commercial vehicle (LCV) segments in the four major markets for 2023 and 2022. Shares across technology and segment might not add to the total LDV EV market share due to rounding.

Tables A2-A5 show EV market performance across manufacturers in the four markets in 2023. “EV sales share” refers to the EV percentage of total LDV sales for each manufacturer. For example, Tesla’s EV sales share is 100% because it only sells BEVs. Meanwhile, “EV market share” and “LDV market share” refer to a given manufacturer’s share of overall EV and LDV sales, respectively, in that market. To illustrate, Tesla’s sales represented 8% of the EV market but only 3% of the broader LDV market in China.

Table A1
Sales shares of light-duty EVs by market, segment, and technology.

Market	2023						2022					
	PC		LCV		LDV		PC		LCV		LDV	
	BEV	PHEV	BEV	PHEV	BEV	PHEV	BEV	PHEV	BEV	PHEV	BEV	PHEV
China	23%	11%	16%	0%	22%	10%	20%	6%	8%	0%	19%	5%
Europe	15%	8%	7%	0%	14%	7%	13%	10%	5%	0%	13%	8%
United States	10%	1%	6%	2%	7%	2%	8%	1%	3%	2%	6%	1%
India	2%	0.005%	0.07%	0%	2%	0.004%	1%	0%	0%	0%	1%	0%
Global	12%	5%	7%	0%	11%	5%	11%	4%	3%	1%	10%	3%

Table A2

Light-duty electric vehicle market performance in China, 2023.

China light-duty vehicles 2023								
Manufacturer	EV sales share		Percentage point change of EV sales shares from 2022		Number of EV models		LDV market share	EV market share
	BEV	PHEV	BEV	PHEV	BEV	PHEV		
Tesla	100%	0%	0 pp	0 pp	4	0	3%	8%
BYD	52%	48%	+3 pp	-1 pp	22	18	11%	33%
Geely	26%	8%	+7 pp	+5 pp	61	18	7%	7%
SAIC Motor	21%	1%	+5 pp	+0 pp	56	13	15%	10%
GAC Group	20%	2%	+12 pp	+1 pp	19	8	10%	7%
Chery	16%	1%	-10 pp	+0 pp	30	8	4%	2%
Brilliance Group	14%	1%	+9 pp	-2 pp	26	1	3%	2%
Chang'an	12%	10%	0 pp	+7 pp	35	12	8%	6%
Great Wall	10%	14%	0 pp	+12 pp	7	13	4%	3%
BAIC Group	10%	1%	+4 pp	-1 pp	39	4	5%	2%
DFM	7%	3%	-1 pp	+2 pp	37	8	8%	2%
FAW Group	7%	1%	+2 pp	0 pp	17	6	13%	3%
Others	29%	24%	+8 pp	+22 pp	235	34	10%	16%
Fleet	22%	10%	+4 pp	+5 pp	588	143	100%	100%

Table A3

Light-duty electric vehicle market performance in Europe, 2023.

Europe light-duty vehicles 2023								
Manufacturer	EV sales share		Percentage point change of EV sales shares from 2022		Number of EV models		LDV market share	EV market share
	BEV	PHEV	BEV	PHEV	BEV	PHEV		
Tesla	100%	0%	0 pp	0 pp	4	0	3%	12%
Volvo	32%	32%	+3 pp	-1 pp	4	7	2%	6%
BMW	20%	15%	+5 pp	-4 pp	11	10	6%	10%
Mercedes-Benz	16%	15%	+3 pp	-3 pp	17	12	6%	9%
Hyundai	15%	5%	-1 pp	-3 pp	7	3	4%	3%
VW Group	13%	5%	-1 pp	-2 pp	15	25	24%	20%
Kia	13%	11%	0 pp	-3 pp	4	5	4%	4%
Stellantis	11%	6%	+2 pp	0 pp	29	16	19%	15%
Nissan	11%	0%	-3 pp	0 pp	3	0	2%	1%
Renault	10%	1%	-2 pp	0 pp	7	2	12%	6%
Subaru	8%	0%	+2 pp	0 pp	1	0	0%	0%
Mazda	5%	12%	0 pp	+2 pp	1	2	1%	1%
Ford	4%	7%	0 pp	-2 pp	3	3	5%	3%
Honda	4%	3%	0 pp	+3 pp	2	1	0%	0%
Toyota	3%	3%	+2 pp	0 pp	6	4	7%	2%
Jaguar Land Rover	1%	37%	-2 pp	+12 pp	1	8	1%	1%
Mitsubishi	0%	23%	0 pp	-23 pp	0	2	0%	0%
Suzuki	0%	1%	0 pp	-1 pp	0	1	1%	0%
Others	31%	8%	+20 pp	-4 pp	46	8	3%	6%
Fleet	14%	7%	+2 pp	-1 pp	161	109	100%	100%

Table A4
Light-duty electric vehicle market performance in the United States, 2023.

