

June 26, 2023

To whom it may concern,

Company name: Nippon Den kai, Ltd.
Representative: Hidemasa Nakajima
President & CEO
Code No.: 5759 TSE Growth
Contact: Yasuaki Matsuzaki
Executive Officer of Finance
Email: ir_team@nippon-den kai.co.jp

(Correction) Partial Correction to English translation of “Investor Presentation”

We hereby announce that there were matters that should have been partially corrected in the “Investor Presentation” released on May 22, 2023.

1. Reason for Correction

We have found that there were matters that need to be corrected in the “Investor Presentation” after the disclosure.

2. Details of Correction

● Capital Investment and Production Capacity (Page 13)

		Before correction	After correction	
FY2021	Maintenance and Others	734	770	(¥ millions)
	Acquisition of Den kai America including maintenance and remodeling facilities	1,193	1,083	
	New Plant in US	629	687	
	Total	2,556	2,541	
FY2022	Acquisition of Den kai America including maintenance and remodeling facilities	2,331	2,337	
	New Plant in US	3,318	3,063	
	Total	6,273	6,026	

The corrected “Investor Presentation” is showed on the additional document.

Investor Presentation

Nippon Denkai, Ltd.

May, 2023





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01. Company Overview

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03. Business Environment

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01. Company Overview

About Us

Company Name	Nippon Denkai, Ltd.
Established	October, 1958
President/CEO	Hidemasa Nakajima
Headquarters	1226 Shimoezure, Chikusei city, Ibaraki Pref.
Listing Market	Tokyo Stock Exchange, Growth: 5759
Capital	1,858 Million yen (As of March 31, 2023)
Employees ¹	223 employees (Consolidated: 297)
Group Company	Denkai America Inc. (Hereinafter referred to as “DAI”)
Business	Development, manufacturing and sales of electrodeposited copper foil, used for xEV batteries and printed circuit boards for 5G applications.
Consolidated Net Sales	17,047 Million yen (FY2022)

¹ As of March 31, 2023; The figure includes temporary workers, loaned-out employees are not counted. .

Denkai's Short history

Acquired the only electrodeposited copper foil manufacturer in the US²



Listed on TSE Mothers market (Now: Growth)

October
1958

July
2016

June
2018

March
2020

June
2021

Nippon Denkai, Ltd. was founded by three corporations,
Hitachi, Ltd., Sumitomo Bakelite Co., Ltd. and Kosoku Denki Chuzo Co., Ltd.

MSD Investment I K.K.¹ acquired shares of Nippon Denkai, Ltd.

Expand EV battery copper foil production line

¹ MSD 1st Investment Limited Partnership is managed by MSD Investments Ltd, a private equity firm, which was jointly established by Mitsui&Co., Principal Investments Ltd., Sumitomo Mitsui Banking Corporation and Development Bank of Japan Inc.

² Source: Copper Foil Industries Association

Management Philosophy and Mission

Philosophy

As an electrodeposited copper foil manufacturer selected in the global market, we work for continuous growth and prosperity.

Mission



Sustain high share in Japan for EV battery copper foil market.*

Securing a Presence in the U.S. Market with copper foil for High-Performance Batteries.*



Provide world top class quality circuit board copper foil.

Concentrate on high added value field.



Contribute to Carbon free world

Use 100% recycled copper material

*Previously, we had stated that we would "maintain the top share in the Japanese and U.S. markets," however, U.S. market is growing faster than our increased production and our relative market share is declining. We have decided not to pursue market share and have changed our policy to "secure a presence in the U.S. market for high-performance battery materials".

Location of Plants

Headquarters: **Nippon Denkai, Ltd.**



Chikusei city, Ibaraki

US : **Denkai America Inc.**



Camden, South Carolina

Production capacity
13,200t /Year³



223¹



750t/M^{*3}



74¹



350t/M^{*3}

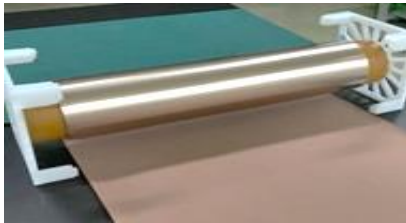
¹ As of March 31, 2022; The figure includes temporary workers

² Source: Copper Foil Industries Association

Sales by Product

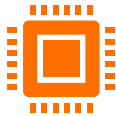
Circuit Board Copper Foil

Our Products



Uses

Flexible Printed Circuits
Board Package Substrate



Major End Products

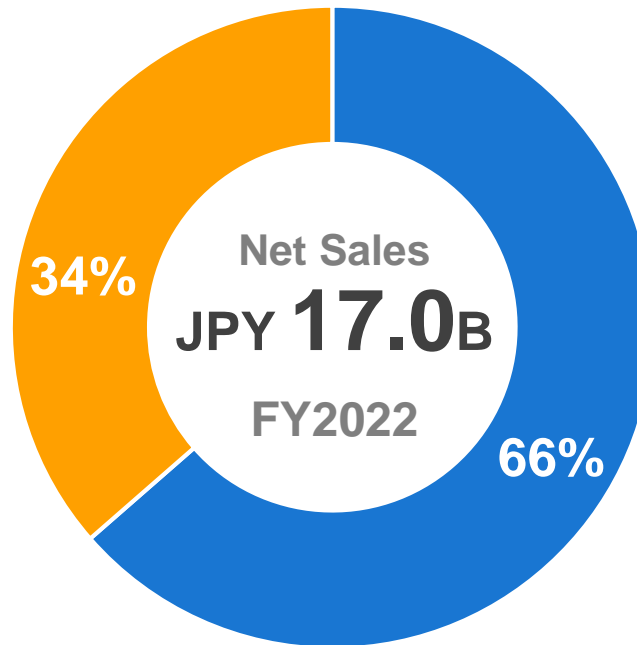


5G
smartphone



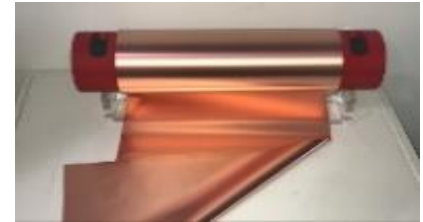
5G communi-
cation base
station etc..

Sales Composition in FY2022



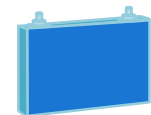
EV Battery Copper Foil

Our Products



Uses

Lithium Ion Batteries (LIB)



