

Greater China EV and EV battery

Electrify the future #53: Battery installed capacity up 32% YoY/9% MoM in Dec

Industry Overview

EV battery installed capacity up 32% YoY in Dec

According to RealLi, Dec EV battery installed capacity was 48.3GWh, up 32% YoY/9% MoM, in line with the EV sales growth pattern. In 2023, installed capacity grew 29% YoY to 391GWh. Battery installed capacity by vehicle type in Dec was passenger BEV: 64%; passenger PHEV: 25%; E-bus (BEV+PHEV): 3%; and special vehicle (BEV+PHEV): 8%.

PEV insurance rose 26% YoY/15% MoM in Dec

New energy vehicle (NEV) wholesales (domestic + export) volume reached 1.19mn units in Dec, up 46% YoY/16% MoM. BEV/PHEV sales were 825k/364k units in Dec, up 32%/93% YoY. 2023 NEV sales rose 38% YoY to 9.5mn units. Dec EV (PEV + CEV) penetration rate was 37.7%, and 2023 EV penetration was 31.6%, up 5.9ppt YoY. On the other hand, locally manufactured EVs' insurance registrations totaled 888k in Dec, up 26% YoY/15% MoM.

CATL/BYD market share at 43.5%/24.7% in Dec

In Dec, among the major EV battery makers, installed capacity (at cell level) for the market leader CATL was 21GWh, up 14% YoY. Its market share was 43.5% in Dec, down 6.7ppt YoY. CATL's top clients in Dec were Tesla/Li Auto/DFG, accounting for 19%/15%/11% of installed battery capacity in China. BYD's installed capacity rose 36% YoY on robust BEV and PHEV sales; BYD secured the number-2 position with 24.7% share; Gotion ranked number 3 with 5.8% share; CALB ranked number 4 with 5.0% share; and SVOLT was number 5 with 4.8% share. By EV battery chemistry, in Dec, NCM's share was 34% and LFP's 66%. In 2023, NCM's share was 33% and LFP's 67%. In terms of EV battery by form factor, prismatic accounted for the majority at 94%, vs. pouch at 4% and cylindrical at 2% in Dec.

LFP/NCM 622 prices fell 29%/27% YoY in Dec

Battery installations for Tesla in China (excluding export sales) were 4.6GWh in Dec vs. 4.7GWh in Nov, down 3% MoM. In Dec, Tesla's domestic sales grew 80% YoY to 75k units: Model 3 sales came in at 15.7k units and Model Y at 59.4k units. In terms of battery prices, as of end-2023, ASP was RMB620/RMB660 /RMB520 per kWh for NCM 622/NCM 811/LFP battery cell, down 27%/24%/29% YoY and down 7%/11%/7% MoM, according to RealLi. We expect battery prices to remain at a low level in 2024, given the over-capacity in the EV battery supply chain.

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ASP: Average selling price

BEV: Battery electric vehicle

CEV: Commercial electric vehicle

DFG: Dong Feng

EV: Electric vehicle

GWh: Gigawatt hour

k: thousand

kWh: Kilowatt hour

LFP: Lithium iron phosphate

MoM: Month on month

NCM: Nickel, cobalt and manganese

OEM: Original equipment
manufacturer

PEV: Plug-in electric vehicle

PHEV: Plugin-hybrid electric vehicle

vs.: versus

YoY: Year on year

YT: Year to

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Refer to important disclosures on page 9 to 10.

