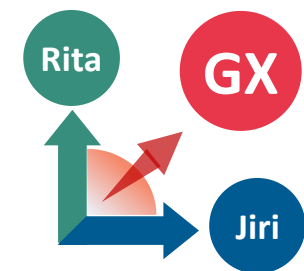


Change and Innovation ~ with the **Power** of Chemistry ~

Sumitomo Chemical IR Day 2022 Spring

June 1, 2022



Section.1 **FY2022 Performance Forecasts and Recent Topics**
Keiichi Iwata, President and Executive Officer

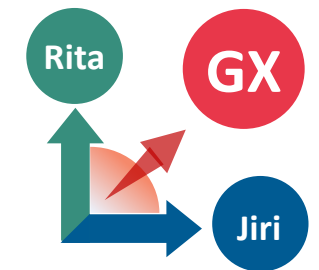
Section.2 **IT-related Chemicals Sector**
Masaki Matsui, Senior Managing Executive Officer

Section.3 **Energy & Functional Materials Sector**
Kingo Akahori, Senior Managing Executive Officer

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Sumitomo Chemical IR Day 2022 Spring

Section.1 FY2022 Performance Forecasts and Recent Topics



Today's Agenda

01 FY2022 Business Performance Forecast

02 Recent Topics



01

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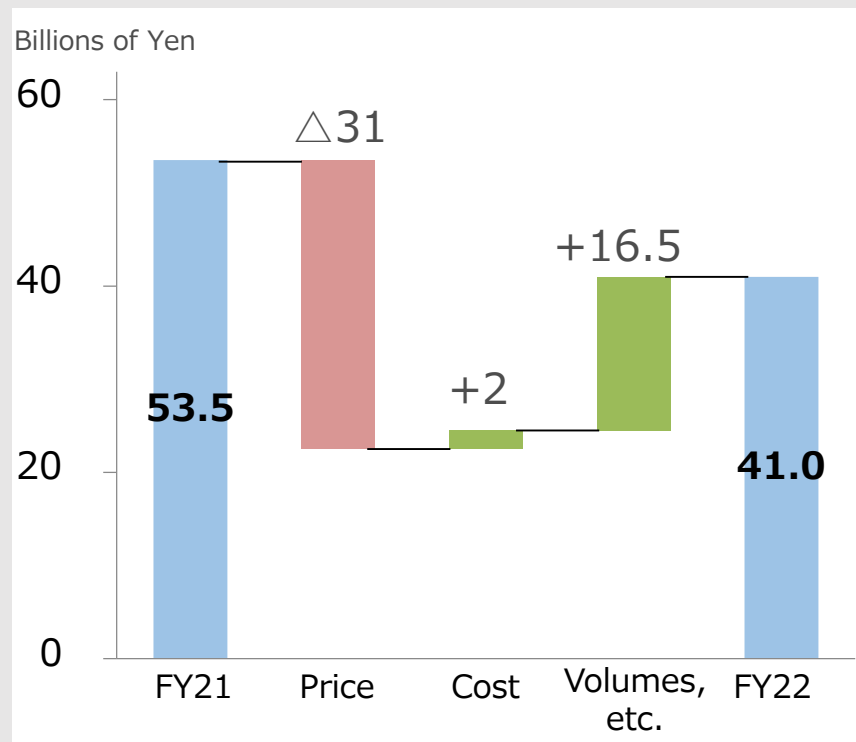
FY2022 Business Performance Forecast

	FY 2021	FY 2022 Forecast	Change
Revenue	2,765.3	3,120.0	+354.7
Core Operating Income	234.8	200.0	-34.8
Essential chemicals& Plastics	53.5	41.0	-12.5
Energy & Functional Materials	20.1	18.0	-2.1
IT-related Chemicals	57.8	61.0	+3.2
Health & Crop Sciences	42.3	47.5	+5.2
Pharmaceuticals	61.7	33.0	-28.7
Others	-0.6	-0.5	+0.1
Operating Income (IFRS)	215.0	180.0	-35.0
Net Income Attributable to Owners of the Parent	162.1	125.0	-37.1
Naphtha price	¥ 56,900/kl	¥ 80,000/kl	
Exchange rate	¥ 112.39/\$	¥ 125.00/\$	

(Billions of yen)

Factors in business performance improvement at Petro Rabigh and volumes recovery from Chiba scheduled maintenance last year, as well as substantially worse margins in synthetic resins

Change in Core Operating Income



41.0 bn. yen (-12.5 bn. yen yoy)

Price difference
-31.0 bn. yen

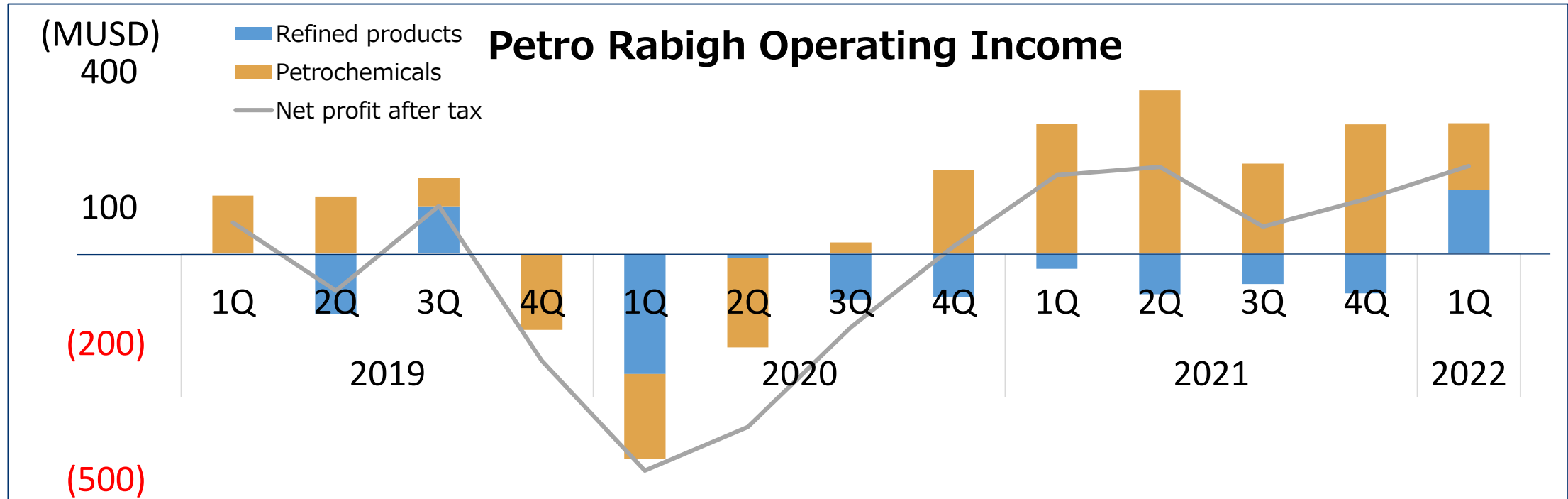
- Deterioration in trade terms and conditions due to low market prices for synthetic resins in the face of higher raw material prices

Cost difference
+2.0 bn. yen

Volumes difference, etc.
+16.5 bn. yen

- Improvement in equity method PL from Petro Rabigh
- Volumes recovery from scheduled maintenance last year at Chiba Works and Singapore

Business performance has recovered since FY21 thanks to stable operations and a recovery in market prices



2022 1Q Actual Net profit after tax : 193 MUSD

Refined products: Turned profitable on margin improvement driven by higher prices for petroleum products

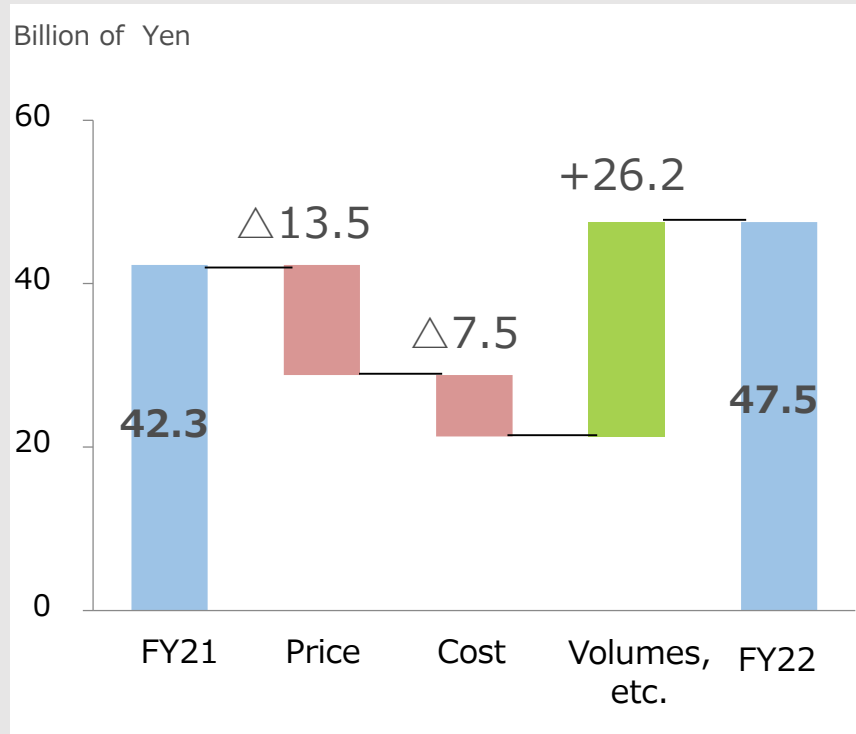
Petrochemicals: Ethane advantage and other factors contributed to maintaining profitability in the face of higher naphtha prices and stagnant market prices.



Cumulative loss eliminated as of the end of 2022 1Q

Profit growth still small as higher raw material prices and increased expenses due to business expansion eat up benefits from weaker yen and expanded sales of INDIFLIN[®] in South America

Change in Core Operating Income



47.5 bn. yen (+5.2 bn. yen yoy)

Price difference
-13.5 bn. yen

- Deterioration in trade terms and conditions on increased raw material prices despite rise in methionine market prices
- Crop protection products also impacted heavily by increased raw material prices

Cost difference
-7.5 bn. yen

- Increased expenses associated with business expansion such as rapid ramp-up of INDIFLIN[®] and new pipeline development expenses

Volumes difference, etc.
+26.2 bn. yen

- Increased shipment volume of crop protection products in North and South America, etc.
- Increased take-away from exports due to weaker yen

Focused on early and rapid ramp-up of B2020 in largest target market, Brazil



Combination of INDIFLIN® with tebuconazole
Combining the two ingredients enables broad anti-fungal spectrum and excellent resistance management
Deploy mainly targeting soybean rust

Early registration

- ✓ Acquire within 4 years of filing for active ingredient registration (normally takes 8 years in Brazil)

Organize production footprint

- ✓ Organize formulation plant in Brazil close to the market

Pre-launch activities

- ✓ Hire and train sales reps
- ✓ Confirm cultivated land performance with public evaluation bodies
- ✓ Marketing leveraging social media, podcasts, etc.
- ✓ Select priority wholesalers and build out direct sales infrastructure for large-scale farms



INDIFLIN® used



Benchmark used

Soybean rust market in Brazil

Soybean planted acreage: **39 million ha**
Acreage with rust : **38 million ha**
Rust market scale : **2 billion USD**
Reference) Japan's acreage: 37.79 million ha

Estimation of INDIFLIN® revenues

- Pursue premium positioning
- Fully leverage B2C sales organization
- Expand formulation manufacturing structure





02

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Recent Topics

- 1. Further improve business portfolio**
- 2. Governance**

Strengthen
businesses
Expand



Agrosolutions business

Complete filing for Rapidicil (new herbicide)

Pharmaceuticals

New plant in Oita for CDMO of small molecule drugs

Carbon neutral

- initiatives for the recycling of resources
- Development of carbon negative resin materials
- Another business selected as a GI Fund Project
- Awarded Grand Prize in the JCIA*Technology Awards

Exit
businesses
Shrink



Exit caprolactam business

(planned for end of October 2022)

Exit dyestuffs business

(planned for end of March 2023)

New potential blockbuster herbicide: Rapidicil®

Complete filing for Rapidicil® (new herbicide)

Features

Rapid effect compared to existing products
Exhibits sufficient effect with low doses

Non-selective herbicide with efficacy against a wide range of broad-leaved weeds and grass weeds

Demand with no-till farming

- Land is not tilled before seeding, thereby avoiding CO₂ emissions that would have resulted from tilling and suppressing the generation and release of CO₂ resulting from the decomposition of organic matter in the soil
- Rapidicil® is optimal as an herbicide for use before crop sowing on no-till farming land covered in weeds thanks to its rapid effect and broad efficacy

Low-dose chemical crop protection

- Supports efforts to comply with agrichemical risk regulations in various countries



In combination with PPO tolerant crops

Non-selective Weed herbicide



Tolerant crops developed by Bayer



- Can also be used during crop emergence. Expect sales to ramp up in full after tolerant crops are launched.

Expect it to grow into global blockbuster

State of the market

Strong demand continues to outsource manufacture of small molecule drugs

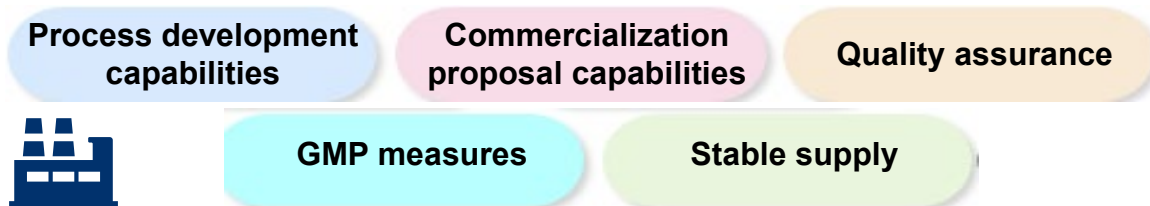
- Growth to continue in diversification of modality and small molecule drugs
- Pharmaceutical companies are concentrating resources on new drug development and sales activities and outsourcing production

Priorities of pharmaceutical companies shifting to stable quality and stable supply

- Quality concerns and supply anxieties are driving production back to Japan

Our strengths

Comprehensive support capabilities of the leading Japanese CDMO in small molecule drugs



Adding capacity at Oita plant to be completed in FY24

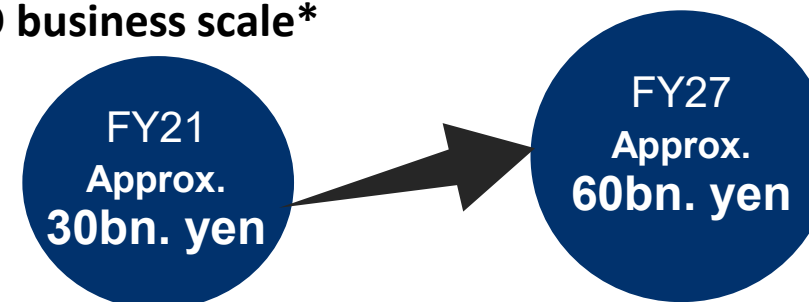
CDMO business pursued by the Sumitomo Chemical Group

Broad lineup from small molecule to regenerative medicine & cell therapy

- Small molecule drugs (contract mfg)
- Small molecule drugs (generics)
- Nucleic acid medicine
- Regenerative medicine and cell therapy products



CDMO business scale*



Substantially grow business scale during the period of the next Corporate Business Plan

Materials recycling

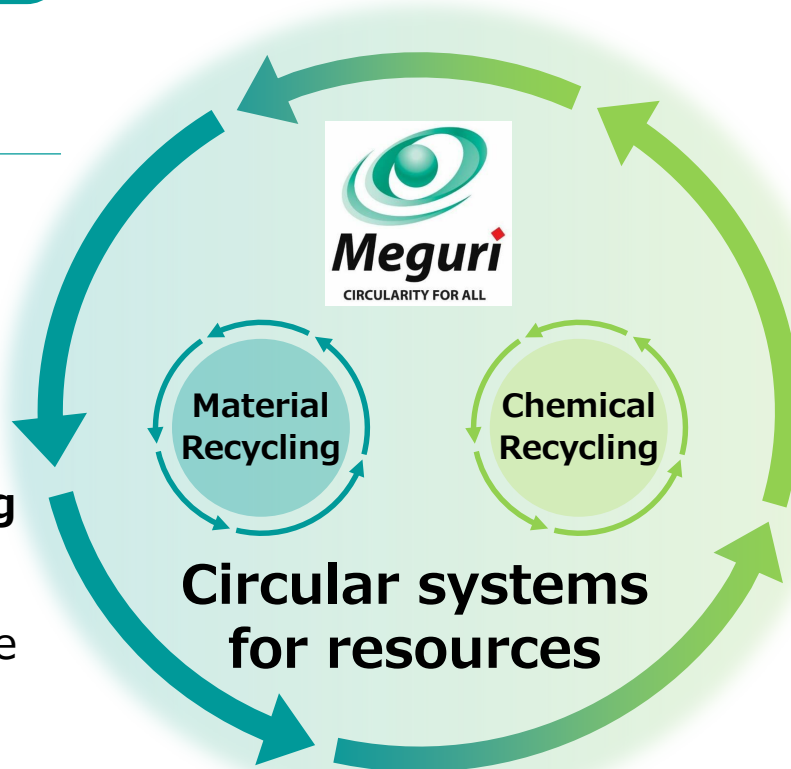
Develop high-rigidity
polyethylene Sumicle

- Contribute to horizontal recycling by unifying resin materials used in packaging

Development of plastics recycling
technology using a special ink

- Use “disappearing ink” to achieve horizontal recycling of printed packaging

(In collaboration with PILOT)



Chemical recycling

Completed test equipment to
manufacture ethylene for
manufacturing polyethylene
derived from ethanol

- Begin delivering samples October 2022
- Aim to commercialize in FY 2025



Test equipment for manufacturing ethylene derived from ethanol

**Accelerate initiatives toward a circular system for resources
to contribute toward achieving a recycling society**

Joint development of **carbon negative** automotive and textile material made from **methane**, which has about 25 times the greenhouse effect of CO₂

Newlight technologies



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✓ Carbon negative PP compounds for automobiles

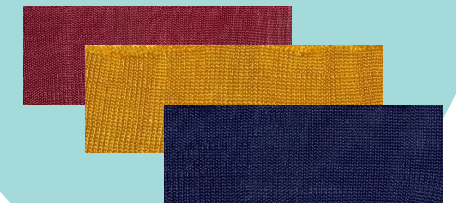
- Using proprietary fermentation technology to manufacture PHA* resin
- Become carbon negative by using recovered methane as a raw material



- Succeeded in challenging compounding of polypropylene and PHA resin
- Provided mostly achromatic PP with chromatic capabilities equivalent to polyester textile



✓ Carbon negative chromatic PP textile material



*polyhydroxybutyrate Product name: AirCarbon

Green Innovation Fund Project

*National Research and Development Agency, New Energy and Industrial Technology Development Organization (NEDO)

A fund launched by NEDO* to provide assistance over a span of up to 10 years from a 2 trillion-yen fund for R&D and validation projects undertaken by companies with ambitious goals aimed at becoming carbon neutral.

