

Electric Vehicle Sales Review Q4 2022



Foresight to drive the industry
February 2023



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0. Executive summary

United States finally arrives at BEV party

The BEV market in the United States finally sparked to life in 2022, having previously appeared to lag behind the development seen in China and much of Europe. Spurred by massive OEM investment in exciting new models, meaningful government incentives and a gradually improving charging infrastructure, BEV sales in the US grew by 88% in 2022 in comparison with the previous year – the highest such increase in all analyzed markets.

China's BEV market was close behind, sustaining its dramatic expansion of recent years with sales growth of 85% in 2022. Europe's growth was more modest but nevertheless still significant. The top five European markets grew by 28% in 2022 relative to the previous year. The United Kingdom saw the highest rise among these markets, with growth of 40%.

In total, BEV sales in all analyzed markets rose by 70% with China accounting for more than two out of every three BEV sales in 2022, a growth rate that is all the more impressive and noteworthy when we take into account that sales of all powertrains combined actually fell by 2%.

Looking at the fourth quarter of 2022 in isolation, Germany recorded particularly high BEV sales growth of 66% versus the corresponding quarter in 2021, as customers looked to make their purchases before a reduction in incentives kicked in at the start of 2023.

When it comes to the PHEV market, China's massive growth of 150% in 2022 represents an outlier from the rest of the world. Indeed, PHEV sales in the top five European markets only grew by 1.2% in 2022, as OEMs continue to prioritize BEV sales to meet emissions targets and incentives are lower.

It remains to be seen whether such reduction or even cancellation of incentives, also evident in various other European markets and in China, will have any significant impact on BEV sales growth. In the past, although BEVs have been seen as more expensive to purchase, their total cost of ownership (TCO) over the long term has been lower as a result of incentives and lower running costs. Now this TCO benefit is becoming questionable.



In 2022, United States boasted the highest annual growth in BEV sales among all analyzed markets

88%

Percentage increase in BEVs sold in the United States in 2022 when compared to the previous year

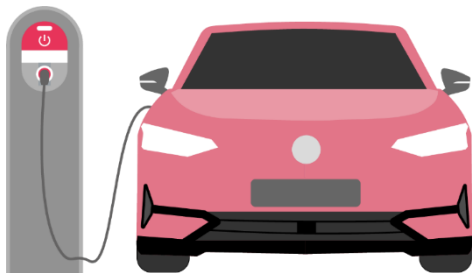


1. News and highlights

Multiple OEMs slash BEV prices as market competition intensifies

CES: OEMs push boundaries of innovation

This intensifying market competition continues to be reflected in the regular launch of exciting new models by leading OEMs. Volkswagen, for example, has launched the ID.7, its second global BEV after the ID.4, and its first all-electric sedan. Sales are expected to begin by the end of 2023.¹



Meanwhile, BMW has revealed the i Vision Dee. The concept represents a bold statement of the company's ambitious plans for technological innovation in the EV market. The Dee in the car's name stands for "Digital Emotional Experience", and the concept promises a number of novel features. Information is projected onto the front windscreen instead of a dashboard, while users can change the car's exterior and wheels to any one of 32 colors, using BMW's new E-ink technology.²

On the supplier side, Holon, the mobility business unit of Benteler introduced a new autonomous people mover concept. The SAE Level 4 mover is designed for up to 15 passengers, therefore bridging the gap between personal and public transportation. Car design firm, Pininfarina and autonomous provider Mobileye were involved from the start.³

Price cuts place pressure on rival OEMs

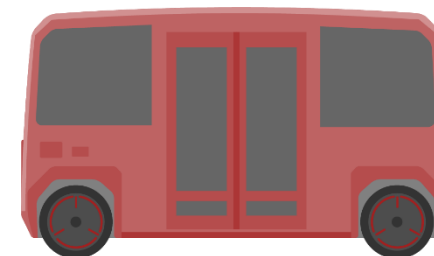
Since last fall, multiple OEMs have cut BEV prices. In the case of Mercedes-Benz and Tesla they have reduced prices for certain BEVs by up to around 20%. This move is in response to intensifying competition, to stay below incentive thresholds and a troubled economic environment that is set to have a significant impact on consumer affordability. The price cuts will inevitably place pressure on both smaller rivals and established OEMs and threaten their growth plans.^{4,5} Tesla said the cuts were made possible by falling supply chain costs.⁶

Most recently, Ford and Xpeng reduced prices by up to around 10%, of certain BEV models, in the USA and China respectively.^{7,8} With higher production, Ford expects to reduce costs and plans to share these savings with the customers.

Cheaper battery materials on the horizon

Startups in the US and Europe are battling with each other to develop new batteries that use sodium and sulfur, materials which are both abundant and inexpensive. Currently, China dominates production of the lithium-ion batteries on which BEVs now rely, including the mining and refining of the relevant raw materials – lithium, cobalt and nickel – whose prices have soared. Using sodium-ion or lithium-sulfur batteries instead could therefore reduce dependency on China, ward off the predicted supply bottlenecks for the relevant materials, and pave the way for an expansion of mass-market, affordable BEVs.

However, this potentially radical development still faces major obstacles and when possible are only expected after 2030. Sodium-ion batteries are not yet able to store sufficient energy, while sulfur batteries are quick to corrode and currently have a very limited lifespan.⁹



Sources



1. News and highlights

United States bucks global trend of EV incentive reductions

Major markets cut EV incentives

Several countries are now moving on to the next stage of BEV market development. Believing that state incentives have now served their purpose, they are now relying on greater consumer interest and regulatory frameworks to spur EV market growth.

From the start of 2023, BEV buyers in France now receive a maximum of €5,000 from the state, a decrease of €1,000. However, the incentive for low-income households has increased to €7,000.¹

A downward trend is also evident in Germany from the start of 2023, with a reduction of BEV incentives (from €6,000 to €4,500 for models under €40,000, and from €5,000 to €3,000 for models under €65,000), and the elimination of PHEV incentives (which were previously up to €4,500).²

In China meanwhile, BEV subsidies have been cancelled completely in a move that was originally intended for 2020 but was postponed due to the pandemic and its economic impact.³

However, the US is bucking this international trend. The Inflation Reduction Act includes a possible tax credit of up to \$7,500 for purchasing a new BEV, and a credit of up to \$4,000 for purchasing a used BEV.⁴ This credit is significant, as it removes the previous OEM cap after 200,000 sales.

Massive investments in charging infrastructure

As BEVs move further into the mainstream market, major investments in charging infrastructure are critical. The German government has launched a plan for a huge expansion of the country's BEV charging infrastructure. At a cost of €6.6 billion, the goal is to have 1 million publicly accessible charging points in place by 2030, up from the current 70,000.⁵

The California Energy Commission (CEC) has approved a \$2.9 billion investment plan. Most of the money will be used for BEV charging points. The investment will create 90,000 new EV chargers across the state, more than doubling the 80,000 already installed.⁶

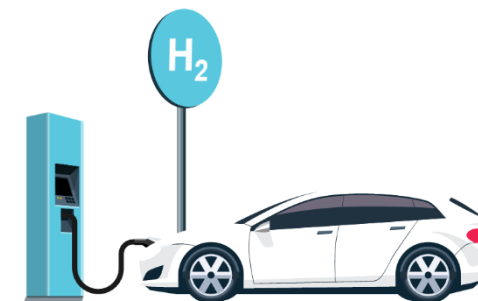
The government of Luxembourg has dedicated €4.5 million to funding the construction of 672 additional EV charging points for BEVs, 44 of which will be fast chargers.⁷

Meanwhile, the Japanese government plans to ease regulations on the installation of fast-charging BEV stations, with the aim of boosting Japan's BEV charging infrastructure. Chargers with an output of more than 200 kilowatts are currently subject to strict safety measures and other regulations, resulting in increased costs.⁸

FCEV appetite increases as hydrogen price falls

The cost of green hydrogen is set to fall over the next few years as demand increases and production of electrolyzers – the device that creates an electric current to split apart the hydrogen and oxygen from the water where it is found – is ramped up. According to a study by Rethink Energy, lower electrolyzer costs, driven by these economies of scale, will more than halve the global price of green hydrogen by 2030.⁹ The resulting potential significant reduction in the cost of owning a fuel cell electric vehicle (FCEV), making mass market demand possible, is attracting attention from OEMs.