U.S. light-duty vehicles 2023								
Manufacturer	EV sales share		Percentage point change of EV sales shares from 2022		Number of EV models		LDV market share	EV market share
	BEV	PHEV	BEV	PHEV	BEV	PHEV*		
Tesla	100%	0%	0 pp	0 pp	5	0	4%	44%
Volvo	19%	15%	+3 pp	-4 pp	3	5	1%	3%
Mercedes-Benz	12%	0%	+8 pp	0 pp	5	0	2%	3%
BMW	12%	6%	+7 pp	-2 pp	5	6	3%	5%
VW Group	10%	1%	+2 pp	0 pp	6	3	4%	5%
Hyundai	7%	1%	+3 pp	0 pp	6	2	6%	5%
Kia	4%	2%	-1 pp	0 pp	3	3	5%	3%
Ford	4%	1%	0 pp	0 pp	3	3	13%	6%
GM	3%	0%	+1 pp	0 pp	7	0	17%	5%
Nissan	2%	0%	0 pp	0 pp	2	0	6%	1%
Subaru	1%	0%	+1 pp	0 pp	1	1	4%	1%
Jaguar Land Rover	1%	1%	+1 pp	+1 pp	1	2	1%	0%
Toyota	1%	2%	+1 pp	0 pp	2	5	14%	4%
Mazda	0%	3%	0 pp	+3 pp	1	1	2%	1%
Stellantis	0%	9%	0 pp	+5 pp	0	4	10%	10%
Mitsubishi	0%	7%	0 pp	+5 pp	0	1	1%	0%
Honda	0%	0%	0 pp	0 pp	0	0	8%	0%
Others	94%	0%	+21 pp	-2 pp	9	3	0%	3%
Fleet	7%	2%	+1 pp	+1 pp	59	39	100%	100%

*Due to a change in the data source used in this analysis, there might be minor differences in the counting of PHEV models in 2023 compared to 2022.

Table A5
Light-duty EV market performance in India, 2023.

India light-duty vehicles 2023								
Manufacturer	EV sales share		Percentage point change of EV sales shares from 2022		Number of EV models		LDV market share	EV market share
	BEV	PHEV	BEV	PHEV	BEV	PHEV		
MG	23%	0%	+13 pp	0 pp	2	0	1%	13%
Stellantis	15%	0%	+9 pp	0 pp	1	0	0%	2%
Tata Motors	10%	0.01%	+8 pp	0 pp	5	2	15%	68%
Mahindra	1%	0%	+1 pp	0 pp	2	0	14%	7%
VW Group	1%	0.01%	+1 pp	0 pp	0	0	2%	1%
Hyundai	0.3%	0%	0 pp	0 pp	2	0	13%	2%
Kia	0.3%	0%	0 pp	0 pp	1	0	5%	1%
Suzuki	0.0%	0%	0 pp	0 pp	0	0	37%	0%
Toyota	0.0%	0%	0 pp	0 pp	0	0	5%	0%
Honda	0.0%	0%	0 pp	0 pp	0	0	2%	0%
Ashok Leyland	0.0%	0%	0 pp	0 pp	0	0	1%	0%
Renault	0.0%	0%	0 pp	0 pp	0	0	1%	0%
Nissan	0.0%	0%	0 pp	0 pp	0	0	1%	0%
Others	16%	0.2%	+14 pp	0 pp	19	1	1%	7%
Fleet	2%	0.004%	+1 pp	0 pp	32	3	100%	100%

APPENDIX B: DEFINITIONS, DATA SOURCES, METHODOLOGY, AND ASSUMPTIONS

DEFINITIONS OF LIGHT-DUTY VEHICLES

China, Europe, and India: LDVs include both PCs and LCVs. PCs are motor vehicles with at least four wheels designed for the carriage of passengers, which have no more than eight seats excluding the driver's seat and a maximum weight below 3.5 tons. Under vehicle classifications used in Europe and India, such vehicles are included in the M1 category. LCVs include motor vehicles with at least four wheels designed for the carriage of goods with a maximum weight below 3.5 tons as well as, in China, passenger vehicles with more than nine seats; these vehicles are included in the N1 category in Europe and India and the N1 and M2 categories in China.

