

EV/Mobility Team

JungHoon Chang

Senior Analyst

jhooni.chang@samsung.com

Wonyoung Kim

Research Associate

wonyoung10.kim@samsung.com



Scan to go to
Research Center report database

Rechargeable Batteries (OVERWEIGHT)

Dialogue with the market #56: Chinese semi-solid-state and sodium-ion batteries, large-format LFP-based ESS cells

- We attended the China International Battery Fair (CIBF 2026), the world's largest battery-focused exhibition.
- We listened to Chinese companies' semi-solid-state and sodium-ion battery technology commercialization announcements, two areas in which Korean battery makers are made limited inroads.
- We confirmed intensifying competition in the large-format LFP-based ESS cell segment, driven by surging demand from AI data centers.

WHAT'S THE STORY?

In this, the 56th report in our Dialogue with the Market series, we discuss the divergent strategic trajectories taken by Korean and Chinese battery makers, as observed at the 18th China International Battery Fair (CIBF 2026; held in Shenzhen over May 13-15). While new LFP products were showcased, what stood out was the aggressive commercialization roadmap for semi-solid-state and sodium-ion batteries presented by Chinese companies—segments where Korean companies have yet to pursue large-scale investments. This aggressive commercialization roadmap warrants careful consideration, as it may significantly reshape the global market landscape and competitive dynamics.

(Continued on the next page)

CIBF 2026 exhibition hall entrance



Source: Samsung Securities

CIBF 2026 observation report: Mass-production of semi-solid-state and sodium-ion batteries brought forward, and the trend towards larger ESS cells

CIBF, organized by the China Association of Chemical and Physical Power Sources (CIAPS), is the world’s largest specialized battery exhibition. With over 2,500 global participants—including tier-1 Chinese giants like CATL and BYD—the event offers a comprehensive view of the battery ecosystem (spanning raw-material extraction and electrode materials to cell and pack manufacturers, equipment suppliers, and recycling technologies). Unlike past CIBF exhibitions, which focused primarily on R&D announcements, CIBF 2026 emphasized the start of mass-production of specific technologies.

Amid rapid global growth of renewable energy and AI data centers (which is driving demand for energy storage systems (ESS)), exhibitors highlighted ultra-large cells ranging from 588 Ah to 628 Ah. Notably, Chinese companies are rapidly advancing the commercialization of semi-solid-state and sodium-ion batteries—two areas where Korean companies have yet to make decisive inroads.

China’s accelerated commercialization of semi-solid-state batteries: The chairman of Honeycomb Energy (SVOLT) declared 2026 the ‘first year of semi-solid-state batteries’, announcing that 100 kWh semi-solid-state battery packs (for use in multiple EVs) will start being mass produced in September. Although CATL did not display its semi-solid-state products, it did unveil Qilin Condensed Battery—with an energy density of 350 Wh/kg, the firm targets its mass-production in 2H.

CIBF 2026: Key sodium battery exhibitors and features

Company	Key Specifications	Target Markets
Ganfeng Li-Energy	Mass-producing 210-480 Wh/kg class for eVTOL; 600 Wh class is currently undergoing testing	ESS, eVTOL
Gotion High-tech	Applied 197 Ah (300 Wh/kg) class to EVs	EV
WeLion	106 Ah semi-solid battery applied to EVs; 314 Ah and 588 Ah are under development	EV
Golden Feather	300-370 Wh semi-solid products; 420-550 Wh class for UAVs (drones) and military use	Drones, light EVs, submarines, etc.

Source: Samsung Securities

The company most aggressively promoting semi-solid-state technology was Ganfeng Li-Energy, a battery cell subsidiary of Ganfeng Lithium. While Ganfeng Li-Energy has already begun mass-production of 45 Ah semi-solid-state cells for ESS applications, they were not on display. Instead, the company unveiled a wide range of semi-solid-state products for eVTOLs: 210 Wh/kg and 330 Wh/kg variants for manned aircraft, and 380, 400, and 480 Wh/kg models for unmanned drones. It also stated that a 600 Wh/kg prototype is being tested.