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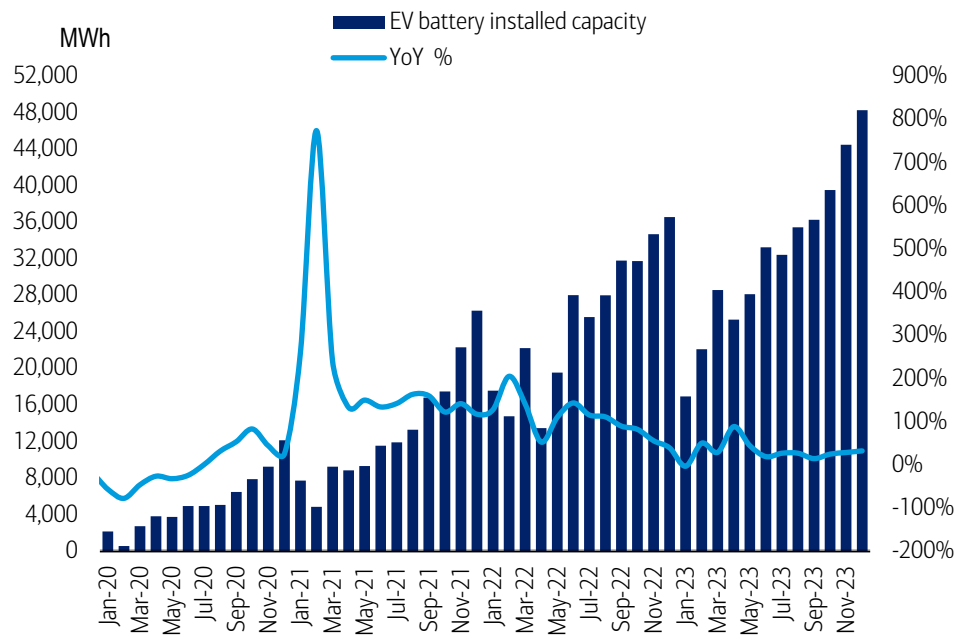
Newly added charging piles up 27% YoY in Dec

According to data released by China's Electric Vehicle Charging Infrastructure Promotion Association (EVCIPA), the cumulative number of charging piles for EVs owned and operated by its members totaled 8.6mn units, as of end-Dec 2023, up 65% YoY, including 2.7mn units of public charging piles (+52% YoY) and 5.9mn units of private charging piles (+72% YoY). The newly added charging piles came in at 332k units in Dec, up 27% YoY, while the newly added public/private charging piles were +51%/+19% YoY. Among the public charging pile operators, TELD/Star Charge/YKC were the top 3 positions, with market shares of 19%/17%/16%, respectively, as of end-Dec.

Key tables and charts – China EV battery

Exhibit 1: China EV battery installed capacity growth

Dec 2023 installed capacity rose 32% YoY

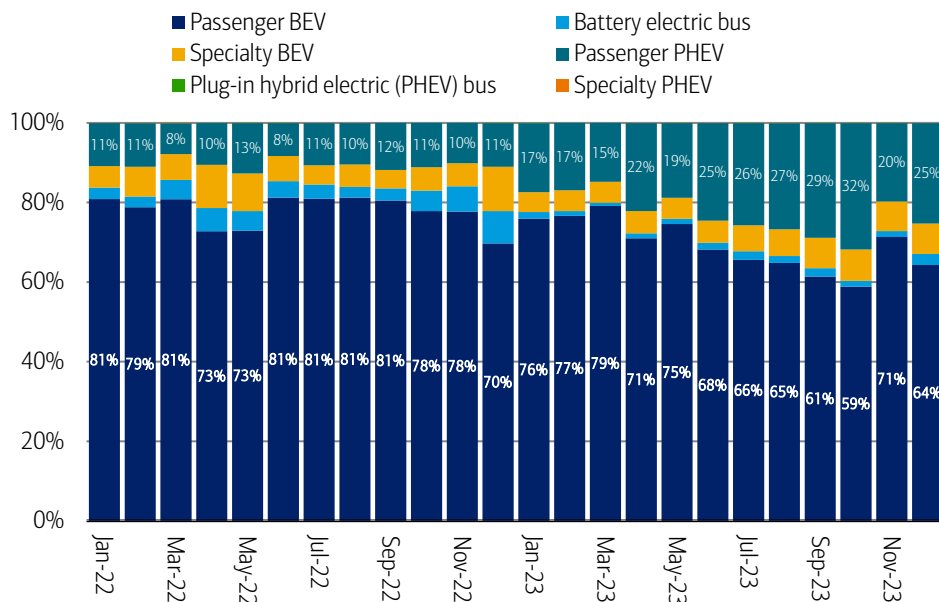


Source: RealLi, BofA Global Research

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Exhibit 2: China EV battery installed capacity by vehicle type