Projects already selected that are related to Sumitomo Chemical

Producing olefins through direct cracking of waste plastics

Ethanol production using synthetic gas derived from waste plastics

Efficient alcohol production from CO₂

Olefin production from alcohols

Newly selected projects that are related to Sumitomo Chemical

Cathode-recycling related technology

(In collaboration with JERA)

- ✓ Development of cathode direct recycling technology
- ✓ Development of upcycling technology that raises performance to at least the same level as before recycling

Development and demonstration of a system for separating and capturing CO₂

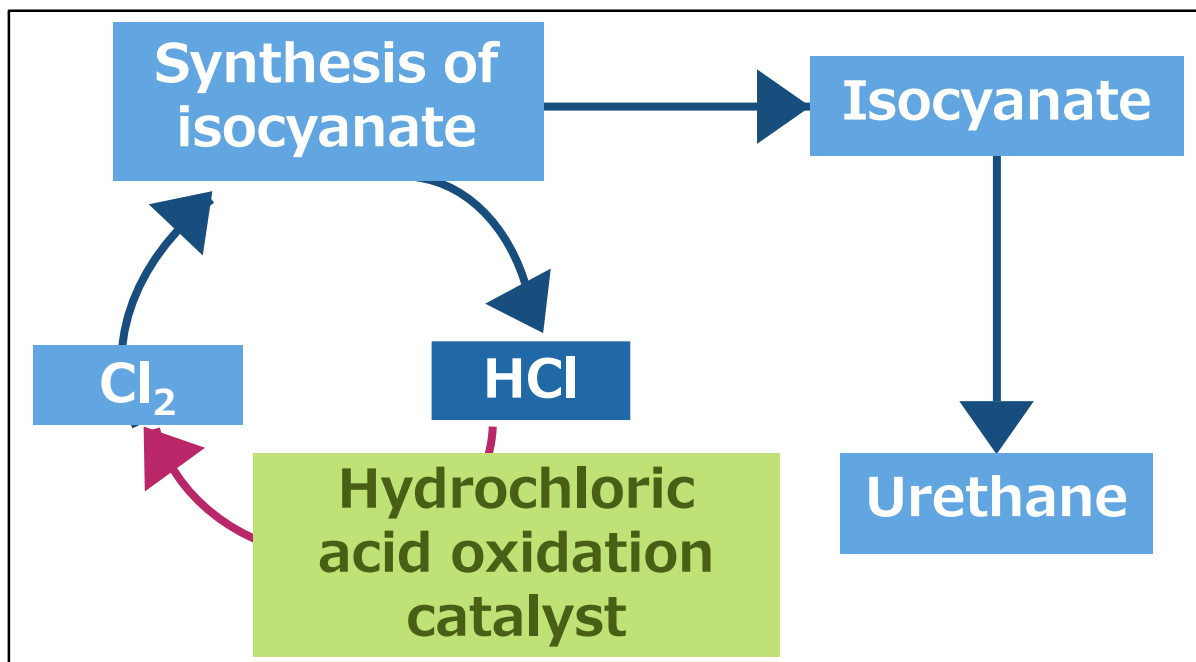
(In collaboration with OYOYO)

- ✓ Through tie-up with OYOYO, aim to develop and demonstrate a system for separating and capturing CO₂ from plant exhaust gas using membrane-based separation

Chasing world-changing innovations to become carbon neutral

Hydrochloric acid oxidation process technology contributes to reducing environmental impact. Awarded Grand Prize in JCIA Technology Awards

Hydrochloric acid oxidation process



Benefits from our technology

Substantially reduces environmental impact by recycling by-product HCl into raw material

Energy consumption

Suppress to **1/15**
or less

GHG emissions

Reduce by **2 million tons**/year
over next several years

(Compared to processes such as electrolysis)

Past awards received FY2003: Development and commercialization of ammonium sulfate-free caprolactam process

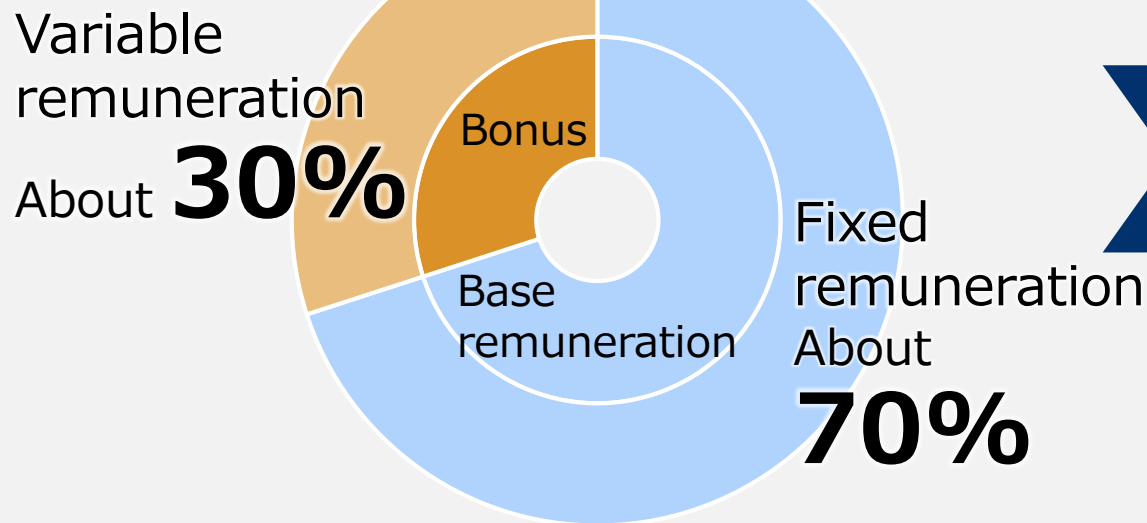
FY2019: Development and commercialization of a process for manufacturing propylene oxide (PO) using cumene, which has low environmental impact and is free from co-products

Introduced restricted stock as part of executive compensation

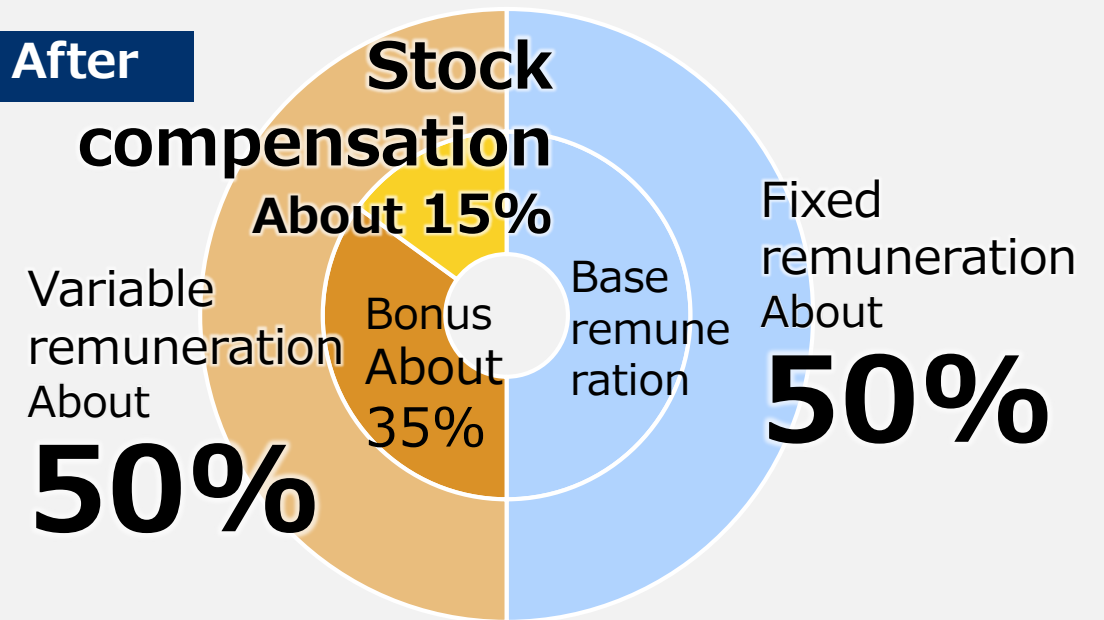
- Changes ratio of fixed vs. variable remuneration to 1:1 from 7:3
- Variable remuneration designed to a ratio of 7:3 short-term incentive (bonus) vs. mid- to long-term incentive (stock compensation)

Makeup of compensation upon achievement of business performance targets under the Corporate Business Plan

Before



After



Share value with shareholders and investors and aim to achieve sustainable enhancement of enterprise value



Reference Materials

What was a recovering global economy is now experiencing increasing turbulence from the outbreak and protraction of the war in Ukraine

FY 2021

Reopening of economic activities with vaccination

Economic activity sparked by fiscal and monetary measures

Acceleration of DX and trends toward carbon neutral

Prolonged tensions between US and China

Supply chain disruptions

Inflation risk



FY 2022

Full-on economic recovery from COVID-19

Weaker yen

Prolonged tensions between US and China

Break out and protraction of the war in Ukraine

More expensive energy and materials

Intensification of supply chain disruptions

- Revised down on impact from COVID-19 and Ukraine war
- Further revisions possible depending on direction of Ukraine war

IMF World Economy Growth Rate*

2021
5.9%

2022
4.4% → 3.6%

US 5.7%

Europe 5.3%

China 8.1%

4.0% → 3.7%

3.9% → 2.8%

4.8% → 4.4%



*Source: World Economic Outlook Database: April 2022 (released April 21). 2022 version previously released January 2022.

	Field	Outlook for FY 2022
Petrochemical & Plastics	Market prices for crude oil and naphtha	Prices remain high for crude oil and naphtha due to supply anxieties associated with economic sanctions on Russia. Business performance strong as Rabigh ethane advantage expands However, energy costs are up due to high raw materials & utilities costs
	Supply & demand and market prices (PE, PP, MMA)	Market prices down on increased supply mainly from new Chinese plants Weak demand due to uncertainties about the economic outlook
Automobiles	Global automobile production volumes	2021: About 76 million vehicles --> 2022: About 81 million The worst is behind us. But still not back to pre-COVID levels due to prolonged semiconductor shortages and the Ukraine war. (2019: About 89 million vehicles)
Displays	TV panel trends	TV demand mostly flat as stay-at-home demand runs out of steam TV panels are trending to larger sizes and prices are falling Polarizer competition intensifying with the emergence of Chinese rivals
	Smartphone demand	Smartphone demand mostly flat overall Meanwhile, the shift to OLED progresses

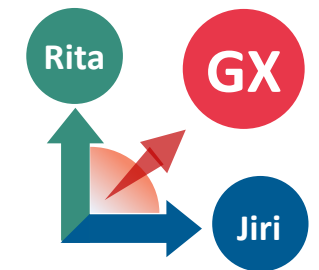
	Field	Outlook for FY 2022
Semiconductor	Semiconductor demand	Market expansion continues on greater demand for data centers, full-scale penetration of 5G telecommunications, automotive electronics, etc. (Semiconductor market: 2021 \$553.0B --> 2022 \$601.5B)
Agrosolutions business	North America	Planted acreage expanding as in-channel inventories deplete. However, the environment is harsh due to competition from generics (US planted acreage: 2021 87.2 --> 2022 91.0 million acres)
	Brazil	Exports strong on rising prices for grains and weaker Real Planted acreage growing
	India	Demand is trending strongly in the absence of any particular weather events
Methionine	Methionine market prices	Strong demand and rising prices for raw materials & utilities costs providing bottom support for market prices However, costs are rising, too.
Pharma	Trends in major products	Lower sales of Latuda in North America due to loss of exclusivity Booked lump sum for Ulotaront license in the previous fiscal year Post-launch ramp up of Roivant products is the most crucial point

* Sources: WSTS (March 18, 2022) for the semiconductor market and United States Department of Agriculture (March, 31, 2022) for US planted acreage.

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Section.2 IT-related Chemicals Sector



Today's Agenda

01 Business Overview

02 Review of the Former Business Plan

03 New Business Plan : Business Environment

: Basic Direction

: Major Action Plan

04 Long-term Target toward the Late 2020s

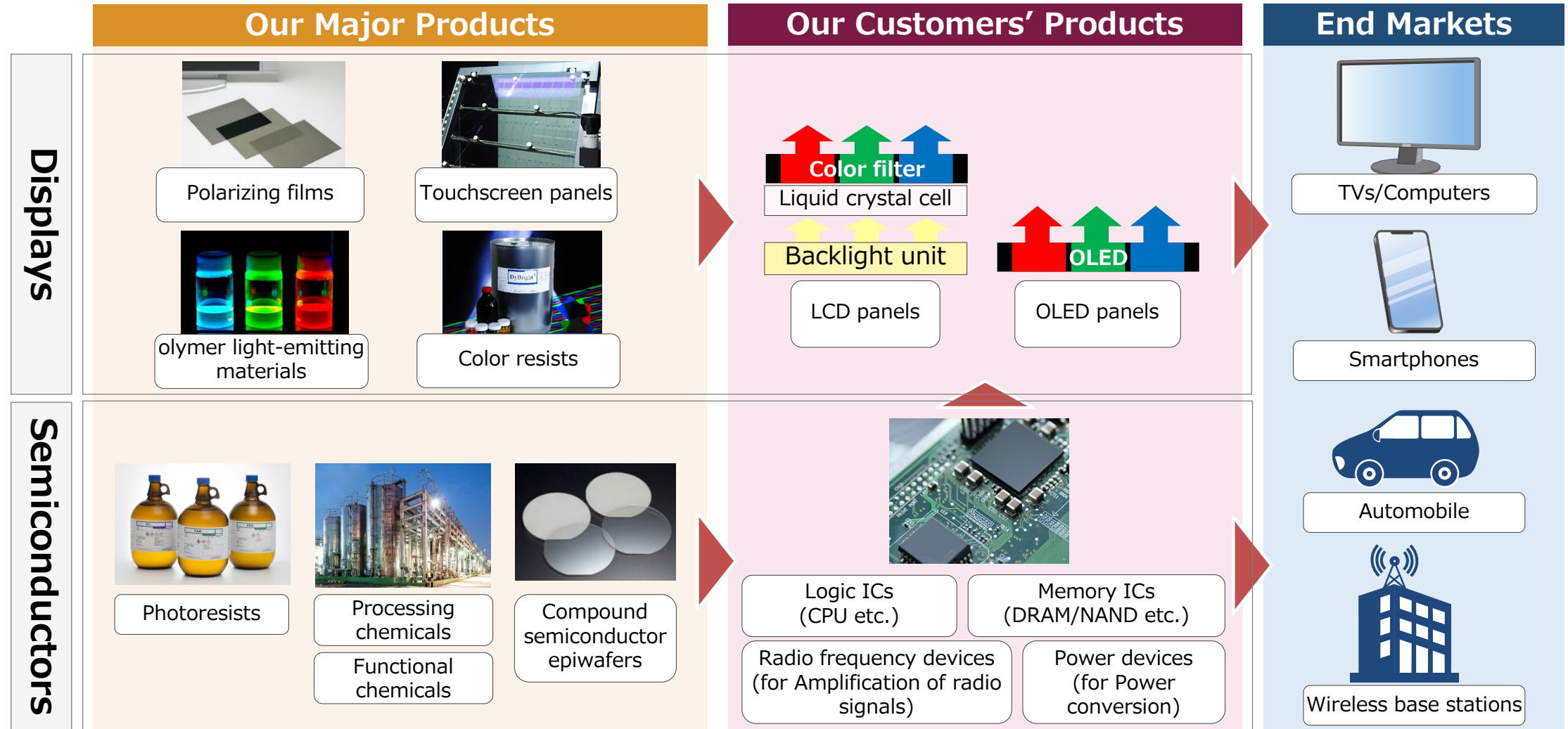


01

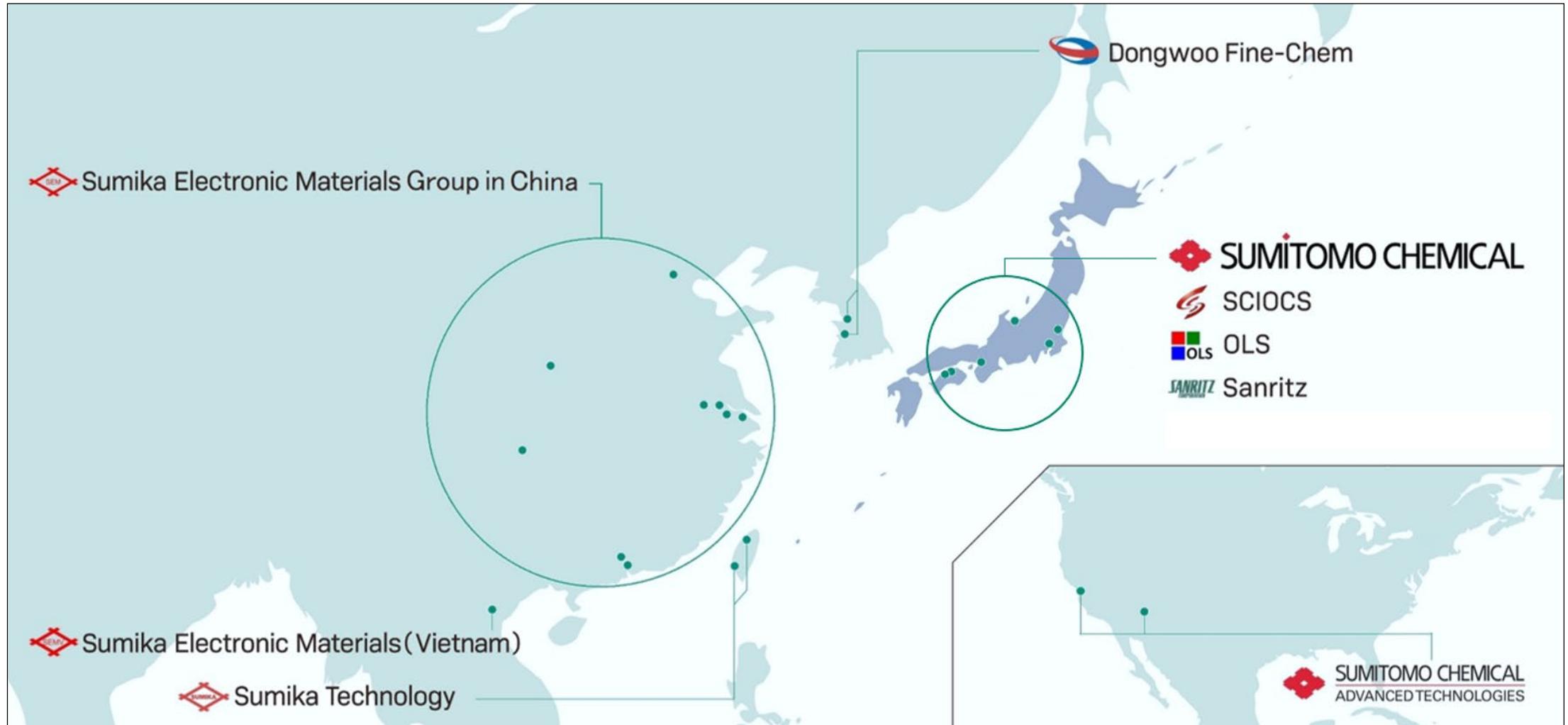
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Business Overview