For example, Stellantis has entered negotiations with the French suppliers Faurecia and Michelin to buy a substantial stake in their Symbio joint venture, a fuel cell system maker for hydrogen mobility.¹⁰ BMW and Toyota have announced a partnership to produce hydrogen fuel cell vehicles from 2025 onwards.¹¹



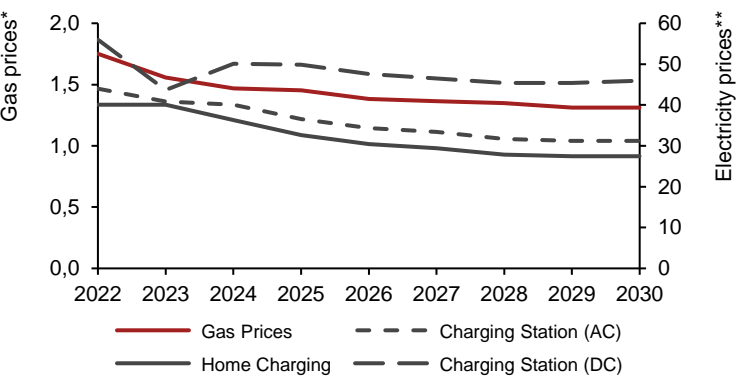


2. Analyst insights

Electric TCO advantage under threat in Germany as incentives wane

In recent years, there has been a cost argument in favor of purchasing a BEV. Although the list price of a similar ICE vehicle may be lower, so the argument goes, government purchase incentives and lower fuel and other running costs make the total cost of ownership (TCO) of a BEV more economical over the long term.

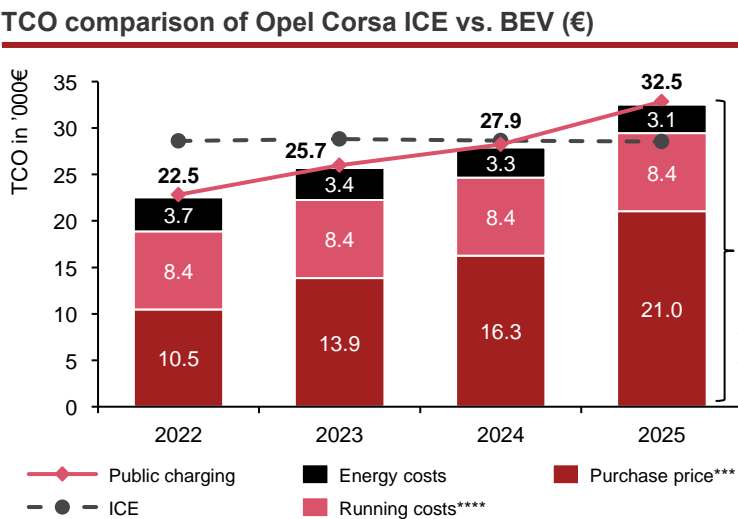
However, on one side, government purchase incentives are being reduced and on the other side electricity prices are at record highs. The recent PwC Study “Ladestrom für Automobile. Prognose 2023” (www.pwc.de/ladestrom) analyzed future electricity and petrol prices. Generally, electricity prices remain below petrol but it also depends on the share of home charging and public AC or DC charging.



Regardless, these factors cast some doubt as to whether BEVs can sustain their TCO advantage in those markets that introduce significant reductions in incentives. If they are indeed unable to do so, the previously rapid rise of the BEV market may be slowed.

The question is, does a BEV still make economic sense in 2023? Let us investigate with Opel Corsa 1.2 GS (ICE) and Corsa-e GS (BEV). With identical performance and equipment in either car, the final purchase price in 2023 is actually very similar. The difference is that the ICE version is also offered with a less powerful version with less equipment. Before incentives, this is over 85% less than the starting price of the BEV version.

For a purchase made in 2022, the TCO of the BEV version is calculated to be significantly lower due to the relevant government incentive in Germany. By 2024, however, as incentives fall, the TCO of a new Opel Corsa-e nearly exceeds that of its petrol rival for a customer who drives significantly less than 15,000 km per year and/or does not have the option to charge at home. And by 2025, based on current prices and planned incentives, the TCO of the BEV version becomes significantly higher, no matter where the vehicle is charged or how long the distance travelled.














The TCO is of course only one of several considerations for consumers when they purchase a BEV. Driving preference and environmental awareness are two other factors. Moreover, governments throughout the world are seeking to phase out the sale of ICE vehicles over the next couple of decades anyway. It is often therefore assumed that the EV market will continue to grow at breakneck speed, with few blips along the way. The next few years will determine whether the projected reversal of the EV TCO advantage will force this assumption to be reassessed.





