

EV Batteries (Overweight)

Realignment of supply and demand

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[Summary] Realignment of supply and demand

Demand: Recalibration underway

- EV demand is likely to improve in 2026-27, driven by price parity with internal combustion engine (ICE) vehicles, advancements in autonomous driving, and the expansion of charging infrastructure.
- Steady ESS demand should continue, driven by falling battery prices and rising demand from data centers.
- We also foresee long-term demand growth related to emerging battery applications.

Supply: Drastic contraction and supply chain shifts

- Given the contraction in production capacity that persisted from 2023 to 2025, supply conditions in Europe and the US from 2026 onward should be more balanced than feared.
- While significant oversupply persists in China, industry consolidation (led by leading players) and government-led measures to reduce excess capacity should have positive effects.
- Pay attention to supply chain shifts arising from US efforts to contain China, such as the proposed ban on China-affiliated firms from accessing the advanced manufacturing production credit (AMPC; 45X), antidumping and countervailing duty (AD/CVD) actions targeting anode materials imports, and item-specific tariffs.

Key technology trends

- All-solid-state batteries/solid electrolytes
- Sodium-ion batteries
- Advanced (silicon and metal-based) anode materials
- High-voltage/high-activity cathode materials

Investment strategy

- Shipment volumes should improve gradually, driven by solid EV demand in Europe and preemptive US demand ahead of subsidy cuts.
- The sector remains in a survival-of-the-fittest phase, necessitating a selective investment strategy focused on leading players; our top picks are CATL and LG Energy Solution (LGES).
- In battery materials, we advise a selective approach taking into account exposure to Chinese customers (including investments in LFP), exposure to new Tesla models, supply chain shifts, and valuations.

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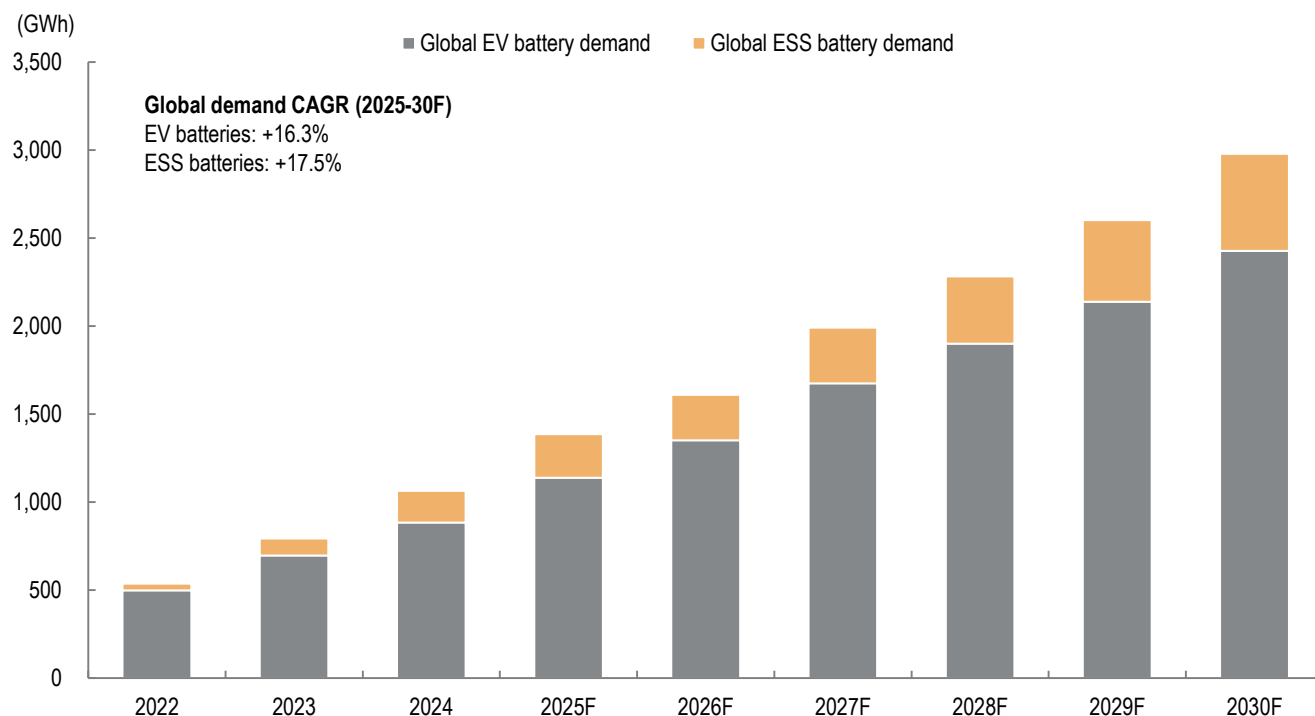
Demand outlook

I. Demand outlook: Recalibration underway

EV demand diverging by region; ESS demand forecasts continue to be revised upward; new applications emerging

- Governments in key markets have largely completed the rollout of EV- and ESS-related policies, helping to ease uncertainties.
- In response, major downstream customers are adjusting their short- and long-term strategies, allowing the market to establish a clearer baseline for demand forecasts.
- EV battery demand forecast: 2,427GWh by 2030 (five-year CAGR of 16.3%)
- ESS battery demand forecast: 551GWh by 2030 (five-year CAGR of 17.5%)
- The emergence of new applications (e.g., robots and drones) deserves attention over the long term.

Policy uncertainties easing; five-year demand trajectory taking shape



Source: EV Volumes, BloombergNEF, Mirae Asset Securities Research

I. Demand outlook: Recalibration underway

Global battery demand forecasts

		2022	2023	2024	2025F	2026F	2027F	2028F	2029F	2030F
EV battery demand (GWh)										
BEV sales ('000 units)	China	239	305	390	513	568	656	706	751	816
	Europe	105	147	150	198	278	407	468	535	611
	North America	72	106	127	157	182	226	273	348	448
	Other	29	48	58	75	102	150	204	254	298
PHEV sales ('000 units)	China	33	66	126	156	176	185	196	202	207
	Europe	15	16	19	21	21	22	19	18	16
	North America	4	6	7	11	15	15	20	17	16
	Other	2	3	5	8	10	12	13	13	15
Total sales (BEV + PHEV; '000 units)	China	273	371	516	669	744	842	903	953	1,024
	Europe	120	164	169	219	298	429	487	553	627
	North America	76	111	135	169	196	241	293	365	464
	Other	30	51	63	83	113	162	217	268	312
Global EV battery demand (GWh)		499	697	883	1,139	1,351	1,674	1,900	2,138	2,427
Global EV battery demand growth (%)		73	40	27	29	19	24	14	13	14
ESS battery demand (GWh)										
	China	12	47	99	123	112	140	177	216	262
	Europe	8	16	21	30	44	50	57	72	85
	US	12	21	34	42	37	46	58	66	71
	Other	5	12	27	51	64	81	91	110	133
Global ESS battery demand (GWh)		37	96	181	247	258	317	383	464	551
Global ESS battery demand growth (%)		70	159	89	37	4	23	21	21	19
Global battery demand (EV + ESS, GWh)		536	793	1,064	1,386	1,609	1,990	2,283	2,601	2,978
ESS battery penetration (%)		7	12	17	18	16	16	17	18	19

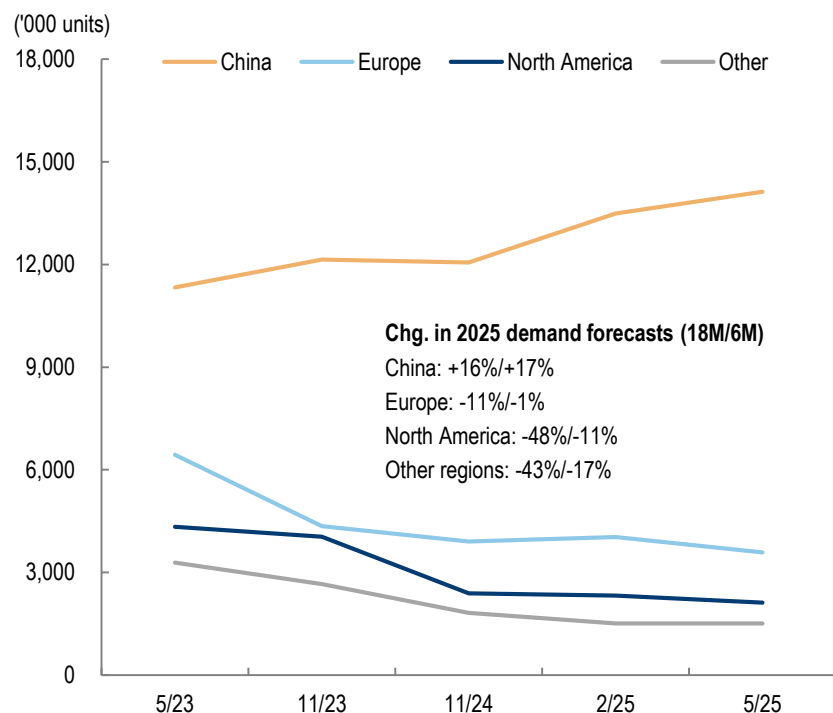
Source: EV Volumes, BloombergNEF, Mirae Asset Securities Research

I. Demand outlook: EVs

Revisions to EV demand forecasts

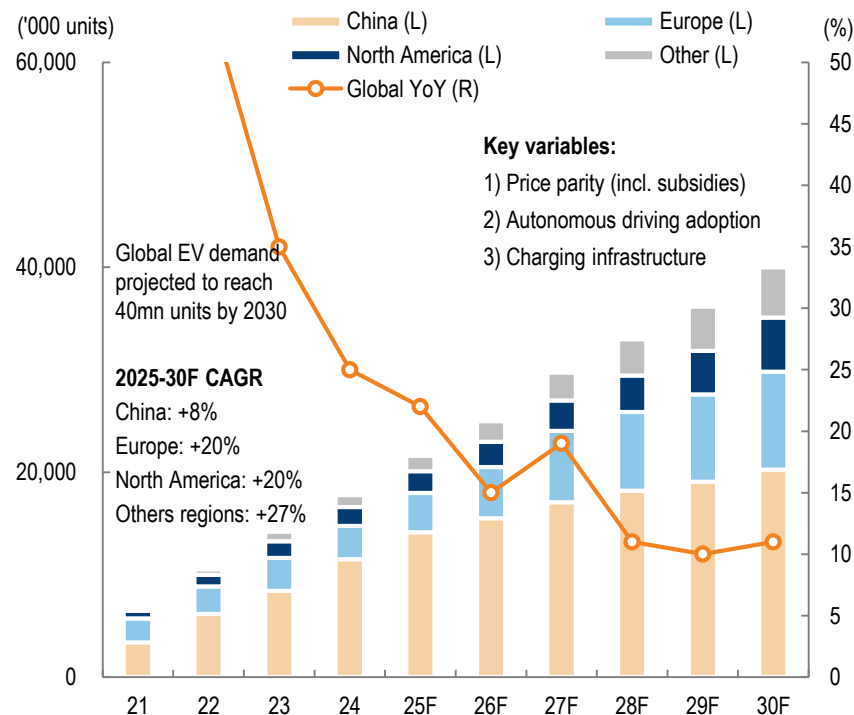
- The global EV demand forecast for 2025 remains unchanged at 21.61mn units; the estimate for China was revised upward, while other regions saw downward revisions.
- Despite market concerns, EV demand is likely to hold up well in 2026-27.
- By that time, EVs should achieve meaningful price parity with ICE vehicles (factoring in subsidies), and autonomous driving adoption (led by China and Tesla) should become more widespread. Additionally, Europe and the US should see notable progress in terms of charging infrastructure per vehicle and charging speed.