Gotion High-tech displayed its 197 Ah semi-solid-state cell (G-Cell, 300 Wh/kg), which battery is reportedly already being used in Chery’s autos in China. It also exhibited a 350 Wh/kg solid-state battery, which is reportedly being supplied to European automakers. Although industry representatives described it as a sulfide-based battery, it may be a semi-solid-state design as its performance closely matches that of semi-solid-state products. Gotion previously unveiled its proprietary sulfide-based solid-state battery (Jinshi), completed its production-line design in March, and plans to begin small-scale mass-production by end-2026. EVE Energy presented a 60 Ah solid-state cell with 450 Wh/kg energy density. The battery is being tested, with plans to commence mass-production around late 2026/early 2027.

Ganfeng Li-Energy: Semi-solid lineup



Source: Samsung Securities

Gotion: Semi-solid G-battery



Source: Samsung Securities

WeLion—the manufacturer of the semi-solid-state battery used in Nio’s ET7 model—displayed its 314 Ah and 588 Ah semi-solid-state cells alongside a 106 Ah product. The 314 Ah cell, with a nominal voltage of 3.2V and an energy density of only 180 Wh/kg, was highlighted for its safety: It reportedly passed the world’s first 5 mm penetration test without emitting smoke. However, when asked about production, the firm said it only makes the battery when it receives orders from a customer, suggesting that it has a limited ability to scale-up production.

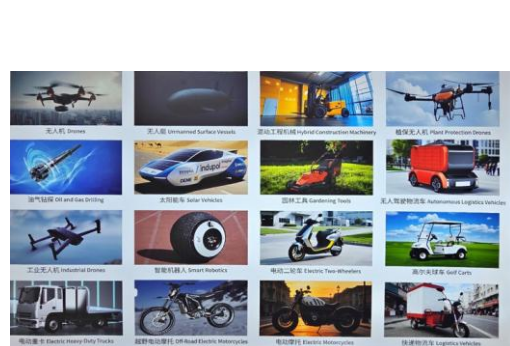
One lesser-known but notable player in China’s semi-solid-state space is Golden Feather, founded in Beijing in 2017. The company now operates production lines in Hangzhou (0.5 GWh capacity) and Huzhou (1.5 GWh), offering semi-solid-state cells with energy densities between 300-370 Wh/kg. It also supplies ultra-high-density cells (420-550 Wh/kg) for drones and defense applications. This highlights a strategic trend: Semi-solid-state batteries are gaining commercial traction in areas where cost sensitivity is low.

WeLion: Semi-solid-state batteries



Source: Samsung Securities

Golden Feather: Semi-solid application areas



Source: Samsung Securities

China expands commercialization of sodium-ion batteries: Last month, CATL announced at its Super Tech Day event that its sodium-ion battery (Naxtra) would be officially integrated into select EVs. At its booth, the company emphasized the battery’s wide operating temperature range (-40°C to +70°C) while maintaining 90% capacity performance even in extreme cold. However, when asked about the actual launch timeline for EVs equipped with these batteries, booth operators indicated Guangzhou Automobile Group’s (GAC) EVs would be the first such EVs to use the batteries—the GAC EVs should be rolled out from 4Q26, later than earlier media reports suggesting a 2Q26 rollout.

CNAE Power, a subsidiary of China National Nuclear Corporation (CNNC), unveiled the world’s first 588 Ah prismatic sodium-ion cell—a clear signal that sodium-ion technology is now scaling to meet growing demand for large-format ESS systems. At the exhibition, CNAE displayed the broadest product range in the sodium-ion space, offering both cylindrical and prismatic formats tailored for e-motorcycles, three-wheelers, engine start-stop systems, and ESS applications. Positioning itself as a full-system provider, CNAE offers solutions ranging from individual cells to integrated ESS terminals, directly competing with LFP batteries in high-capacity stationary storage markets.

After the exposition had finished, Gotion officially launched its sodium-ion battery brand Gnacent. The company has already built GWh-scale production lines in Tangshan and Hefei, and introduced three distinct product lines: High-energy, high-power, and ESS-optimized variants. The high-energy version (261 Wh/kg) targets light EVs and drones, the high-power variant (162 Wh/kg) is designed for commercial vehicles and outdoor equipment in cold climates, and the ESS version (which is based on a 180 Ah cell) can operate for 20,000 cycles (it is aimed squarely at grid, industrial, and residential storage markets). Gotion also plans to expand into niche segments like e-motorbikes and engine starter systems. Notably, the company claims its high-energy variant matches lithium-ion in gravimetric energy density—a significant milestone. But whether it can match lithium-ion in volumetric density remains unclear. If it can, sodium-ion batteries could pose a serious threat to lithium-ion batteries across broader applications. However, given the firm’s clear focus on light EVs, it appears that there is a meaningful gap in its volumetric performance.