2. Analyst insights

Competition in the BEV market is getting fiercer

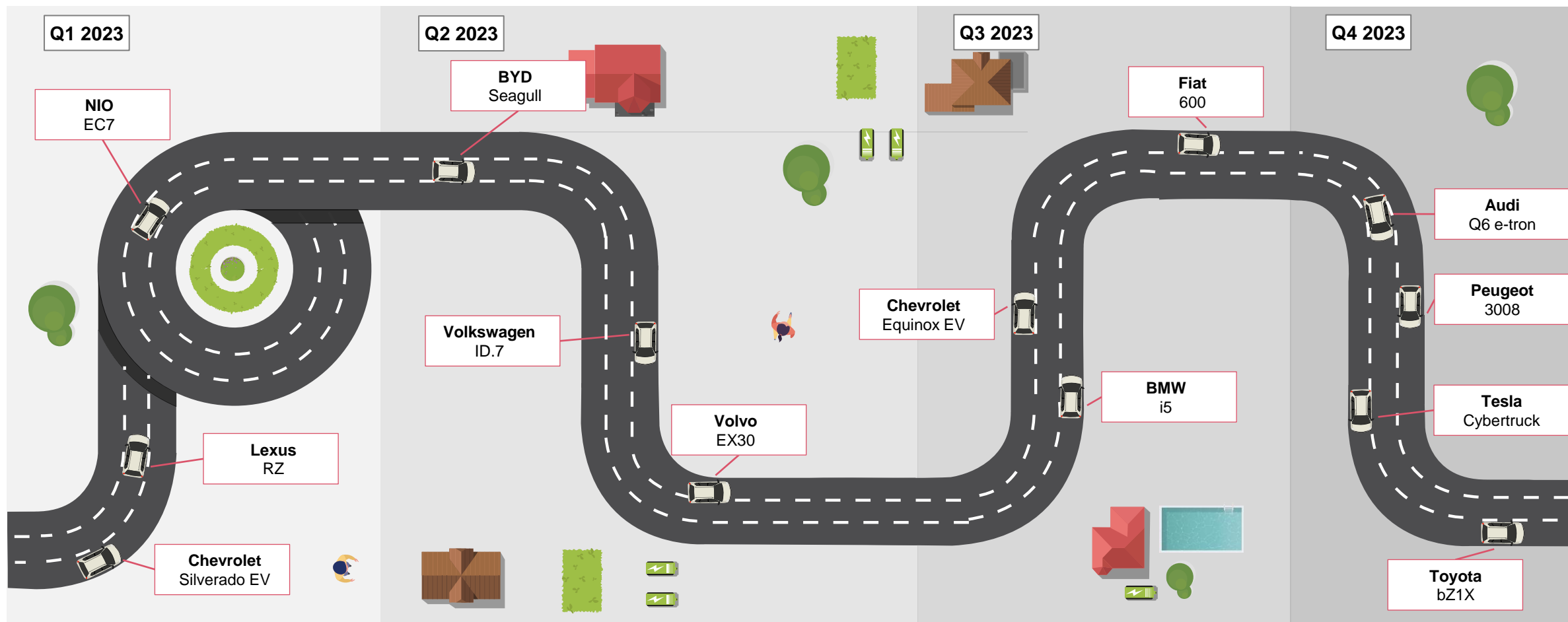
Top BEV models in 2022

European Top 4 		
	Model	Sales Jan-Dec '22
	Tesla Model 3	54,835
	Tesla Model Y	53,459
	Fiat 500 electric	52,949
	Dacia Spring	36,550
	Volkswagen ID.4, ID.5	31,925
	Peugeot 208 EV	31,412
	Volkswagen ID.3	29,503
	Hyundai Kona Electric	25,667
	Renault Megane Electric	25,576
	Renault ZOE	24,798

USA 		
	Model	Sales Jan-Dec '22
	Tesla Model Y	251,974
	Tesla Model 3	211,618
	Ford Mustang Mach-E	39,458
	Chevy Bolt EV/EUV	38,120
	Tesla Model S	32,675
	Tesla Model X	26,121
	Hyundai Ioniq 5	22,982
	Volkswagen ID.4	20,511
	Kia EV6	20,498
	Rivian R1T	17,426

China 		
	Model	Sales Jan-Dec '22
	Wuling Hongguang Mini	404,823
	Tesla Model Y	315,314
	BYD Dolphin	204,226
	BYD Yuan Plus	167,220
	BYD Han EV	144,665
	Tesla Model 3	124,456
	Aion Y	120,585
	BYD Qin Plus EV	119,933
	Aion S	116,332
	Chery QQ Ice Cream	96,529

New BEV launches drive market growth



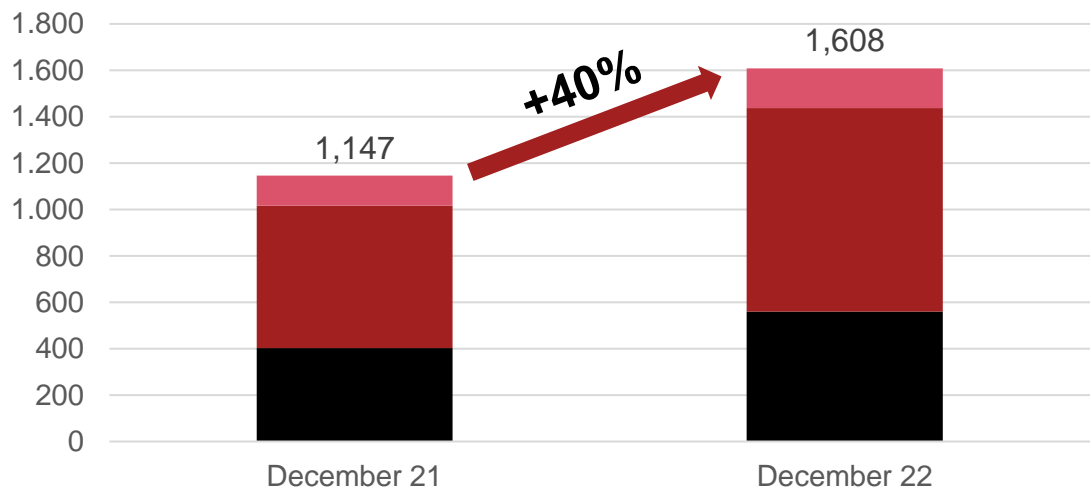


3. Electric vehicle sales data

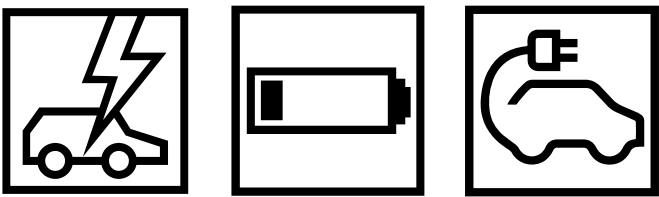
EV sales continue growth this year

Key Markets

December 21 vs. December 22 (in '000 units)

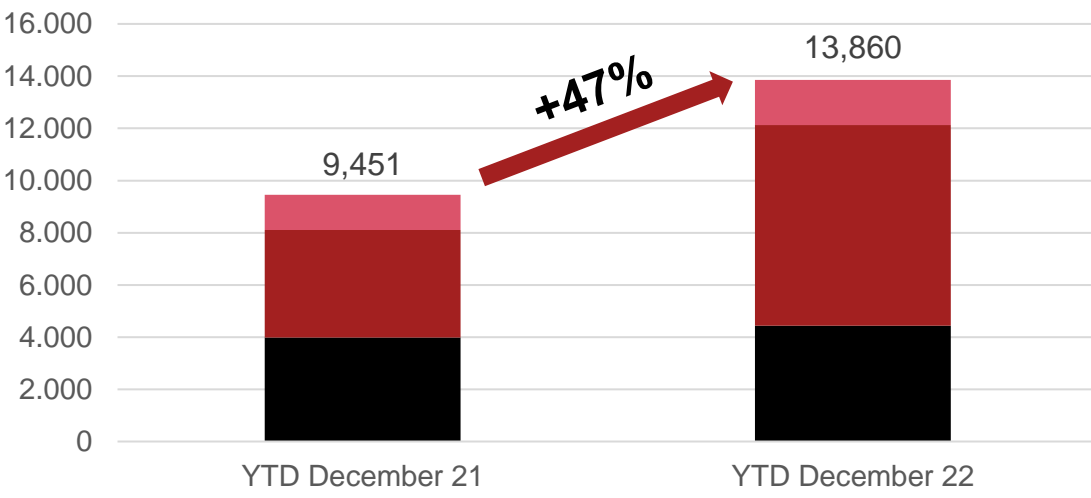


WE 5+5 China USA



Electric Vehicles (EVs*)

YTD December 21 vs. YTD December 22 (in '000 units)