Major End Products



EV



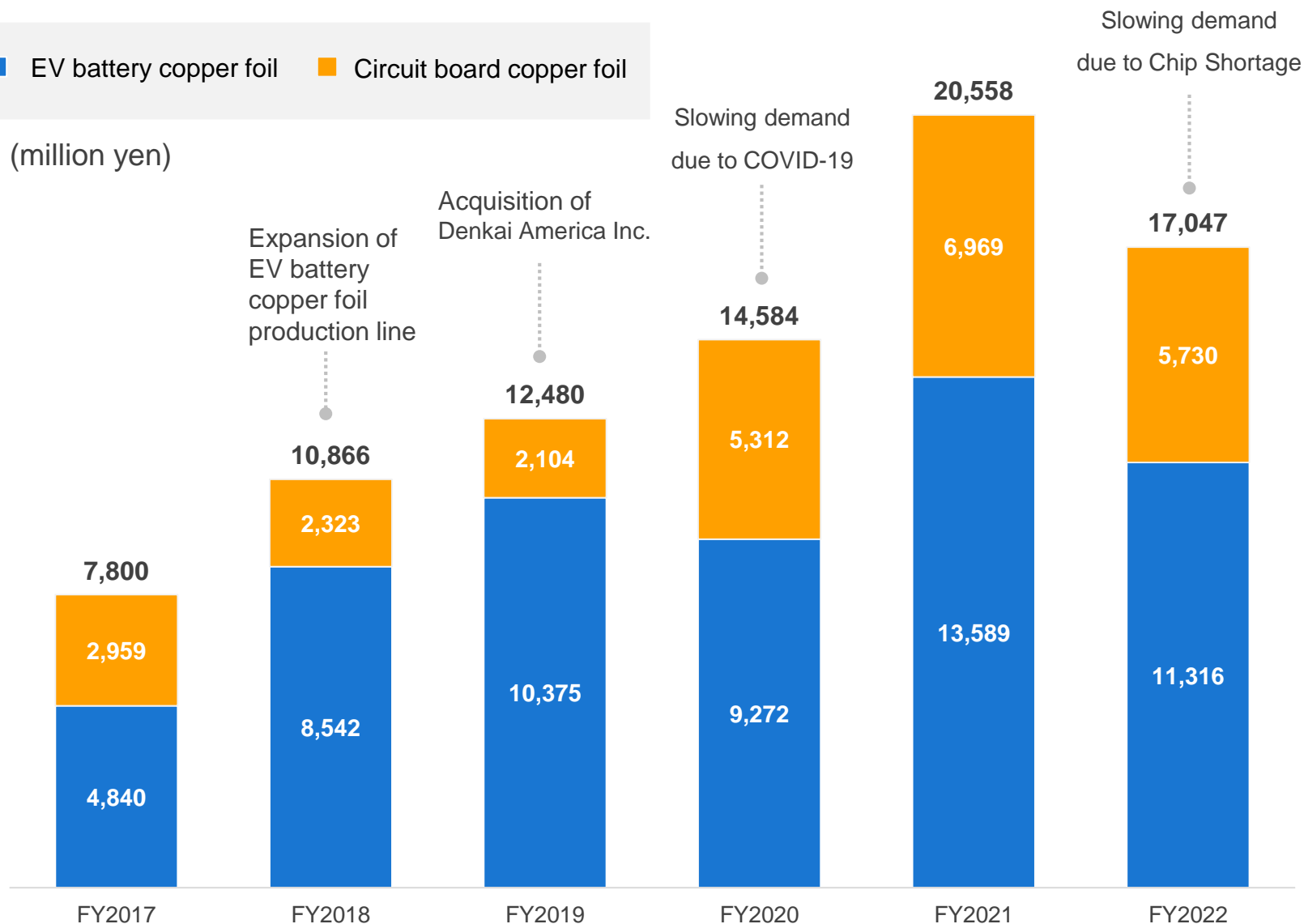
HV

02. Business Performance

Consolidated Net Sales

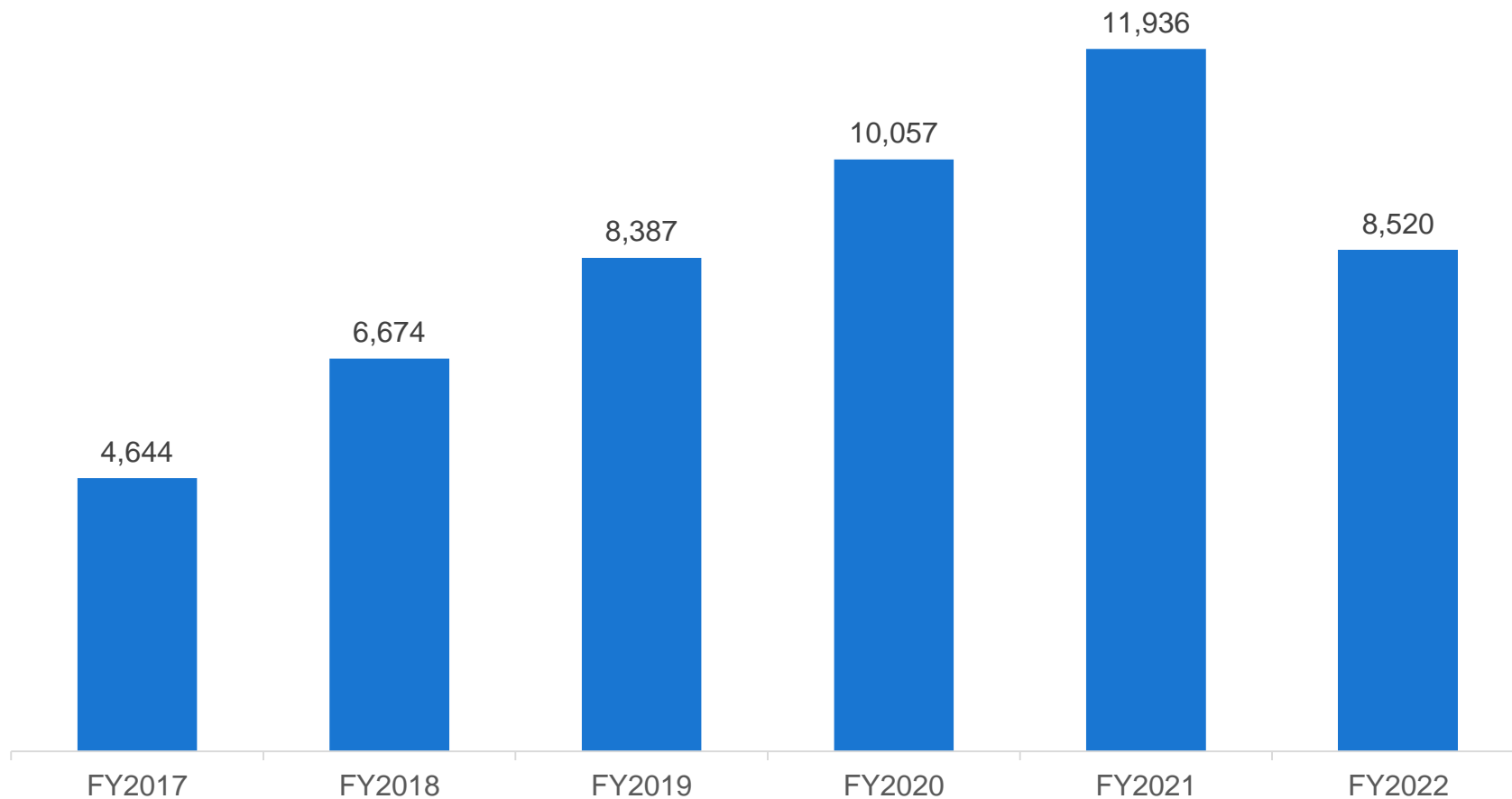
■ EV battery copper foil ■ Circuit board copper foil

(million yen)