United States: LDVs comprise PCs, which are vehicles with gross vehicle weight rating (GVWR) below 6,000 lbs (vehicle class 1), and LCVs, which are vehicles with GVWR between 6,001 and 10,000 lbs (vehicle class 2).

DATA SOURCES

All sales databases were analyzed at the model level. For example, we group both Audi Q8 e-tron 50 Sportback and Audi Q8 e-tron 55 Sportback as Audi Q8 e-tron models. We only counted EV models with at least 10 unit sales in the market to exclude models unavailable to the mass market.

China: Sales data and model information are from insurance data from Daas-Auto.¹⁰ Sales are based on new registrations of LDVs; insurance data for new registrations are a close proxy for retail sales.

Europe: Sales data are from Dataforce¹¹ and model information is from MarkLines.¹² Sales are based on new registrations of LDVs. The United Kingdom was excluded from the analysis. Bulgaria, Liechtenstein, and Malta were also excluded due to data limitations.

United States: Sales data and model information are from EV Volumes.¹³ Incomplete data at the brand level due to regrouping at a more aggregated (manufacturing group) level were supplemented with data from MarkLines.¹⁴

India: Sales data and model information are from Segment Y.¹⁵

Global: Sales and production data are from the EV Volumes database.¹⁶

METHODOLOGY AND ASSUMPTIONS

Vehicle specifications

The top 20 global automakers based on 2023 light-duty vehicle sales (highest to lowest) were: Toyota, Volkswagen Group, Hyundai-Kia, Stellantis, GM, Honda, Ford, Nissan, Suzuki, BMW, Mercedes-Benz, SAIC, Geely, Renault, Chang'an, BYD, Tesla, Great Wall, Mazda, and Tata Motors. Our analysis excludes BEV sales in major markets

¹⁰ Daas-Auto, accessed March 2024, <https://www.daas-auto.com/>.

¹¹ Dataforce, accessed February 2024, <https://www.dataforce.de/en/>.

¹² MarkLines, accessed February 2024, https://www.marklines.com/en/vehicle_sales/index.

¹³ EV Volumes, accessed February 2024, <https://www.ev-volumes.com/datacenter/>.

¹⁴ MarkLines, accessed February 2024, https://www.marklines.com/en/vehicle_sales/index.

¹⁵ Segment Y, accessed 2024, <https://www.segmenty.com/>.

¹⁶ EV Volumes, accessed February 2024, <http://www.ev-volumes.com/datacenter/>.

of fewer than 100 units, which account for up to 0.2% of the total BEVs sold by each automaker.

Data on specifications were collected from brochures on manufacturers' official websites and major EV information hubs, such as Yiche and Autohome for China and EV Database, EVSpecifications, and EV Volumes for Europe, the United States, and India.

The categorization of vehicle class for passenger cars is based on vehicle length as follows: mini/subcompact (0–4.1 m), compact (4.1–4.6 m), midsize (4.6–4.8 m), large (above 4.8 m).

Energy consumption and driving range values from different test cycles were standardized to WLTP-equivalent values using the following conversion factors: a multiplier of 1.15 was applied to convert the New European Driving Cycle (NEDC) or China Light-Duty Vehicle Test Cycle (CLTC) energy consumption to WLTP equivalent values and a multiplier factor of 1.2 to convert U.S. label values to WLTP equivalent values.¹⁷ These conversions allow for a consistent comparison of energy consumption across models. We compute the energy consumption of each BEV model in our database by dividing the net (usable) battery capacity by the certified driving range. For models without net battery capacity data, a multiplier of 0.95 was applied to the gross battery capacity.

Manufacturer groups

China: For joint ventures, manufacturers were grouped under the name of the dominant shareholder. For example, two manufacturers, DFM and Nissan, were grouped under DFM in this analysis.