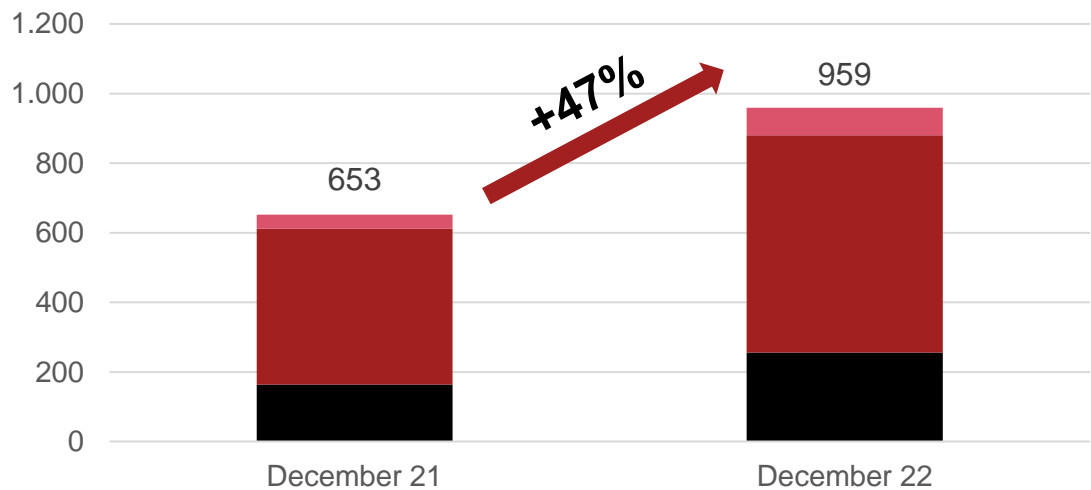


3. Electric vehicle sales data

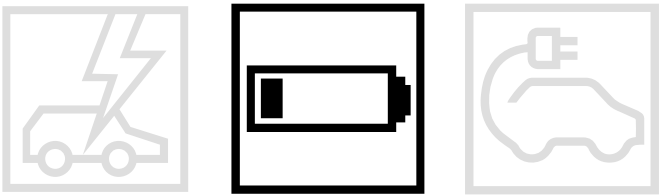
US and China growth momentum on par

Key Markets

December 21 vs. December 22 (in '000 units)

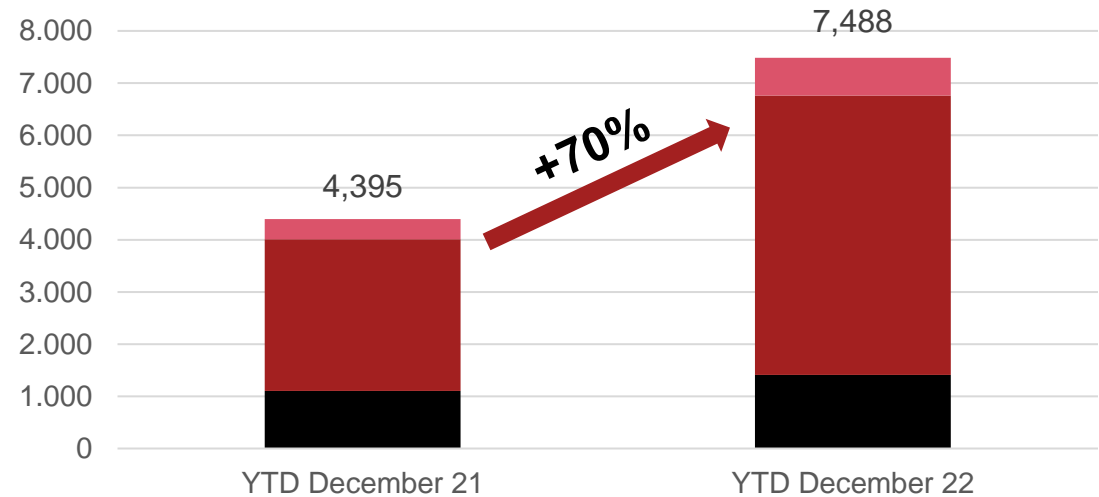


WE 5+5 China USA



Battery Electric Vehicles (BEVs)

YTD December 21 vs. YTD December 22 (in '000 units)



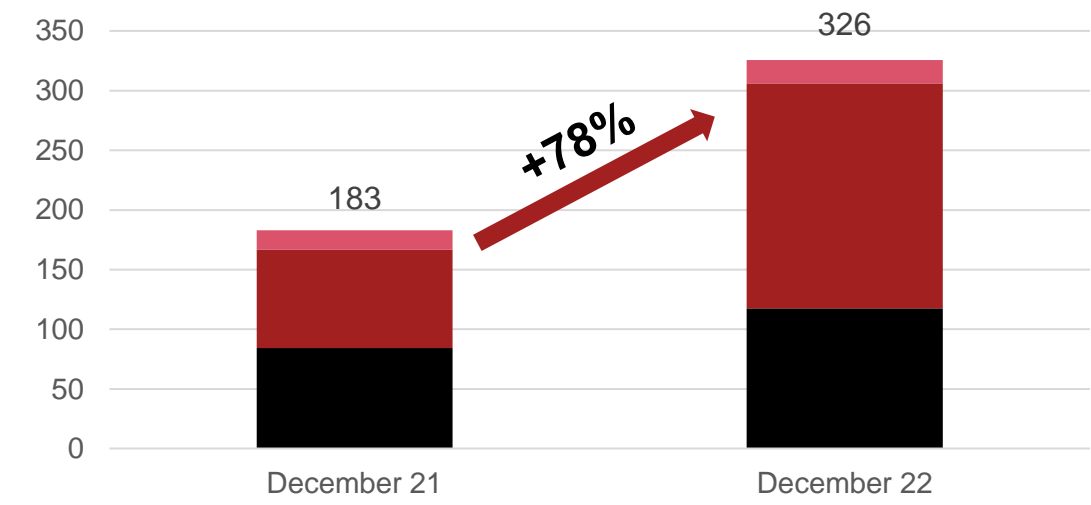


3. Electric vehicle sales data

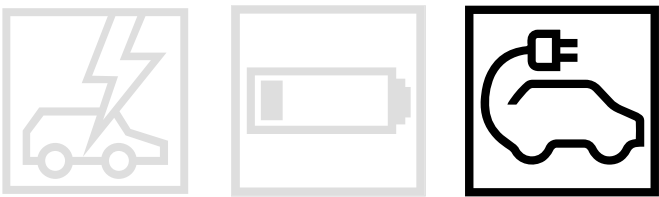
Plug-in sales in China thrive

Key Markets

December 21 vs. December 22 (in '000 units)

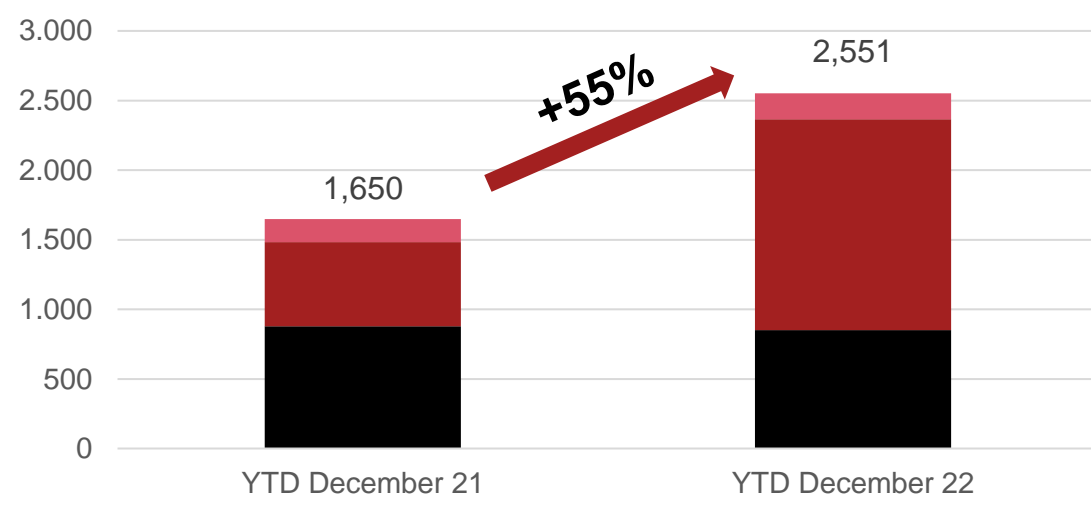


WE 5+5 China USA



Plug-in Hybrid Electric Vehicles (PHEVs)

YTD December 21 vs. YTD December 22 (in '000 units)





4. Western Europe Top 5 and other European markets

Western Europe 5+5

European Top 5: France, Germany, Italy, Spain, and UK

BEV sales in the top 5 European markets grew by 39% in the fourth quarter of 2022 in comparison with the corresponding period in 2021.