Passenger BEV accounted for 64% of total installed capacity in Dec 2023

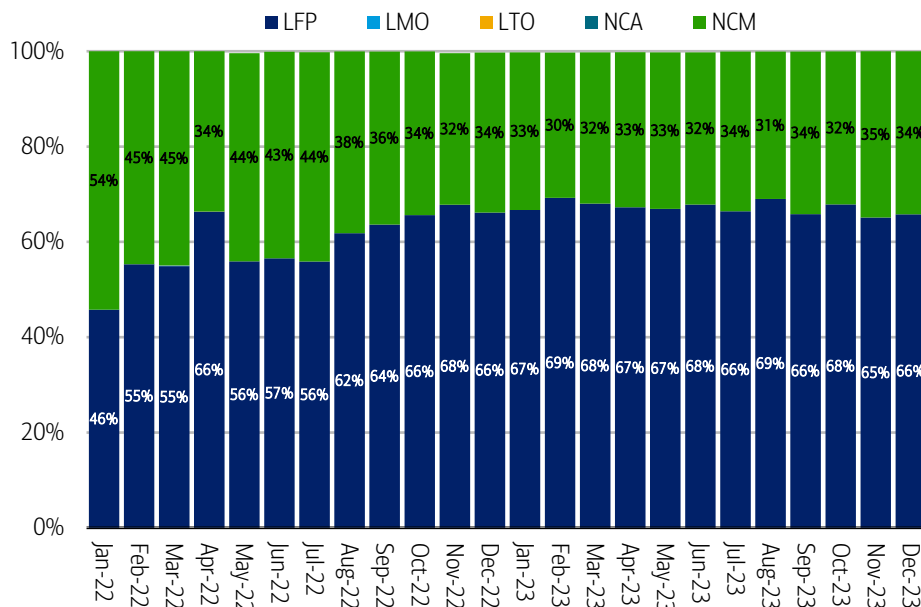


Source: ReallLi

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Exhibit 3: China EV battery installed capacity by chemistry

NCM/LFP battery accounted for 34%/66% of capacity in Dec 2023

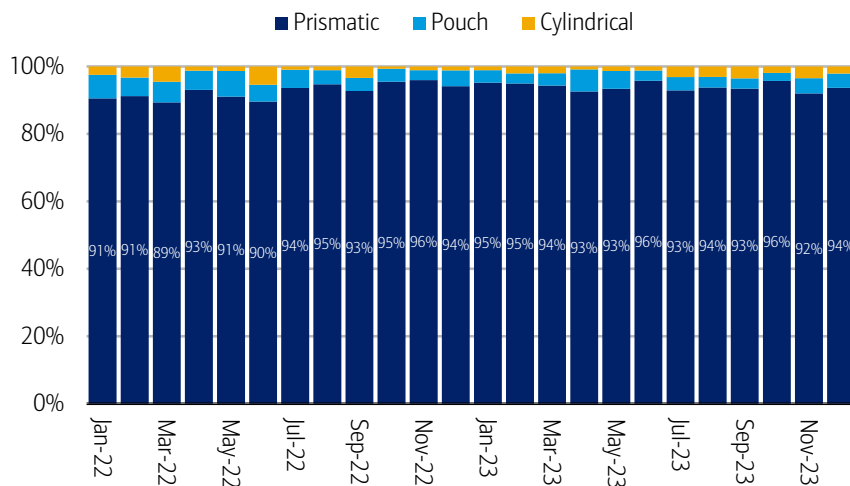


Source: ReallLi

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Exhibit 4: China EV battery installed capacity by form factor