CIBF 2026: Key sodium battery exhibitors and features

Company	Issue	Key Specifications & Target Markets
CATL	Introduced Naxtra brand	EV starter, auxiliary, and traction applications
CNAE Power	World’s first 588 Ah ultra-large sodium battery	12V-24V starter, 12-72V two/three-wheeler EV, 170 Ah/588Ah ESS applications
Gotion High-tech	Launched Gnacent brand	High energy (261 Wh/kg), high power (162 Wh/kg), ESS (20,000 cycle life)

Source: Samsung Securities, BESS

CATL: Upcoming EVs equipped with sodium batteries

Brand	Expected launch	Battery features	Notes
Changan	Mid-2026	Naxtra	World’s first mass-produced sodium battery passenger car
GAC Aion	2Q26	Techrans II-based pack (45 kWh)	CATL’s first sodium battery EV partner
Li Auto	2026	Lithium-Sodium Hybrid	First among premium brands

Source: CATL, Press releases, Samsung Securities

CATL: Sodium battery Naxtra



Source: Samsung Securities

CNAE Power: Sodium battery for ESS



Source: Seetao

Competition heating up for LFP-based large-scale ESS: CATL is ramping up mass-production of its 587 Ah large-format ESS cells—a move that has significantly boosted its profitability, as confirmed by its 1Q operating results—and nearly every battery cell maker at CIBF 2026 unveiled its own large-capacity ESS cell. EVE Energy, which now channels 60% of its total cell production capacity towards ESS applications, stole the spotlight with Mr. Big (a 628 Ah cell; mass produced since 1Q25). Sunwoda, meanwhile, is producing 102 Ah, 280 Ah, and 314 Ah cells, and a 588 Ah version is under development and slated to enter mass-production from 3Q. Ganfeng Li-Energy—ranked by BNEF as a tier-1 ESS provider in 2Q26—showcased a 6.26 MWh ESS system powered by its 588 Ah cells.

EVE Energy: 628 Ah ESS cell



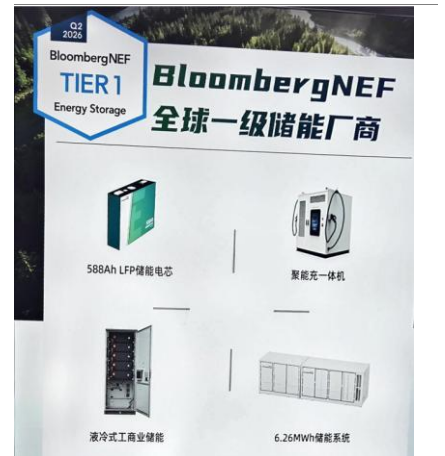
Source: Samsung Securities

Sunwoda: ESS lineup



Source: Samsung Securities

Ganfeng: 588 Ah system



Source: Samsung Securities

Implications for rechargeable battery industry: CIBF 2026 revealed a clear strategic pivot by Chinese battery makers: Rather than chasing incremental gains in lithium-ion energy density or low-temperature performance, they are aggressively commercializing semi-solid-state and sodium-ion technologies to unlock entirely new demand segments. These are precisely the areas where Korean cell makers: 1) have yet to make meaningful investments; and 2) lack a domestic market large enough to support premium pricing (China has a large enough domestic market). Close monitoring is advised as growing global demand for these next-generation technologies could significantly reshape global competitive dynamics in the rechargeable battery field.

Meanwhile, as global demand for renewable energy and AI data centers drives growth of the ESS market, the introduction of ultra-large-format cells is gaining momentum. Demand for larger-cell demand is expected to spread to Korean cell manufacturers, which firms have primarily targeted the North American ESS market. As a result, component suppliers—such as those producing cans, caps, and related hardware—are likely to benefit from a more favorable business environment.