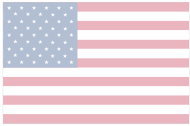
Two countries were primarily responsible for this growth. Germany registered the highest BEV growth in this period, up by 66% in Q4 2022 vs. Q4 2021, as consumers hurried to avoid the cut in government incentives at the start of 2023. Meanwhile, the UK BEV market grew by 40% over the same period, continuing its significant recent expansion.

Going against a longstanding global trend, BEV sales in Italy actually declined by 34% compared with the equivalent quarter in 2021. Lack of affordability is a major factor in this poor performance, with the price of the small electric cars that dominate the market still beyond the reach of the average buyer.

For 2022 as a whole, BEV sales in the top five markets grew by 28% from the previous year. The UK was the top performer, increasing by 40% over the year.

Other European markets: +5

In the other European markets analyzed, Sweden and Norway recorded by far the largest increases in BEV sales in Q4 2022 vs. Q4 2021, up by 84% and 76% respectively. Sweden also recorded the highest rise in these other markets over the full course of 2022, with BEV sales up by 66%. BEV market share in Sweden now stands at 32%, second only to Norway (79%) in all the global markets analyzed for this study.



	WE 5+5	2022 Q4	Comparison to 2021 Q4
BEV		524,000	+38%
PHEV		283,000	+25%
Hybrid		576,000	+29%
Total		1,383,000	+32%



Focus Market: Turkey

BEV sales in Turkey during the course of 2022 increased by 172% YoY to 7,743 units. PHEV sales in 2022 increased moderately by 15% YoY to just over 1,000 units. Plugless hybrids maintain the biggest share among EVs, accounting for 8% of the total market during the year. Overall, total EV sales increased by 39% YoY during 2022, accounting for a market share of 9%.



United States

USA

The US BEV market continues to flourish, with sales almost doubling (up by 92%) in Q4 2022 in comparison with the corresponding period in 2021. Indeed, 2022 was a bumper year for the US BEV market, propelled by government incentives, a wide range of appealing new models and improving charging infrastructure. In 2022, the US recorded the highest rise in BEV sales of all global markets analyzed, up by 88%. This performance is all the more impressive when one considers that total 2022 sales of all powertrains declined by 8% in the US, as customers tightened their belts in a challenging economic environment.

There is still much more room for sustained rapid growth over the next few years. The BEV market share is still only at 5%. The next milestone on the horizon, likely to occur in 2023, is for BEV sales to outstrip those for hybrids. The growth of the hybrid and PHEV markets were very minor by comparison in 2022, up by 3% and 11% respectively from the previous year.



USA	2022 Q4	Comparison to 2021 Q4
BEV	215,000	+92%
PHEV	50,000	+6%
Hybrid	206,000	+3%
Total	470,000*	+31%



4. China and other countries in Asia

China and other Asian countries

China

The seemingly inexorable rise of China’s BEV market continued in the final quarter of 2022, growing by 58% relative to the corresponding quarter in 2021. Quarterly BEV sales, which hovered around the million mark at the beginning of 2022, are now rapidly nearing two million. PHEV sales have grown at an even faster rate, increasing by 123% in Q4 2022 vs. Q4 2021.

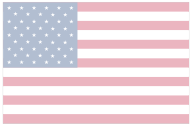
Total EV sales in 2022 (encompassing sales of BEVs, PHEVs and hybrids combined) increased by 87% from the previous year, by far the largest such increase in all the analyzed markets.

Japan

Japan’s EV market is almost completely dominated by the sale of hybrids. While more than a million hybrids were sold during the whole of 2022, BEV sales amounted to just 32,000 over the course of the year.

South Korea

BEV sales in South Korea increased by 42% in Q4 2022 from the equivalent period in 2021. This growth in the BEV market was more apparent in the figures for 2022 as a whole, with a rise of 62% from the previous year.



	China	2022 Q4	Comparison to 2021 Q4
BEV		1,780,000	+58%
PHEV		531,000	+123%
Hybrid		193,000	-8%
Total		2,504,000	+59%

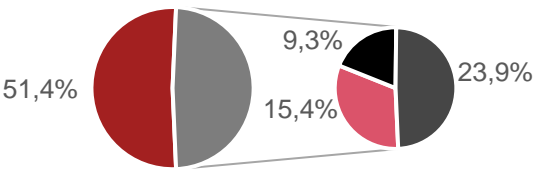


Shares of EV registrations

EV registrations YTD Dec 2022

WE 5+5

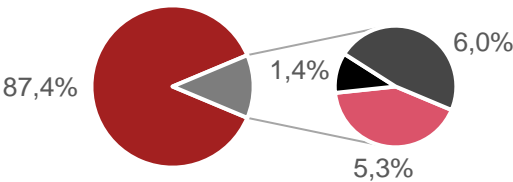
Total registrations	9,151,416
EV registrations	4,447,702



of which BEV	1,412,251
of which PHEV	850,651
of which Hybrid	2,184,800

USA

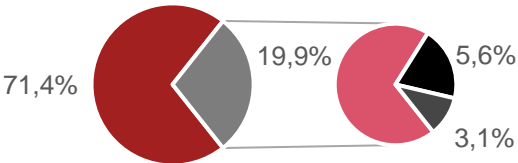
Total registrations	13,653,608
EV registrations	1,726,308



of which BEV	725,064
of which PHEV	184,823
of which Hybrid	816,422

China

Total registrations	26,849,000
EV registrations	7,685,552



of which BEV	5,351,000
of which PHEV	1,515,559
of which Hybrid	818,993

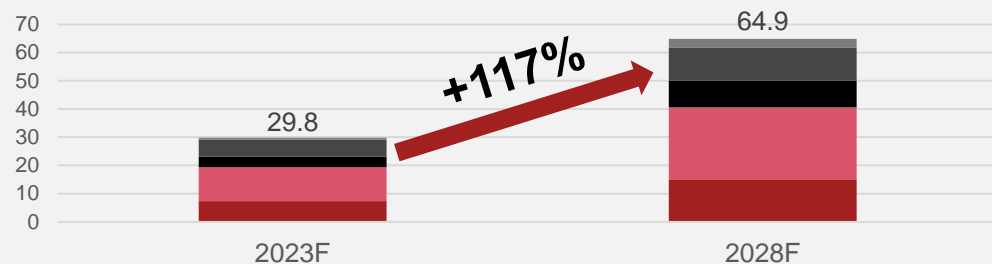
ICE BEV PHEV Hybrid

Electrified vehicle assembly forecast by region

1

EV Assembly by Region

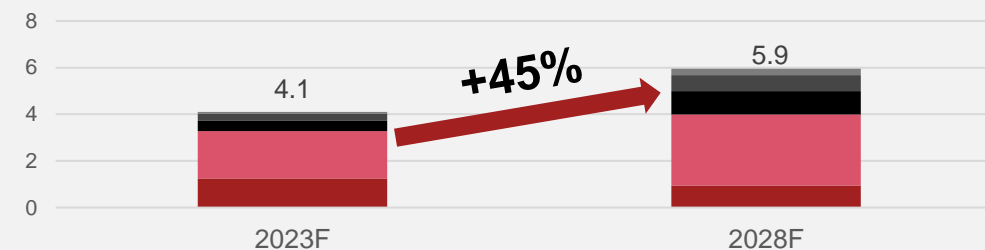
2023F vs. 2028F (in million units)



