BATTERY

Global Market Size/Forecast

(GLOBAL BATTERY CELL SHIPMENT PERFORMANCE BY COMPANY IN 2024) The global battery shipment volume reached 1,299 GWh, marking a 24% increase. However, the three major Korean battery companies (LG Energy Solution, Samsung SDI, and SK Innovation) experienced an 18% decrease in total shipments.

- LFP batteries, which are produced exclusively in China, have been adopted by numerous global automakers, leading to a sharp increase in Chinese battery cell sales.
- As of 2024, Chinese companies hold about 66% of the global market share, with Korean companies holding about 17%

<2024 Global Battery Cell Shipment Performance (By Company)**>**

Country	Company	2023		2024		
		GWh	M/S	GWh	M/S	YoY
China	CATL	382	36%	491	38%	+29%
China	BYD	157	15%	192	15%	+22%
Korea	LG Energy Solution	137	13%	128	10%	-7%
China	Eve	42	4%	68	5%	+62%
China	CALB	42	4%	64	5%	+52%
China	Gotion	31	3%	50	4%	+61%
Korea	Samsung SDI	58	6%	48	4%	-17%
Japan	Panasonic	41	4%	42	3%	+2%
Korea	SK On	57	5%	31	3%	-46%
Others		**103**	**10%**	**185**	**14%**	**+80%**
Total		**1050**	**100%**	**1,299**	**100%**	**+24%**

* Source: SNE Research (Feb 2025)

(ELECTRIC VEHICLE BATTERY SHIPMENT PERFORMANCE EXCLUDING CHINESE MARKET) Excluding the Chinese market, Korean companies hold the largest share of electric vehicle battery cells, with approximately 44% of the market.

<2024 Electric Vehicle Battery Shipment Performance by Company (Excluding Chinese Market)**>**

Country	Company	2023		2024		
		GWh	M/S	GWh	M/S	YoY
China	CATL	87.8	27%	97.4	27%	+11%
Korea	LG Energy Solution	87.9	28%	88.8	25%	+1%
Korea	SK On	34.3	11%	39.0	11%	+14%
Japan	Panasonic	42.8	13%	35.1	10%	-18%
Korea	Samsung SDI	33.0	10%	29.5	8%	-11%
China	BYD	6.8	2%	14.8	4%	+118%
USA	Tesla	0.1	0%	8.0	2%	+7900%
China	Farasis	5.4	2%	7.5	2%	+39%
Japan	PPES	5.7	2%	7.4	2%	+30%
China	CALB	1.7	1%	6.7	2%	+294%
Others		**14.1**	**4%**	**27.2**	**8%**	**+93%**
Total		**319.6**	**100%**	**361.4**	**100%**	**+13%**

* Source: SNE Research (Feb 2025)

Global Market Size/Forecast

The batteries produced by the three major Korean battery companies are mostly used in global electric vehicle brands.

<Battery Cell Shipments by Korean Manufacturer for Major Electric Vehicle Brands>

Battery Cell Company	Major EV Brands
LG Energy Solution	Tesla, Volkswagen, GM, Ford, Hyundai Motor
Samsung SDI	BMW, Rivian, Audi, etc.
SK On	Hyundai Motor, Mercedes-Benz, Ford, Volkswagen, etc.

Sales/Exports/Production Volume

The export value of Korea's battery sector grew by more than 30%, from USD 7.5 billion in 2020 to USD 9.83 billion in 2023

- However, due to the global electric vehicle "Chasm" (a sales dip following the initial market boom), exports decreased by 16.5%, totaling USD 8.21 billion compared to the previous year.

Trends in Foreign Investment in South Korea

- During the 2020-2023 period, global demand for K-batteries surged, and foreign direct investment (FDI) in the battery sector in Korea has been on a steady rise
  - Major investors in the Korean market included battery material companies from China, next-generation battery cell companies from the U.S., and European firms entering the battery business.
- Starting in 2024, investment in Korea has been shrinking due to increased uncertainties from the 2nd Trump administration in the U.S. and the global electric vehicle market slowdown caused by the IRA regulations in the U.S.