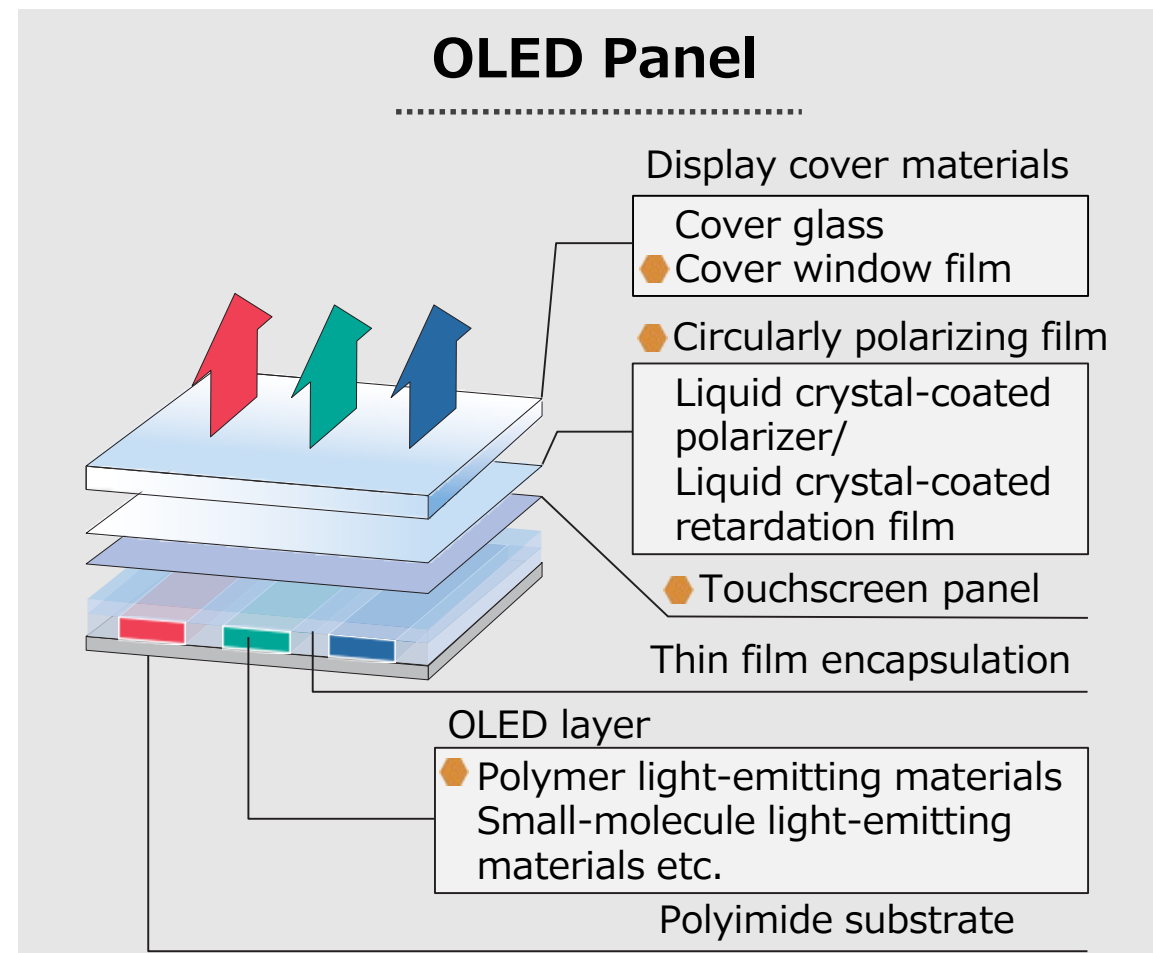
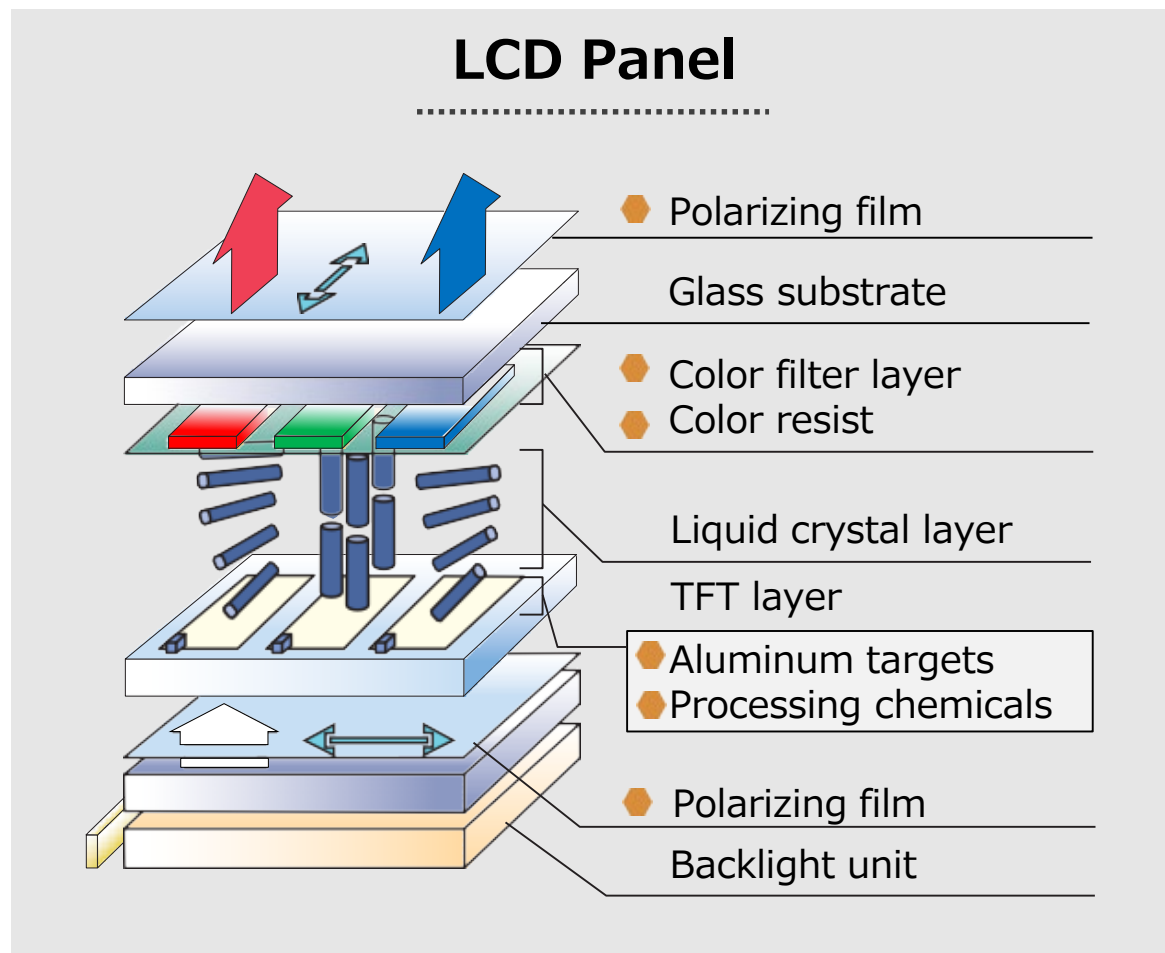
- Developing business primarily in both display-related and semiconductor-related materials



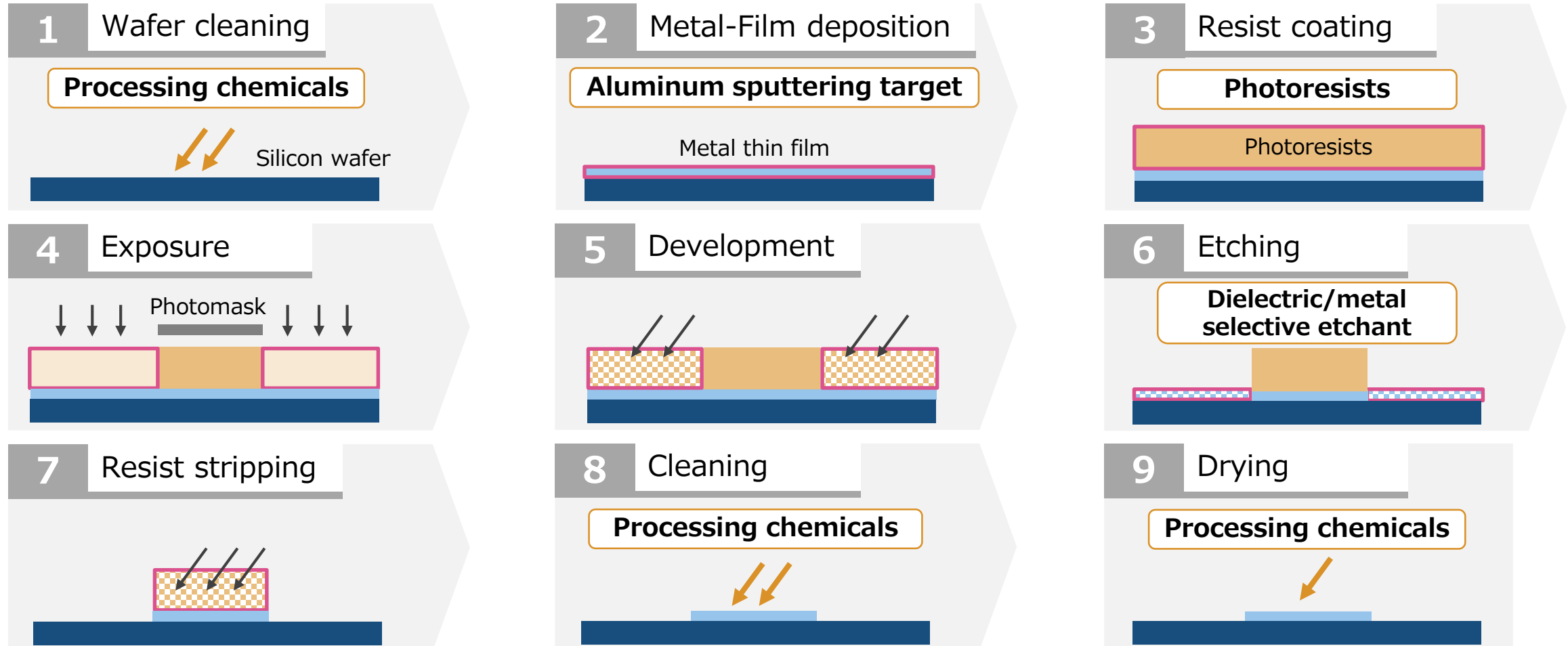
- Building a business network centered in East Asia, an area with a high concentration of display-related and semiconductor-related industries



- Contribute to creating displays with outstanding portability, visibility and operability
- Deliver high-value-added products by combining our material development capabilities with our optimization technology



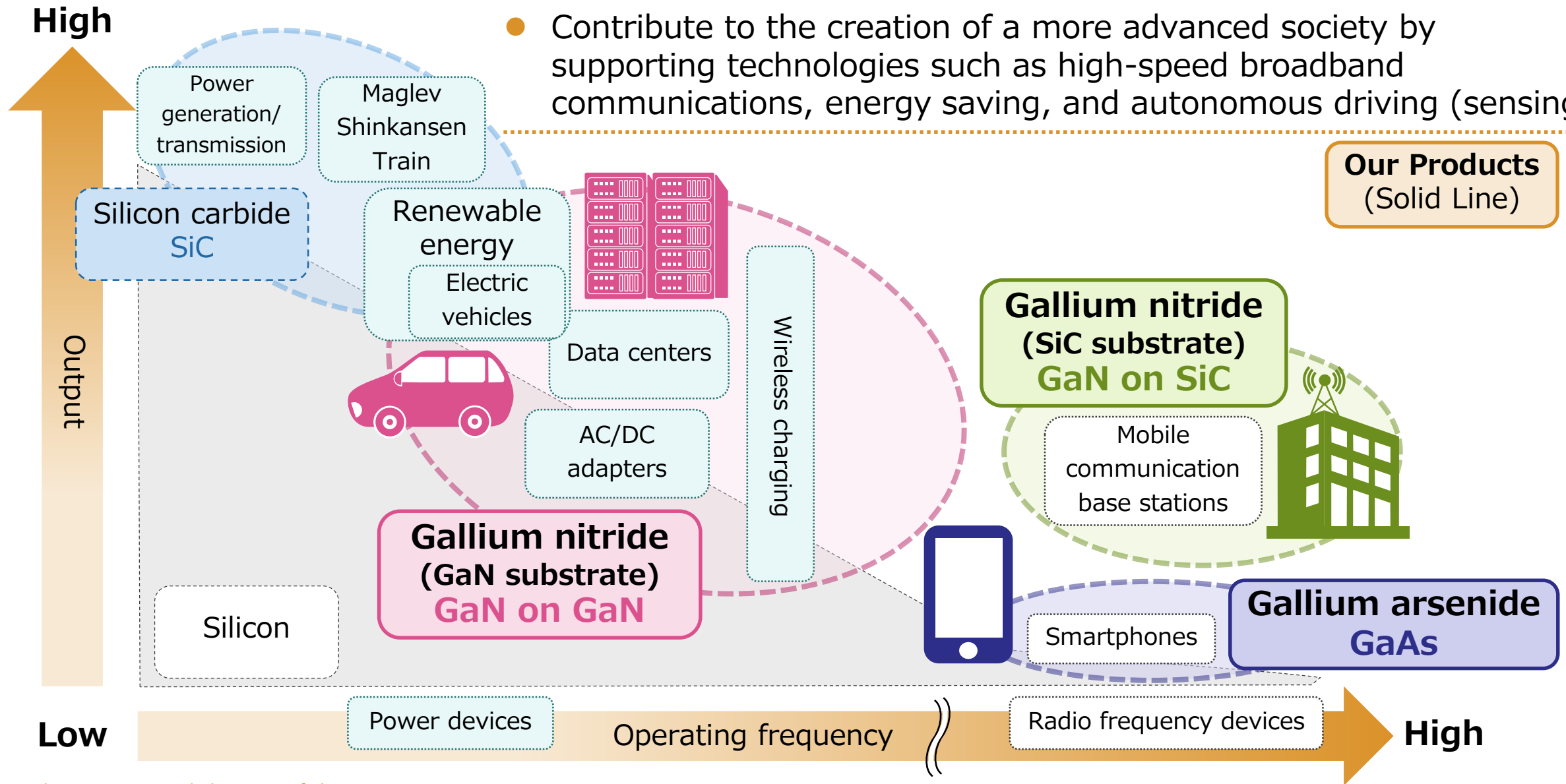
- Contribute to the continuous evolution of microfabrication technology with super high-quality chemicals



Our products

* In addition to the products illustrated above, also providing cleaner for back grinding process of silicon wafers

- Contribute to the creation of a more advanced society by supporting technologies such as high-speed broadband communications, energy saving, and autonomous driving (sensing)





02

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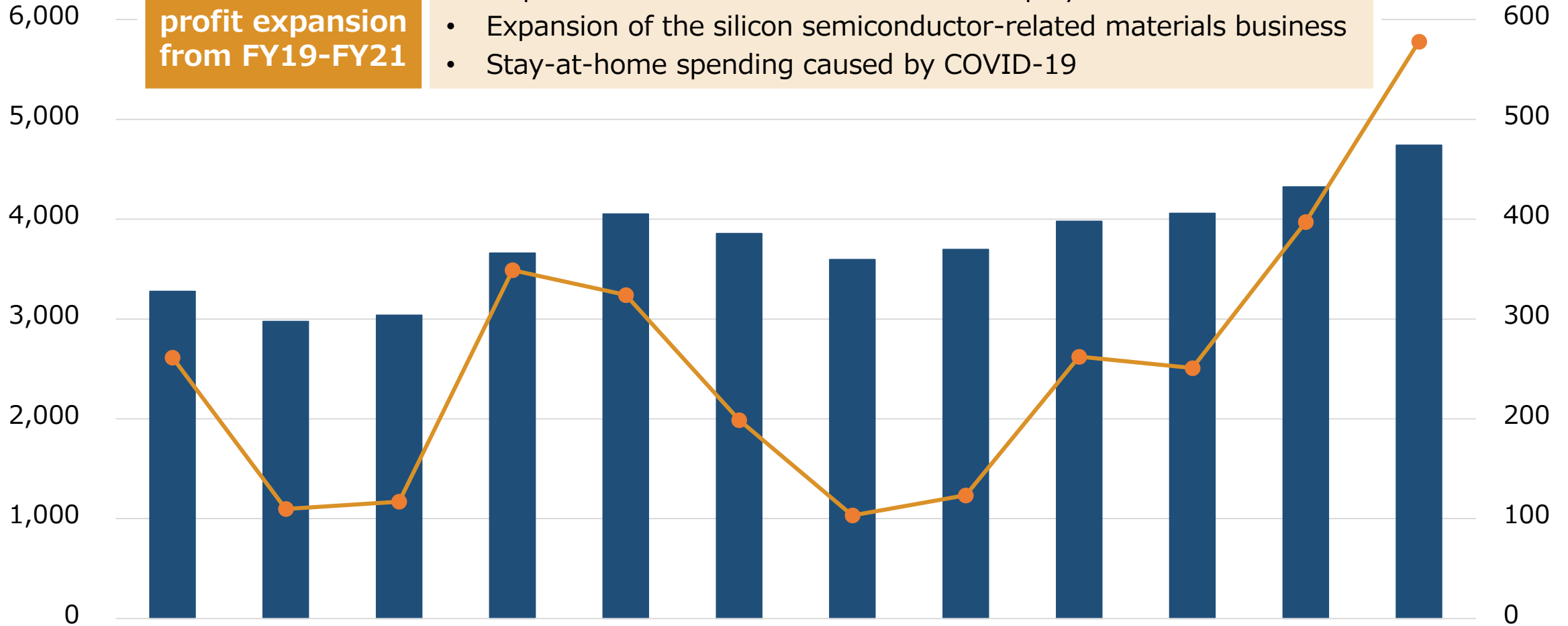
Review of the Former Business Plan

(100 millions of yen)

(100 millions of yen)