2

Plug-in Hybrid Vehicle Assembly

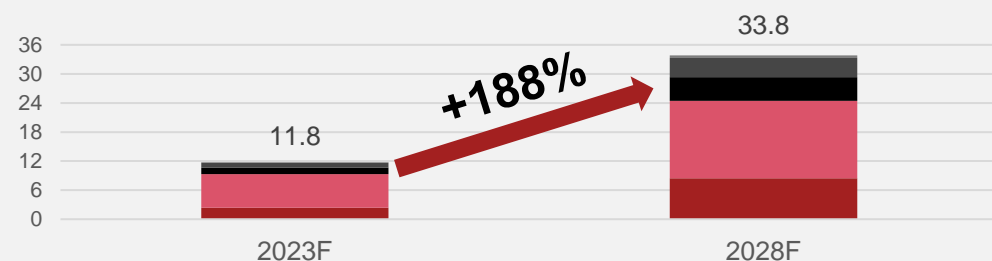
2023F vs. 2028F (in million units)



3

BEV Vehicle Assembly

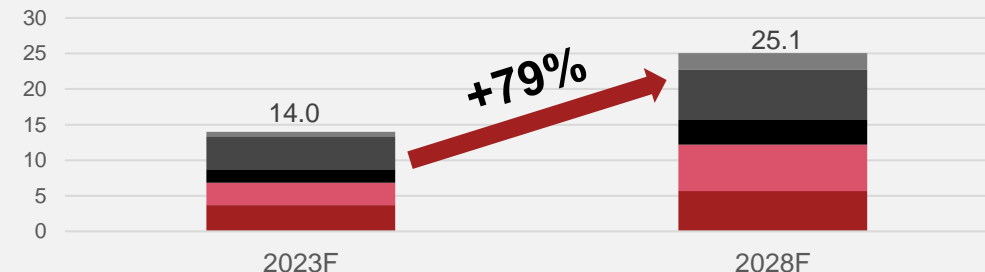
2023F vs. 2028F (in million units)



4

Full and Mild Hybrid Vehicle Assembly

2023F vs. 2028F (in million units)



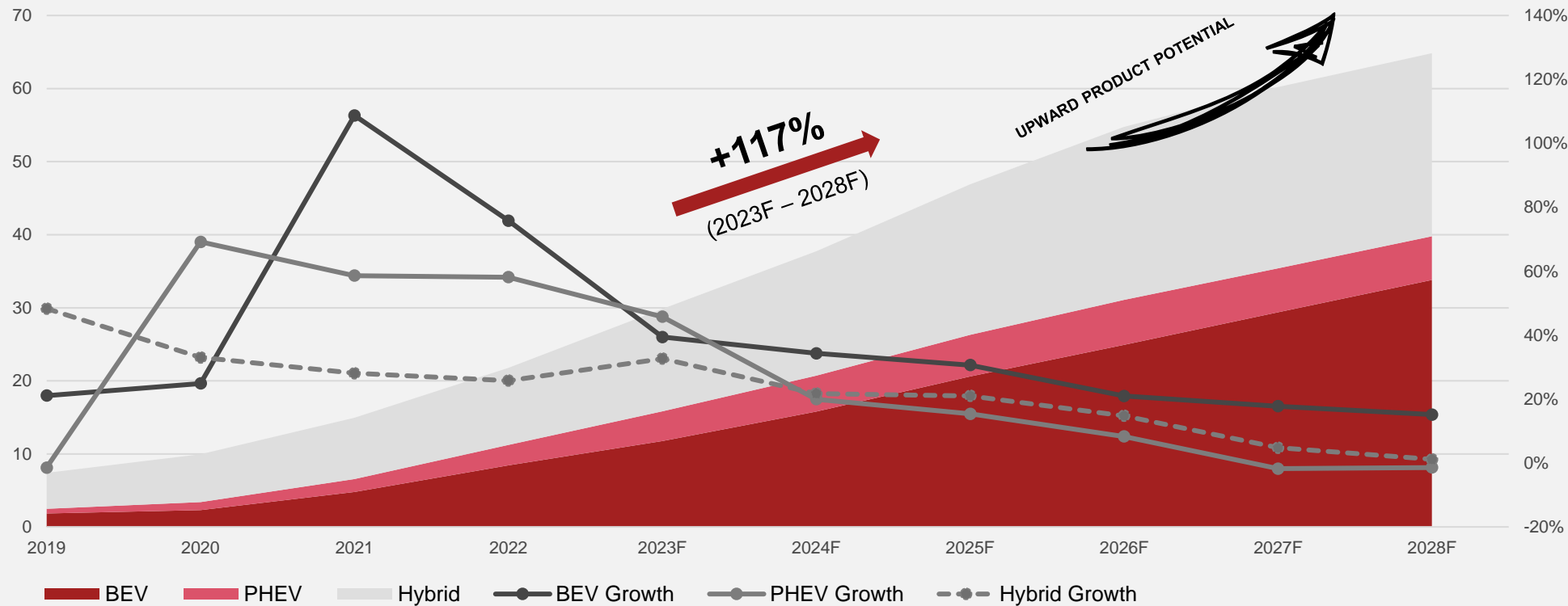
Western + Central Europe China NAFTA Asia-Pacific (w/o China) RoW



Electric vehicle assembly forecast

5

Global EV assembly by powertrain type
2019 – 2028F (in million units, percent)

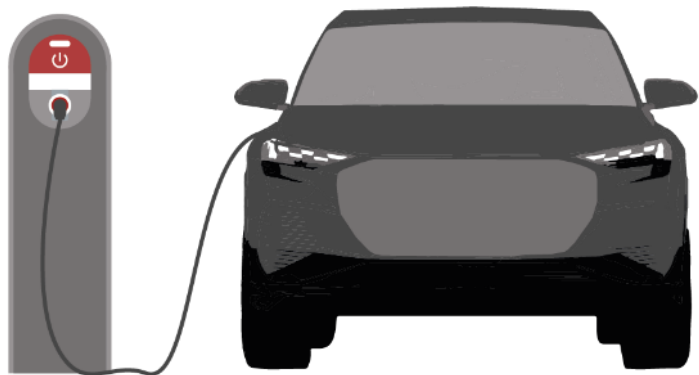




7. Electric vehicle model launches

Overview: BEV model launches

2023 (not exhaustive)



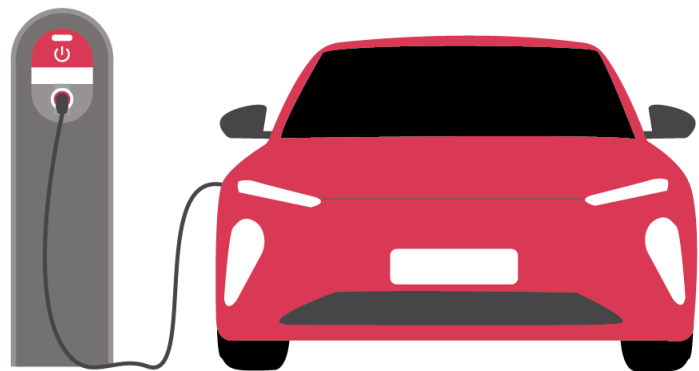
Brand	Model	Launch	Quarter
Audi	Q6 e-tron	2023	Q4
BMW	i5	2023	Q3
BrightDrop	Zevo 400	2023	Q4
BYD	Seagull	2023	Q2
Chevrolet	Equinox EV	2023	Q3
Chevrolet	Silverado EV	2023	Q1
Fiat	600	2023	Q3
Lexus	RZ	2023	Q1
NIO	EC7	2023	Q1
Peugeot	3008	2023	Q4
Renault	Scenic	2023	Q4
Tesla	Cybertruck	2023	Q4
Toyota	bZ1X	2023	Q4
Volkswagen	ID.7	2023	Q2
Volvo	EX30	2023	Q2