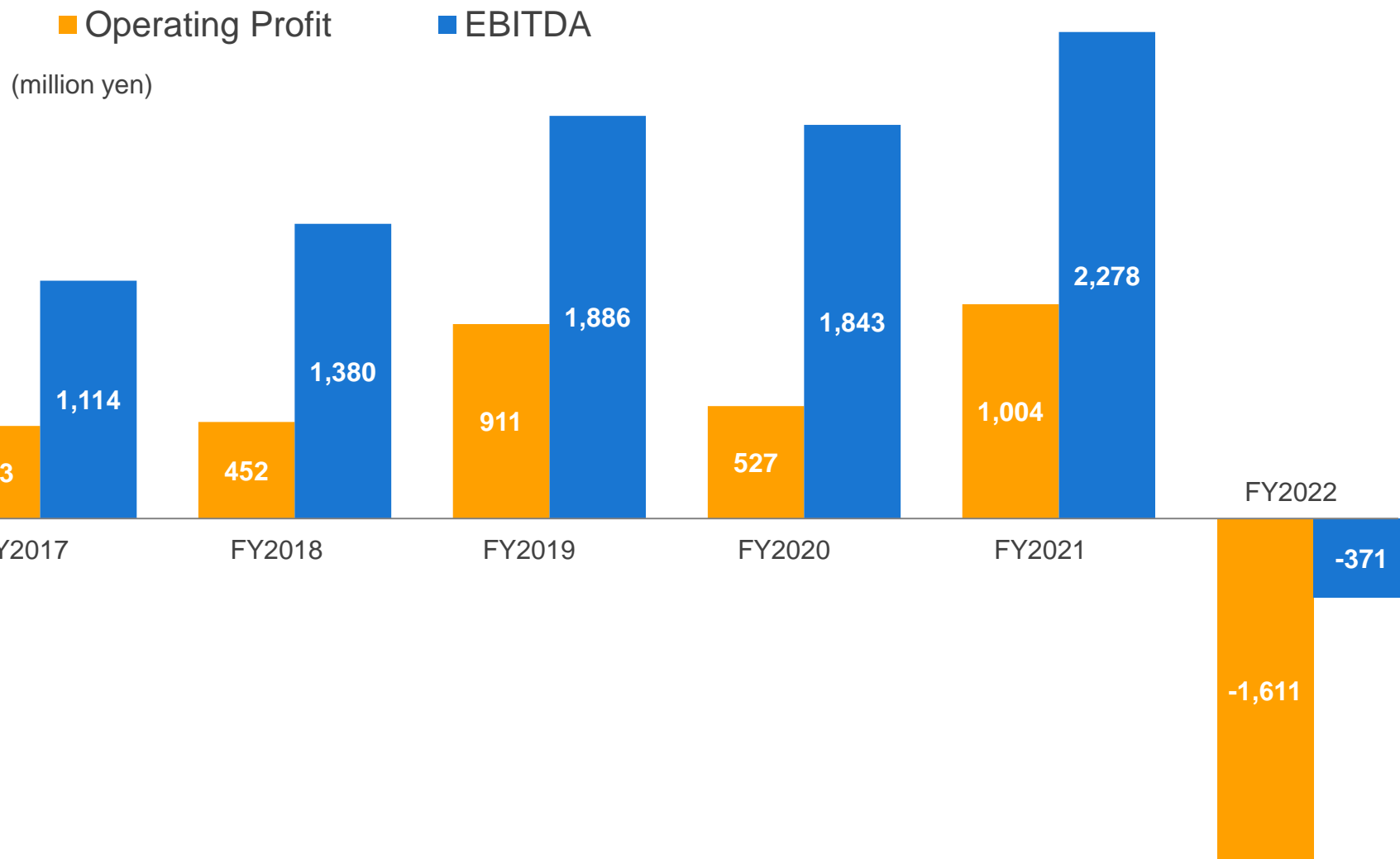


Production Quantity

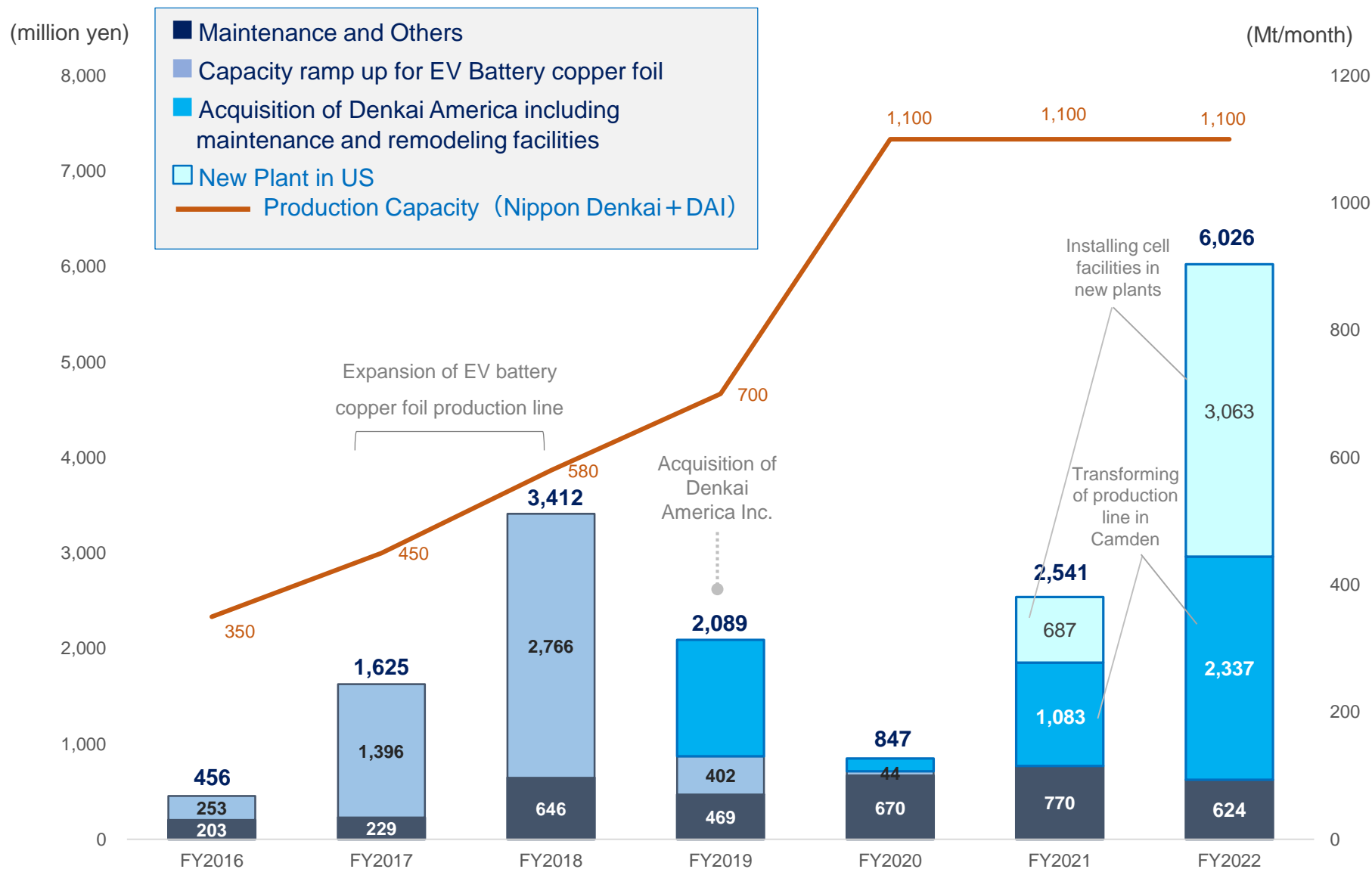
(Unit: Mt)



Consolidated Operating Profit and EBITDA



Capital Investment and Production Capacity



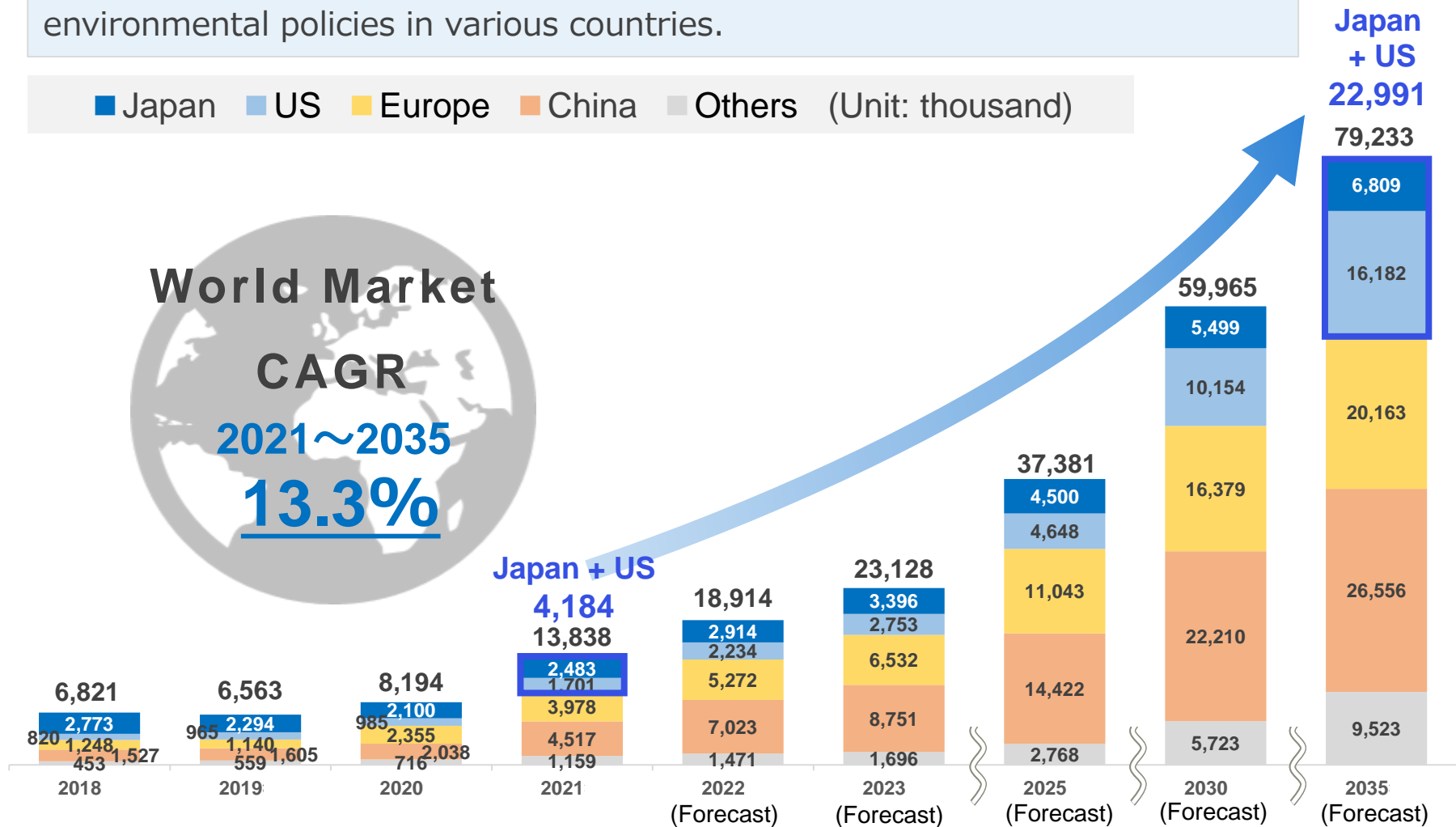
03. Business Environment

xEV Market Forecast

► World xEV market CAGR is expected to grow up to 13.3%, as expansion of environmental policies in various countries.

■ Japan ■ US ■ Europe ■ China ■ Others (Unit: thousand)

World Market
CAGR
2021~2035
13.3%



Source :Fuji Keizai Management Co., Ltd (as of Dec., 2022)

(Note 1) Above graph shows the result and estimate classified by vehicle production regions, not the demand classified by production regions of EV batteries.