Prismatic battery accounted for 94% of the total capacity in Dec 2023



Source: RealLi

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Exhibit 5: Top-10 EV battery suppliers by installed capacity in December 2023

CATL ranked number 1, with 43.5% market share in EV battery installed capacity in Dec 2023

(MWh)	Installed capacity	Mkt share
CATL	20,969	43.5%
BYD	11,916	24.7%
Gotion	2,818	5.8%
CALB	2,432	5.0%
SVOLT	2,329	4.8%
EVE	1,801	3.7%
CATL-SAIC	1,215	2.5%
Farasis Energy	1,191	2.5%
Tafel	789	1.6%
Sunwoda	650	1.3%
Others	2,150	4.5%
Total	48,259	100.0%

Source: RealLi, BofA Global Research

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Exhibit 6: Top-10 EV battery suppliers by installed capacity in 2023

CATL ranked number 1, with 41.5% market share in EV battery installed capacity in 2023

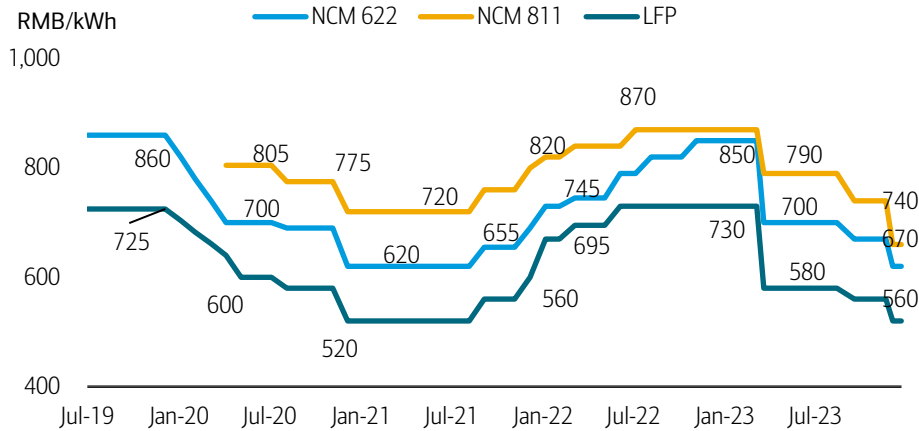
(MWh)	Installed capacity	Mkt share
CATL	161,940	41.5%
BYD	116,438	29.8%
CALB	24,585	6.3%
Gotion	22,213	5.7%
SVOLT	14,530	3.7%
EVE	13,722	3.5%
CATL-SAIC	7,048	1.8%
Farasis Energy	6,395	1.6%
LGES	4,750	1.2%
Sunwoda	3,699	0.9%
Others	15,305	3.9%
Total	390,624	100.0%

Source: RealLi, BofA Global Research

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Exhibit 7: NCM/LFP battery cell price trend in China

NCM 622/ NCM 811/ LFP battery price down 27%/24%/29% YoY in end-2023



Source: RealLi

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Exhibit 8: Battery supplier vs. OEMs in battery installed capacity in December 2023

BYD ranked No.1 among OEMs, with battery installed capacity of 11.5GWh in Dec 2023