7. Electric vehicle model launches

Overview: BEV model launches

2024–2027 (not exhaustive)



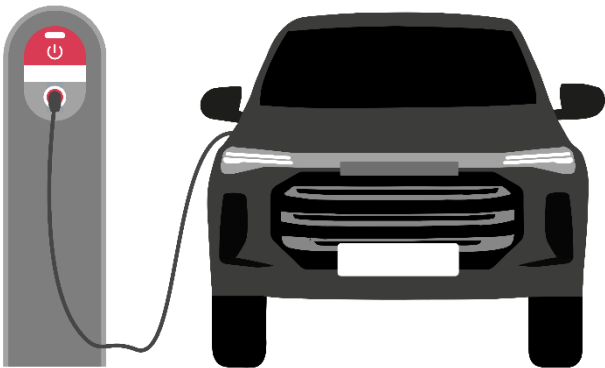
Brand	Model	Launch
Alfa Romeo	B-CUV	2024
Alfa Romeo	Giulia	2025
Audi	A3 e-tron	2027
Audi	A4 e-tron	2027
BMW	i1	2027
BMW	iX4	2026
BMW	iX7	2027
Chevrolet	Malibu EV	2027
Ferrari	E-CUV EV	2025
Fisker	PEAR	2024
Hyundai	Ioniq 3	2026
Hyundai	Ioniq 8	2025
Infiniti	QX80	2024
Jeep	Recon	2024
Kia	EV4	2024



7. Electric vehicle model launches

Overview: BEV model launches

2024–2027 (not exhaustive)



Brand	Model	Launch
Kia	EV8	2027
Lancia	Ypsilon	2024
Lincoln	Corsair EV	2025
Mercedes-Benz	EQG	2024
Mini	Aceman	2024
Nissan	Maxima EV	2025
Polestar	Polestar 6	2027
Renault	5	2024
Sony	D-Sedan EV	2025
Volkswagen	ID.1	2025
Volkswagen	ID.2	2026
Volkswagen	Trinity	2027
Volvo	EX40	2026
Volvo	EX60	2025
Wuling	Sunshine	2026



8. Electric vehicle sales data

Electric vehicle sales data

Germany, UK, France,
Italy, Spain, WE-5

Legend

MoY = Month-on-Year
QoY = Quarter-on-Year
YoY = Year-on-Year
YTD = Year-to-Date

		YTD 2022	Market Share	YTD 2021	YoY YTD	22 Q4	QoY 22 Q4	Dec 22	MoY Dec 22	Nov 22	MoY Nov 22	Oct 22	MoY Oct 22
	BEV	470,559	17.7%	355,961	32.2%	198,086	66.1%	104,325	115.4%	57,980	44.0%	35,781	17.1%
	PHEV	362,093	13.7%	325,449	11.3%	146,446	73.5%	69,801	113.1%	44,581	59.8%	32,064	35.1%
	Hybrid	465,228	17.5%	429,139	8.4%	120,525	26.7%	40,359	11.5%	43,697	39.4%	36,469	32.2%
	Total EV	1,297,880	49.0%	1,110,549	16.9%	465,057	55.7%	214,485	82.7%	146,258	47.0%	104,314	27.4%
Germany	BEV	267,203	16.6%	190,727	40.1%	91,589	39.6%	42,284	52.6%	29,372	35.2%	19,933	23.4%
	PHEV	101,413	6.3%	114,526	-11.4%	27,452	-0.2%	8,367	0.4%	10,186	-5.7%	8,899	6.2%
	Hybrid	479,992	29.7%	444,052	8.1%	114,021	44.7%	31,714	25.3%	40,136	47.7%	42,171	60.2%
	Total EV	848,608	52.6%	749,305	13.3%	233,062	35.6%	82,365	34.3%	79,694	33.5%	71,003	39.6%
UK	BEV	203,121	13.3%	162,106	25.3%	62,156	12.7%	24,987	7.8%	20,303	23.7%	16,866	8.2%
	PHEV	126,549	8.3%	141,012	-10.3%	37,995	-3.1%	14,545	-6.1%	12,342	1.5%	11,108	-3.9%
	Hybrid	332,663	21.8%	286,525	16.1%	94,701	33.2%	36,290	29.5%	29,501	37.1%	28,910	34.1%
	Total EV	662,333	43.3%	589,643	12.3%	194,852	17.7%	75,822	13.7%	62,146	24.0%	56,884	16.8%
France	BEV	49,169	3.7%	67,252	-26.9%	13,300	-34.2%	4,520	-26.6%	5,116	-26.1%	3,664	-48.5%
	PHEV	64,632	4.9%	70,080	-7.8%	17,133	0.6%	5,119	-14.6%	6,368	10.4%	5,646	7.2%
	Hybrid	450,938	34.2%	422,388	6.8%	119,439	27.3%	36,662	43.0%	40,454	23.9%	42,323	19.2%
	Total EV	564,739	42.9%	559,720	0.9%	149,872	14.4%	46,301	22.5%	51,938	14.5%	51,633	7.8%
Italy	BEV	35,401	4.4%	26,911	31.5%	11,080	12.6%	4,076	-0.9%	3,857	22.5%	3,147	21.8%
	PHEV	48,193	5.9%	43,310	11.3%	13,474	0.2%	4,641	-4.0%	4,833	9.8%	4,000	-5.1%
	Hybrid	243,230	29.9%	223,383	8.9%	68,540	10.7%	22,706	-9.9%	25,014	31.3%	20,820	18.0%
	Total EV	326,824	40.2%	293,604	11.3%	93,094	9.3%	31,423	-8.0%	33,704	26.7%	27,967	14.4%
Spain	BEV	1,025,453	12.9%	802,957	27.7%	376,211	39.3%	180,192	64.4%	116,628	31.8%	79,391	10.3%
	PHEV	702,880	8.9%	694,377	1.2%	242,500	33.5%	102,473	52.0%	78,310	28.3%	61,717	16.1%
	Hybrid	1,972,051	24.9%	1,805,487	9.2%	517,226	29.1%	167,731	19.5%	178,802	35.7%	170,693	32.7%
	Total EV	3,700,384	46.7%	3,302,821	12.0%	1,135,937	33.3%	450,396	41.9%	373,740	32.9%	311,801	22.9%
WE-5													