(Note 2) The results and forecast in above graph is calculated and estimated by Fuji Keizai Management Ltd. and information

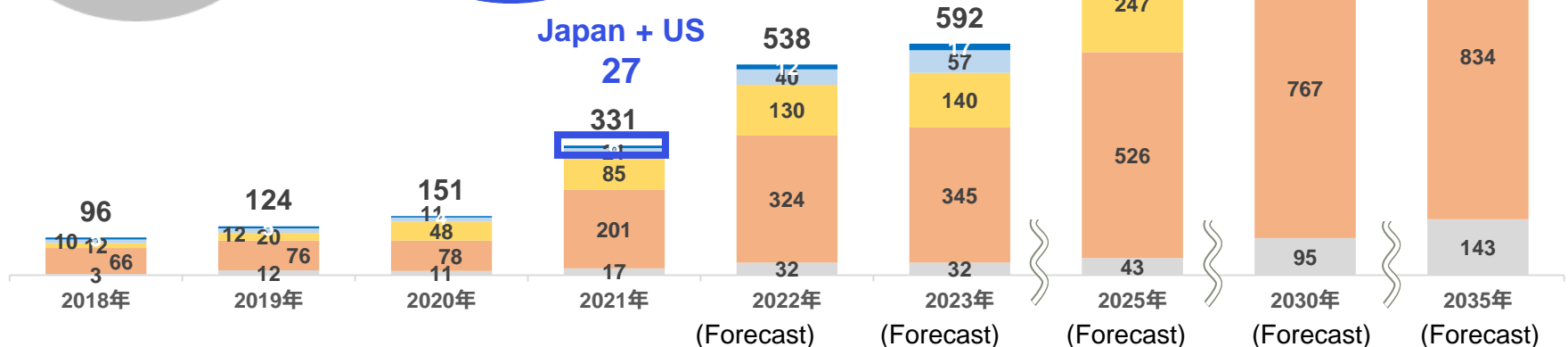
Negative Current Collector Market Forecast

- The demand for negative current collectors for EV batteries is predicted to grow rapidly, along with required improvement of LIB's capacities and outputs used in xEV.
- We focus on the **Japanese and US markets**, where there is little competition.

■ Japan ■ US ■ Europe ■ China ■ Others (Unit : kMt/Year)

World Market
CAGR
2021~2035
14.9%

Japan & US
CAGR
2021~2035
25.0%



(Note 1) Above graph shows the result and estimate classified by vehicle production regions, not the demand classified by production regions of EV batteries.

(Note 2) The results and forecast in above graph is calculated and estimated by Fuji Keizai Management Ltd. and information.

Source :Fuji Keizai Management Co., Ltd (as of Dec., 2022)

Major LIB Production Bases in the US

In the U.S., the development and expansion of LIB bases for xEVs is progressing in line with the growing demand for xEVs. However, the development of copper foil bases for EV Batteries has not progressed, and there are still few competitors.

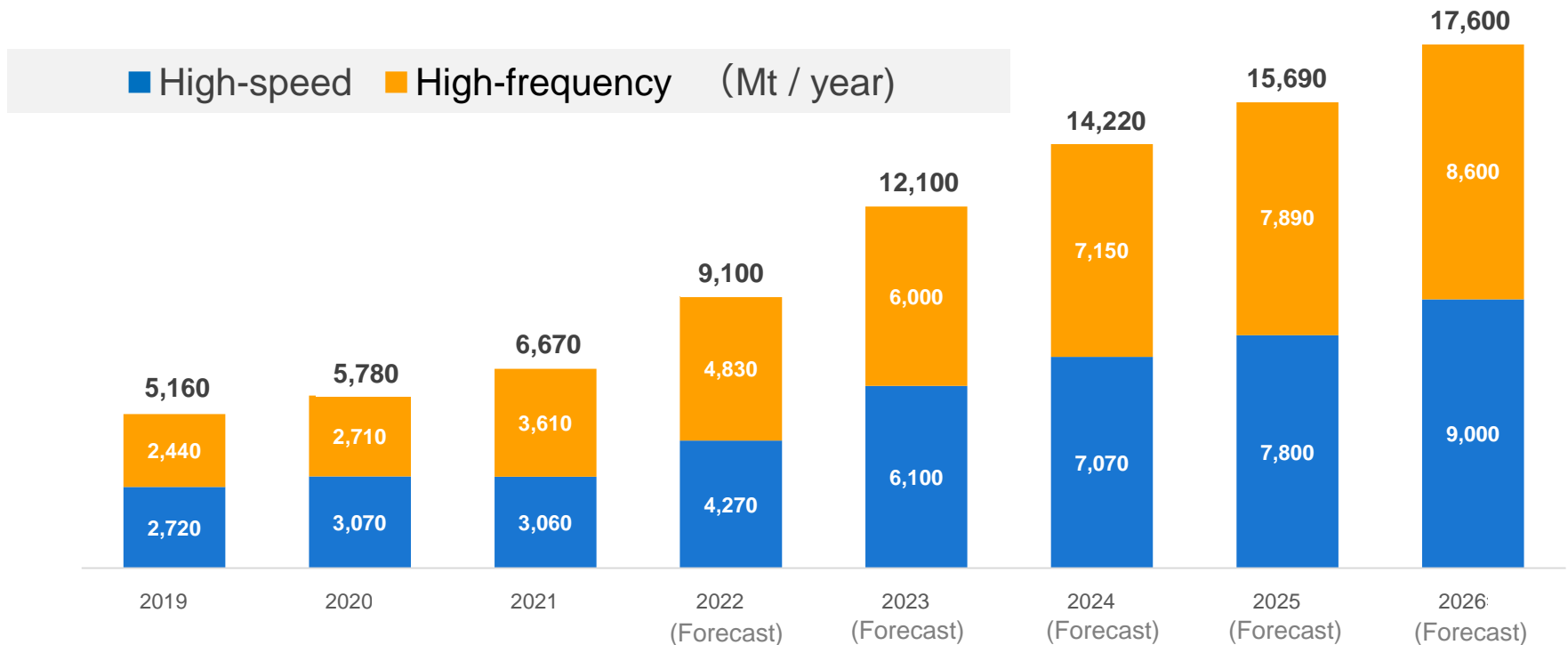


High End & Super High End Market

The market achieved average annual growth rate of 23.7%.

Demand for high-performance copper foil that minimizes transmission loss is also expected to grow significantly in response to growing demand for 5G and IoT , where high speed communication is advancing.

Our strategy is to focus on high strength copper foil and copper foil for fine circuit boards, which are high performance foils



Source :Fuji Keizai Management Co., Ltd (as of Dec., 2022)

04. Growth Strategy

The Image of Production Expansion



- Accelerate development of high value-added products
- Meet demands of next-generation batteries such as all-solid-state batteries

Start production and sales of copper foil for new batteries

Strengthen sales of circuit board copper foil in overseas high end markets (Overseas shipments started in FY2022)

Further efforts focusing on 5G and HDI markets (Ongoing since FY2020)

2024

Boost supply capacity for circuit boards copper foil by improving manufacturing facilities of the head office plant

2023

Start mass production of first EV battery copper foil in the US (FY2023 2H~)

【Optional plans of expanding production capacity】

- Start construction of new US plant
- Expand production capacity for xEV batteries at head office plant

2026

2030



Core Strategies for Business Growth

Grow sales by focusing on two markets: EV battery and high-frequency circuit board

- **For EV Battery Copper Foil :**

Reinforce product supply system for high-performance LIB, build brand awareness as a “high- performance batteries copper foil” manufacturer, sustain top share in the market in Japan.

- **For Circuit Board Copper Foil :**

Expand production capacity in head office plants, globally promote sales to leading manufacturers of circuit board, lead by developing products meeting new demands while being ahead of the trends.

Maximize synergy of production sales by two bases structure in Japan and the U.S.

- **In Japan :** Enhance the production and process developments as a mother factory.

Enhance the production system to deal with the rapid expansion of Japan or Asia market.

- **In the US :** Obtain the market share and profitability in the U.S. by constructing new plants which responds to customer demands and establishing the production system.

Restore business profitability

Restore business profitability by reducing costs through organizational reform with digitization, process improvement, quality enhancement, labor productivity improvement, and yield improvement.

KPIs and Measures

【KPI】

Production Volume : 22,000t /Annual (FY2027)

Grow sales by focusing on two markets:
EV battery and high-frequency circuit board

Maximize synergy of production sales by two bases
structure in Japan and the U.S.

● To Expand Sales of EV Battery Copper Foil :

- Supply product for high capacity LIBs in response to customer's new production line operation. (FY2023 2Q~)
- Supply products to new customers (after FY2025, at each occasion)
- Providing new materials for high energy density (after FY2023, at each occasion)

● To Expand Sales of Circuit Board Copper Foil :

- Expand sales of highly profitable products to substrate manufacturers in Japan and overseas (Ongoing since FY2020, Overseas shipments started in FY2022, to be expanded)

● Expand product supply facilities

- Camden Factory : Start Mass production after the Transforming work (FY2023~)
- U.S New Plant (Plan) : Install production capacity for US market by 9,500 Mt/year
※ Assuming Start construction in FY2023, Completion of construction in FY2025, Start Mass production in FY2026
- Headquarters : Ramp up production line for Circuit Board Copper Foil (FY2024~)

Consider Ramp up for EV Battery Copper Foil (after FY2024, at each occasion)

【KPI】

EBITDA Margin \geq 15% (after FY2026)

Restore business profitability

Restore business profitability by reducing costs through organizational reform with digitization, process improvement, quality enhancement, labor productivity improvement, and yield improvement.