2025 global EV demand forecast revisions: Continued downward revisions outside of China



Source: EV Volumes, Mirae Asset Securities Research

2030 EV demand outlook and key variables



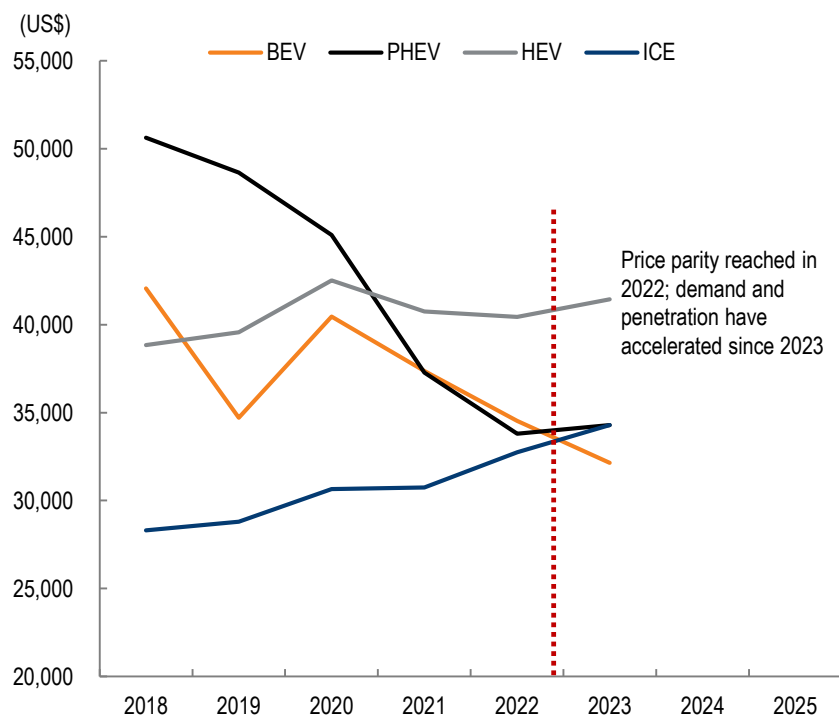
Source: EV Volumes, Mirae Asset Securities Research

I. Demand outlook: EVs

Price parity and subsidies

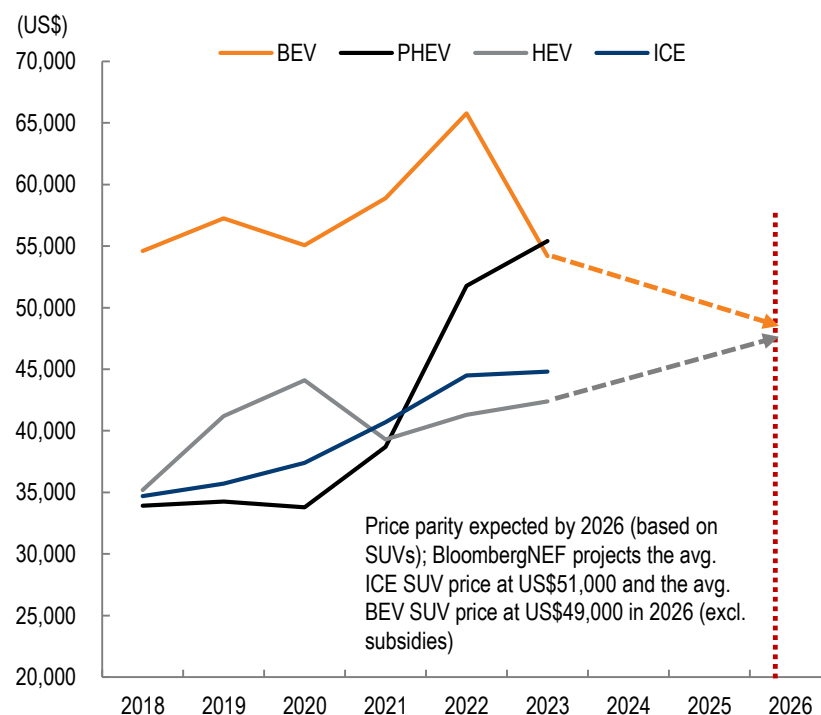
- In China, BEVs reached price parity with ICE vehicles in 2022. Since then, BEV demand and penetration have risen more rapidly than expected. China's EV penetration jumped from 17% in 2021 to 50% in 2024.
- A meaningful drop in prices tends to act as an inflection point for rapid EV adoption once a market reaches 15%-20% penetration.
- Price parity (based on SUVs and excluding subsidies) was achieved in Europe in 2024 and is likely to be reached in the US in 2026.
- In Europe, EV penetration has accelerated this year following the achievement of price parity in 2024.
- It is also worth noting that ICE vehicle prices are rising globally due to tariffs.

Price trends: China



Source: BloombergNEF, Mirae Asset Securities Research

Price trends: US



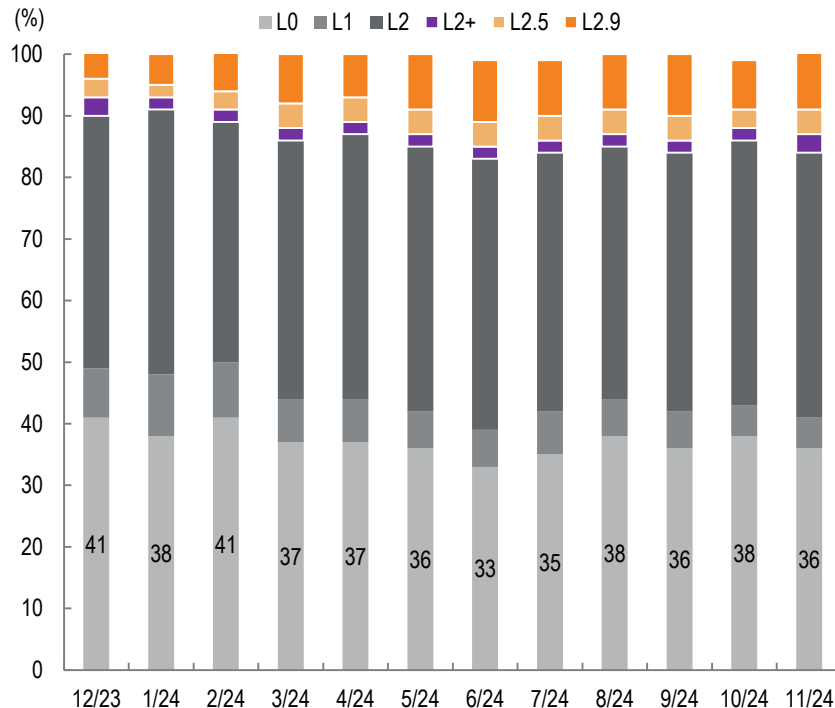
Source: BloombergNEF, Mirae Asset Securities Research

I. Demand outlook: EVs

Timing of autonomous driving adoption

- EV demand forecasts may vary by region depending on the timing of broad autonomous driving adoption.
- In China, the upward revision to 2024-25 demand forecasts is largely attributable to the growing availability of autonomous driving systems. In the CNY100,000–200,000 segment (where BYD holds a strong market share), models equipped with Level 2+ autonomous driving features are becoming mainstream.
- In the US, a turning point for demand forecasts could come with the launch of Tesla's robotaxi platform (in June) and the start of Cybercab mass production.
- The 2026 BEV sales forecast for North America (currently at 2.4mn units) could change depending on Cybercab production/sales.

China: Adoption of Level 2+ autonomous driving features expanding



Note: Based on Shujubang's independent classifications.
Source: Shujubang, Mirae Asset Securities Research

Tesla: Robotaxi platform scheduled for June launch; Cybercab mass production on the horizon

Tesla hints at June 1 launch of Robotaxi platform in Austin

Tesla has hinted at a potential launch date for the Robotaxi service in Austin, Texas.

Published 2 weeks ago on May 1, 2024
By Ann Winder



Tesla to resume shipping parts from China to US for Cybercab, Semi production

By Lei Kang
May 14, 2024, 1:01 PM GMT+9

- Tesla plans to start shipping parts from China to the US for the production of Cybercab and Semi trucks from the end of this month, Reuters reported.
- The move suggests that the de-escalation of the US-China trade war is having a direct impact on business activity.

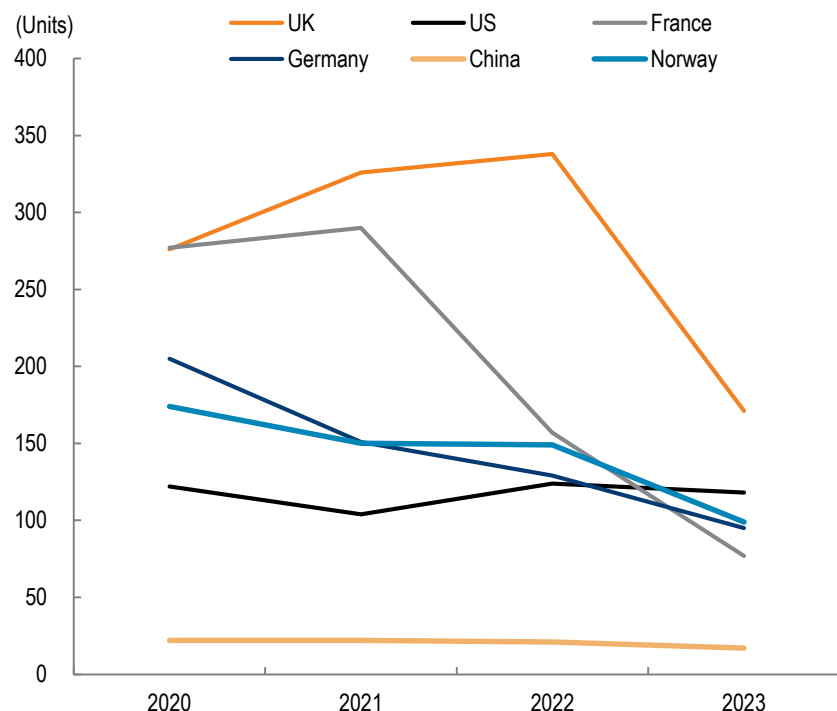
Source: CnEVPost, Mirae Asset Securities Research