	kWh	EV battery makers											Total
		CATL	BYD	Gotion	CALB	SVOLT	EVE	CATL-SAIC	Farasis Energy	Tafel	Sunwoda	Others	
OEMs	BYD	0	11,535,687	0	0	0	0	0	0	0	0	0	11,535,687
	SAIC Group	2,008,208	13,065	978,719	534	205	0	1,214,032	0	404,427	0	914,937	5,534,126
	SAIC Motor	312,010	0	0	0	0	0	399,295	0	0	0	107,841	819,146
	SAIC GM Wuling	62,195	0	966,521	534	205	0	0	0	404,427	0	793,964	2,227,845
	SAIC Maxus	57,098	0	12,198	0	0	0	37,843	0	0	0	2,842	109,981
	SAIC GM	7,752	13,065	0	0	0	0	605,465	0	0	0	9,130	635,411
	SAIC VW	1,568,924	0	0	0	0	0	171,429	0	0	0	0	1,740,353
	Tesla	4,001,100	0	0	0	0	0	0	0	0	0	609,323	4,610,423
	GAC Group	338,972	0	0	601,431	0	1,087,792	0	1,100,497	261,551	0	4,252	3,394,495
	GAC Motor	291,048	0	0	600,430	0	1,087,792	0	1,100,427	261,551	0	1,226	3,342,473
	GAC Honda	38,594	0	0	1,001	0	0	0	0	0	0	1,939	41,535
	GAC Toyota	9,330	0	0	0	0	0	0	0	0	0	1,087	10,417
	GAC NIO	0	0	0	0	0	0	0	0	0	0	0	0
	Li Auto	3,231,689	0	0	0	126,585	0	0	0	0	0	0	3,358,273
	DFG	2,322,927	83,470	112,847	49,940	322,715	24,396	0	9,946	9,147	244,877	137,164	3,317,426
	DF Motor	353,578	0	21,357	45,934	322,715	24,396	0	9,946	70	213,952	37,041	1,028,989
	DF Nissan	192,207	2,190	8,294	0	0	0	0	0	0	14,946	61,856	279,493
	DF Honda	52,160	10,623	0	4,005	0	0	0	0	0	0	20,829	87,618
	Local brand	1,399,409	0	596,267	79,191	494,010	70,385	0	0	0	92,834	78,336	2,810,432
	FAW	1,644,337	251,674	0	0	0	0	344	0	0	0	668	1,897,024
	Changan	914,027	17,582	175,285	640,731	0	19,401	0	0	0	0	1,285	1,768,310
	GWM	517,081	0	140,745	0	983,059	0	0	0	436	0	0	1,641,321
	XPeng	15,570	0	0	508,672	0	249,053	0	0	0	296,055	40	1,069,391
	Leap Motor	1,619	0	291,254	246,522	320,859	0	0	0	81,174	0	10,936	952,362
	NIO	497,630	0	0	162,000	0	0	0	0	0	0	0	659,630
	BAIC Group	495,670	4,897	17,793	11,340	0	3,284	0	46,668	0	0	19,842	599,494
	BAIC Benz	52,545	0	0	0	0	0	0	46,668	0	0	330	99,543
	BAIC Motor	46,315	317	0	0	0	0	0	0	0	0	746	47,379
	BAIC BluePark	104,512	0	0	0	0	0	0	0	0	0	18,023	122,535
	BJEV	113,267	0	10,297	0	0	0	0	0	0	0	0	123,564
	BAIC Hyundai	57	0	0	0	0	0	0	0	0	0	0	57
	Chery	137,241	0	184,148	13,953	0	11,330	0	0	0	0	181,322	527,995
	Hozon	267,960	0	38,816	0	70,103	7,312	245	0	32,204	0	20,625	437,264
	Others	3,692,441	9,553	422,448	117,234	994,984	327,788	0	33,391	664	16,068	171,637	5,786,210
	Total	20,968,800	11,915,929	2,817,576	2,431,548	2,329,461	1,800,740	1,214,621	1,190,502	789,166	649,834	2,150,367	48,258,543

Source: RealLi

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Exhibit 9: Battery supplier vs. OEMs in battery installed capacity in YT-December 2023

BYD ranked number 1 among OEMs, with battery installed capacity of 112.6GWh in YT-Dec 2023