Product Development Staying Ahead of the Curves

EV battery with high capacity
and high energy density

Additive control technology

High tensile strength and
high heat-resistance

Advanced
next-
generation
EV battery

Microstructure control technology

Low elastic modulus

Surface treatment technology

High corrosion
resistance

Actualize the required property of next-generation battery collectors through three technology platforms; additive control technology, microstructure control technology, and surface treatment technology.

Circuit board copper foil for next-generation
communication infrastructure and equipment

Low-latency and reduced energy-loss products

>28GHZ

Ultra low profile conductive film

Surface
treatment
offering high
adhesion

Resin substrate with low permittivity

12GHZ-28GHZ

Ultra low profile conductive film

Surface
modification
of resin
substrates

Resin substrate with low permittivity

6GHZ-12GHZ

Roughening surface of
conductive film

Roughening
surface of copper
foil

Resin substrate with low permittivity

Conventional technology

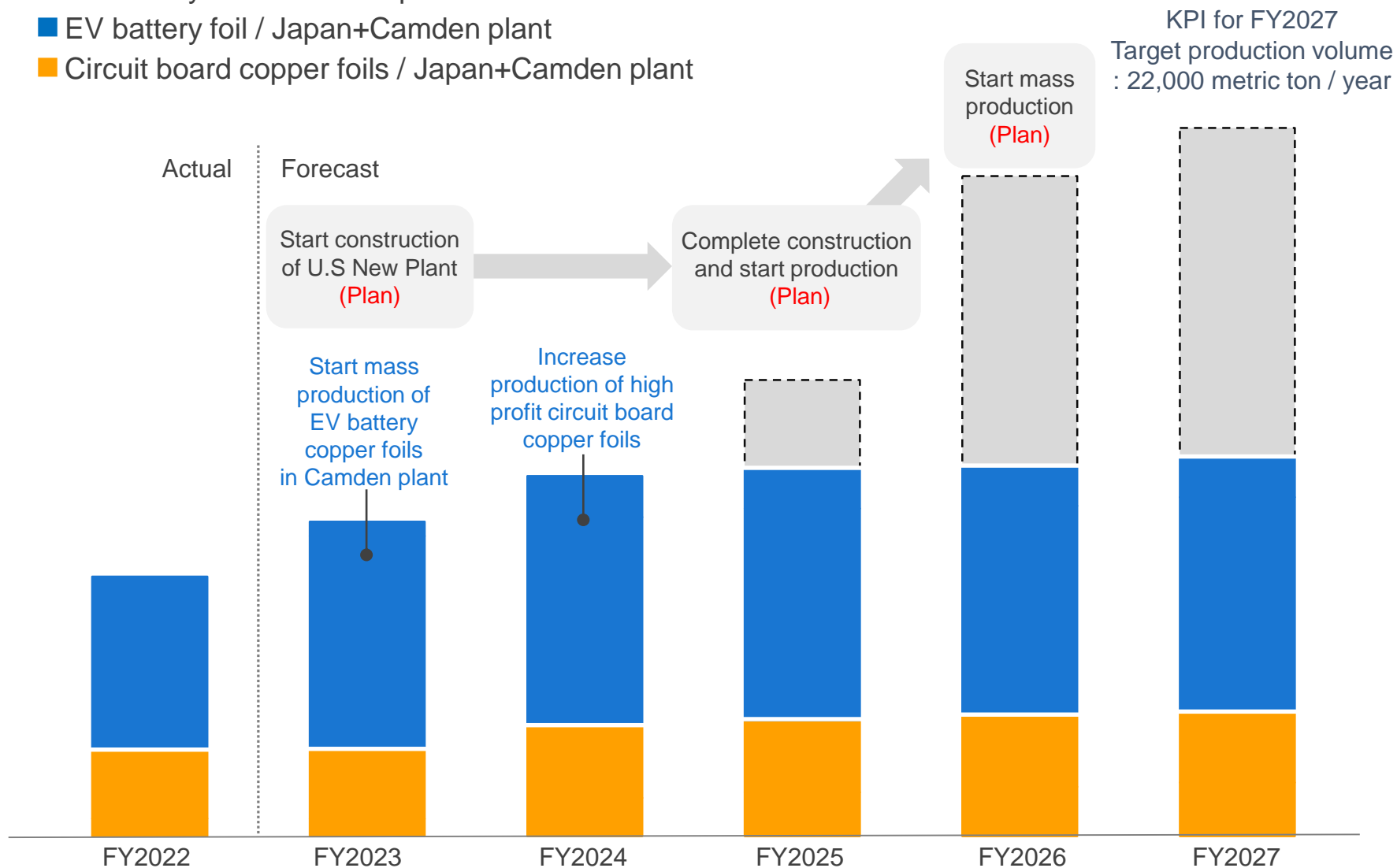
BELOW 6GHZ

Affordable cost offering higher quality

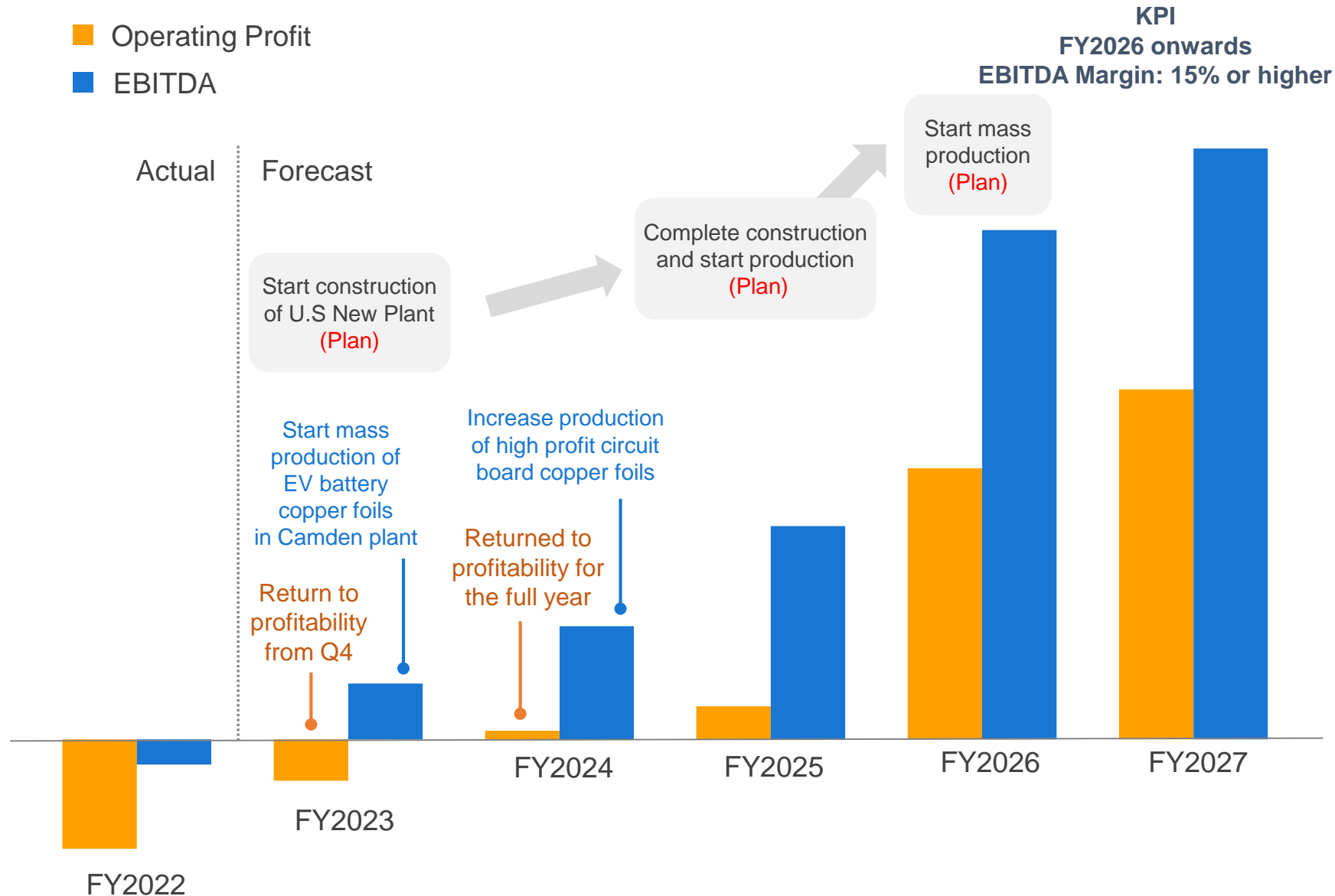
Develop “ultra low profile copper foil” and “surface treatment technology offering high adhesion” for the hotspot frequency market that is highly required for low-latency transmission in 5G or 6G, and apply them to new products.