I. Demand outlook: EVs

Charging speeds and infrastructure

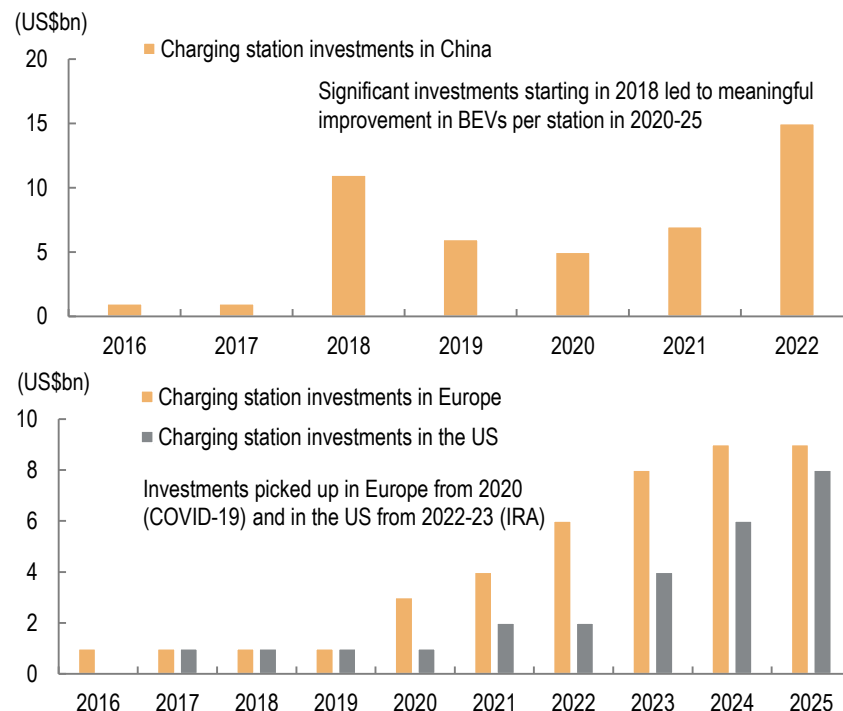
- There is a need to expand fast-charging infrastructure and improve battery charging speeds.
- China holds a clear advantage in the number of fast-charging connectors per vehicle. While the country has invested in charging stations since 2018, the overall charging environment began to improve meaningfully in around 2021-22 (spurring faster EV adoption).
- Considering infrastructure investment timelines, Europe's charging environment is likely to improve meaningfully in 2024-25, while the US should see similar improvements in 2026-27.
- Cell-level charging speeds (C-rates) are also important. The 10C-12C batteries developed by BYD and CATL allow a full charge in five to 10 minutes (comparable to ICE vehicle refueling times), but commercialization will hinge on safety and battery lifespans.

BEV units per high-speed charger (over 100kW) by country



Source: Mirae Asset Securities Research

Charging infrastructure investments relative to EV sales



Source: Mirae Asset Securities Research

I. Demand outlook: EVs

2025 EV demand forecasts: Revised up for China; revised down for North America, Europe and other regions

		2021	2022	2023	2024	2025F	2026F	2027F	2028F	2029F	2030F
BEV sales ('000 units)	China	2,778	4,663	5,708	6,642	8,199	8,875	10,154	10,874	11,532	12,535
	Europe	1,279	1,657	2,220	2,227	2,867	4,023	5,925	6,785	7,725	8,824
	North America	542	888	1,302	1,453	1,689	1,928	2,428	2,885	3,674	4,727
	Other regions	213	457	763	941	1,182	1,581	2,247	3,025	3,752	4,321
Total BEV sales ('000 units)		4,812	7,665	9,993	11,263	13,937	16,407	20,754	23,569	26,683	30,407
PHEV sales ('000 units)	China	623	1,517	2,704	4,862	5,925	6,621	6,925	7,325	7,521	7,721
	Europe	1,054	1,026	1,007	1,018	985	984	1,032	878	829	739
	North America	206	216	331	385	433	526	529	678	555	532
	Other regions	79	99	163	230	331	421	481	521	553	600
Total PHEV sales ('000 units)		1,962	2,859	4,205	6,495	7,674	8,552	8,967	9,402	9,458	9,592
BEV + PHEV sales ('000 units)		6,774	10,524	14,198	17,758	21,611	24,959	29,721	32,971	36,141	40,000
EV sales by market ('000 units)	China	3,401	6,181	8,411	11,504	14,124	15,496	17,079	18,199	19,053	20,256
	Europe	2,333	2,683	3,227	3,245	3,852	5,007	6,957	7,663	8,554	9,563
	North America	748	1,104	1,633	1,838	2,122	2,454	2,957	3,562	4,229	5,260
	Other regions	292	556	927	1,171	1,512	2,002	2,728	3,546	4,305	4,921
YoY (%)	China	155	82	36	37	23	10	10	7	5	6
	Europe	66	15	20	1	19	30	39	10	12	12
	North America	100	48	48	13	15	16	21	20	19	24
	Other regions	112	91	67	26	29	32	36	30	21	14
	Global YoY	109	55	35	25	22	15	19	11	10	11

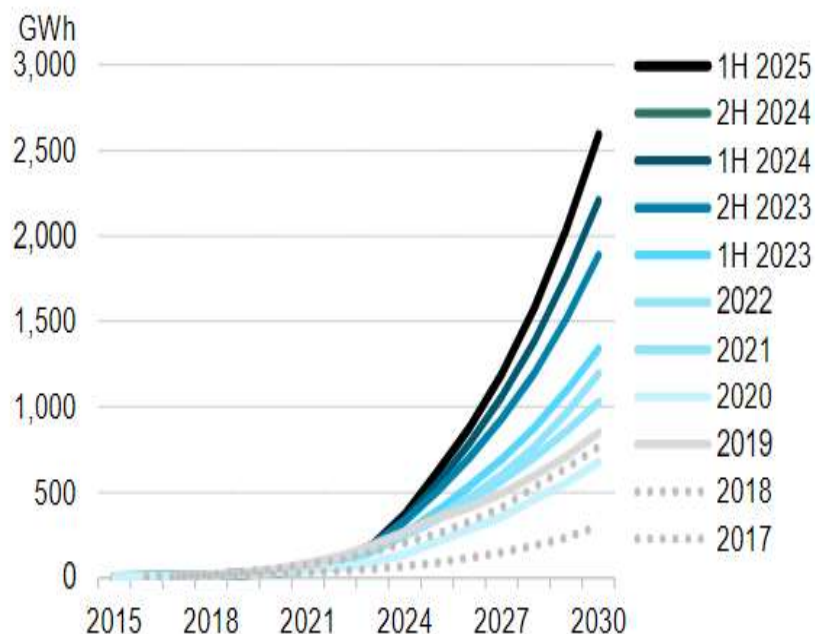
Source: Mirae Asset Securities Research

I. Demand outlook: ESS

Global demand for ESS batteries remains solid

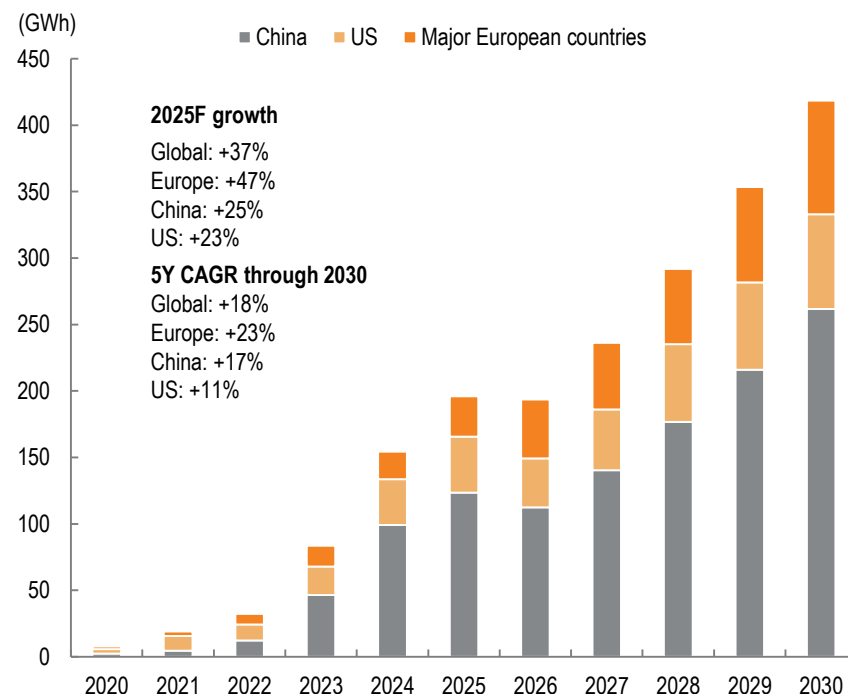
- BloombergNEF continues to revise up its global ESS demand forecasts; cumulative global demand forecasts for 2025 and 2026 have each been raised by 12%.
- In 2025, demand growth is projected to be the strongest in Europe (+47% YoY), followed by China (+25% YoY) and the US (+23% YoY). Growth this year is expected to slow down somewhat following sharp expansion in 2023-24.
- Medium/long-term drivers of ESS growth include: 1) improving IRRs for ESS projects resulting from falling battery prices; and 2) the expansion of utility-scale ESS demand driven by growth in AI data centers.
- Korean suppliers are focusing on the US LFP battery market, where tariffs and other barriers exist.

Cumulative demand forecasts raised by 12% for both 2025 and 2026 and by 9% for 2030 (BloombergNEF May revisions)