Main factors of profit expansion from FY19-FY21

- Improvement in business structure of display-related materials
- Expansion of the silicon semiconductor-related materials business
- Stay-at-home spending caused by COVID-19



■ Net Sales/Sales Revenue (Left Axis)

● Operating Income/Core Operating Income (Right Axis)

Core Operating Income (100 Millions of Yen)	FY2021		FY2019-FY2021 Total	
	Business Plan	Financial Results	Business Plan	Financial Results
Segment Total	350	578	910	1,226

➔ On top of securing business profit, invested considerable business resources in promising areas

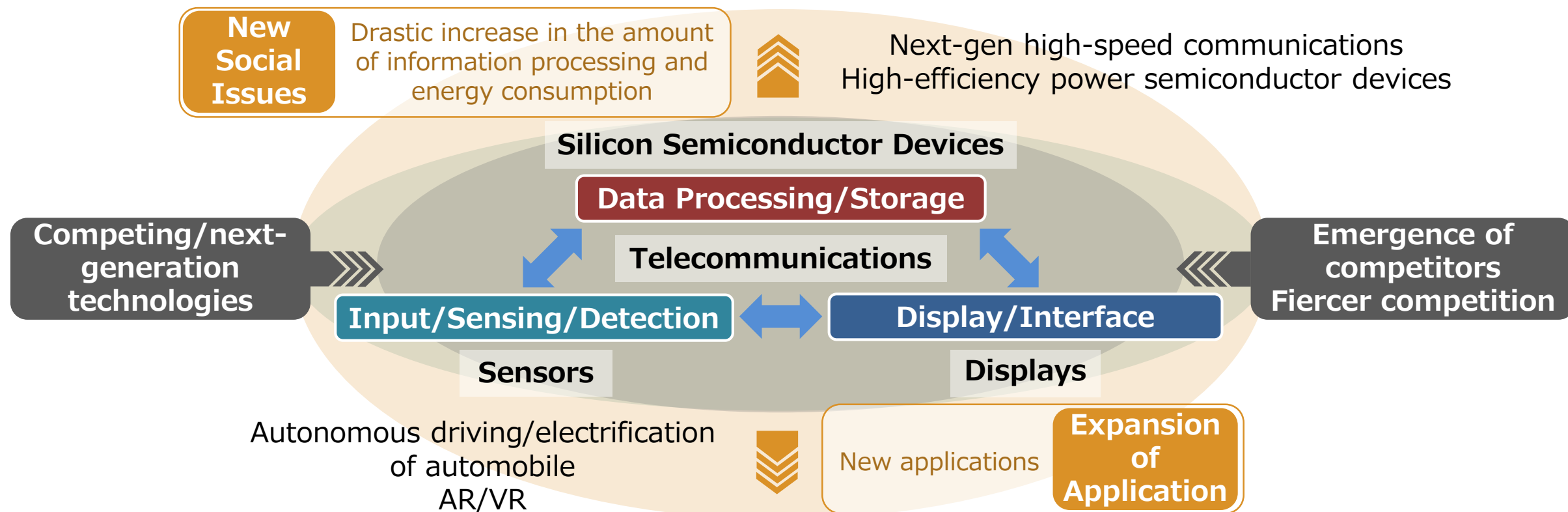
	Achievements in FY19-FY21	Challenges remaining
Polarizing Films	<ul style="list-style-type: none"> ➤ Improved product portfolio <ul style="list-style-type: none"> ✓ Secured high market share for OLED smartphones ✓ Accelerated business development in the automotive field by making SANRITZ a subsidiary 	<ul style="list-style-type: none"> • Refine key materials developed in-house • Improve competitiveness drastically by the smartification of production, quality and supply-chain management
Silicon Semiconductor-related Materials	<ul style="list-style-type: none"> ➤ Developed cutting-edge products and expanded the global business system <ul style="list-style-type: none"> ✓ Started mass-production of EUV photoresists ✓ Enhanced the development and evaluation system of photoresists for cutting-edge processes ✓ Expanded production capacity globally 	<ul style="list-style-type: none"> • Realize resilient global supply-chain in consideration of policies for economic security of each country/region and various sorts of risks
Compound Semiconductor-related Materials	<ul style="list-style-type: none"> ➤ Established the key production technologies of GaN substrates for next-gen power devices <ul style="list-style-type: none"> ✓ Decided to introduce the demonstration facilities for high through-put process of large-sized GaN substrates 	<ul style="list-style-type: none"> • Develop business in the fields of sensor, telecommunication and power semiconductor devices



03

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New Business Plan : Business Environment



Displays

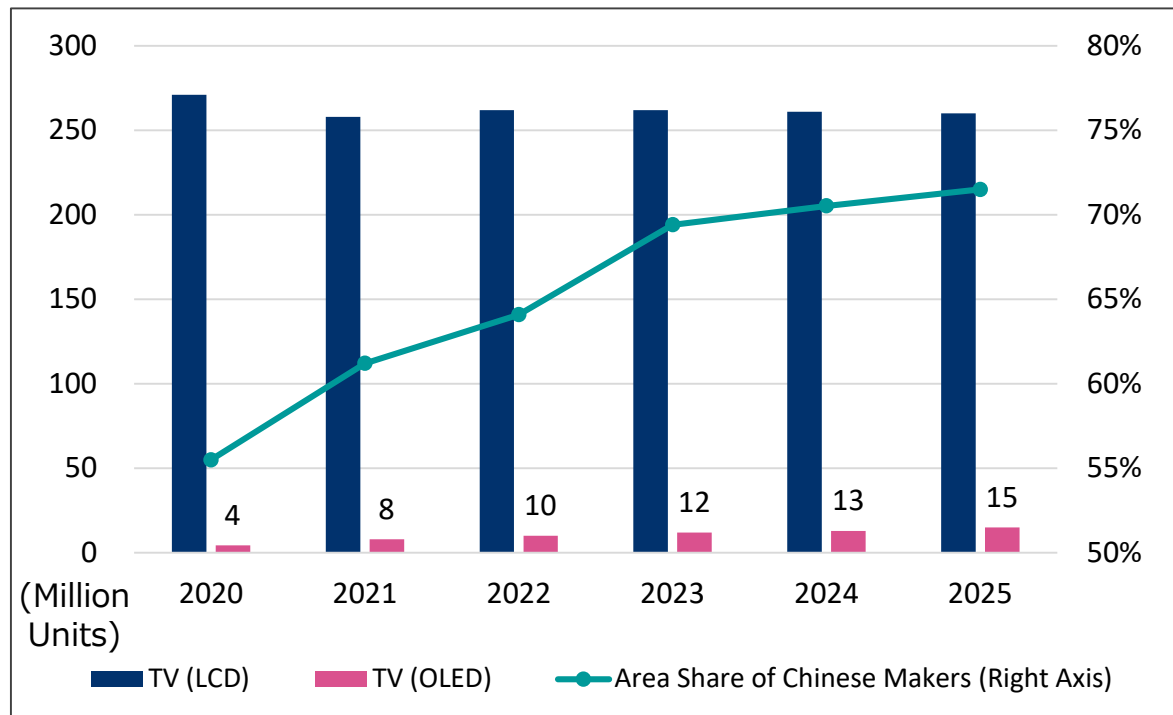
Silicon Semiconductors

New Materials

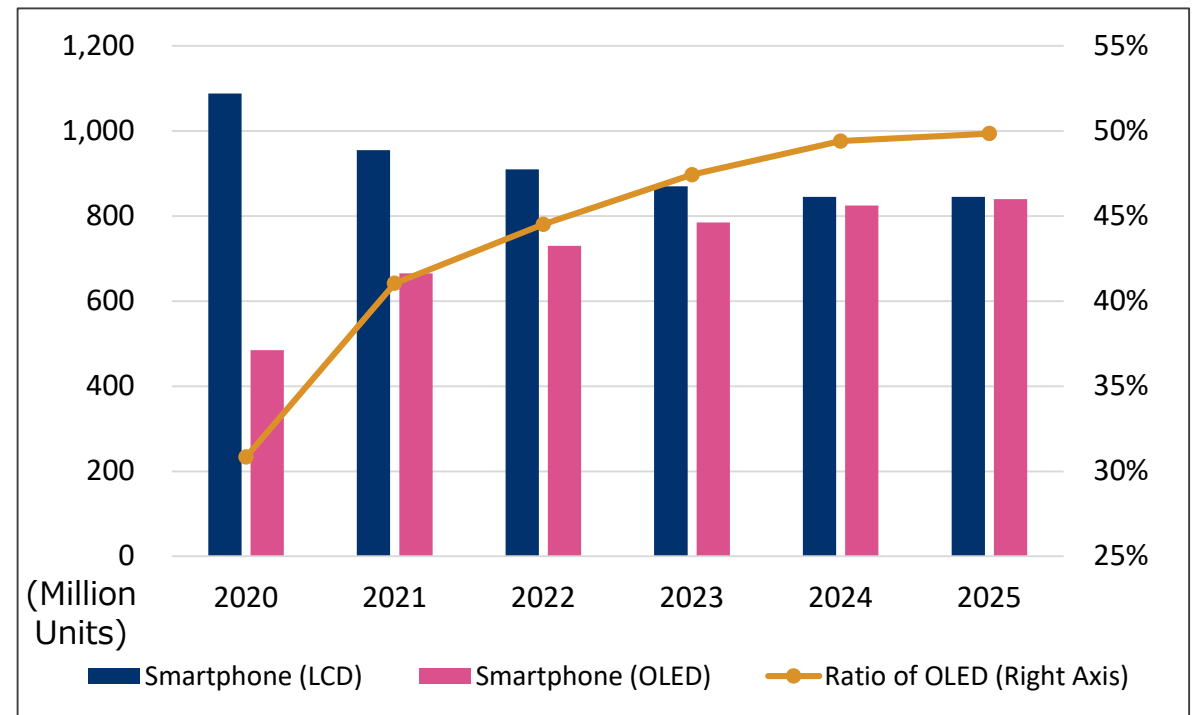
- Aggressive capacity expansion of LCD-related materials by Chinese suppliers will intensify competition in the LCD market. Next-gen displays emerge in the coming years.
- Steady market growth will continue. Line-width shrinking and multilayer structure become increasingly prevalent.
- As next-gen high-speed communications or autonomous driving comes in, needs for higher-performance materials will emerge.

- **TV** : Surface area demand continuously increases by 3% to 4% per year as the average size of TV increases.
- **Smart-phone** : Steady demand for high-end smartphones (from North American maker) and the growing adoption of OLED panels by Chinese phone makers contribute to **continuous increase of OLED ratio**.

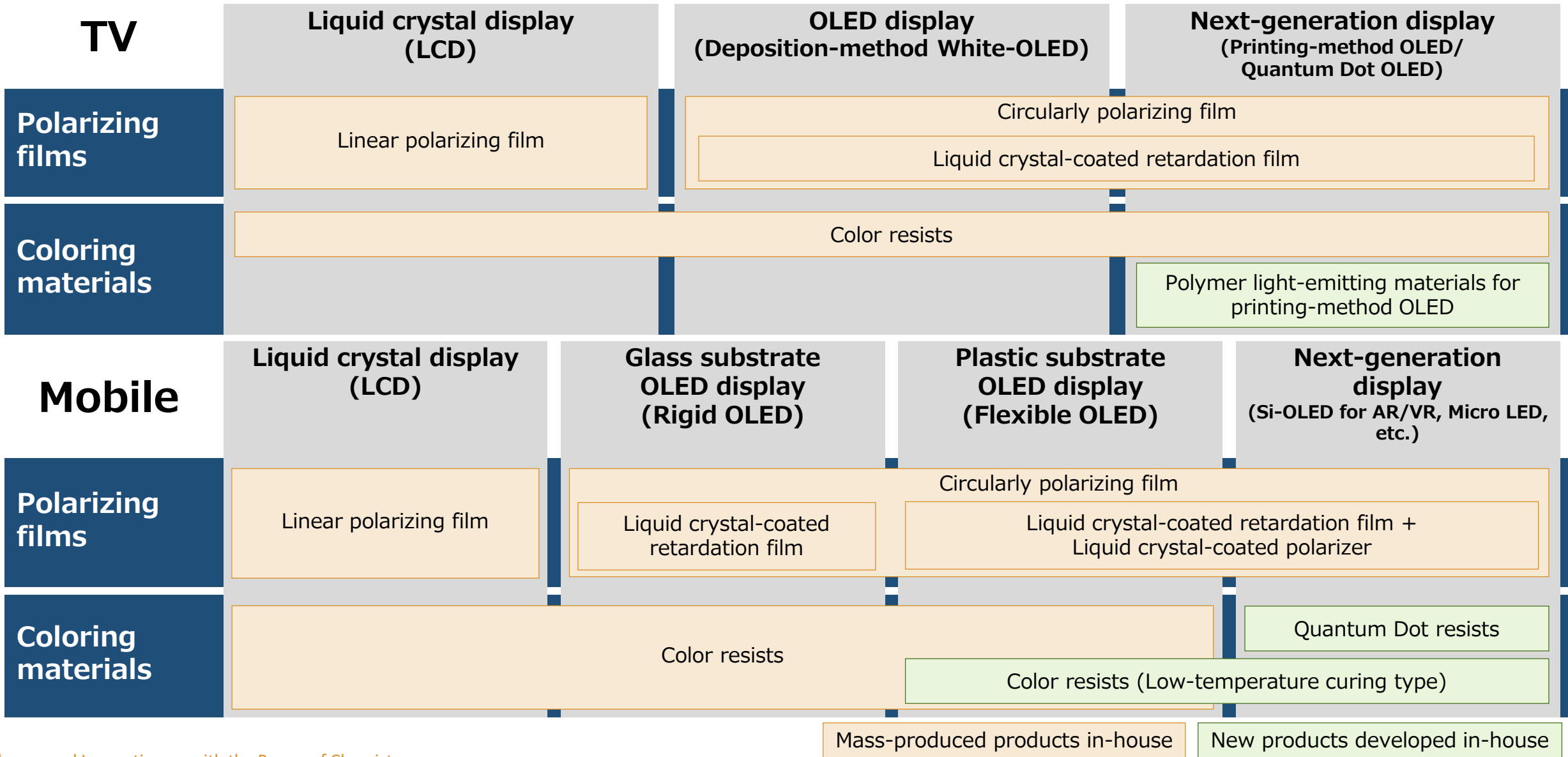
TV Display Panel Shipments



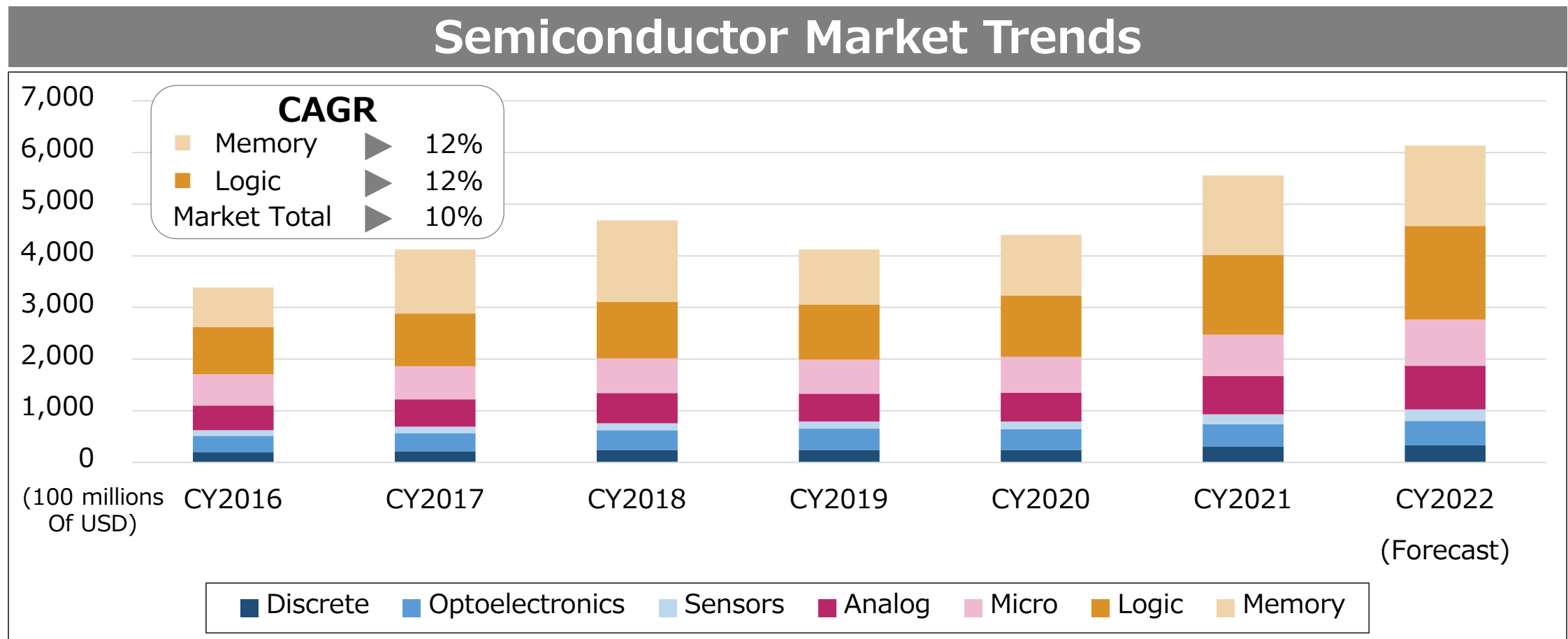
Smartphone Display Panel Shipments



*Market data shown above doesn't fully incorporate recent drastic changes to the economy. (Source: Sumitomo Chemical)