Compliance notice

- All material presented in this report, unless specifically indicated otherwise, is under copyright to Samsung Securities.
- Neither the material nor its content (including copies) may be altered in any form, or by any means transmitted, copied, or distributed to another party, without prior express written permission from Samsung Securities.
- This memorandum is based upon information available to the public. While we have taken all reasonable care to ensure its reliability, we do not guarantee its accuracy or completeness. This memorandum is not intended to be an offer, or a solicitation of any offer, to buy or sell the securities mentioned herein. Samsung Securities shall not be liable whatsoever for any loss, direct or consequential, arising from the use of this memorandum or its contents. Statements made regarding affiliates of Samsung Securities are also based upon publicly available information and do not necessarily represent the views of management at such affiliates.
- This report has been prepared without any undue external influence or interference, and accurately reflects the views of the analyst(s) covering the company or companies herein.

Global Disclosures & Disclaimers

General

This research report is for information purposes only. It is not and should not be construed as an offer or solicitation of an offer to purchase or sell any securities or other financial instruments or to participate in any trading strategy. This report does not provide individually tailored investment advice. This report does not take into account individual client circumstances, objectives, or needs and is not intended as recommendations of particular securities, financial instruments or strategies to any particular client. The securities and other financial instruments discussed in this report may not be suitable for all investors. The recipient of this report must make its own independent decisions regarding any securities or financial instruments mentioned herein and investors should seek the advice of a financial adviser.

This report may not be altered, reproduced, distributed, transmitted or published in whole or in part for any purpose. References to "Samsung Securities" are references to any company in the Samsung Securities, Co., Ltd. group of companies.

Samsung Securities and/or other affiliated companies, its and their directors, officers, representatives, or employees may have long or short positions in any of the securities or other financial instruments mentioned in this report or of issuers described herein and may purchase and/or sell, or offer to purchase and/or sell, at any time, such securities or other financial instruments in the open market or otherwise, as either a principal or agent. Any pricing of securities or other financial instrument contained herein is as of the close of market for such day, unless otherwise stated. Opinions and estimates contained herein constitute our judgment as of the date of this report and are subject to change without notice.

The information provided in this report is provided "AS IS". Although the information contained herein has been obtained from sources believed to be reliable, no representation or warranty, either expressed or implied, is provided by Samsung Securities in relation to the accuracy, completeness or reliability of such information or that such information was provided for any particular purpose and Samsung Securities expressly disclaims any warranties of merchantability or fitness for a particular purpose. Furthermore, this report is not intended to be a complete statement or summary of the securities, markets or developments referred to herein.

Samsung Securities does not undertake that investors will obtain any profits, nor will it share with investors any investment profits. Samsung Securities, its affiliates, or any of its and their affiliates, directors, officers, employees or agents disclaim any and all responsibility or liability whatsoever for any loss (direct or consequential) or damage arising out of the use of all or any part of this report or its contents or otherwise arising in connection therewith. Information and opinions contained herein are subject to change without notice. Past performance is not indicative of future results. Foreign currency rates of exchange may adversely affect the value, price or income of any security or financial instrument mentioned in this report. For investment advice, trade execution or other enquiries, clients should contact their local sales representative. Any opinions expressed in this report are subject to change without notice and may differ or be contrary to opinions expressed by other business areas or groups of Samsung Securities. Any analysis contained herein is based on numerous assumptions. Different assumptions may result in materially different results. Samsung Securities is under no obligation to update or keep current the information contained herein. Samsung Securities relies on information barriers to control the flow of information contained in one or more areas or groups within Samsung Securities into other areas or groups of Samsung Securities. Any prices stated in this report are for information purposes only and do not represent valuations for individual securities or other financial instruments. Samsung Securities makes no representation that any transaction can or could have been effected at those prices and any prices contained herein may not reflect Samsung Securities' internal books and records or theoretical model-based valuations and may be based on certain assumptions. Different assumptions by Samsung Securities or any other source may yield substantially different results. Additional information is available upon request.

For reports to be distributed to US:

Securities research is prepared, issued and exclusively distributed by Samsung Securities Co., Ltd., an organization licensed with the Financial Supervisory Service of South Korea. This research may be distributed in the United States only to major institutional investors as defined in Rule 15a-6 of the U.S. Securities Exchange Act of 1934, as amended, and may not be circulated to any other person otherwise. All transactions by U.S. investors involving securities discussed in this report must be effected through Samsung Securities (America) Inc., a broker-dealer registered with the U.S. Securities & Exchange Commission and a member of the Financial Industry Regulatory Authority/SIPC, and not through any non-U.S. affiliate thereof. The analysts listed [on the front of this report] are employees of Samsung Securities Co., Ltd., or a non-U.S. affiliate thereof, and are not registered/qualified as research analysts under applicable U.S. rules and regulations and may not be subject to U.S. restrictions on communications with covered companies, public appearances, and trading securities held by a research analyst account.