Source: BloombergNEF, Mirae Asset Securities Research

2025F ESS demand growth by region: Europe > China > US



Source: BloombergNEF, Mirae Asset Securities Research

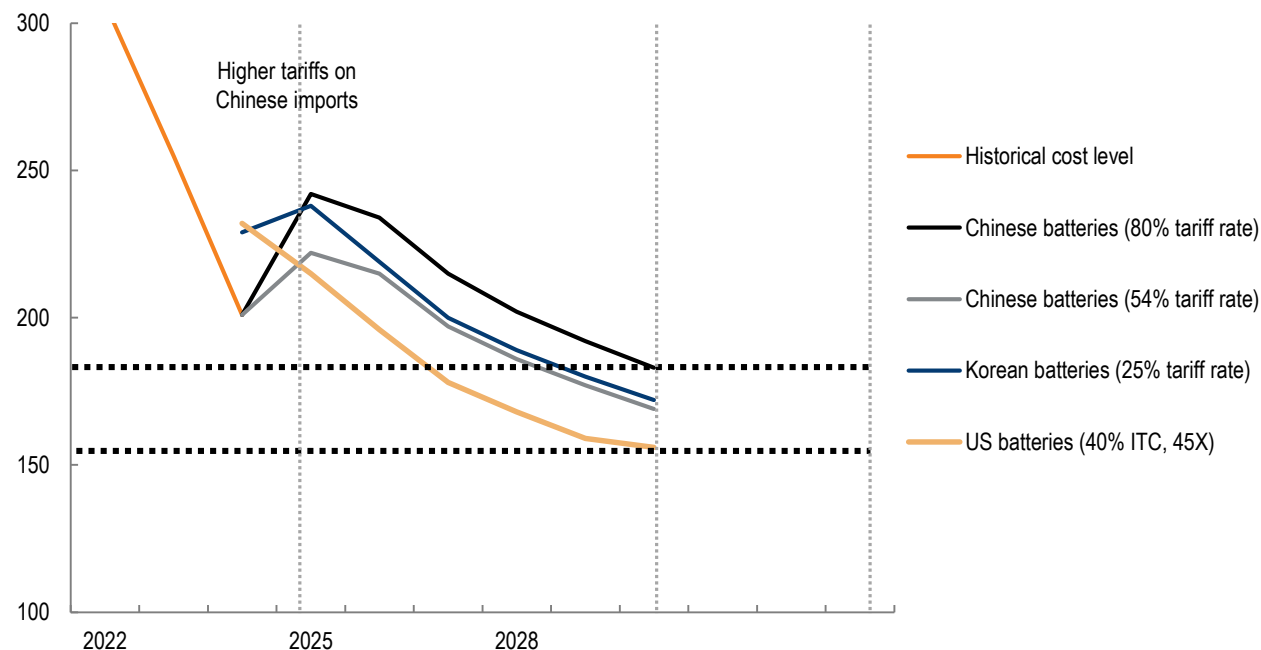
I. Demand outlook: ESS

Korean battery value chain to gain a competitive edge in the US due to tariffs

- The share of LFP batteries in the ESS segment is increasing rapidly. In response, Korean battery makers have started to invest in LFP battery production in the US (both new and converted lines).
- Korean companies may struggle to expand market share in other regions due to uncompetitive pricing. However, they are likely to gain meaningful ground in the US ESS market, where tariffs and foreign entity of concern (FEOC) restrictions are triggering a shift away from Chinese suppliers.
- In 2026, Chinese ESS batteries will be subject to a 78% tariff, giving US-based Korean battery production a 17% cost advantage. (In 2024, Chinese batteries still had a 13% cost advantage over US-produced batteries.)

Post-tariff ESS cost advantage (US): US > Korea > China

(US\$/kWh, based on usable capacity)



Source: BloombergNEF, Mirae Asset Securities Research

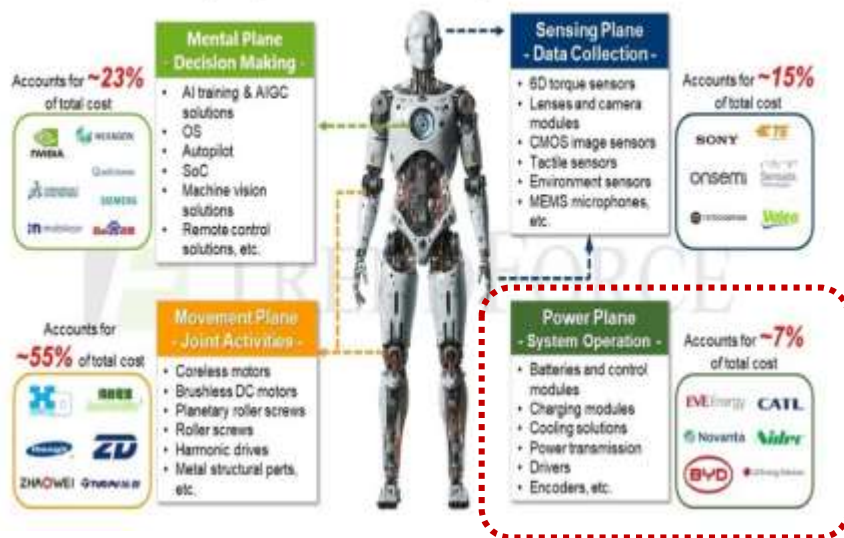
I. Demand outlook: Robots

Humanoid robots to require more advanced batteries

- While there is limited public information on humanoid robot requirements (battery specs, hourly power consumption, standard operation times, etc.), they are likely to present special challenges, such as limited space within the robot's torso (restricting battery size) and the need for significantly higher energy density to support improved performance. Battery weight and swapping ability are also key considerations.
- In the early stage of market development, batteries will likely be cylindrical (for standardization) and removable/swappable (allowing for extended operation times). Over the medium to long term, however, the industry will likely need to shift to next-generation all-solid-state batteries to meet performance needs.
- If each robot is equipped with a 5kWh battery and the market grows to 100mn units annually, this would imply 500GWh in total battery demand. Assuming swappable systems (2x), the market could reach 1TWh.

Components of humanoid robots

Humanoid Robots – Key Components and Potential Suppliers Worldwide



Humanoid robot specs and market size estimates by company

Key Product Specifications of Humanoid Robots: US vs. China

American Manufacturers						Chinese Manufacturers					
Higher load capacity and longer battery life, optimized for warehousing and logistics applications						Enhance full-body and hand mobility, enabling versatile deployment across various scenarios					
Developer	Product	Full-Body Freedom	Hand Freedom	Load	Duration	Developer	Product	Full-Body Freedom	Hand Freedom	Load	Duration
Optimus	Gen 3	>70	22	~20kg	~6hr	GR-1 Pro	44	12	N/A	N/A	
Atlas		>38	>7	N/A	N/A	GR-2	53	12	3kg (Single-arm)	3kg (Single-arm)	2hr
Apollo		>35	10	25kg	4hr	PX5	>40	11			~2hr
Digit		28	(24)	16kg	N/A	Walker S	41	12	N/A		2.5hr
Figure 02		>50	16	20kg	5hr	Unitree G1 EDU	543	7	N/A		2hr

No. of humanoid robots	10,000	100,000	1mn	10mn
Per-unit kWh	3	4	5	5
Humanoid robot battery market size (GWh)	0	0	5	50
Assuming battery swap system (two batteries per robot, GWh)	0	1	8	75
Assuming next-gen (all-solid-state) battery adoption with 2x capacity (GWh)			10	100

Source: TrendForce, Mirae Asset Securities Research

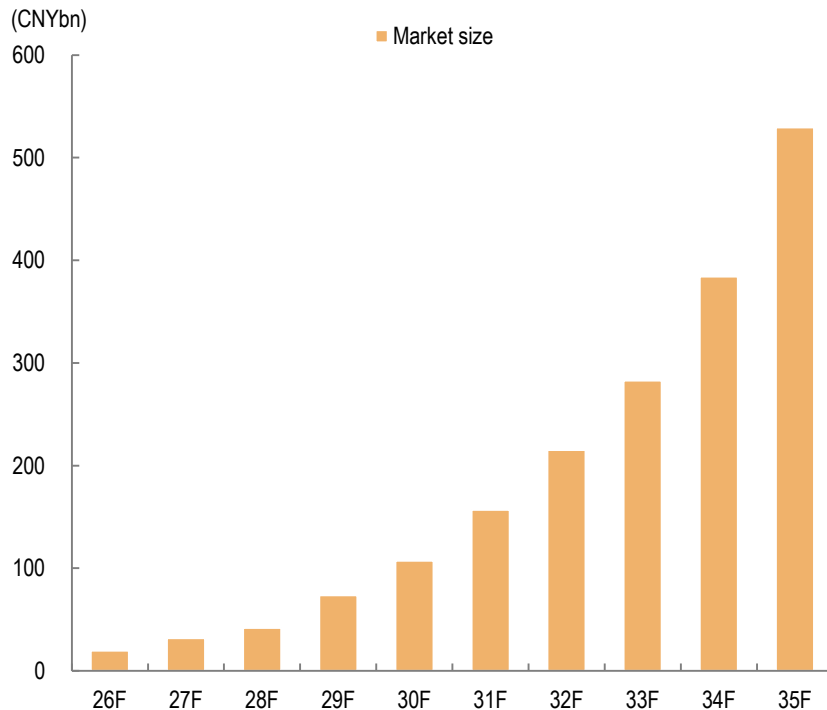
Source: TrendForce, Mirae Asset Securities Research

I. Demand outlook: Drones/eVTOL

Drones/eVTOL to represent a significant market

- Among new battery applications, we view large drones/electric vertical take-off and landing (eVTOL) aircraft as the most meaningful demand driver over the longer term.
- eVTOL assumptions: Unit price of CNY1.5mn in 2030 and CNY1mn in 2035; volume of 70,000 units in 2030 and 500,000 units in 2035; per-unit battery capacity of 100–300kWh for urban models and 1MWh for long-range models → eVTOL battery market to reach 150GWh in 2035
- Special technical challenges associated with large drones—e.g., spatial limitations, weight constraints (to support efficient flight), and the need to enable extended flight times—should lead to growing demand for next-generation batteries, especially all-solid-state batteries.

Chinese civilian drone market size



Source: Mirae Asset Securities Research

Demand for all-solid-state batteries for eVTOL/large drones projected to reach 302GWh by 2035

2023–2035 Global Solid-State Battery Demand Forecast for Low-Altitude Aviation (eVTOL/UAM) (Unit: GWh)



Source: TrendForce, Mirae Asset Securities Research

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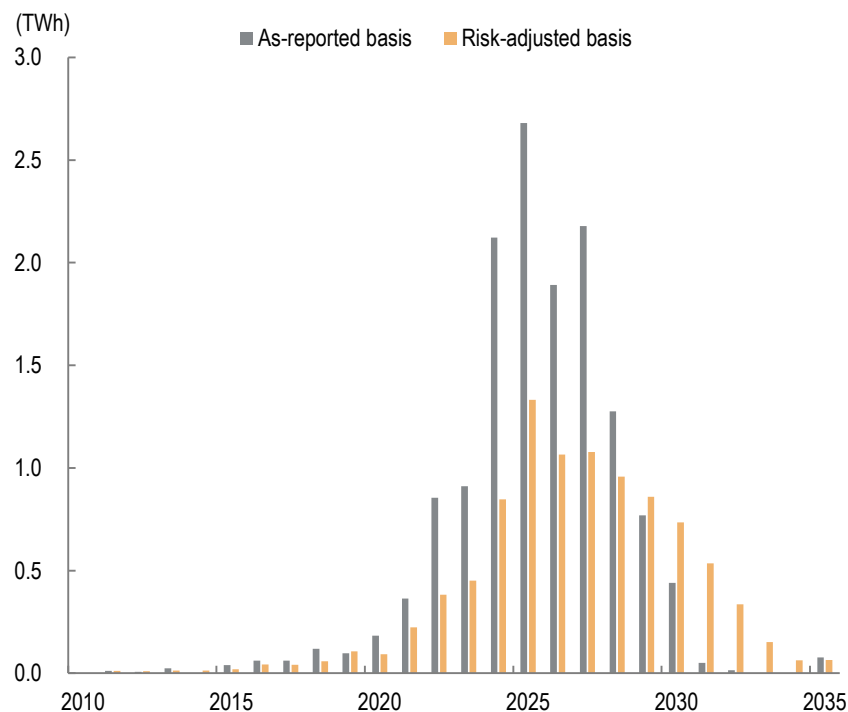
Supply outlook