Growth Image of Net Sales by Product / Location

- EV battery foil / U.S. new plant
- EV battery foil / Japan+Camden plant
- Circuit board copper foils / Japan+Camden plant



Growth Image of Operating Profit and EBITDA



Transformation of Production Lines in US plant



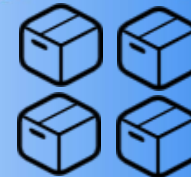
May, 2023

Completion of transforming



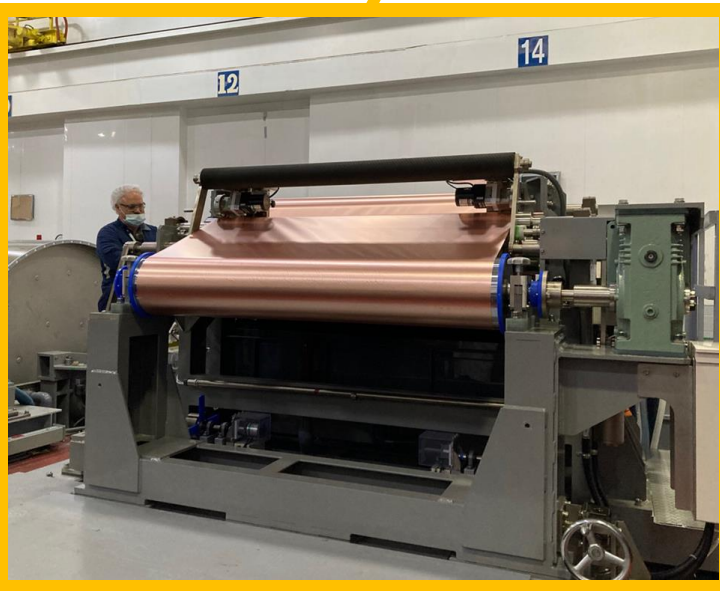
Summer, 2023

Start preparing sample



2H 2023

Start supplying products



- **Location**

Camden Plant, South Carolina, U.S.

- **Capex**

US\$26 million

- **Product / Capacity**

Copper foil for LIBs / 1,200 metric ton per year

- **Customers**

Major LIB manufacturers in the U.S.

New Plant Construction Plan in the U.S.

The amount of capital expenditure and the date of start shipping are currently under review.

However, there will be no change in product types, production capacity, or product suppliers.

In this material, construction of a new plant in the U.S. is assumed to start within 2023, with sample shipments to begin in summer 2025.

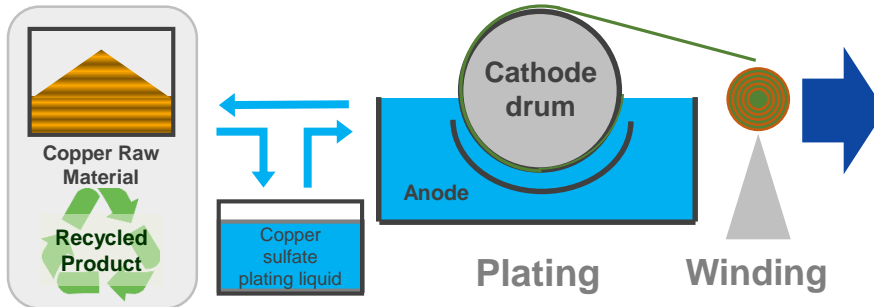
Location / Site area	Augusta, GA, U.S. / 115 acre
Product / Capacity	Copper foils for EV batteries / 9,500 metric tons per year
Target customers	Major battery manufacturers in the U.S.

05. Appendix

Our Manufacturing Process

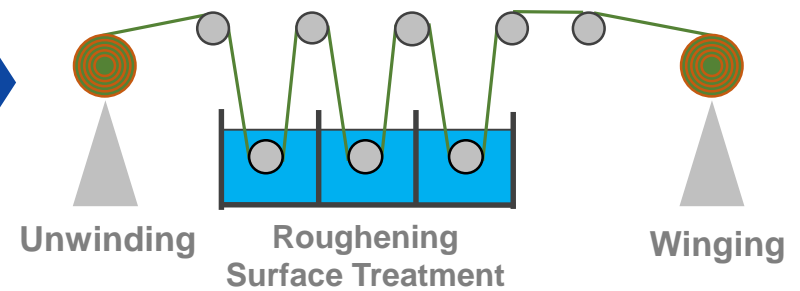
① Base foil manufacturing process

Continuous plating on a rotating cathode drum by controlling the surface shape and copper foil properties with additives.

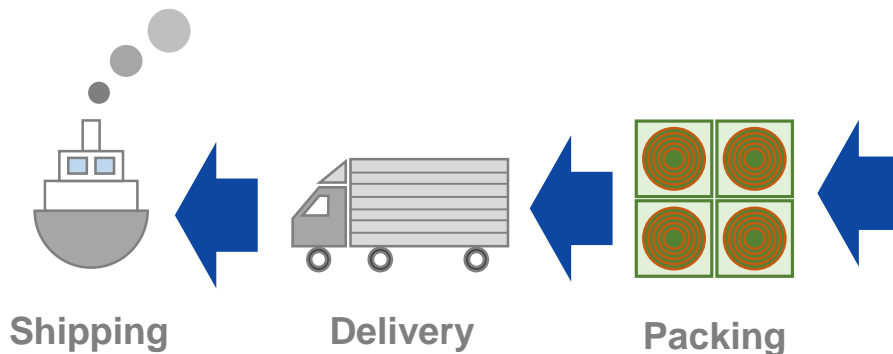


② Roughening Surface Treatment Process

Module forming/surface treatment, and rust prevention/organic treatment to suit the application

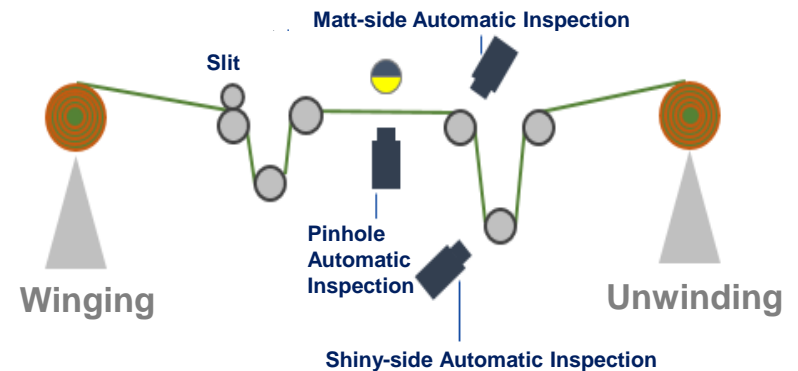


④ Delivery



③ Slit / Inspection Process

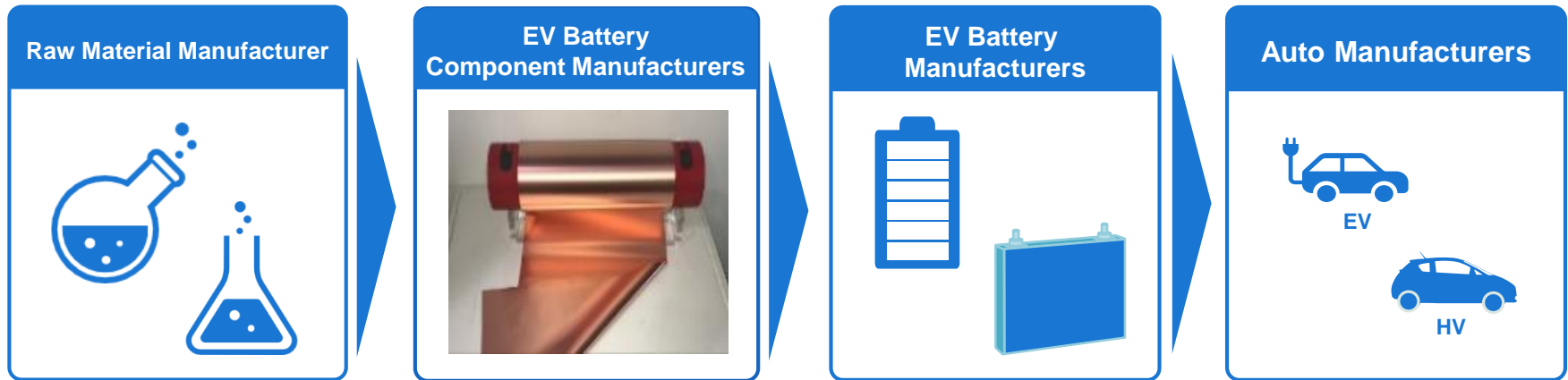
After the automated full inspection, slit processing is conducted