For reports to be distributed to UK:

This report is not an invitation nor is it intended to be an inducement to engage in investment activity for the purpose of section 21 of the Financial Services and Markets Act 2000 of the United Kingdom ("FSMA"). To the extent that this report does constitute such an invitation or inducement, it is directed only at (i) persons who are investment professionals within the meaning of Article 19(5) of the Financial Services and Markets Act 2000 (Financial Promotion) Order 2001 (as amended) of the United Kingdom (the "Financial Promotion Order"); (ii) persons who fall within Articles 49(2)(a) to (d) ("high-net-worth companies, unincorporated associations etc.") of the Financial Promotion Order; and (iii) any other persons to whom this report can, for the purposes of section 21 of FSMA, otherwise lawfully be made (all such persons together being referred to as "relevant persons").

Any investment or investment activity to which this report relates is available only to relevant persons and will be engaged in only with relevant persons. Persons who are not relevant persons must not act or rely on this report.

For reports to be distributed to Korea:

This report is for private circulation only, not for sale, and is issued and distributed only to persons permitted under the laws and regulations of Korea.

For reports to be distributed to Singapore:

This report is provided pursuant to the financial advisory licensing exemption under Regulation 27(1)(e) of the Financial Advisers Regulation of Singapore and accordingly may only be provided to persons in Singapore who are "institutional investors" as defined in Section 4A of the Securities and Futures Act, Chapter 289 of Singapore. This report is intended only for the person to whom Samsung Securities has provided this report and such person may not send, forward or transmit in any way this report or any copy of this report to any other person.

Analyst certification

The views expressed in this research report accurately reflect the personal views of the analyst(s) about the subject securities or issuers and no part of the compensation of such analyst(s) was, is, or will be directly or indirectly related to the inclusion of specific recommendations or views in this research report. The analyst(s) principally responsible for the preparation of this research report receives compensation based on determination by research management and senior management (not including investment banking), based on the overall revenues, including investment banking revenues of Samsung Securities Co., Ltd. and its related entities and has taken reasonable care to achieve and maintain independence and objectivity in making any recommendations.

Copyright © 2010 Samsung Securities Co., Ltd. All rights reserved. This report or any portion hereof may not be reprinted, sold or redistributed without the prior written consent of Samsung Securities America Inc

Samsung Securities

SAMSUNG SECURITIES

Samsung Electronics Bldg., 11, 74-gil,
Seochodaero-ro, Seocho-gu, Seoul, Korea 06620
Tel: 02 2020 8000 / www.samsungpop.com

Family Center: 1588 2323

Voice Of Customer: 080 911 0900

**For more information,
please call our sales representatives:**

LONDON

Samsung Securities Europe Limited

1st Floor, 30 Gresham Street, London EC2V 7PG UK
Tel. 44-207-776-4311
Fax. 44-203-837-9219

NEW YORK

Samsung Securities America Limited

1330 Avenue of the Americas, 10th Floor, New York,
NY 10019
Tel: 1-212-972-2454
Fax: 1-212-972-2704

HONG KONG

Samsung Securities (Asia) Limited

Suite 4511, Two International Finance Center,
8 Finance Street, Central, Hong Kong
Tel: 852-3411-3608
Fax: 852-2114-0290

BEIJING

Samsung Securities Beijing Representative Office

Rm. 910, The Exchange Building No 118 JianGuo Lu, Chao
Yang District, Beijing, China
Tel: 86-10-6522-1855 (extension 7891)
Fax: 86-10-6522-1855 (extension 7889)

TOKYO

Samsung Securities Tokyo Representative Office

#106-8532 19F, Roppongi T-Cube 3-1-1,
Roppongi Minato-ku Tokyo, Japan
Tel: 81-3-6333-2952
Fax: 81-3-6333-2953



Member of
**Dow Jones
Sustainability Indices**
Powered by the S&P Global CSA