II. Supply outlook: Accelerating global supply cuts

Supply is decreasing sharply

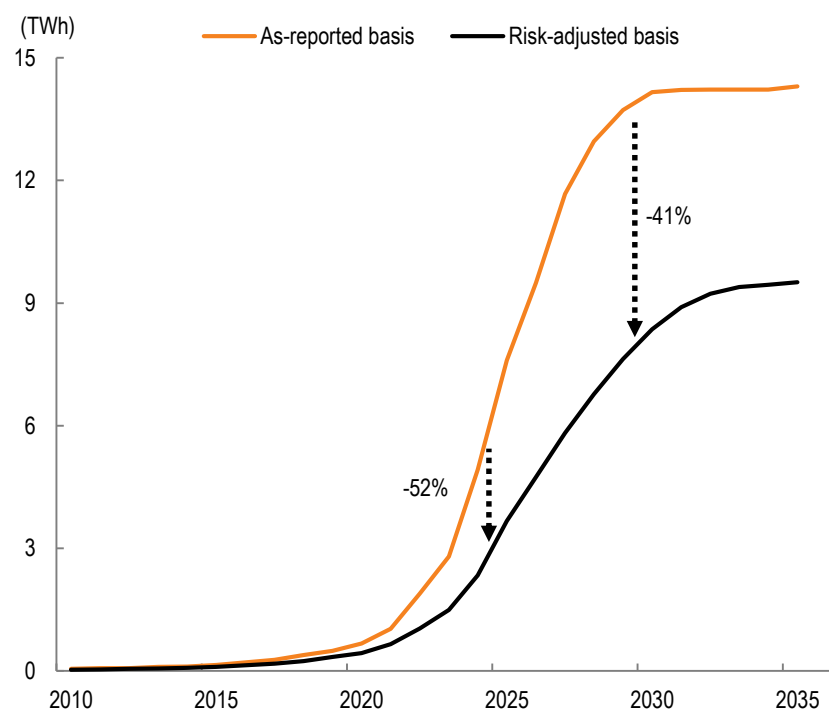
- Amid heightened policy uncertainties, supply is contracting at an accelerating pace across the global battery value chain.
- Compared to previously announced plans, global battery cell capacity plans have been cut by 40% for 2024, 52% for 2025, and 56% for 2026.
- This trend is especially notable in North America and Europe, where policy uncertainties have led to sharp reductions in supply plans. As a result, we expect the overall supply glut to ease meaningfully.

Reductions in global battery capacity plans underway (based on annual additions)



Source: BloombergNEF, Mirae Asset Securities Research

Reductions in global battery capacity plans underway (based on cumulative capacity)



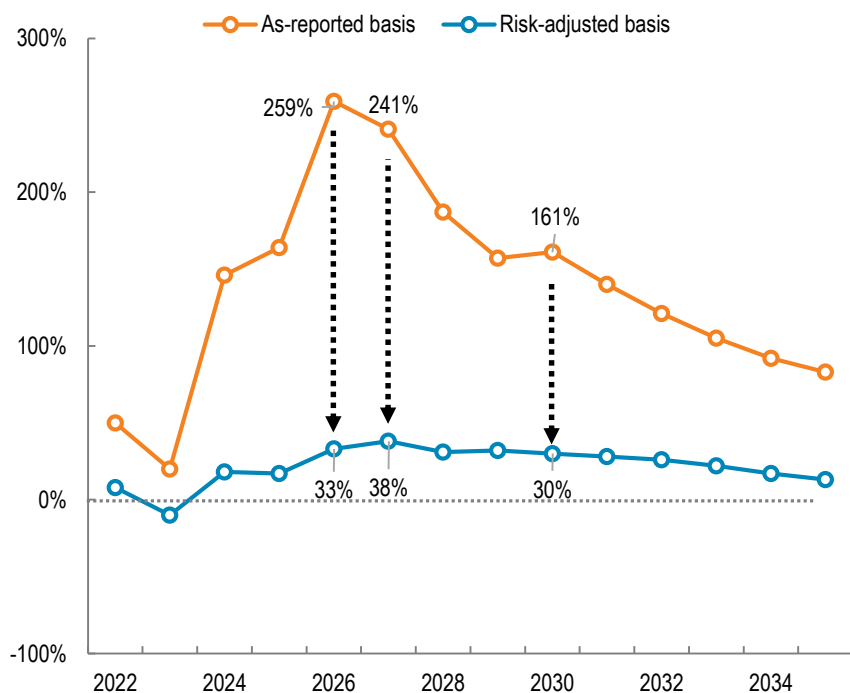
Source: BloombergNEF, Mirae Asset Securities Research

II. Supply outlook: Accelerating global supply cuts

Supply: Europe/US

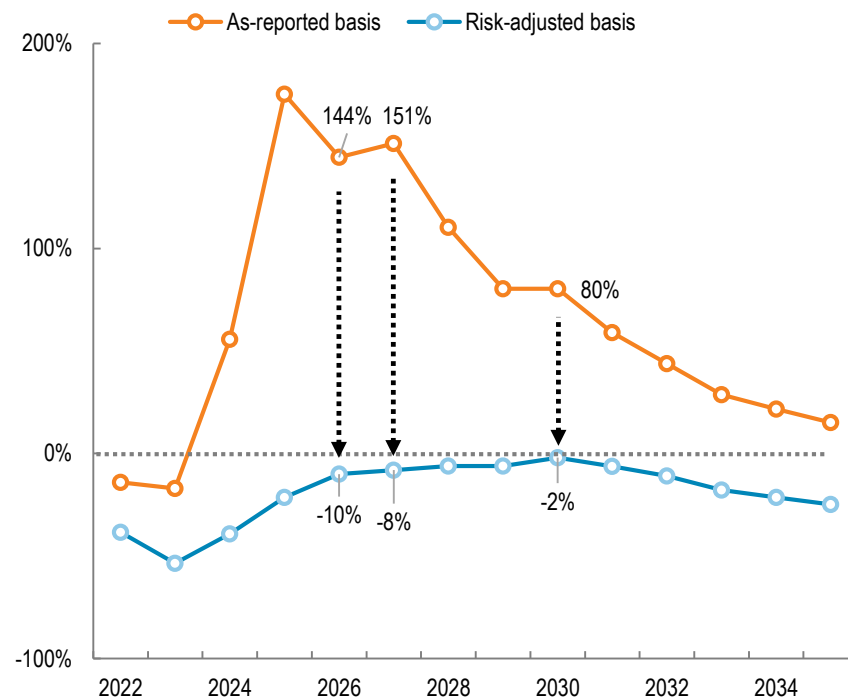
- Capacity in Europe is shrinking rapidly, affected by the failure to establish a local value chain (due to Northvolt's struggles, etc.) as well as Korean cell makers' underperformance in the region and strategic shift from capacity expansion to line conversion (especially from NCM to LFP).
- In the US, changes to the Inflation Reduction Act (IRA) and soft demand are causing joint ventures involving Korean battery makers to delay capacity expansion and mass production plans.
- Oversupply ratio outlook for Europe (BloombergNEF): 33% in 2026, 30% in 2027, and 30% in 2030 (vs. previous forecasts of 259%, 241%, and 161%, respectively)
- Oversupply ratio outlook for the US (BloombergNEF): -10% in 2026, -8% in 2027, and -2% in 2030 (vs. previous forecasts of 144%, 151%, and 80% respectively)

Battery oversupply in Europe (BloombergNEF estimates)



Source: BloombergNEF, Mirae Asset Securities Research

Battery oversupply in the US (BloombergNEF estimates)



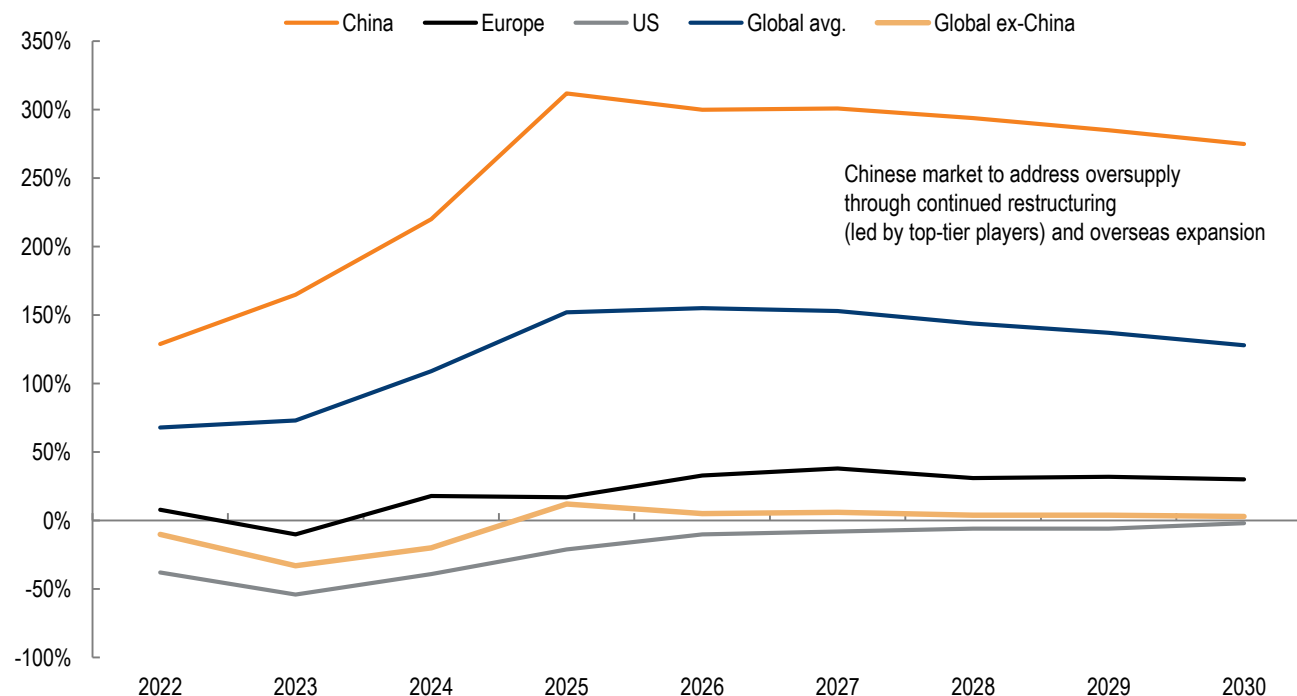
Source: BloombergNEF, Mirae Asset Securities Research

II. Supply outlook: Accelerating global supply cuts

China shifting focus to qualitative growth

- Amid local market restructuring, leading Chinese battery players are expected to continue pursuing overseas expansion and export opportunities.
- During our February visit to China, we observed that leading companies were maintaining utilization rates of 80-90%, while some latecomers (including unlisted firms) were operating at below 50%. A few were operating at just 10% (a level at which it is difficult to obtain central or local government subsidies). We expect restructuring to gain further momentum, benefiting top-tier players with technological, capacity, pricing, and cost advantages.
- To resolve oversupply, China will likely seek to accelerate EV/battery exports. However, due to reshoring policies and tariffs, global expansion efforts are likely to be focused on direct local investments rather than exports alone.