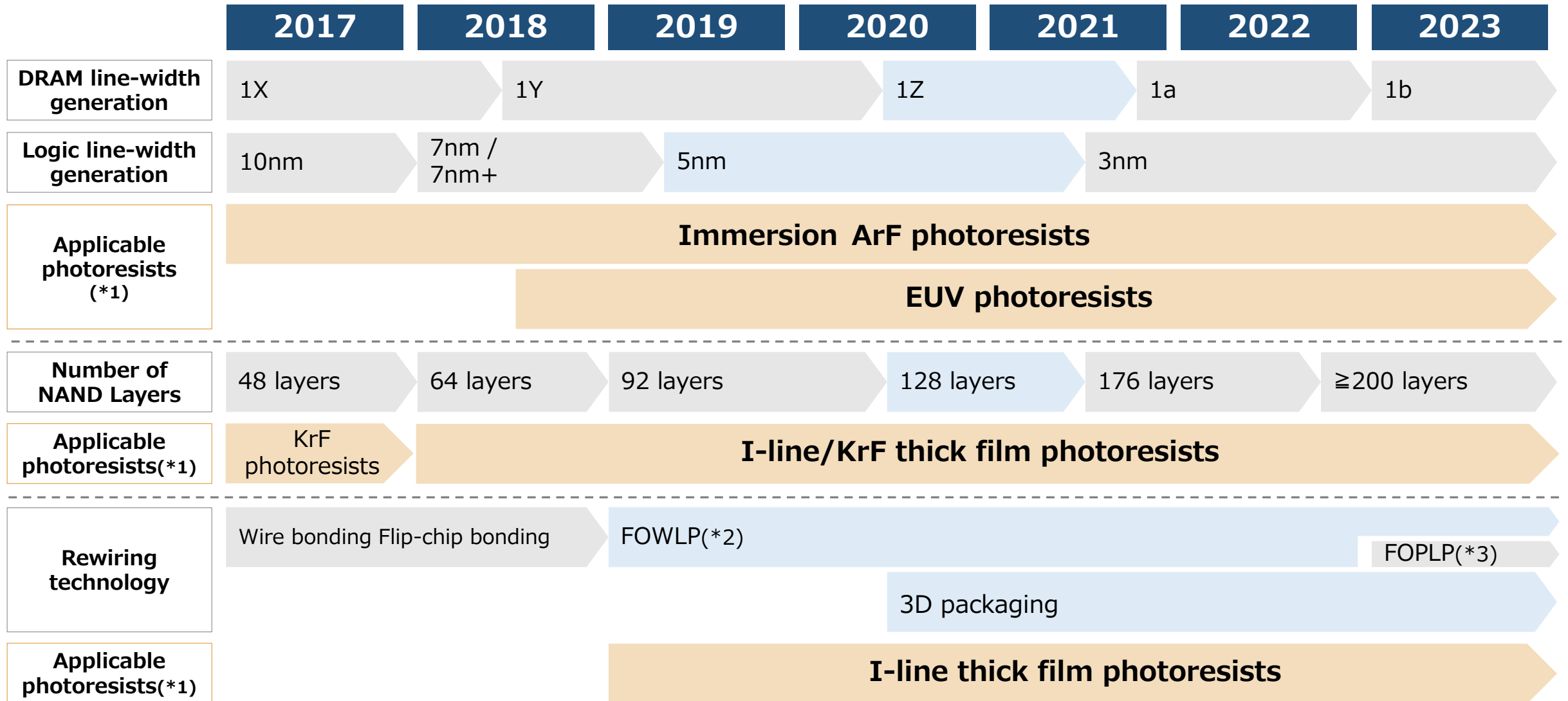


- Demand for semiconductor devices is expected to steadily expand for the coming several years in the context of increasing CAPEX of data centers to accommodate DX, full-fledged deployment of 5G communications, growth of metaverse-related devices, and rebound of automobile market alongside electrification and/or autonomous driving



(Source: WSTS Semiconductor Market Forecast in March 2022/November 2021)

Business Environment: Semiconductor Cutting-edge Technology Trends and our Major Photoresists



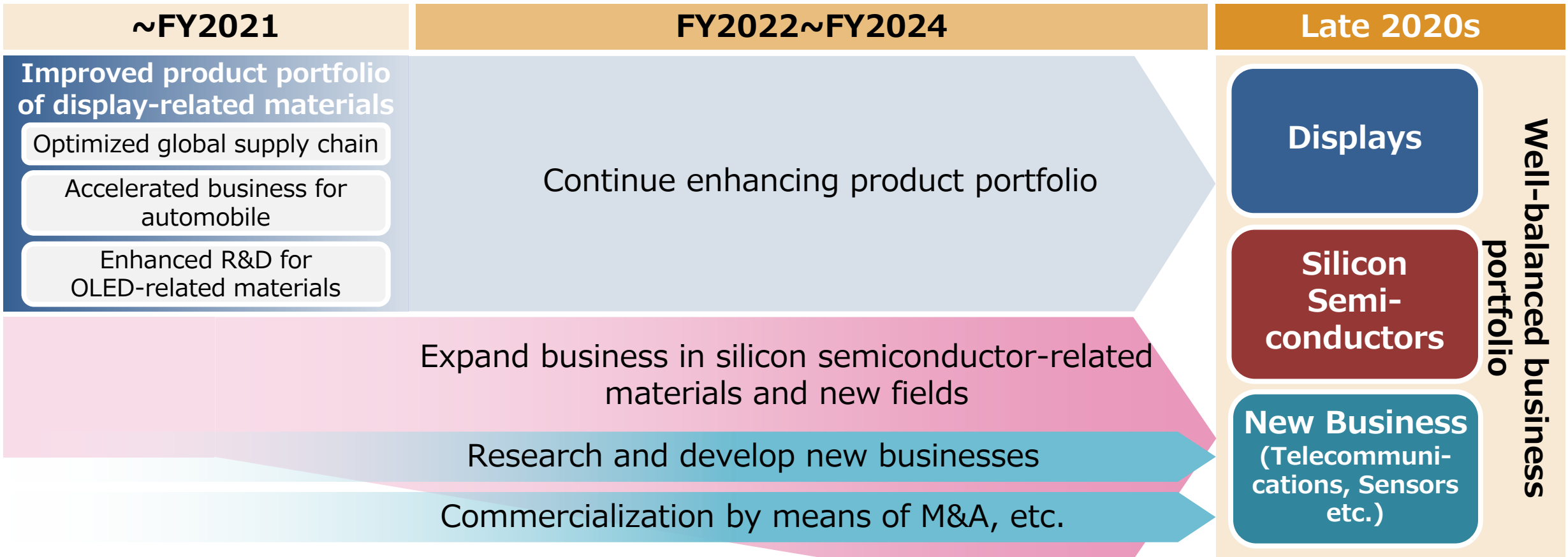
*1 "Applicable photoresists" rows include the period in which we provide sample products

*2 Fan Out Wafer Level Package *3 Fan Out Panel Level Package

Basic Direction: Improvement of Business Portfolio

Long-term Target and Basic Direction

- In parallel with **further focusing on high-end products in the display and silicon semiconductor-related materials businesses**, we will establish **the third business** such as telecommunication or sensor-related materials by the late 2020s.
- We are tackling action plans to achieve this target from FY22 to FY24.



Basic Direction for the Business Fields

Display-related Materials

Maintain competitive edge by leveraging our own core technologies

- ✓ Secure market share in existing high-end products
- ✓ Capture demand for materials for next-generation displays
- ✓ Continue restructuring of uncompetitive LCD-related materials

Silicon Semiconductor-related Materials

Acquire business opportunities in response to market expansion

- ✓ Securely capture growing demand
- ✓ Develop products that contribute to innovations in customer processes

New Business

Create new businesses for the next generation

- ✓ Launch next-gen power device materials business and contribute to evolution in energy saving technologies
- ✓ Establish business in materials related to telecommunications and sensors, etc.

● Change of Business Environment

FY2020~FY2021

- Stay-at-home spending
- Secured high share of OLED-related materials



FY2022~FY2024

- End of stay-at-home spending
- LCD panel market shifting to China accelerates
- The new production lines of Chinese polarizing film manufacturers go live one after another

**Fiercer
Competition**

● Common Action Plan

**Keep a constant level of profit to avoid fluctuation
in terms of the total profit of IT-related Chemicals Sector**

1. Further refine our own core technologies

- Differentiate our products by upgrading quality and competitiveness of key materials developed in-house

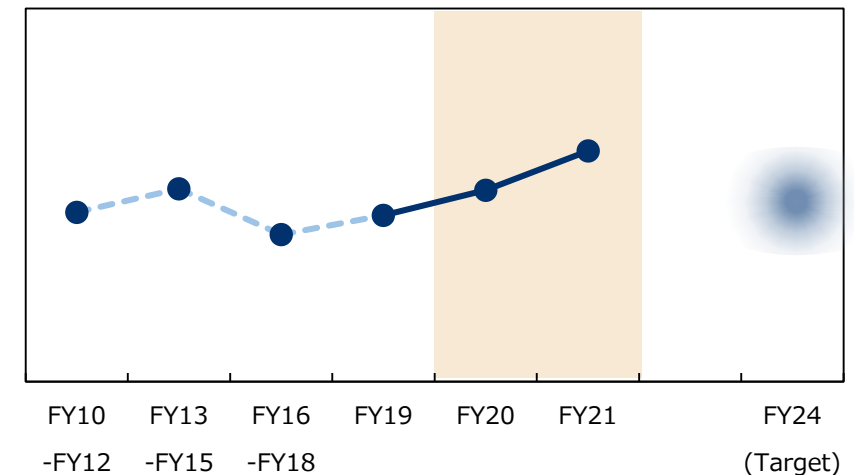
2. Enhance product portfolio

- Focus on high-end TVs, OLED smartphones, automobile and next-generation displays with the differentiated materials and quality

3. Continue restructuring of uncompetitive LCD-related products

- Downsize the existing product lines and improve the efficiency of R&D

Display-related Materials Business Operating Income Margin



● Action Plan

Differentiation by technologies and quality and thorough improvement of efficiency

High-end TVs

- **LCD:** Focus on polarizing films for super large-sized TVs which demand especially superior quality
- **OLED:** Secure high market share by improving our liquid crystal-coated retardation film

OLED Smartphones

- Maintain high market share by leveraging variety of our products with a number of liquid crystal-coated retardation films produced in-house and procured from outside

Auto-mobile

- Expand business with our high-durability and wide viewing angle polarizing films

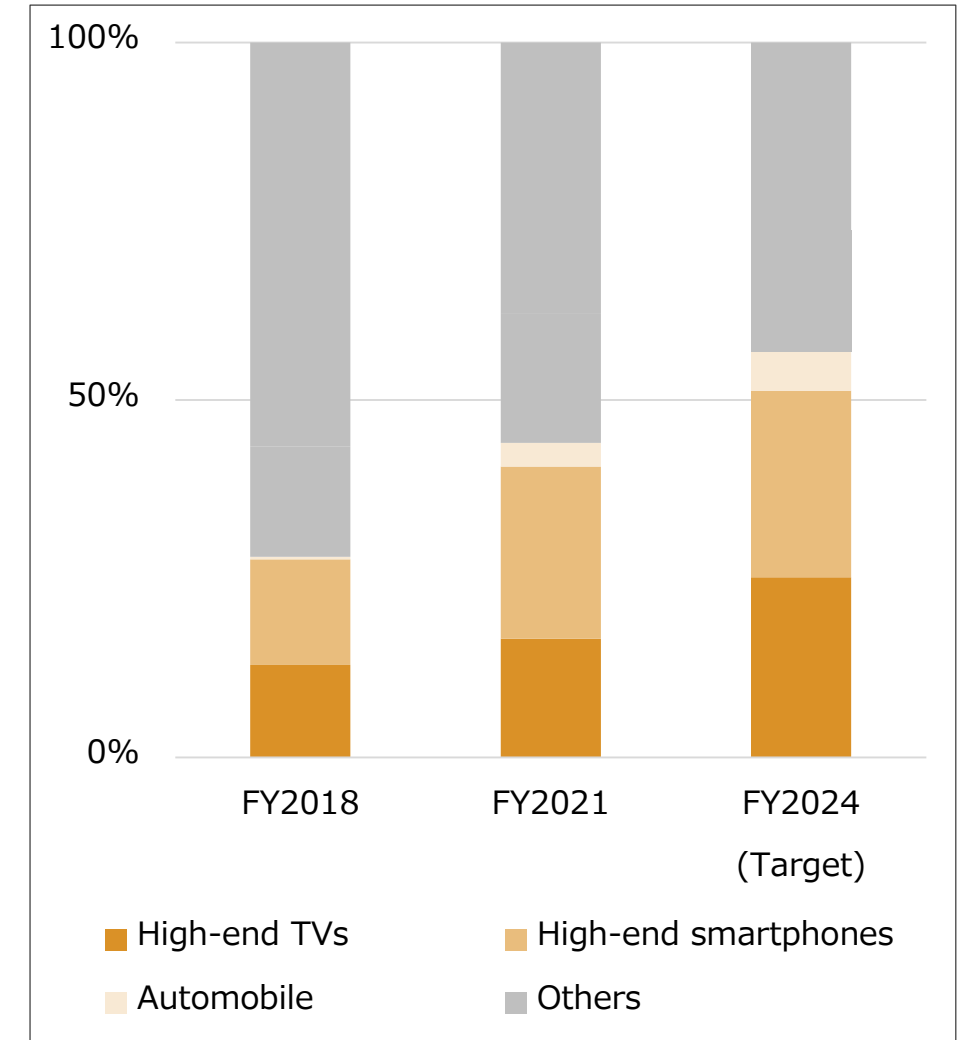
Others

- Capture demand for high-end notebook PCs and monitors

Management

- Thorough reduction of down-time and quality issues by introducing advanced management methods for production and supply chain

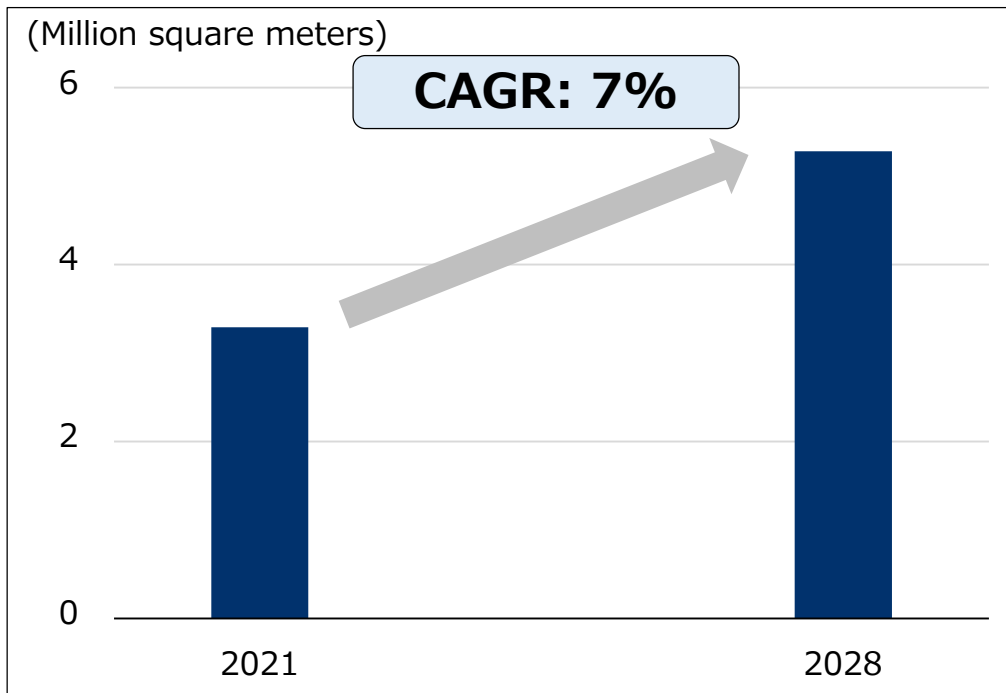
● Product Mix of Polarizing Films



● Market Expansion of Displays for Automobile

- The market will expand in line with cars equipped with autonomous driving and/or mobile communication systems increasing

Area of Displays for Automobile (Forecast)



(Source: Omdia, Display Long-term Forecast Tracker 3Q2021)

● Characteristics of our Products

- Provide features contributing to driving safety and conforming to advanced mobility design



Contribution to driving safety

High durability

Wide viewing angle

Suitable for variety of designs

Large Displays

Flexible form processing

● Major Progress

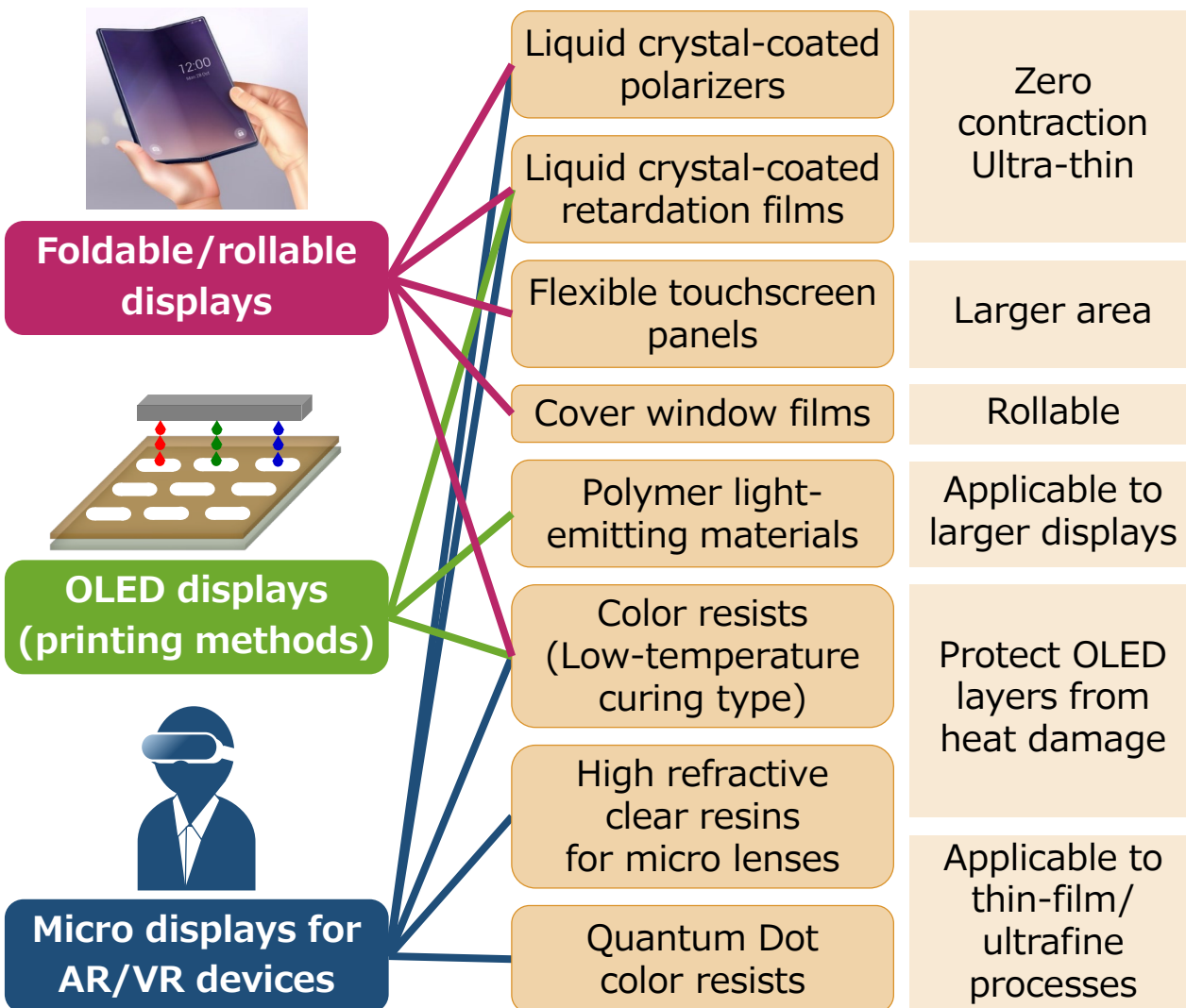
- Sales of products **doubled** from FY19 to FY21
- Almost finished the development of products conforming to the next-gen specs (see below). Start providing samples in FY2022