		EV battery makers											
kWh		CATL	BYD	CALB	Gotion	SVOLT	EVE	CATL-SAIC	Farasis Energy	LGES	Sunwoda	Others	Total
OEMs	BYD	0	112,617,098	0	0	0	0	0	0	0	0	0	112,617,098
	Tesla	34,326,270	0	0	0	0	0	0	0	4,586,338	0	297,920	39,210,528
	GAC Group	7,025,241	0	8,710,975	0	0	8,191,563	0	5,163,133	0	0	1,126,784	30,217,697
	GAC Motor	6,168,031	0	8,637,137	0	0	8,191,563	0	5,160,541	0	0	1,039,324	29,196,596
	GAC Toyota	606,907	0	59	0	0	0	0	0	0	0	20,125	627,092
	GAC Honda	249,034	0	73,780	0	0	0	0	0	0	0	67,335	390,149
	GAC NIO	1,190	0	0	0	0	0	0	0	0	0	0	1,190
	SAIC Group	9,008,621	143,715	11,935	7,827,529	205	0	6,746,925	0	158,842	0	4,973,992	28,871,764
	SAIC GM Wuling	1,423,398	0	11,935	7,458,103	205	0	0	0	0	0	4,737,226	13,630,867
	SAIC Motor	2,812,113	0	0	19,133	0	0	2,588,834	0	0	0	203,620	5,623,701
	SAIC VW	3,846,588	0	0	0	0	0	1,343,942	0	0	0	0	5,190,531
	SAIC GM	89,452	143,715	0	0	0	0	2,600,443	0	158,842	0	0	2,992,452
	SAIC Maxus	583,501	0	0	190,008	0	0	213,705	0	0	0	18,697	1,005,912
	Li Auto	26,964,551	0	0	0	993,595	0	0	0	0	0	0	27,958,146
	Local brand	16,014,344	0	2,261,911	3,975,421	1,701,953	212,865	0	0	4,446	312,691	635,026	25,118,657
	DFG	11,394,539	475,405	98,104	526,118	629,579	416,735	0	88,741	0	1,780,554	1,888,371	17,298,147
	DF Motor	2,871,157	0	87,364	265,680	629,520	381,675	0	88,741	0	1,414,547	678,470	6,417,153
	DF Nissan	934,408	17,774	0	70,864	0	0	0	0	0	252,907	697,509	1,973,463
	DF Honda	658,248	40,379	10,645	0	0	0	0	0	0	0	112,001	821,272
	Changan	7,866,712	529,485	4,831,512	1,071,219	0	29,514	0	0	0	0	8,447	14,336,889
	GWM	3,062,449	0	0	1,908,127	7,490,668	0	0	0	0	0	4,099	12,465,343
	FAW	8,985,975	2,359,699	0	0	0	87	283,463	51	0	0	18,220	11,647,495
	NIO	7,868,412	0	1,074,300	0	0	0	0	0	0	0	29,600	8,972,312
	XPeng	728,276	0	4,643,956	0	0	1,482,047	0	0	0	1,528,013	679	8,382,971
	BAIC Group	5,905,657	55,237	11,340	159,009	0	13,350	0	898,429	0	0	680,238	7,723,260
	BJEV	1,922,163	0	0	35,070	0	0	0	0	0	0	0	1,957,233
	BAIC Benz	504,625	0	0	0	0	0	0	898,429	0	0	292,418	1,695,472
	BAIC Motor	899,417	1,851	0	0	0	0	0	0	0	0	17,502	918,769
	BAIC BluePark	617,689	0	0	0	0	0	0	0	0	0	260,870	878,559
	BAIC Hyundai	1,785	0	0	0	0	0	0	0	0	0	36	1,821
	Leap Motor	39,971	0	2,178,191	1,775,909	2,741,364	0	0	0	0	0	900,925	7,636,360
	Hozon	2,747,729	0	0	138,549	911,894	1,522,718	17,782	0	0	0	1,297,195	6,635,868
	Chery	937,938	0	283,224	2,378,657	0	105,396	0	0	0	0	1,445,904	5,151,119
	Others	19,063,562	256,897	479,756	2,452,521	60,295	1,747,558	0	244,289	0	78,148	1,997,133	26,380,158
	Total	161,940,248	116,437,536	24,585,204	22,213,060	14,529,554	13,721,833	7,048,170	6,394,643	4,749,626	3,699,407	15,304,532	390,623,812