Oversupply by region; Chinese market restructuring to continue, benefiting top-tier players



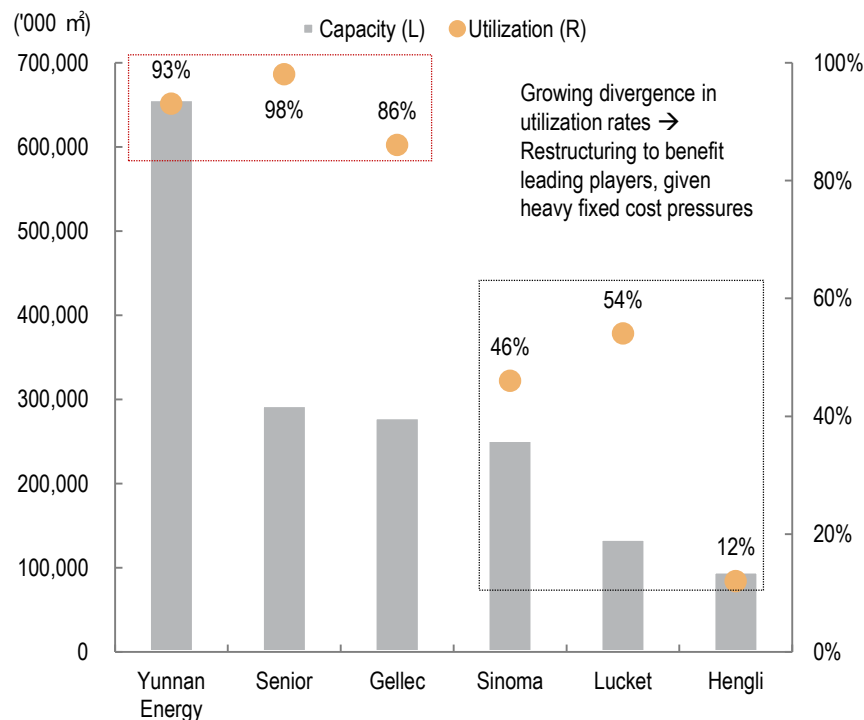
Source: ICC Battery, Company data, Mirae Asset Securities Research

II. Supply outlook: Accelerating global supply cuts

Utilization rates diverging sharply in China

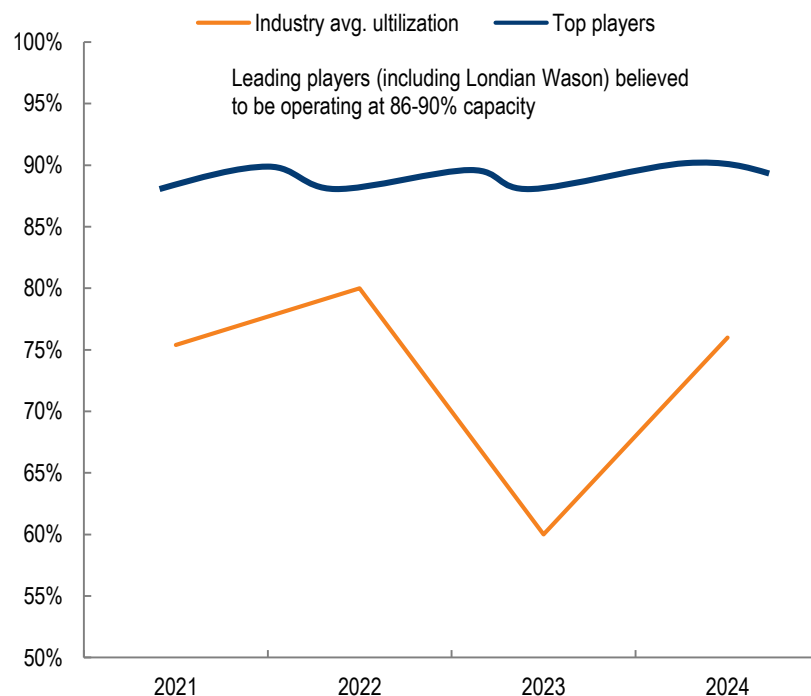
- Severe oversupply in some battery materials is leading to a sharp divergence in utilization rates among suppliers.
- Despite weak earnings, leading players are believed to be maintaining utilization at around 80–90%. In contrast, some latecomers (including unlisted firms) are operating at below 50% (and in some cases as low as 10%, a level at which it is difficult to obtain central or local government subsidies).
- In the battery cell segment, the market structure has largely settled (with most players having positioned themselves in segments where they hold a competitive edge). In the battery materials segment, oversupply remains an issue but should begin to ease in 2H25 as weaker players are forced out of the market.

Separator utilization comparison



Source: ICC Battery, Company data, Mirae Asset Securities Research

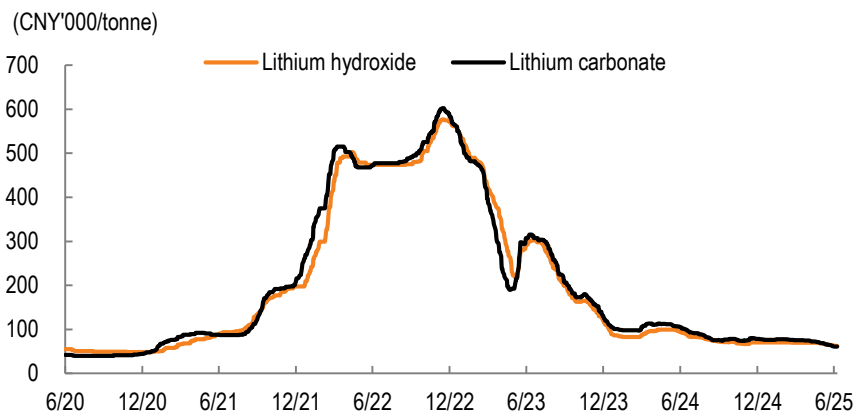
Copper foil utilization comparison



Source: Press releases, Mirae Asset Securities Research

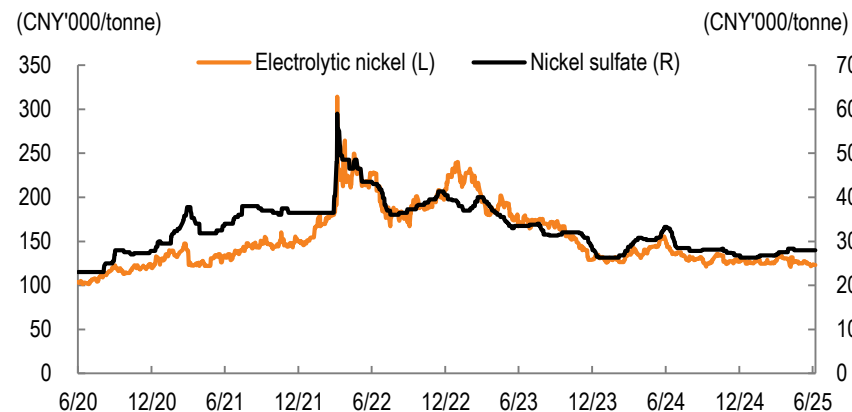
Key materials prices

Lithium price trends



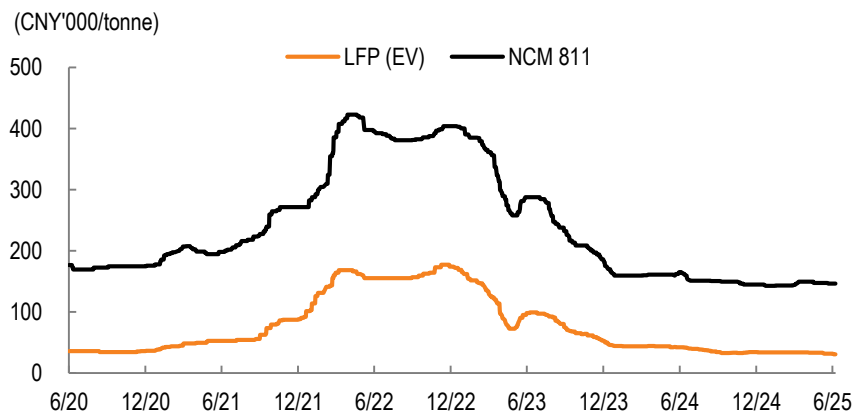
Source: ICC Battery, Mirae Asset Securities Research

Nickel price trends



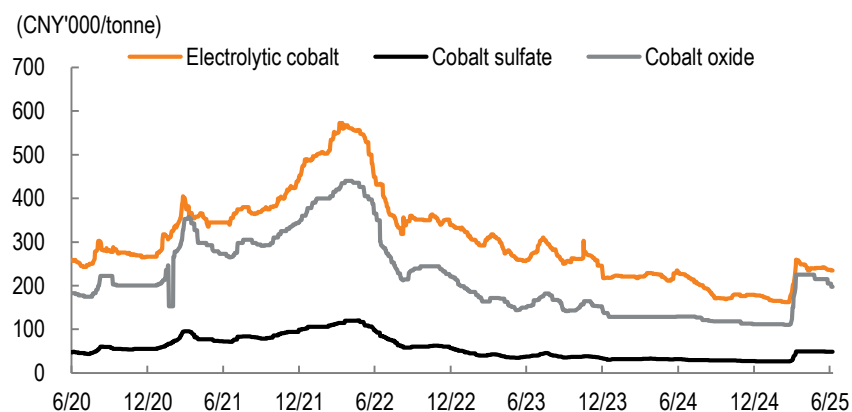
Source: ICC Battery, Mirae Asset Securities Research