● Action Plan

Improve properties of products and expand business

- Improve durability and widen viewing angle to conform to the next-generation European specifications for automobile displays expected to be applicable from 2024 to 2025, and develop business further in this field

● Next-generation Displays and our Materials



● Our Strengths

- **Material development capabilities** cultivated as a diversified chemical manufacturer such as organic synthesis or optical design
- Capabilities to **suggest combinations of our materials** for better results or **provide solutions**

● Major Progress

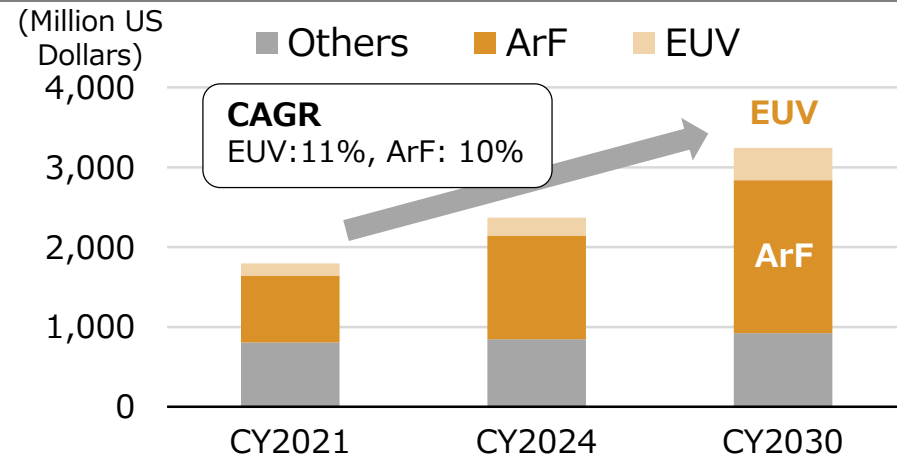
- Sales of products incorporating liquid crystal-coated films developed in-house **doubled** from FY19 to FY21
- Started to supply polymer light-emitting materials for the mass-production of OLED displays
- Carrying out developments for ultra-narrow bezel OLED displays or lenses of AR/VR glasses, etc. with special properties of liquid crystal-coated optical films

● Action Plan

Develop and suggest materials to be required by customers seeking advanced technologies

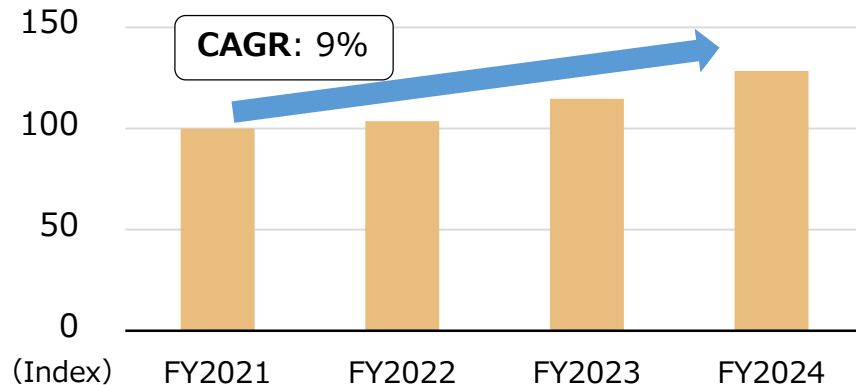
- **Multidimensional approach** based on our wide variety of core technologies
- **Make our materials the de facto standard** by providing them from the first stage of customers' R&D

Photoresist market by light source (Forecast)



(Source: Fuji Keizai Co., Ltd. "Future Perspective and Reality of Semiconductor Materials Market 2020" for 2021/2024, Sumitomo Chemical estimates for 2030)

Sumitomo Chemical's Sales of Processing Chemicals for Semiconductors (Target)



Major Progress

- Decided to expand development and evaluation equipment at the Osaka Works, which were originally decided to introduce in 2020, in order to respond to market demand exceeding the original forecast
- Organized global taskforce to develop and sell functional chemicals

Action Plan

Photoresists

Strengthen development of photoresists for next-generation EUV lithography process

- Reinforce our R&D systems and maximize use of the newest evaluation equipment

Establish resilient global supply-chain

- In consideration of policies for economic security of each country/region and various sorts of risks

High purity chemicals

Expand supply capacity in a timely manner in an area adjacent to customers

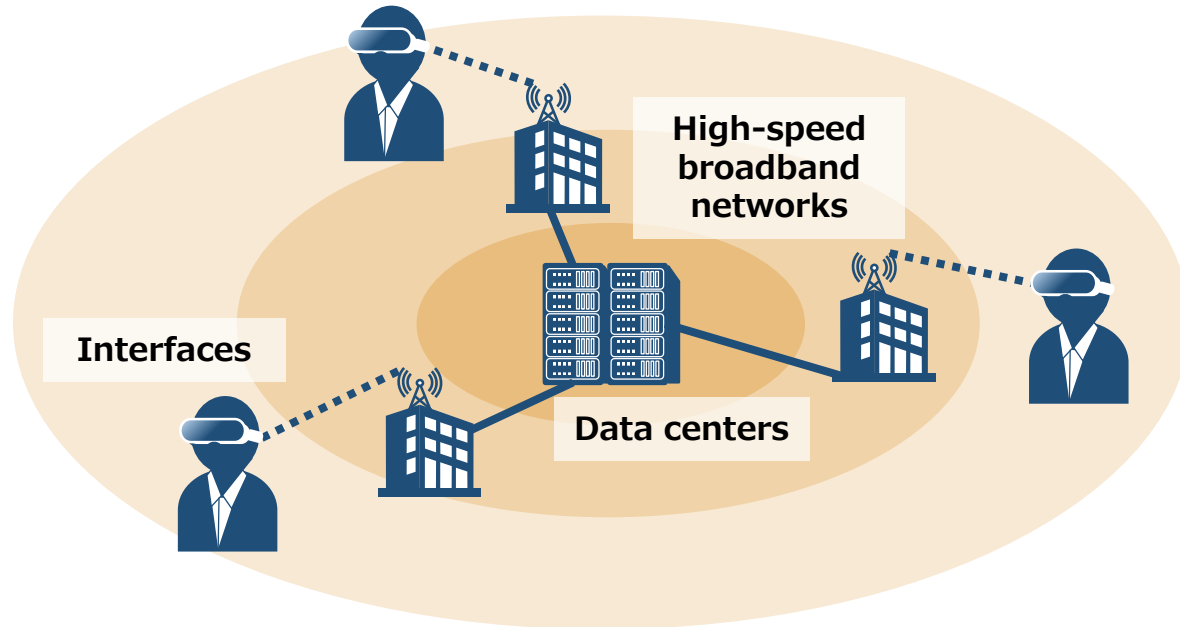
Functional chemicals*

Discover customers needs and expand variety of products

- Develop products satisfying customers' requirements based on wet chemical technologies accumulated in ICT-related materials business

* Dielectric/metal selective etchant or cleaner for back grinding process of silicon wafers, etc.

● Metaverse and our Materials



Category	Devices (example)	Our Major Products
Data centers	Logic/memory semiconductor devices	<ul style="list-style-type: none"> Photoresists Process chemicals
Networks	Radio frequency devices	<ul style="list-style-type: none"> Compound semiconductor-related materials
Interfaces	Micro displays Image sensors	<ul style="list-style-type: none"> Color resists (Low-temperature curing type) Clear resins for micro lenses

AR/VR Display Devices (World Wide)			
Category	Market Size (100 Millions JPY)		CAGR
	CY2021 (Forecast)	CY2025 (Forecast)	
AR Display Devices	2,608	24,584	75%
VR Display Devices	2,285	9,839	44%

(Source: Fuji Chimera Research Institute, Inc. "Future Perspective of AR/VR Related Market 2020")

● Our Strengths

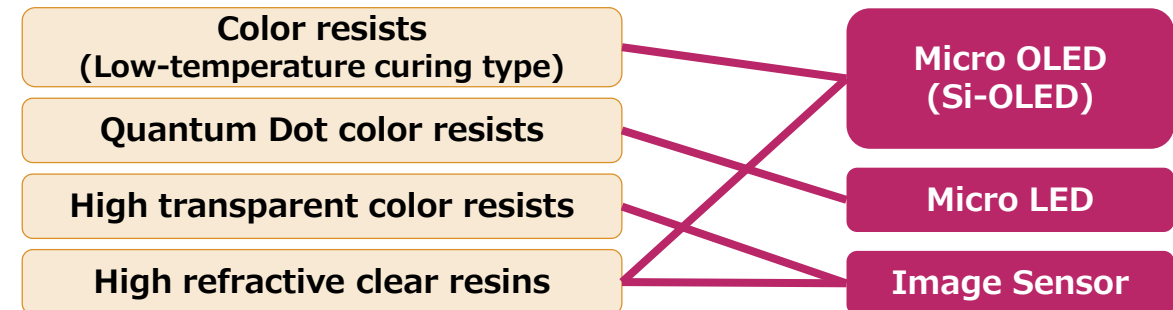
- Develop new materials for the boundary area by utilizing technologies and know-how of quality assurance accumulated in both display & semiconductor fields

● Major Progress

- Started mass-production of low-temperature curing type color resists for Si-OLED

● Action Plan

Suggest variety of solutions



Comparisons of Power Semiconductors

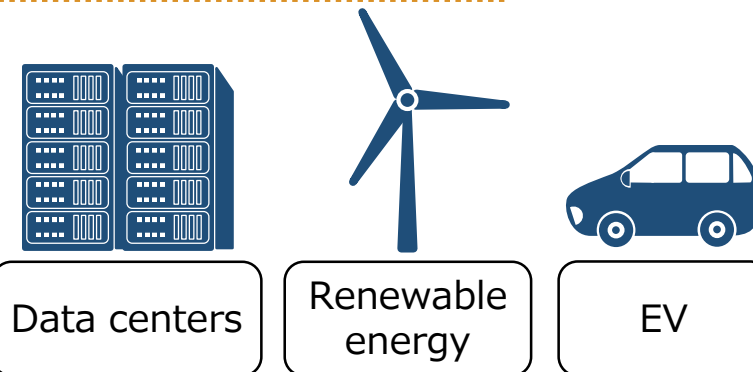
*GaN: Gallium Nitride

Type	Characteristics
Silicon (Si)	Cost competitiveness
Silicon carbide	Already in mass-production, excellent in high operating voltage
GaN* on Si	In the introduction period for consumer devices
GaN on GaN	Exceeds other type of devices in terms of operating voltage, operating frequency and element size, though still at the R&D stage

Low loss, energy saving

Small-sized, small-footprint

Target Market



Contribution to carbon neutral

Major Progress

- Development of element technologies for mass production of large-sized GaN substrates has almost achieved the targets, now focusing on improvement of yield and throughput

Action Plan

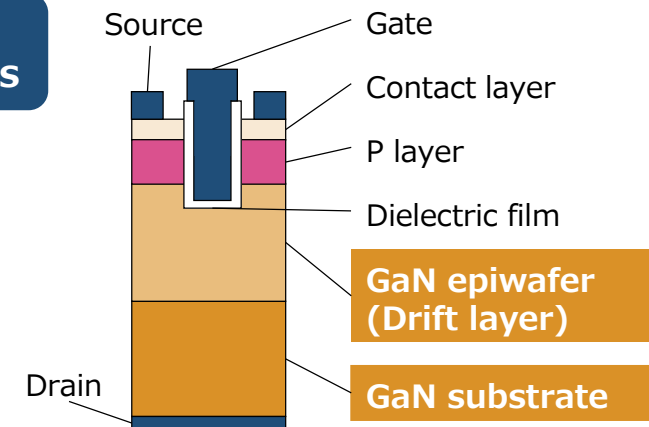
Establish high throughput mass production technology for large-sized GaN substrates for power semiconductor devices

Target Schedule

- ✓ Validation equipment for high throughput mass production begin operation in FY22
-> Aim for large supply of large-sized GaN substrates to begin by FY24

Create a market for GaN on GaN power semiconductor devices

- ✓ Establish business scheme for earlier commercialization, including collaboration with a GaN power device maker
- ✓ Establish flexible supply chain in response to different requirements from different customers with the strength having technologies of both GaN substrate and GaN epiwafer



<Example of GaN on GaN Device>

● Characteristics of our products

- Develop antennas by making the most use of technologies of forming fine-pitch lines and existing facilities which have ever been used to produce touchscreen panels for OLED displays

Repeater for mobile communications

- Thin and transparent, wide selection of installation locations
- Improve communication environment in public transportation and buildings with multi-band signals (4G and 5G Sub6)

Antenna on display

- Transparent thin-film antennas that can be put on smartphone displays or car windshields
- Complement the existing technologies of 5G antenna with multi-band signals (5G millimeter wave)
- Motion sensor to recognize hand gestures is also being developed in parallel

● Major Progress

- Demonstration of repeaters is in progress

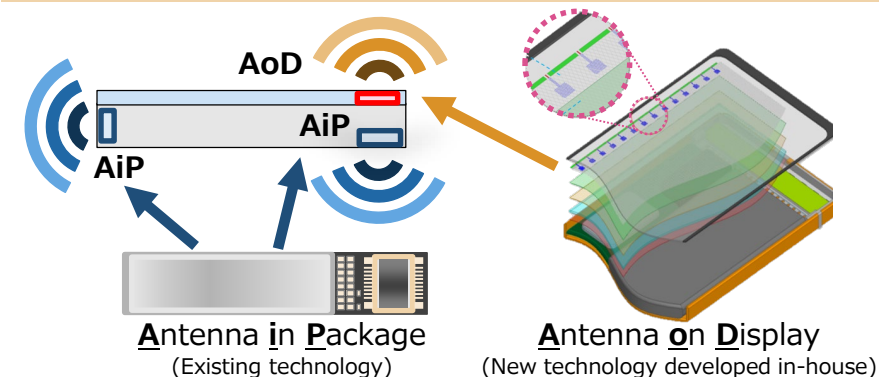
● Action Plan

Capture the needs for expanding signal range and improving signal quality in the context of popularization of high-speed communications

Repeater for Mobile Communications



Antenna on Display





04

 SUMITOMO CHEMICAL

Long-term Target toward the Late 2020s

Improve business portfolio toward the late 2020s alongside keeping high level of profit

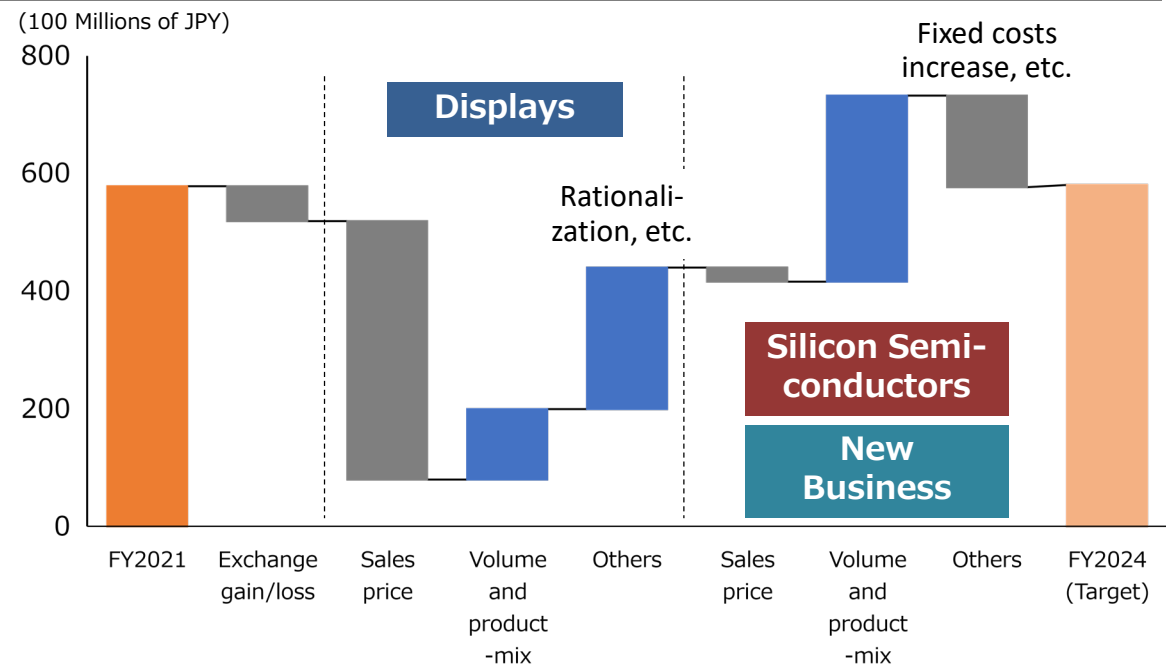
■ Develop business in the field of next-generation displays

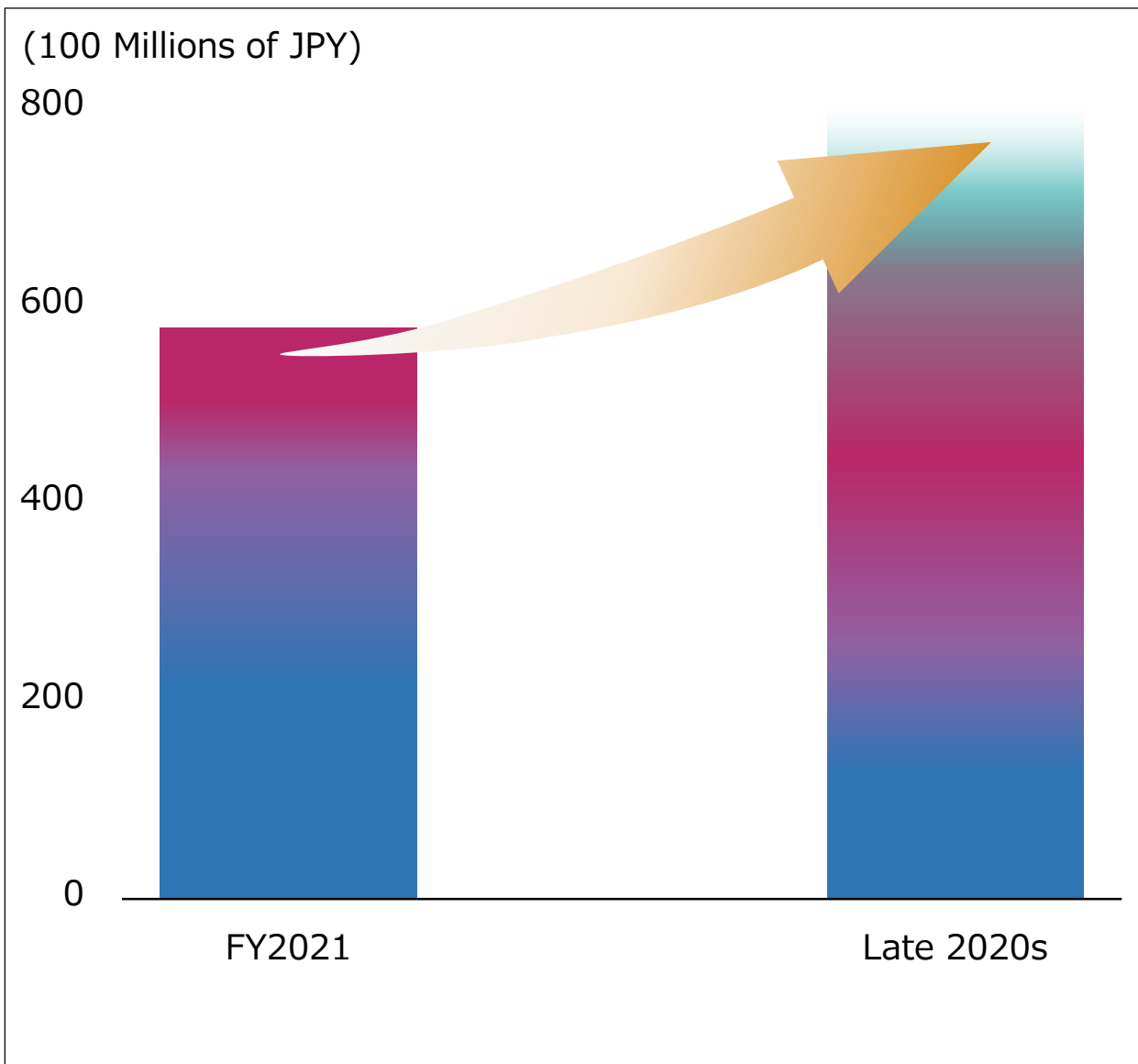
■ Expand business for semiconductor-related materials