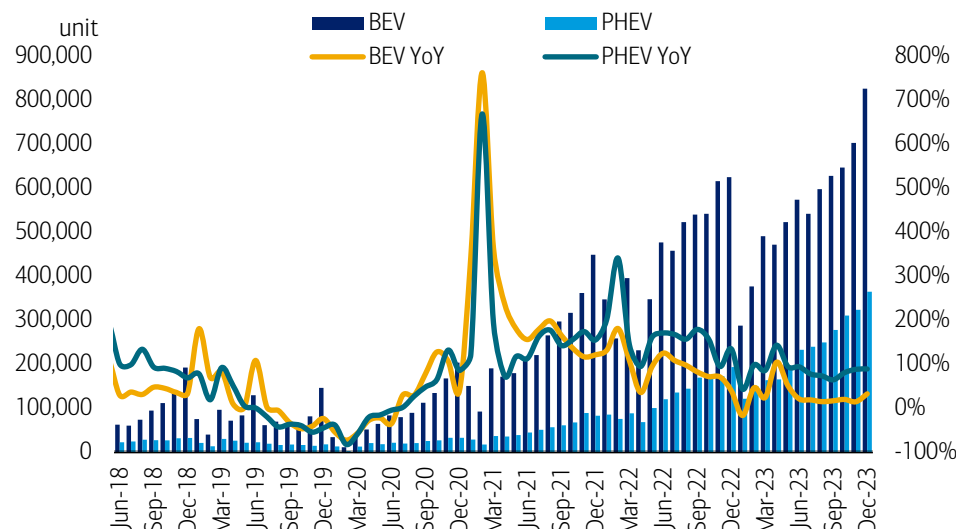
Source: RealLi

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Key tables and charts – China EV

Exhibit 10: China BEV/PHEV monthly shipment growth

NEV wholesales up 46% YoY in Dec 2023



Source: CAAM, BofA Global Research

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Exhibit 11: Top 10 OEMs' NEV insurance registrations in December 2023

BYD ranked number 1, with 30.4% NEV market share in Dec 2023

	Dec sales	Mkt share
BYD	272,079	30.4%
Tesla (MIC+imported)	76,967	8.6%
SAIC GM Wuling	61,740	6.9%
Local brand	58,243	6.5%
Li Auto	50,781	5.7%
Changan	47,258	5.3%
GAC Aion	42,303	4.7%
GWM	30,031	3.4%
SAIC VW	19,266	2.2%
Leapmotor	17,551	2.0%
Others	218,622	24.4%
Total	894,841	100.0%

Source: CIRC

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Exhibit 12: Top 10 OEMs' NEV insurance registration, YT-December 2023

BYD ranked number 1, with 34.2% NEV market share, YT-Dec 2023

	2023	Mkt share
BYD	2,510,283	34.2%
Tesla (MIC+imported)	613,236	8.4%
SAIC GM Wuling	452,121	6.2%
GAC Aion	442,871	6.0%
Local brand	417,246	5.7%
Li Auto	378,284	5.2%
Changan	375,506	5.1%
GWM	206,628	2.8%
NIO	160,143	2.2%
XPeng	133,578	1.8%
Others	1,643,359	22.4%
Total	7,333,255	100.0%

Source: CIRC

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Exhibit 13: Top 10 best-selling NEV models by insurance registration, YT-December 2023

BYD's Song is the best-selling model, YT-Dec 2023

OEM	Model	Dec sales	2023
BYD	Song	69,464	541,491
BYD	Qin	43,718	473,044
Tesla	Model Y	59,390	459,190
BYD	Yuan	27,415	297,192
BYD	Dolphin	24,933	286,344
SAIC GM Wuling	Hongguang Mini	23,102	236,407
BYD	Seagull	36,001	221,213
BYD	Han	16,795	205,160
GAC Aion	Aion Y	19,671	203,921
GAC Aion	Aion S	13,445	151,000

Source: CIRC

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