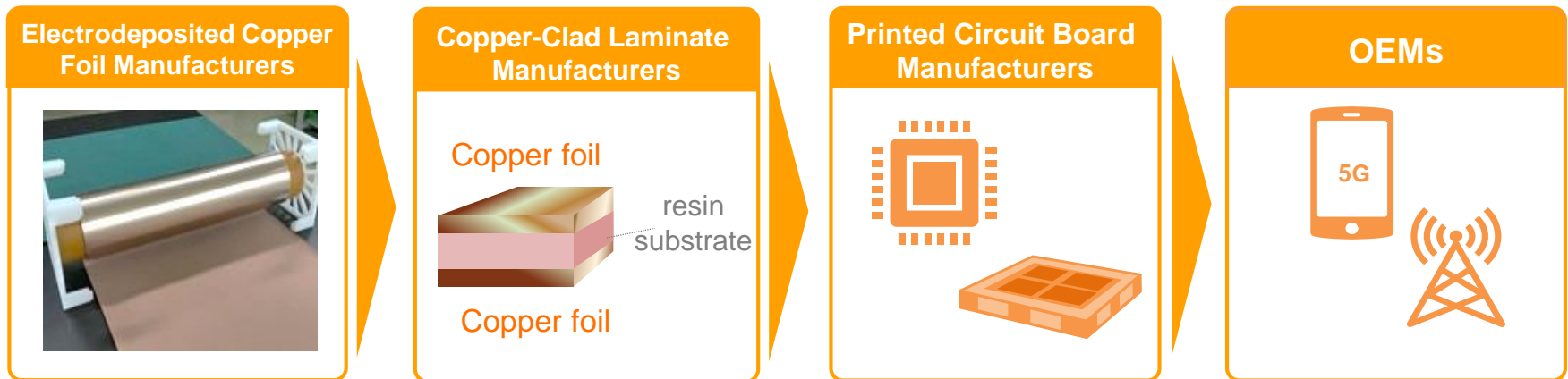
Our Products' Supply Chain

EV Battery's Supply Chain

We have relation to major Japanese and US xEV manufactures through major Japanese EV battery manufacturers



5G Products' Supply Chain



Automotive LIBs using our copper foil

Requirements

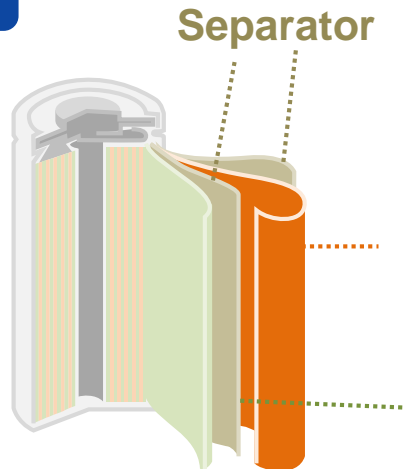
Long-term reliability, capable of withstanding internal expansion and contraction of the battery during charging and discharging

Required Characteristics

- High elasticity: **tear-resistant**
- Even thinness: **Prevention of heat generation** in thin areas
- Smoothness: **Same roughness** on both sides
- High purity: **Prevention of heat generation** by low resistance etc.

Types of LIB

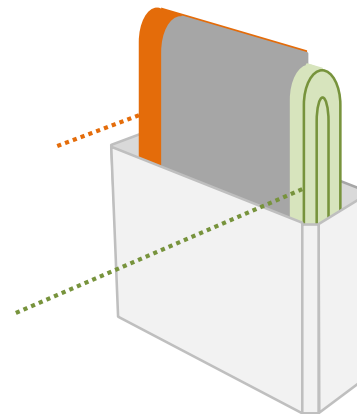
Cylindrical LIB



Negative
Current
Collector
(Copper Foil)

Positive
Current
Collector

Prismatic LIB



Our Technology to contribute Medium-to-Long Term Growth

We pursuit mid- to Long-term growth through joint research and development of next-generation EV batteries with EV-related companies in Japan and overseas.

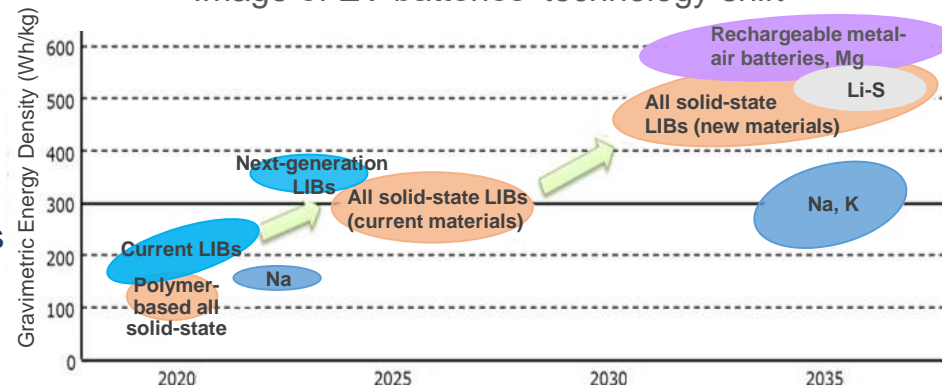
Source: NEDO's website

Next-generation EV batteries are:

- Advanced LIB with high capacity
- All solid-state LIB with high energy density
- Innovative secondary battery with greatly improved performance through technology based on new principles

The development of copper foil that maximizes the characteristics above is required.

Image of EV batteries' technology shift



Next-generation LIB	Joint Development Partners	Our R&D achievement	Status
Advanced LIB (Liquid Type)	<ul style="list-style-type: none"> • Japanese battery manufacturers • Negative electrode manufacturer 	Developed copper foil with surface treatment offering high tensile strength and high adhesion, which contributes to the improvement of cruising distance and acceleration performance	Under evaluation by the manufacturers
All solid-state LIB	<ul style="list-style-type: none"> • Automobile manufacturers in Japan and overseas 	Developed surface treatment offering the ability to prevent copper sulfide from producing, contributing to the exponential increase of safety and reliability and the ensuring of high energy density	Under evaluation by the manufacturers
Innovative secondary batteries (Post-LIB)	-	Commenced the development of copper foil necessary for innovative secondary batteries, such as fluoride-ion batteries and zinc negative electrode batteries	-

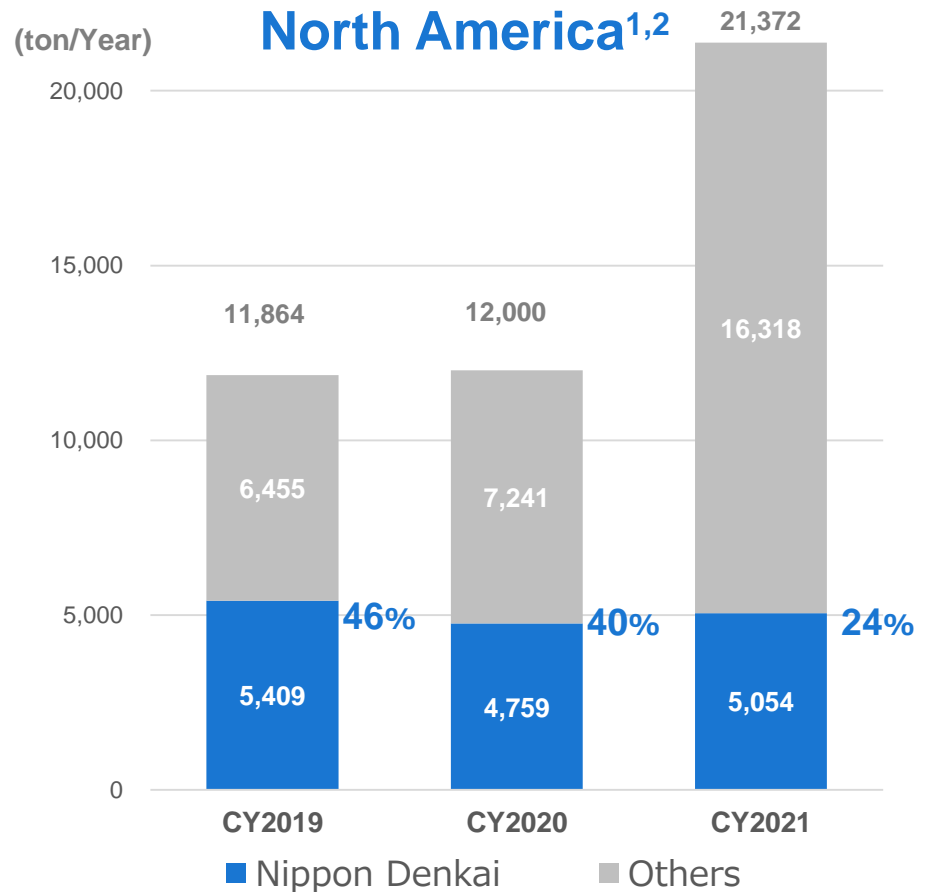
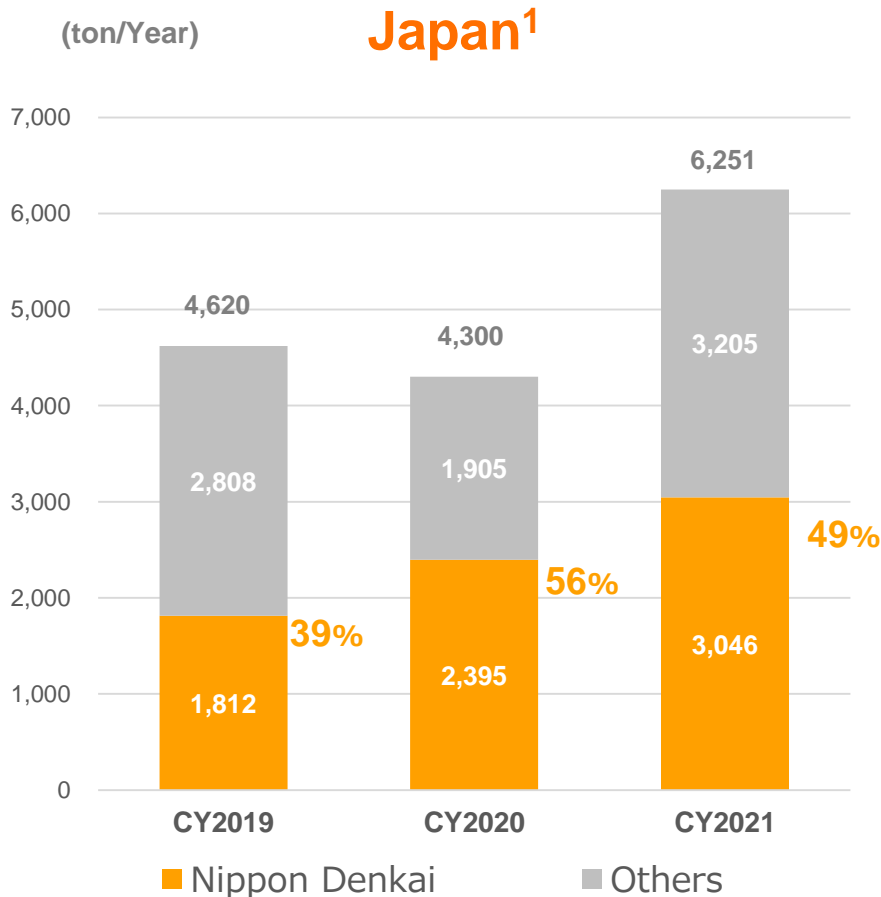
Major Customers (FY2022 Actuals)