■ Establish the third business field

FY2021 (Result) vs FY2024 (Target)		
	FY2021	FY2024
Core Operating income	578 (100 millions of yen)	580 (100 millions of yen)
Exchange rate	112 JPY/USD	110 JPY/USD

Core Operating Income Change Analysis

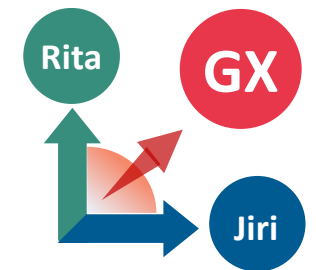




Change and Innovation ~ with the **Power** of Chemistry ~

Sumitomo Chemical IR Day 2022 Spring

Section.3 Energy & Functional Materials Sector



Today's Agenda

- 01** Vision: Energy & Functional Materials Sector
- 02** Review of the Previous Corporate Business Plan
- 03** Overall Sector Figure under the New Corporate Business Plan
- 04** Business Strategy under the New Corporate Business Plan



01

 SUMITOMO CHEMICAL

Vision: Energy & Functional Materials Sector Contributions to Sustainability

Contribute to Solving Environmental and Energy Issues
through Innovative Technologies

Active injection of resources into growing businesses

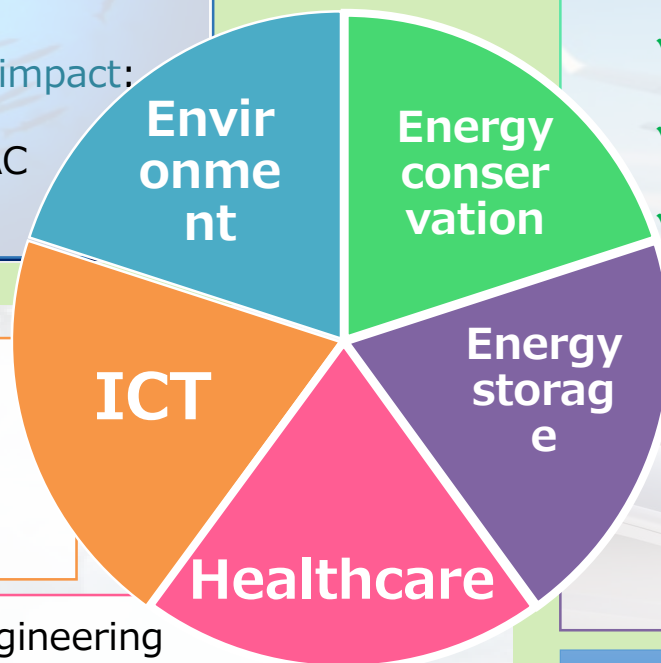
- ✓ **Increase the sales of core products and accelerate R&D**
- ✓ **Secure stable revenue sources through higher added value**
- ✓ **Improve profitability of underperforming business and products**
- ✓ **Create new business (in environment, energy and functional materials)**

Contributions from E&FM products

- ✓ Manufacturing with renewable energy: Aluminum
- ✓ Reduce organic solvents: Emulsions and additives
- ✓ Manufacturing with less environmental impact: Resorcinol
- ✓ Water treatment: Aluminum sulfate, PAC
- ✓ CO₂ separation

- ✓ 5G devices and base stations: Super Engineering Plastics
- ✓ Semiconductor Production Equipment: Alumina, High-purity Alumina

- ✓ Artificial dialysis membranes: Super Engineering Plastics (PES)
- ✓ Insulin pumps: Super Engineering Plastics (LCP)
- ✓ Medical utensils: Medical PO



*SSS-certified products
(Sumika Sustainable Solutions)

- ✓ Light-weight vehicles: SEP, aluminum
- ✓ Fuel conservation: Additives, synthetic rubber, rubber products
- ✓ Light-weight planes: Super Engineering Plastics
- ✓ Residential energy conservation: Heat storage materials
- ✓ Study mfg processes that conserve energy: Cathode materials

- ✓ LIB: Separators, cathodes, high-purity alumina
- ✓ Next-generation batteries: Cathodes
- ✓ Ultra-high-voltage power lines: Resin additives

Contributions toward Carbon Neutrality

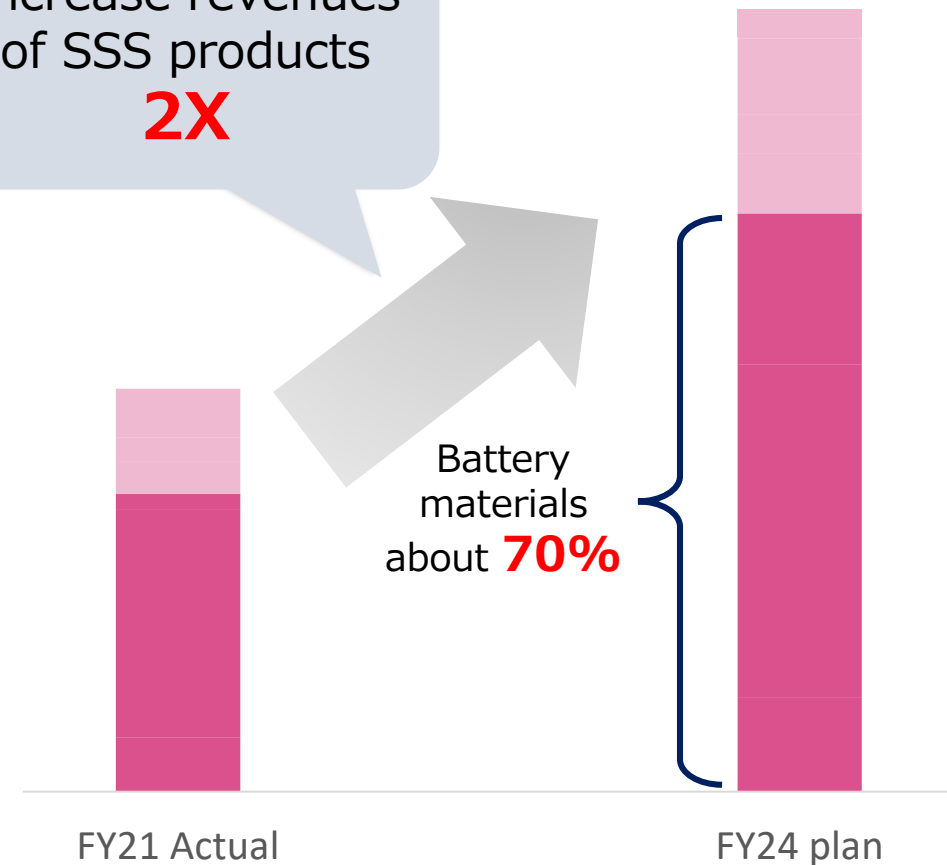
E&FM: What We Strive to Be

Continue to supply high-performance materials that contribute to the solution of society's challenges

1. Leverage internal R&D capabilities to differentiate products and establish manufacturing methods based on innovative technologies
2. Adapt to changing trends in society, technology and the markets, cultivate businesses and deliver broadly across society
3. Pursue an optimal portfolio that achieves both economic and social value

Sustainability initiative examples Approximation of sales of SSS-certified products

Increase revenues
of SSS products
2X



FY21 Actual

FY24 plan

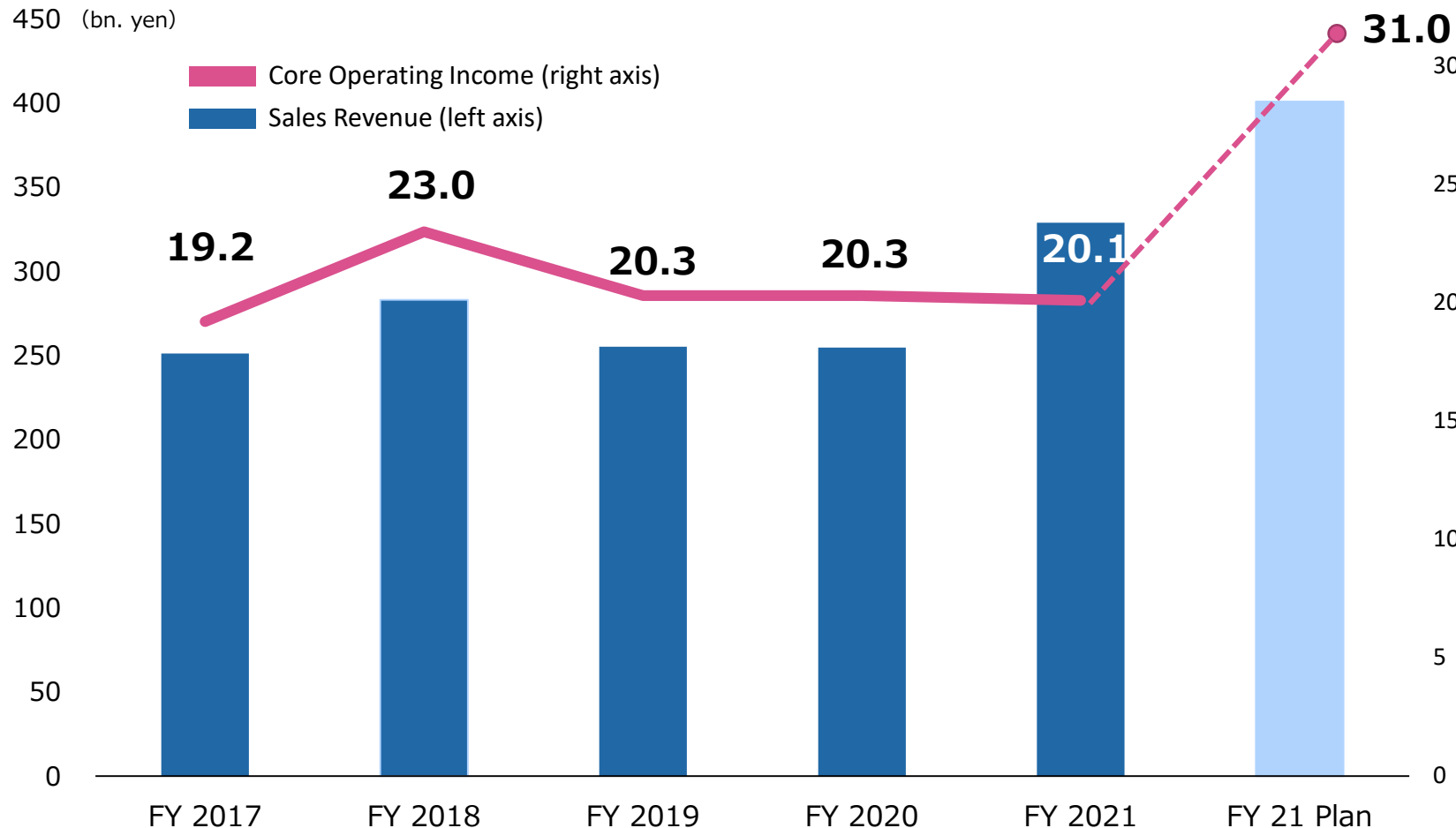


02

 SUMITOMO CHEMICAL

Review of the Previous Corporate Business Plan

Profit plan not achieved due to decreased sales driven by external factors in Separators and PES.



Corporate Business Plan
FY 21 Target

Revenue 390 bn. yen

Core Operating Income 31.0 bn. yen



FY 21 Results

Revenue 323 bn. yen

Core Operating Income 20.1 bn. yen

Progress Made on Major Products under the Previous Plan (FY 19-21)

Achieved
P/L
plan

LCP

Acquired new demands for connector uses and increased the ratio of valuable products

Resorcinol

Achieved continual stable supply

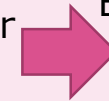
Main reasons for missing plan

Measures underway

Non-Achieved
P/L
plan

Separator

Unexpected development delay at customer
Lower sales price



Expected growth in customer demand during new plan
Thorough cost reduction
Develop new grades that support higher capacity

PES

Substantial decline in demand for aircraft



Accelerate new introduction to artificial dialysis membrane and food container

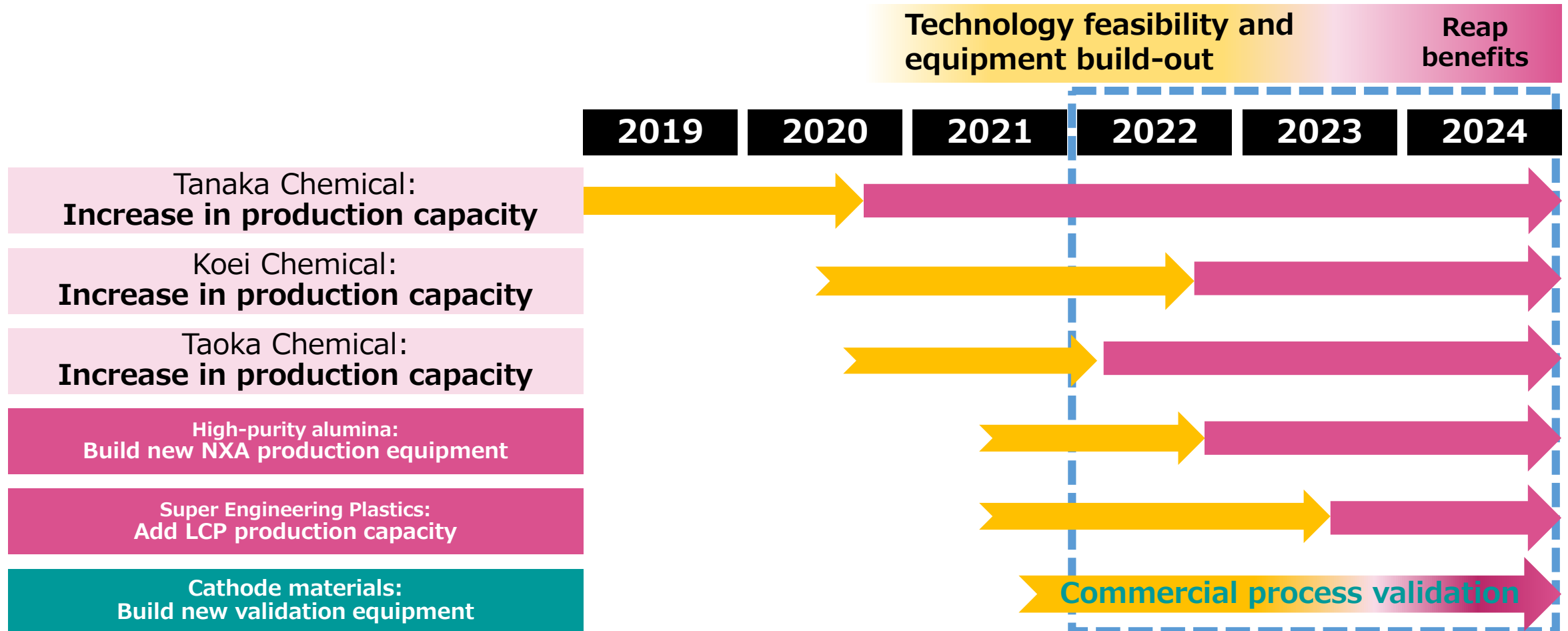
Alumina

Stagnant demand for some high value-added products



Develop new grades to expand application field

Despite the recent stagnation caused by external factors, there are high expectations toward future growth. Pivot action plan to meet market needs and aim for substantial progress in business performance in FY2024.