United States: In cases where sales numbers in the primary data source were aggregated at the manufacturer group level, sales were disaggregated to the brand level using the supplementary database. For example, the brands Hyundai, Genesis, and Kia are grouped under “Hyundai Motor” and were split into “Hyundai” for Hyundai and Genesis and “Kia” for the Kia brand.

Others: This group refers to manufacturers that make up a smaller share of the market and reflect the corresponding main brands sold under the listed manufacturers.

¹⁷ Domenick Yoney, “How to Convert Conflicting EV Range Test Cycles: EPA, WLTP, CLTC,” *InsideEVs*, December 2022, <https://insideevs.com/features/343231/heres-how-to-calculate-conflicting-ev-range-test-cycles-epa-wltp-nedc/>.

Table B1**Manufacturers and corresponding main brands in China.**

Light-duty vehicles in China	
Manufacturer	Main brands
BAIC Group	Beijing, Benz, Foton, Hyundai
Brilliance Group	BMW, Jinbei
BYD	BYD
Chang'an	Chang'an
Chery	Chery, Jaguar, Jetour, Karry, Land Rover, Exeed
DFM	Dongfeng, Nissan, Honda
FAW Group	Hongqi, Audi, Volkswagen, Toyota, Jetta, Mazda, Bestune, Jiefang
GAC Group	Trumpchi-Hongda, Fiat, Toyota, Jeep, Mitsubishi
Geely	Geely, Volvo Cars, Lynkco
Great Wall	Great Wall, Haval, Wey
SAIC Motor	Volkswagen, Wuling, Buick, Yuejing, MG
Tesla	Tesla

Table B2**Manufacturers and corresponding main brands in Europe.**

Light-duty vehicles in Europe	
Manufacturer	Main brands
BMW	BMW, MINI
Ford	Ford, Lincoln
Honda	Honda
Hyundai	Hyundai, Genesis
Jaguar Land Rover	Jaguar, Jaguar Land Rover
Kia	Kia
Mazda	Mazda
Mercedes-Benz	Mercedes-Benz, Smart
Mitsubishi	Mitsubishi
Nissan	Nissan, Infiniti
Renault	Renault, Dacia
Stellantis	Alfa Romeo, Citroën, DS Automobiles, Fiat, Jeep, Lancia, Opel, Peugeot, Vauxhall
Subaru	Subaru
Suzuki	Suzuki
Tesla	Tesla
Toyota	Toyota, Lexus
Volvo	Volvo, Polestar
Volkswagen Group	Audi, Porsche, Seat, Škoda, Volkswagen
Others	GM, MG, Iveco, SsangYong, Isuzu

Table B3**Manufacturers and corresponding main brands in the United States.**

Light-duty vehicles in the United States	
Manufacturer	Main brands
BMW	BMW, MINI
Ford	Ford, Lincoln
GM	Chevrolet, GMC, Buick, Cadillac
Honda	Honda, Acura
Hyundai	Hyundai, Genesis
Jaguar Land Rover	Jaguar, Jaguar Land Rover
Kia	Kia
Mazda	Mazda
Mercedes-Benz	Mercedes-Benz
Mitsubishi	Mitsubishi
Nissan	Nissan, Infiniti
Stellantis	Jeep, Dodge, Fiat, Alfa Romeo, Chrysler, Maserati, RAM
Subaru	Subaru
Tesla	Tesla
Toyota	Toyota, Lexus
Volvo	Volvo
Volkswagen Group	Volkswagen, Audi, Porsche, Bentley
Others	Karma, Rivian, Lucid, McLaren

Table B4**Manufacturers and corresponding main brands in India.**

Light-duty vehicles in India	
Manufacturer	Main brands
Ashok Leyland	Ashok Leyland
Honda	Honda
Hyundai	Hyundai
Kia	Kia
Mahindra	Mahindra & Mahindra, Mahindra electric
MG	MG
Nissan	Nissan, Datsun
Renault	Renault
Suzuki	Maruti, Suzuki
Stellantis	Jeep, Dodge, Fiat, Alfa Romeo, Chrysler, Maserati, RAM
Tata Motors	Tata, Jaguar, Jaguar Land Rover
Toyota	Toyota, Lexus
Volkswagen Group	Volkswagen, Audi, Škoda
Others	Mercedes-Benz, BMW, Volvo, Force, BYD, PMV Electric



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