Cathode materials price trends



Source: ICC Battery, Mirae Asset Securities Research

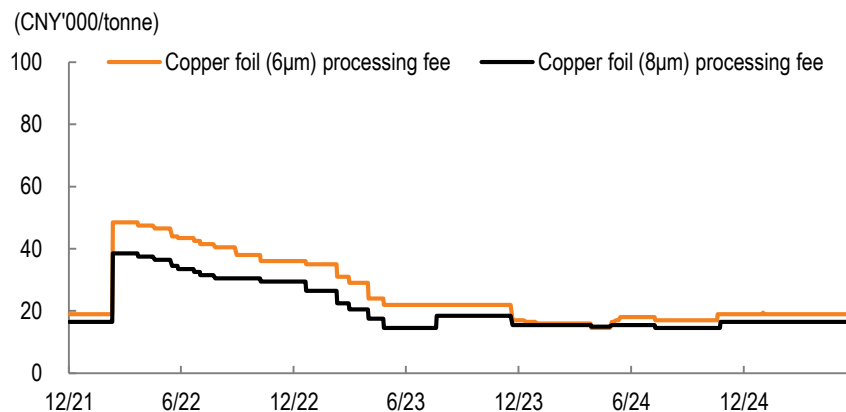
Cobalt price trends



Source: ICC Battery, Mirae Asset Securities Research

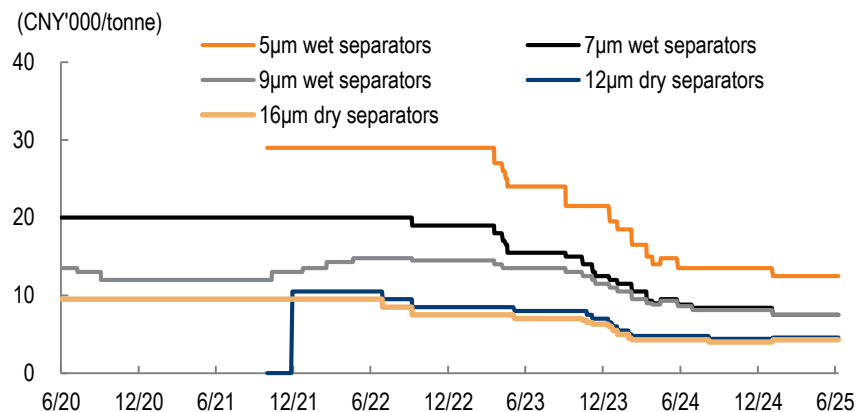
Key materials prices

Copper foil price trends



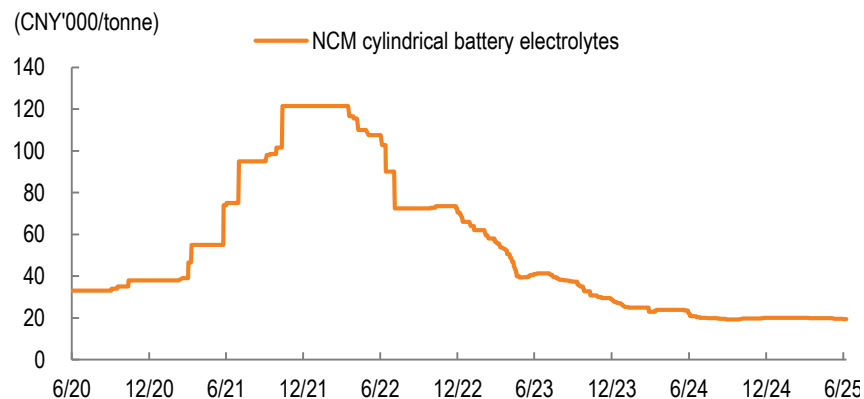
Source: ICC Battery, Mirae Asset Securities Research

Separator price trends



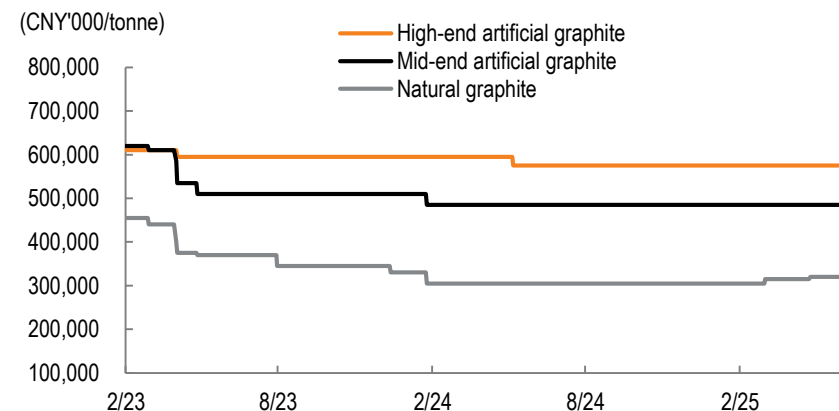
Source: ICC Battery, Mirae Asset Securities Research

Electrolyte price trends



Source: ICC Battery, Mirae Asset Securities Research

Anode materials price trends



Source: ICC Battery, Mirae Asset Securities Research

III

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Investment strategy

III. Timing of a market recovery

Gradual improvement in shipment volumes

- Overall quarterly shipment volumes should gradually recover, although some companies might see weak quarterly shipments due to market share losses.
 - In Europe, solid EV sales are driving down inventories, suggesting that shipments will improve in 2H25.
 - In the US, shipments should be more resilient than feared, supported by preemptive demand ahead of subsidy cuts planned for 2026.
 - Cylindrical battery demand is holding up better than expected, while the ESS market remains strong.
- Certain companies are likely to see significant QoQ shipment growth in 2Q25, including the two separator makers (+70%), Daejoo Electronic Materials (+100%), Advanced Nano Products (+50%), SK Nexilis (+50%), Lotte Energy Materials (+30%), L&F (+50%), and Dongwha Enterprise (+100%)

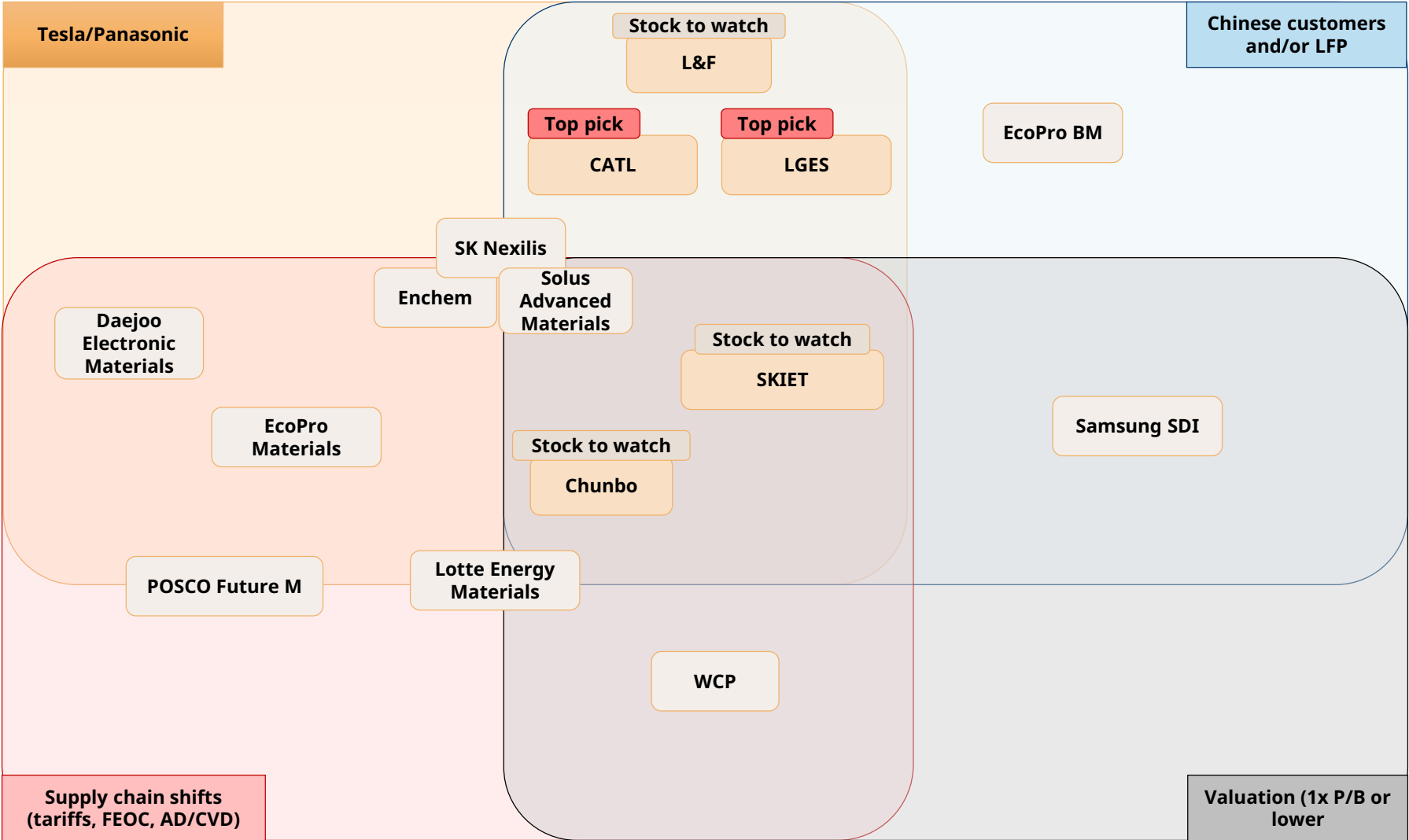
Quarterly industry outlook: Shipments to improve gradually

		1Q24	2Q24	3Q24	4Q24	1Q25	2Q25F	3Q25F	4Q25F
Cells	Price	↓	↓	↓	↓	↓	→	→	↓
	Volume	↓	→	→	→	→	↑/↓	↗	↗
	Profitability	↓	↓	↓	↓	→	→	↗	→
Cathodes	Price	↓	↓	↓	↓	→	→	↓	↓
	Volume	↑/↓	↑/↓	↓	↓	→	→/↓/↑	↗	↗
	Profitability	↓	↓	↓	↓	↑/↓	→	↗	→
Copper foil	Price	→	→	→	→	→	→	→	→
	Volume	↑/↓	↑/↓	↓	↓	→	↑	↗	↗
	Profitability	→	→	↓	↓	→	→	→	↑
Electrolytes	Price	↓	→	↓	→	↓	↓	→	→
	Volume	↓	↑/↓	↓	↓	→	↑	↗	↗
	Profitability	↓	→	↓	↓	→	→	→	↑
Separators	Price	↓	→	→	→	↓	↓	→	→
	Volume	↑/↓	↑/↓	↓	↓	→	↑	↗	↗
	Profitability	↓	→	↓	↓	→	→	→	↑

Source: Mirae Asset Securities Research

III. Top picks: Identifying beneficiaries of key themes

Key themes: Tesla/Panasonic momentum, Chinese customer/LFP exposure, favorable policies, and valuation
Top domestic pick: LGES; stocks to watch: L&F, Chunbo, and SK IE Technology (SKIET)



Company analysis

Well-positioned to benefit from preemptive US investments

(Maintain)	Buy
Target price	▼ W390,000
Current price (6/4/25)	W288,500
Upside	35.2%

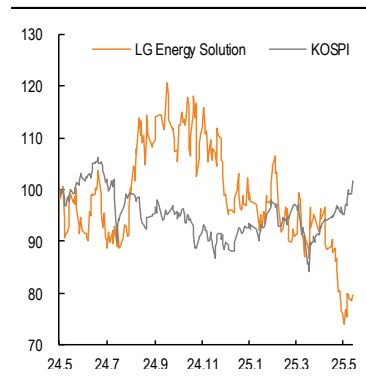
OP (25F, Wbn)	1,772		
Consensus OP (25F, Wbn)	1,690		
EPS growth (25F, %)	TTB		
Market EPS growth (25F, %)	25.7		
P/E (25F, x)	80.6		
Market P/E (25F, x)	9.7		
KOSPI	2,770.84		
Market cap (Wbn)	67,509		
Shares (mn)	234		
Free float (%)	17.6		
Foreign ownership (%)	4.0		
Beta (12M)	1.03		
52-week low (W)	268,000		
52-week high (W)	436,500		
(%)	1M	6M	12M
Absolute	-10.0	-25.8	-14.3
Relative	-16.8	-34.0	-17.6

Investment points

- We maintain our Buy rating on LGES but lower our target price to W390,000 (from W440,000).
- LGES's competitive position in the US is likely to strengthen, supported by tariffs on China and the proposed tightening of FEOC rules to disqualify companies using Chinese products from accessing the AMPC (45X).
- Among Korean players, LGES stands out for its early US investments in LFP and 4680 battery lines.
 - The company is likely to secure new customers for the LFP batteries produced at the converted Michigan line (for use in ESS).
 - Changes to IRA provisions aimed at curbing Chinese firms' competitiveness in the low-range segment could prompt major OEMs (Ford, GM, Tesla, etc.) to rethink their low-cost model supply chains (particularly for LFP batteries).