8. Electric vehicle sales data

Electric vehicle sales data

Sweden, Norway, Netherlands, Switzerland, Austria, WE 5+5

Legend

MoY = Month-on-Year
QoY = Quarter-on-Year
YoY = Year-on-Year
YTD = Year-to-Date

		YTD 2022	Market Share	YTD 2021	YoY YTD	22 Q4	QoY 22 Q4	Dec 22	MoY Dec 22	Nov 22	MoY Nov 22	Oct 22	MoY Oct 22
Sweden	BEV	96,163	32.1%	57,881	66.1%	37,213	83.6%	18,207	80.6%	10,970	97.7%	8,036	73.4%
	PHEV	66,775	22.3%	78,200	-14.6%	19,289	5.3%	8,248	23.1%	5,660	-5.3%	5,381	-4.5%
	Hybrid	28,355	9.5%	24,137	17.5%	7,290	48.7%	2,271	19.9%	2,626	73.0%	2,393	60.5%
	Total EV	191,293	63.9%	160,218	19.4%	63,792	46.7%	28,726	53.8%	19,256	47.6%	15,810	34.5%
Norway	BEV	138,286	79.3%	113,743	21.6%	58,355	75.8%	32,713	137.0%	15,915	41.2%	9,727	19.8%
	PHEV	14,857	8.5%	38,139	-61.0%	4,533	-52.7%	1,905	-59.5%	1,502	-43.4%	1,126	-49.4%
	Hybrid	9,464	5.4%	9,780	-3.2%	3,794	118.8%	1,388	112.9%	1,429	148.5%	977	92.7%
	Total EV	162,607	93.3%	161,662	0.6%	66,682	49.8%	36,006	87.9%	18,846	30.0%	11,830	9.0%
Netherlands	BEV	78,012	25.0%	67,323	15.9%	28,609	-19.2%	14,287	-33.2%	7,524	-4.8%	6,798	11.0%
	PHEV	34,535	11.1%	31,009	11.4%	8,236	8.4%	2,043	2.7%	2,876	-4.3%	3,317	27.3%
	Hybrid	77,951	25.0%	72,045	8.2%	21,062	30.3%	5,678	25.7%	7,300	18.8%	8,084	46.8%
	Total EV	190,498	61.0%	170,377	11.8%	57,907	-2.1%	22,008	-21.1%	17,700	3.8%	18,199	27.9%
Switzerland	BEV	40,172	17.8%	31,823	26.2%	13,659	19.8%	6,859	22.2%	4,391	22.1%	2,409	9.9%
	PHEV	18,336	8.1%	21,790	-15.9%	4,693	-21.7%	1,700	-30.7%	1,677	-15.3%	1,316	-15.6%
	Hybrid	56,121	24.8%	52,181	7.6%	16,147	20.9%	5,727	11.5%	5,555	24.1%	4,865	30.0%
	Total EV	114,629	50.7%	105,794	8.4%	34,499	12.2%	14,286	8.2%	11,623	15.6%	8,590	14.6%
Austria	BEV	34,165	15.9%	33,366	2.4%	10,061	9.0%	3,971	16.4%	3,430	-1.9%	2,660	14.5%
	PHEV	13,268	6.2%	14,626	-9.3%	3,829	16.5%	1,230	22.9%	1,537	34.7%	1,062	-7.2%
	Hybrid	40,858	19.0%	41,970	-2.6%	10,373	13.4%	3,486	12.3%	3,761	29.6%	3,126	-0.4%
	Total EV	88,291	41.1%	89,962	-1.9%	24,263	12.0%	8,687	15.6%	8,728	15.7%	6,848	3.7%
WE 5+5	BEV	1,412,251	15.4%	1,107,093	27.6%	524,108	38.1%	256,229	56.4%	158,858	32.0%	109,021	14.3%
	PHEV	850,651	9.3%	878,141	-3.1%	283,080	25.1%	117,599	39.6%	91,562	20.8%	73,919	11.5%
	Hybrid	2,184,800	23.9%	2,005,600	8.9%	575,892	29.1%	186,281	19.7%	199,473	35.4%	190,138	33.0%
WE 5+5	Total EV	4,447,702	48.6%	3,990,834	11.4%	1,383,080	31.5%	560,109	38.7%	449,893	31.0%	373,078	22.4%



8. Electric vehicle sales data

Electric vehicle sales data

China, Japan, USA, South Korea, Analyzed Markets

		YTD 2022	Market Share	YTD 2021	YoY YTD	22 Q4	QoY 22 Q4	Dec 22	MoY Dec 22	Nov 22	MoY Nov 22	Oct 22	MoY Oct 22
China*	BEV	5,351,000	19.9%	2,901,000	84.5%	1,780,000	58.2%	624,000	39.3%	615,000	70.4%	541,000	71.2%
	PHEV	1,515,559	5.6%	605,150	150.4%	531,000	123.1%	188,500	128.8%	170,400	92.3%	172,100	156.8%
	Hybrid	818,993	3.1%	611,900	33.8%	192,500	-8.2%	64,804	-22.1%	60,334	-9.1%	67,362	12.3%
	Total EV	7,685,552	28.6%	4,118,050	86.6%	2,503,500	59.2%	877,304	43.0%	845,734	63.9%	780,462	76.2%
Japan	BEV	31,592	1.4%	21,139	49.4%	9,358	51.5%	4,137	71.0%	3,268	51.9%	1,953	21.7%
	PHEV	37,772	1.7%	22,777	65.8%	7,275	14.8%	3,159	3.5%	2,184	10.2%	1,932	48.4%
	Hybrid	1,089,077	49.0%	1,027,104	6.0%	296,277	17.3%	92,568	4.6%	106,055	13.7%	97,654	38.0%
	Total EV	1,158,441	52.1%	1,071,020	8.2%	312,910	18.0%	99,864	6.2%	111,507	14.5%	101,539	37.8%
USA	BEV	725,064	5.3%	386,513	87.6%	214,839	92.3%	79,058	93.9%	65,338	95.2%	70,443	87.9%
	PHEV	184,823	1.4%	166,506	11.0%	49,672	6.0%	19,598	20.3%	14,597	11.9%	15,477	-11.6%
	Hybrid	816,422	6.0%	789,575	3.4%	205,548	2.7%	72,264	-0.4%	62,289	0.9%	70,995	7.9%
	Total EV	1,726,308	12.6%	1,342,594	28.6%	470,059	31.1%	170,920	31.9%	142,224	31.4%	156,915	29.9%
South Korea	BEV	155,432	9.2%	95,742	62.3%	40,029	41.7%	5,942	-11.5%	15,403	45.3%	18,684	70.9%
	PHEV	13,114	0.8%	19,701	-33.4%	3,205	-13.6%	1,038	-0.2%	1,213	47.9%	954	-48.4%
	Hybrid	259,731	15.4%	216,648	19.9%	70,588	9.2%	26,823	18.4%	24,892	15.3%	18,873	-7.5%
	Total EV	428,277	25.4%	332,091	29.0%	113,822	17.8%	33,803	11.2%	41,508	25.8%	38,511	16.0%
Analyzed Markets	BEV	7,675,339	14.3%	4,511,487	70.1%	2,568,334	55.6%	969,366	46.5%	857,867	62.6%	741,101	60.6%
	PHEV	2,601,919	4.9%	1,692,275	53.8%	874,232	67.7%	329,894	76.4%	279,956	55.3%	264,382	71.7%
	Hybrid	5,169,023	9.7%	4,650,827	11.1%	1,340,805	14.3%	442,740	4.8%	453,043	16.1%	445,022	23.6%
	Total EV	15,446,280	28.8%	10,854,589	42.3%	4,783,371	43.0%	1,742,000	37.0%	1,590,866	44.9%	1,450,505	48.7%

Legend

MoY = Month-on-Year
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 YoY = Year-on-Year
 YTD = Year-to-Date



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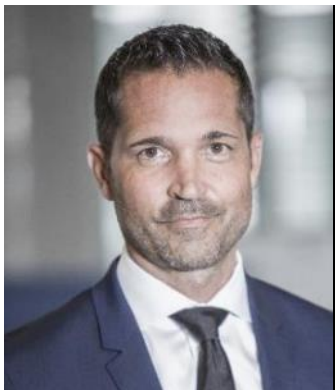
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Thank you

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