We have stable connections and revenue bases with major Japanese EV battery manufacturers and major Japanese and US electrical parts manufacturers, through actual sales performance.

Customer	Products	Sales (JPY million)	Ratio (%)
Panasonic Corporation	For EV batteries / PCB	9,094	53.3%
Primearth EV Energy Co., Ltd.	For EV batteries	2,465	14.5%
Isola	For PCB	1,845	10.8%
KCE	For PCB	404	2.4%
CAC Corporate	For PCB	489	2.9%
AGC Multi Material America	For PCB	335	2.0%
Total Sales		17,047	

Our Market Share in the EV Battery Copper Foil Market

Our products have been highly evaluated by the market for their long-term reliability and good handling performance, and have gained nearly half of the market share in Japan, demonstrating our global presence.



¹ These above pie charts compare copper foil demand by region (Source: Fuji Keizai) with our sales volume in the Japanese and North American markets.

² The market share 40% in North America does not include DAI products.

Our focusing Business Indicators

Business Indicators / Reasons to focus on

Production Volume (by metric tons)

We place importance on production volume (by metric tons) as an indicator to grasp the progress of our production and sales activities, excluding the impact of the rise and fall of copper price.

Operating Income

We place importance on Operating Income as a basic indicator for measuring the status of our profit.

EBITDA

As we own a large number of fixed assets properties, we place importance on EBITDA, which is adjusted to the impact of Depreciation and Interest Expenses.

Financial Highlights

(unit: million yen)	FY2018	FY2019	FY2020	FY2021	FY2022
Net sales	10,866	12,480	14,584	20,558	17,047
EV battery copper foil	8,542	10,375	9,272	13,589	11,316
Circuit Board copper foil	2,323	2,104	5,312	6,969	5,730
Operating profit	452	911	527	1,004	-1,611
(Operating profit margin)	4.2%	7.3%	3.6%	4.9%	-9.5%
Net income	22	1,988³	193³	848	-1,933
(Net income margin)	0.2%	15.9%	1.3%	4.1%	-11.3%
Depreciation and Amortization, etc	928	974	1,316	1,274	1,240
EBITDA²	1,380	1,886	1,843	2,278	-371
EBITDA margin (%)	12.7%	15.1%	12.6%	11.1%	-2.2%
Interest bearing debt	5,589	6,459	6,010	8,866	12,377
Net interest bearing debt	4,991	5,205	4,348	6,366	8,797
Total assets	10,227	13,747	13,643	18,034	22,678
Net assets	2,461	4,434	4,946	5,755	7,447
Net interest bearing debt / EBITDA	3.6x	2.8x	2.4x	2.8x	— *
Equity ratio (%)	24.1%	32.3%	36.3%	31.9%	32.8%
ROE (%)	0.9%	57.7%	4.1%	15.9%	-29.3%
Financial leverage	4.2x	3.1x	2.8x	3.1x	3.0x
Total assets turnover rate	1.2	1.0	1.1	1.3	0.8

* Percentage change is omitted since this is a comparison of increase and decrease.

Methods of earning Revenue and Cash Flow

Our company operates the development, manufacturing and sales of electrodeposited copper foil. We generate Revenue and Cash Flow by the sales of our products to the customers.



Risk factor Analysis

Risk factor / Possibility of occurrence	Impact level	How to cope with the factor
Energy and resource price hikes / High In our group's manufacturing activities, soaring energy and resource prices will result in higher manufacturing costs.	High	We will improve production efficiency at manufacturing sites. In addition, we are negotiating with customers to reflect energy and resource price increases in selling prices.
Copper Price Fluctuations / High Our products are made mainly from High-purity copper materials, so market fluctuations in Copper prices have an impact on manufacturing costs.	Low	In order to minimize the impact, we are working “Copper price Indexing System” with customers, in which product prices are decided based on Copper prices in the Market.
Exchange Rate Fluctuations / Medium Translation of foreign currency-denominated assets, liabilities, revenues, and expenses into Japanese Yen will increase or decrease depending on Exchange rate fluctuations.	Low	In the cases of Account Receivables and Payables in foreign currencies are incurred or when investments are made in overseas subsidiaries, they are hedged by executing Forward exchange contracts.
Limited Number of Customers / Medium A significant portion of our Consolidated Net Sales is derived from sales to a limited number of clients. The performance and purchasing policies of the customers have a significant impact on our top line.	High	We will increase the number of clients by working to expand sales channels to the High-value-added fields where future growth is expected and to overseas customers.

Our group has other business risk factors in addition to those mentioned above. For details, please refer to “Business and Other Risk Factors(「事業等のリスク」)” in the Annual Securities Report(「有価証券報告書」).

Our Commitment to Sustainability

Our group is implementing various activities to be a company that can grow together with the communities in local and the global. Here are some examples.

Carbon-free world with xEV.

We aim at creating a **carbon-free world and a sustainable society** by providing high-quality copper foils for LIB and xEV.



Our products are made from 100% recycled materials.

We recycle scrap copper foils from the manufacturing process.

100%
Recycled
Raw copper
Materials



Scrap copper foils from
the manufacturing
process are
Recycled



SDGs Targets



Human Capital Management Efforts

We strive to create a workplace environment where each and every employee is motivated and can demonstrate their abilities. In fiscal 2021, we received the "Silver Certification," a certification as an excellent health company, as we continue to develop a workplace environment where all employees can maintain their health and maximize their abilities.



Corporate Governance Enhancement

The Nominating and Compensation Committee, established in FY2021, is now in operation. Internal audit activities continue to report to the Board of Directors, and Internal Controls are used to ensure proper business operation systems, including those of subsidiaries.

SDGs Targets



Scheduled Date of Next Update

The next update is scheduled to be May, 2024 with the announcement of the year-end financial results for FY2023.

However, if there are any important changes in this document, we will update as necessary.

Contact us : Nippon Denkai, Ltd. / Investor Relations
ir_team@nippon-denkai.co.jp

Disclaimer

These documents have been prepared solely for the purpose of disclosing relevant information regarding Nippon Denkai, Ltd. (referred to herein as the "Company", "we" or "us") and, depending on the context, its consolidated subsidiary. These documents do not constitute an offer to sell or the solicitation of an offer to buy any security in the United States, Japan or any other jurisdiction.

These documents include forward-looking statements including current plans, outlook, estimates and forecasts. Forward-looking statements are based on the intentions of our management based on the information available as of May 10, 2022.

These forward-looking statements are dependent on various risks and uncertainties and actual results may differ materially from the information provided in this documents.



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