Risk factors

- Potential strategic shifts by key customers in response to changes in IRA provisions
- Additional ASP declines due to falling lithium prices



(Dec.)	2022	2023	2024	2025F	2026F
Revenue (Wbn)	25,599	33,745	25,620	24,877	31,416
OP (Wbn)	1,214	2,163	575	1,772	2,971
OP margin (%)	4.7	6.4	2.2	7.1	9.5
NP (Wbn)	767	1,237	-1,019	837	1,564
EPS (W)	3,305	5,287	-4,354	3,579	6,684
ROE (%)	5.7	6.4	-4.9	3.9	6.9
P/E (x)	131.8	80.9	-	80.6	43.2
P/B (x)	5.4	5.0	3.9	3.1	2.9
Dividend yield (%)	0.0	0.0	0.0	0.0	0.0

Notes: Under consolidated K-IFRS; NP is attributable to owners of the parent

Source: Company data, Mirae Asset Securities Research estimates

TP calculation

	EBITDA	EV/EBITDA (x)	EV	Notes
Total (Wbn)	7,067	15	106,005	
Small-sized	1,457			
EV	3,225			
ESS	456			
IRA credits (2026F) (Wbn)	1,929			
2026F net debt (Wbn)			13,724	
Fair value (Wbn)			92,281	
No. of shares ('000)			234,000	
Target price (W)			390,000	

Quarterly and annual earnings

(Wbn, %)

	1Q25	2Q25F	3Q25F	4Q25F	1Q26F	2Q26F	3Q26F	4Q26F	2024	2025F	2026F
Revenue	6,265	5,625	5,992	6,996	6,919	7,037	7,899	9,561	25,619	24,877	31,416
Small	1,652	1,662	1,876	2,280	2,183	2,222	2,483	2,908	7,511	7,470	9,796
EV	4,041	3,427	3,559	4,093	4,175	4,221	4,644	5,572	16,274	15,121	18,612
ESS	572	536	556	623	561	594	772	1,081	1,834	2,286	3,007
OP	375	322	432	644	635	669	742	925	575	1,772	2,971
Small	101	86	116	157	94	133	153	206	167	459	586
EV	-98	-180	-126	-17	40	61	71	121	-831	-421	293
ESS	-86	0	17	31	11	30	46	76	-240	-38	163
IRA tax credit	458	417	425	473	490	445	471	523	1,480	1,772	1,929
OP margin	6.0	5.7	7.2	9.2	9.2	9.5	9.4	9.7	2.2	7.1	9.5
Small	6.1	5.2	6.2	6.9	4.3	6.0	6.2	7.1	2.2	6.1	6.0
EV	-2.4	-5.2	-3.5	-0.4	1.0	1.4	1.5	2.2	-5.1	-2.8	1.6
ESS	-15.0	0.0	3.0	5.0	2.0	5.0	6.0	7.0	-13.1	-1.7	5.4

Source: Company data, Mirae Asset Securities Research

Income statement (summarized)

(Wbn)	2023	2024	2025F	2026F
Revenue	33,745	25,620	24,877	31,416
Cost of revenue	28,802	22,214	20,706	26,136
GP	4,943	3,406	4,171	5,280
SG&A expenses	3,457	4,311	4,170	4,238
OP (adj.)	2,163	575	1,772	2,971
OP	2,163	575	1,772	2,971
Non-operating profit	-120	-226	158	133
Net financial income	-138	-341	-535	-601
Net income from associates	-32	-49	-40	-40
Pretax profit	2,043	349	1,930	3,104
Income tax	405	10	373	590
Profit from continuing operations	1,638	339	1,557	2,514
Profit from discontinued operations	0	0	0	0
NP	1,638	339	1,557	2,514
Attributable to owners	1,237	-1,019	837	1,564
Attributable to minority interests	401	1,357	720	950
Total comprehensive income	1,911	3,217	1,557	2,514
Attributable to owners	1,468	915	663	1,070
Attributable to minority interests	443	2,302	894	1,444
EBITDA	4,450	2,141	5,432	7,067
FCF	-5,479	-7,287	-1,790	190
EBITDA margin (%)	13.2	8.4	21.8	22.5
OP margin (%)	6.4	2.2	7.1	9.5
Net margin (%)	3.7	-4.0	3.4	5.0

Source: Company data, Mirae Asset Securities Research estimates

Balance sheet (summarized)

(Wbn)	2023	2024	2025F	2026F
Current assets	17,208	15,327	15,112	19,846
Cash & equivalents	5,069	3,899	2,543	2,669
AR & other receivables	5,648	5,516	6,073	8,299
Inventory	5,396	4,552	5,021	6,862
Other current assets	1,095	1,360	1,475	2,016
Non-current assets	28,229	44,979	47,846	50,774
Investments in associates	224	62	68	92
PP&E	23,655	38,350	41,891	44,964
Intangible assets	876	1,285	1,083	914
Total assets	45,437	60,307	62,958	70,620
Current liabilities	10,937	12,055	12,863	16,666
AP & other payables	3,094	2,705	2,934	4,010
Short-term financial liabilities	3,219	2,491	2,491	2,492
Other current liabilities	4,624	6,859	7,438	10,164
Non-current liabilities	10,126	17,285	17,571	18,917
Long-term financial liabilities	7,790	12,901	13,901	13,901
Other non-current liabilities	2,336	4,384	3,670	5,016
Total liabilities	21,064	29,340	30,434	35,583
Equity attributable to owners	20,201	21,117	21,954	23,518
Capital stock	117	117	117	117
Capital surplus	17,165	17,165	17,165	17,165
Retained earnings	2,364	1,397	2,235	3,799
Minority interests	4,173	9,850	10,570	11,520
Shareholders' equity	24,374	30,967	32,524	35,038

Key valuation metrics/ratios

	2023	2024	2025F	2026F
P/E (x)	80.9	-	80.6	43.2
P/CF (x)	19.1	15.3	11.0	8.6
P/B (x)	5.0	3.9	3.1	2.9
EV/EBITDA (x)	24.7	48.0	16.9	13.1
EPS (W)	5,287	-4,354	3,579	6,684
CFPS (W)	22,414	22,748	26,344	33,509
BPS (W)	86,328	90,240	93,819	100,503
DPS (W)	0	0	0	0
Dividend payout ratio (%)	0.0	0.0	0.0	0.0
Dividend yield (%)	0.0	0.0	0.0	0.0
Revenue growth (%)	31.8	-24.1	-2.9	26.3
EBITDA growth (%)	45.6	-51.9	153.7	30.1
OP growth (%)	78.2	-73.4	208.0	67.6
EPS growth (%)	60.0	TTR	TTR	86.7
AR turnover (x)	6.8	5.1	4.8	4.9
Inventory turnover (x)	5.4	5.2	5.2	5.3
AP turnover (x)	8.3	7.7	7.3	7.5
ROA (%)	3.9	0.6	2.5	3.8
ROE (%)	6.4	-4.9	3.9	6.9
ROIC (%)	6.7	1.5	3.2	4.9
Debt-to-equity ratio (%)	86.4	94.7	93.6	101.6
Current ratio (%)	157.3	127.1	117.5	119.1
Net debt-to-equity ratio (%)	24.1	37.1	42.6	39.2
Interest coverage ratio (x)	6.9	1.0	2.7	4.6

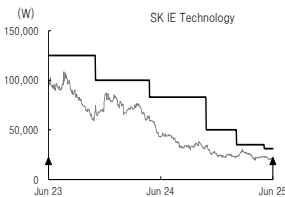
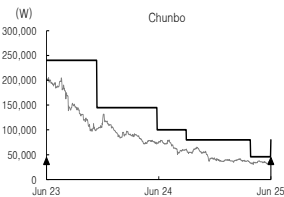
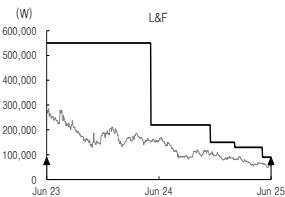
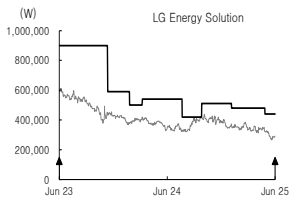
Appendix 1

Important disclosures and disclaimers

Two-year rating and TP history

Company	Date	Rating	TP (₩)	Company	Date	Rating	TP (₩)
LG Energy Solution (373220)	05/02/25	Buy	440,000	SK IE Technology (361610)	06/05/25	Buy	80,000
	01/09/25	Buy	480,000		03/31/25	Buy	46,000
	09/30/24	Buy	510,000		09/03/24	Buy	80,000
	07/26/24	Buy	420,000		05/31/24	Buy	100,000
	03/13/24	Buy	540,000		11/17/23	Buy	145,000
	01/30/24	Buy	500,000		05/30/23	Buy	240,000
	11/17/23	Buy	590,000		05/08/25	Buy	31,000
	04/10/23	Buy	900,000		02/07/25	Buy	35,000
					10/31/24	Buy	50,000
L&F (066970)	05/08/25	Buy	90,000		04/30/24	Buy	83,000
	02/07/25	Buy	130,000		11/06/23	Buy	100,000
	11/20/24	Buy	150,000		05/09/23	Buy	125,000
	05/10/24	Buy	220,000				
	05/30/23	Buy	550,000				

Chunbo (278280)



Stock ratings

Buy	Expected 12-month return: +20% or greater
Hold	Expected 12-month return: Greater than -10% and less than +10%
Sell	Expected 12-month return: -10% or less

As of May 12, 2025, the Trading Buy rating category has been removed from our investment rating system.

Stocks expected to deliver a 12-month return between +10% and less than +20% may be rated either Buy or Hold at the discretion of the research analyst.

Sector ratings

Overweight	Expected to outperform the market over 12 months
Neutral	Expected to perform in line with the market over 12 months
Underweight	Expected to underperform the market over 12 months

Rating and TP history: Share price (—), TP (—), Not Rated (■), Buy (▲), Trading Buy (■), Hold (●), Sell (◆)

* Our investment rating is a guide to the expected return of the stock over the next 12 months.

* Outside of the official ratings of Mirae Asset Securities Co., Ltd., analysts may call trading opportunities should technical or short-term material developments arise.

* The TP was determined by the research analyst through valuation methods discussed in this report, in part based on estimates of future earnings.

* TP achievement may be impeded by risks related to the subject securities and companies, as well as general market and economic conditions.

Appendix 1

Ratings distribution and investment banking services

	Buy	Trading Buy	Hold	Sell
Ratings distribution	83.98%	6.63%	8.84%	0.55%
Investment banking services	88.24%	0%	11.76%	0%

* Based on recommendations in the last 12-months (as of March 31, 2025)

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Appendix 1

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Appendix 1

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