Investment Strengths

(Strong Industrial Ecosystem)

- World-renowned battery manufacturers, including LG Energy Solution, SK-On, and Samsung SDI, possess significant technological expertise and know-how based on more than 20 years of experience.
- The sector also includes various companies involved in battery materials, equipment, and components, forming a comprehensive ecosystem.

(Government's Active Support)

- The Korean government is strategically supporting the battery industry, planning to invest over KRW 21 trillion by 2025 to activate the sector.
- Additionally, financial support exceeding KRW 38 trillion will provide companies with affordable loans and insurance benefits.

(Global Competitiveness)

- Korean battery manufacturers have secured a significant presence through the expansion of overseas plants in global markets, including the U.S. and Europe.

Cluster Status

(Gwangyang, Jeonnam-do)

- The Gwangyang National Industrial Complex, Sepung Industrial Complex, and Yulchon 1st Industrial Complex are designated as battery opportunity development zones and are expected to become major hubs for battery raw materials production.

(Saemangeum)

- The Saemangeum area is designated as a battery-specialized zone, with facilities under development for the processing and recycling of key minerals.

(Ochang, Cheongju)

- A battery-specialized zone, home to LG Energy Solution's Ochang Plant and various battery material and equipment companies.

(Pohang, Gyeongbuk)

- A designated battery-specialized zone with a focus on the production of cathode materials.

(Ulsan)

- A battery-specialized zone with Samsung SDI's Ulsan Plant at its center, focusing on the production of LFP batteries and the development of all-solid-state batteries.

Industry Development Policies

The Korean government has designated the battery industry as a national strategic technology and announced the following innovation strategy

- **Goal**
  Achieve a 40% global market share in the battery industry by 2030 and attract investments totaling more than KRW 50 trillion.
- **Strategy**
  ❶ Public-Private Cooperation: Form a Battery Alliance to stabilize the supply chain of key minerals.
  ❷ Technology Development: Invest KRW 20.5 trillion in R&D with both government and private sector involvement and establish an advanced production base.
  ❸ Talent Development: Train 16,000 experts by 2030.

In 2025 investment plan, a minimum investment of KRW 21 trillion (USD 14.4 billion) will be made in the electric vehicle and battery industries, with KRW 7.9 trillion allocated specifically to the battery industry.

* Source: MOTIE (January, 2025)

Support for Advanced Technology Development and Supply Chain Stabilization

- Solid-State and 4680 Battery Production: Key companies, including LG, Samsung, and SK, are establishing production facilities for solid-state batteries and 4680 batteries.
- Lithium-Metal and Lithium-Sulfur Battery Research: Ongoing support for R&D aimed at long-distance driving and lightweight vehicles.

* Source: MOTIE (Nov 2022, Apr 2023)

Technology Funds and Tax Benefits

- Advanced Technology Funds: Establishment of a fund worth at least 34 trillion KRW to support low-interest loans and capital investments.
- Tax Benefits: Expanded tax incentives for R&D and investments.

* Source: Korean Presidential Office (Feb 2025)

Key Examples

- **(U.S. NEXT-GENERATION BATTERY COMPANY S)** Company S, a U.S.-based company, is a leader in next-generation battery development. Recognized for its technological prowess and production potential, it successfully raised capital and went public on the NYSE in February 2022. Company S focuses on high-performance lithium-metal batteries and AI-based battery management systems. It has the headquarters and production verification facilities in Boston, U.S.A and production verification facilities and R&D centers in Shanghai, China. Company S established a research and production verification facility in Chungju, Chungbuk-do in October 2022 due to the electric vehicle and drone market potential of Korea. In these facility, mass-production test of next-generation lithium-metal battery production for electric vehicles is underway. This investment accelerates Korea's development of next-generation battery technologies.
- **(BELGIUM BATTERY MATERIAL COMPANY U)** A Belgium Company U has been producing cathode materials since the early 2000s and established a battery research center in 2005. With the continuous growth of Korea's battery industry, Company U has expanded its research center, based on Cheonan, Chungnam-do, into its largest battery material technology R&D facility in 2022. Company U is actively conducting research on next-generation battery materials for electric vehicles, energy storage systems (ESS), and portable devices, as well as testing at its large-scale battery cell laboratory. It is also continuously expanding its cathode material production facilities.