Decision made to exit low-profit business (EPDM, dyestuffs)

Construction Phase
 Commercialization



03

 SUMITOMO CHEMICAL

Overall Sector Figure under the New Corporate Business Plan

Strategy for the business division

Allocate investments and expand business in growth areas

Battery Materials

- ✓ Separators: Development, capacity add and sales expansion in accordance with advances in battery capacity
- ✓ Cathode Materials: Expand sales of precursors. Establish calcination technology and commercialize

Super Engineering Plastics

- ✓ LCP: Expand business with increased production capacity. Expand sales into automotive and 5G high-speed telecommunications connectors

Decide direction for low-profit business

Develop next generation business

- ✓ Develop new technologies such as solid-state battery materials and cathode direct recycling

FY 2024 Plan

Revenue

390.0 bn. yen

Core Operating Income

31.0 bn. yen

ROI

6.4 %

Core Operating Income Growth Projection

(bn. yen)

20.1

price

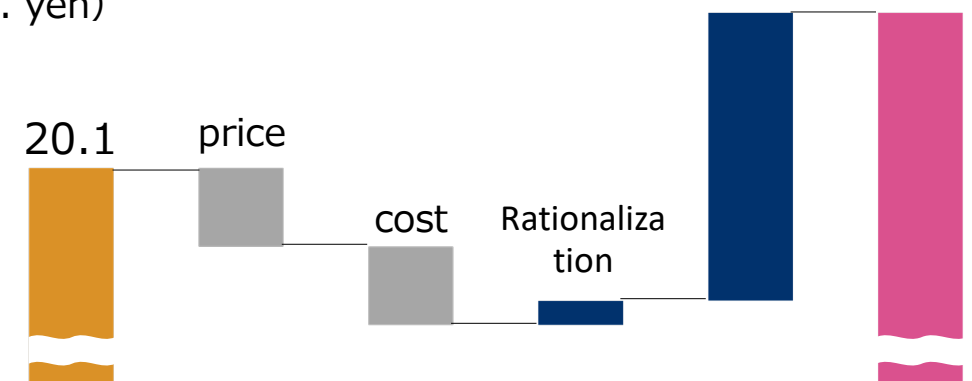
cost

Rationalization

volume 31.0

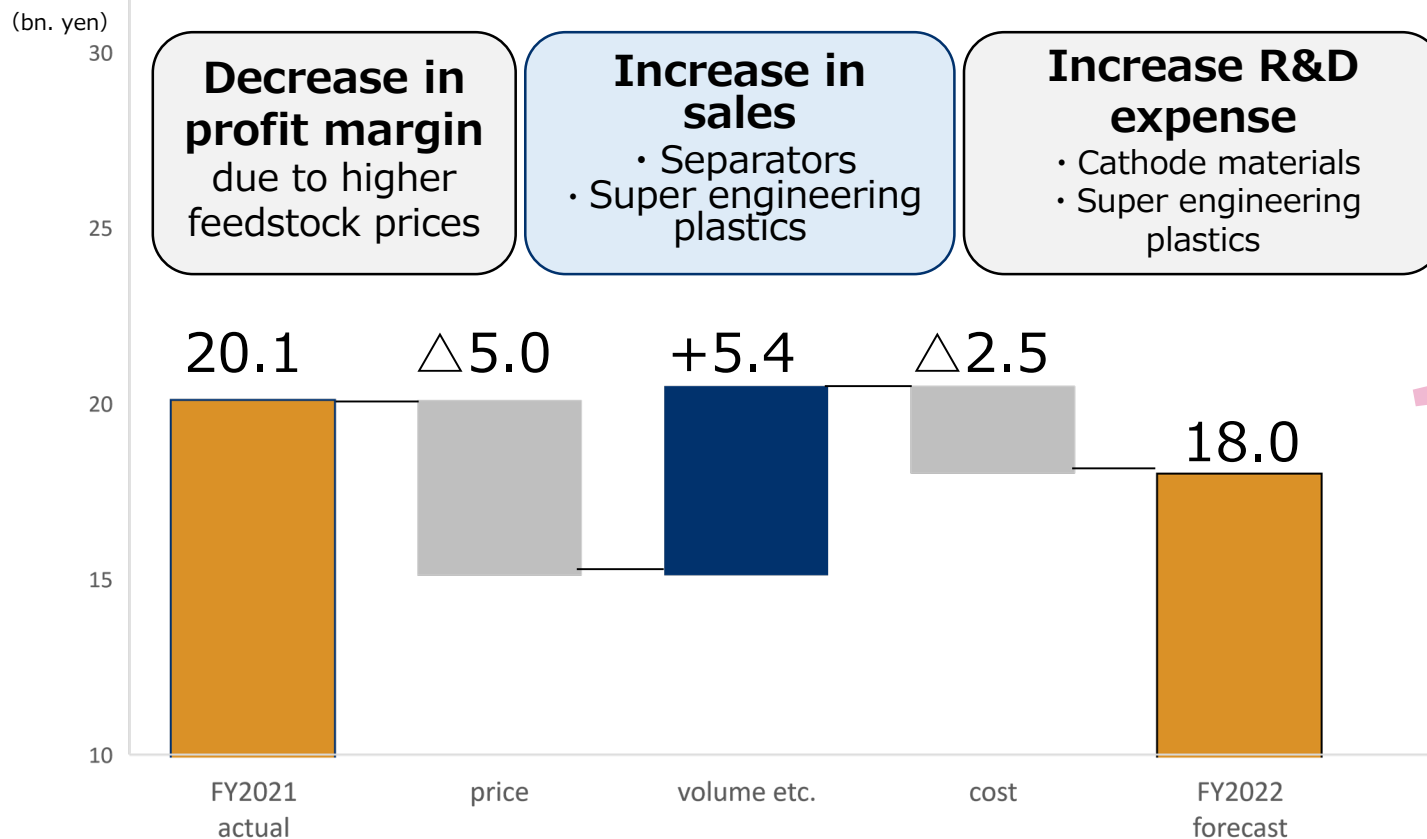
FY2021(actual)

FY2024(plan)



FY2022 Forecast

Profit to fall below FY 21 level due to worse trade terms and conditions and higher R&D expenses in growing business



FY2024 plan

Reap benefits from investments

31.0

LCP and NXA Increase in sales

Separator Increase in sales

Taoka Chemical Koei Chemical Contribution from new equipment

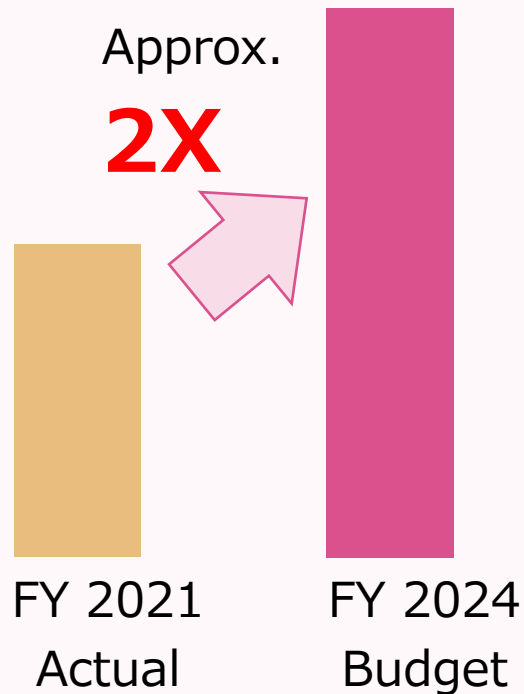
Begin sales of cathodes Precursor Increase in sales

FY2024 plan

Focus on Growing Business (battery materials, SEP)

- Double the sales of growing business (battery materials and SEP) in FY 24
- Further allocation of management resources to accelerate growth after FY 24

FY 24 Revenue

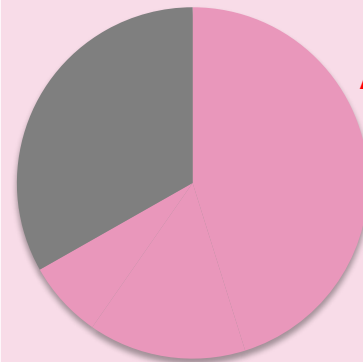


FY 22-24 Total capex

Battery Materials & SEP



Approx. **70** bn. yen

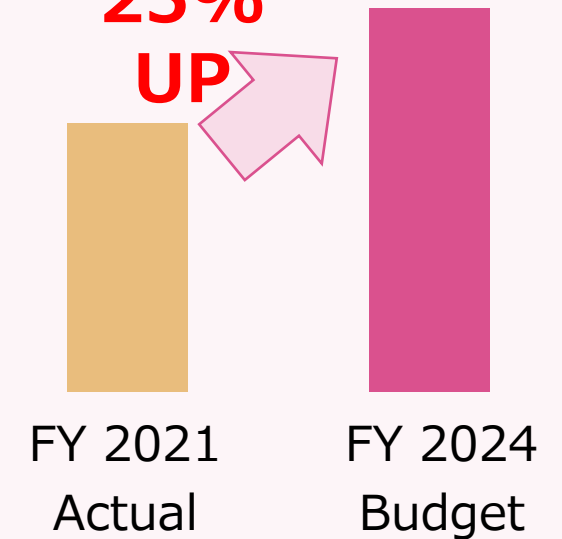


About **70%**
of total 3-year
investment
in this sector

FY 24 Research staff

FY 24 research staff

**25%
UP**





04

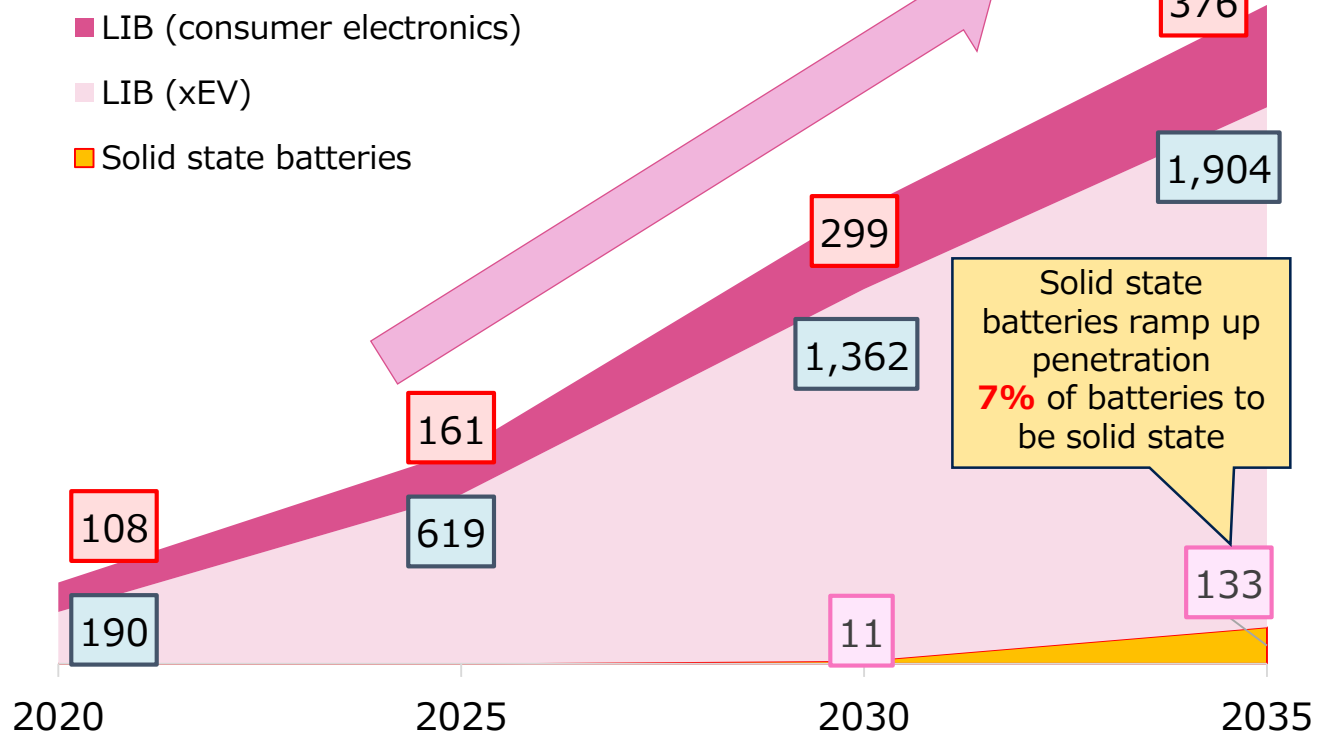
 SUMITOMO CHEMICAL

Business Strategy under the New Corporate Business Plan

- Expect the Lithium Ion Battery market to continue to expand out to 2035
- Project greater demand in automotive applications

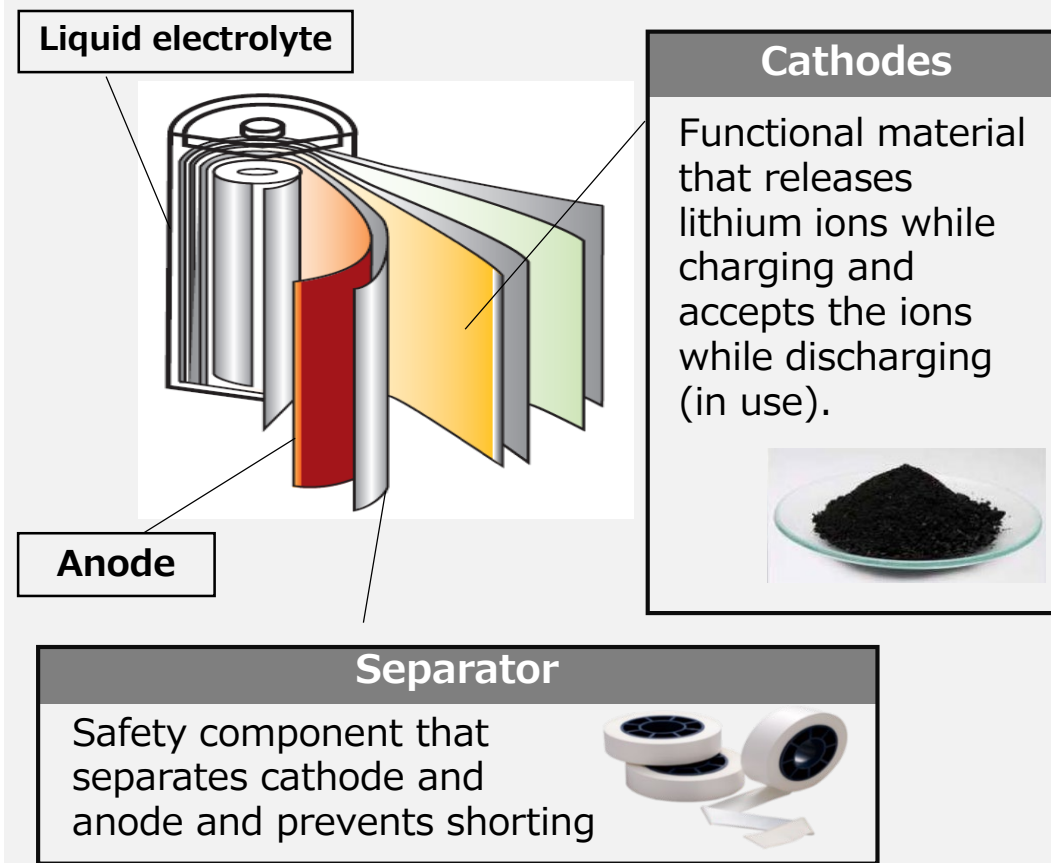
LiB & Solid state batteries market projections

(Unit: GWh)



Source: SC estimates based on Fuji Keizai (2020) "Overview of Next-generation Battery-related Technologies and Markets" and Ministry of Economy, Trade and Industry (2021) "Survey on Technological Competitiveness by Sector".

Lithium Ion Rechargeable Batteries



Business strategy

Support a rapidly expanding EV market with our technologies

- Increase production capacity to meet the increasing demand for automotive, expand sales to new customers and pursue cost rationalization.
- Focus on expanding sales to consumer electronics applications. At Ohe Works, accelerate response to changes in customer needs.

Automotive market

- Ramp up high-capacity batteries (46xx cylindrical)

Develop aramid separators that satisfy higher performance requirements and extend competitive edge in automotive



- Strong demand for price reductions

Thorough cost reductions and productivity gains

Focus on this opportunity at cost-competitive **SSLM in South Korea**

Consumer electronics market

- Strong demand for performance

- Ultra thin film for cell phones
- High output for electronics and e-bikes

- Price declines are more moderate



Focus on this opportunity by converting **Ohe Works (Ehime)** into a multi-grade development & production plant

Market needs

- High capacity
- Rapid recharge
- High output

Separator thinner,
lighter and durable at
higher voltage and
temperature

Advantages of aramid-coated separators

High heat
resistance

Light-weight

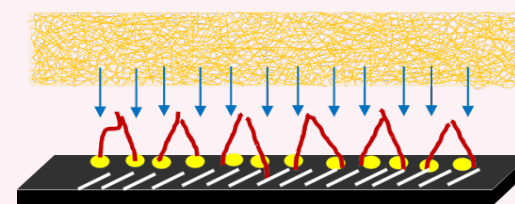
Ultra thin

Suppresses
dendrite

Polymer design
against higher
voltage

Polymer structure of
higher oxidation potential
derived from molecular
orbital calculation

aramid-coated separators

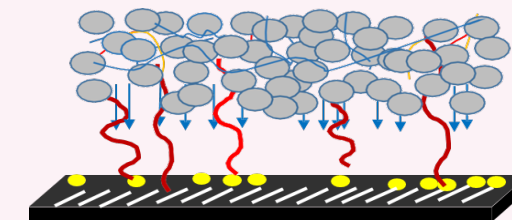


Ions flow evenly

Li deposits evenly

Adjacent depositions
coalesce in small particles

ceramic-coated separators



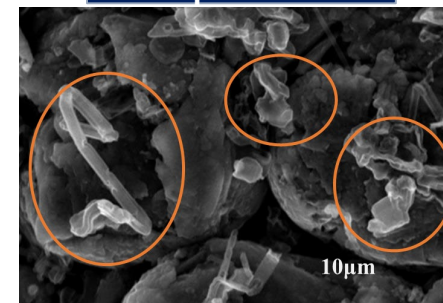
Ions flow unevenly

Li deposits unevenly

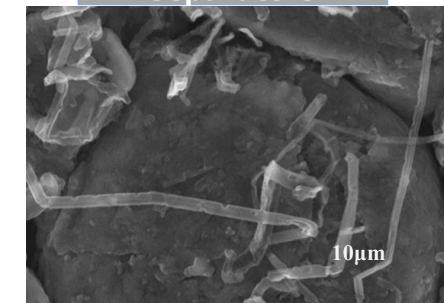
Spread depositions grow in
long-fiber shape

Electron microscope Images

aramid-coated separators



ceramic-coated separators



Growth of Li dendrite was inhibited on aramid-coated separator.

Business strategy

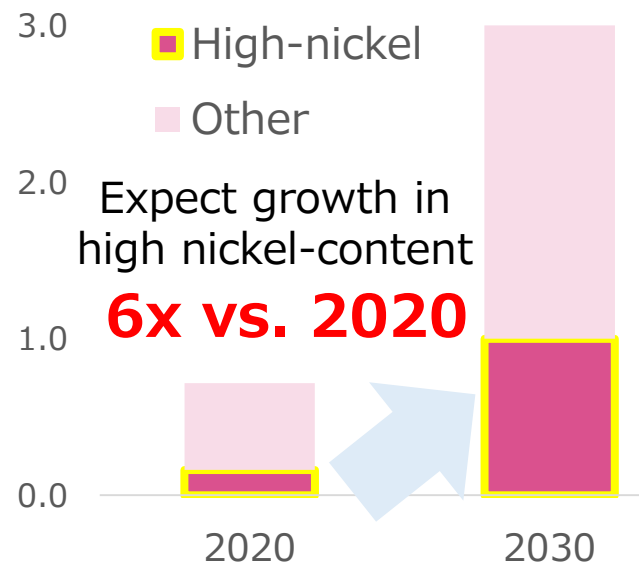
Enter market for high nickel-content cathodes. Establish our proprietary calcination technology

- Launch validation equipment on schedule and acquire customer certification
- Develop cobalt-free cathode to help achieve a sustainable society

■ Our future target

- ✓ Expect growth in market for high nickel-content cathodes

Cathode market scale (by type)
(Million tons)



- ✓ Project market for high nickel-content cathodes to grow to **1 million tons** by 2030

- ✓ Aim to establish position as a cathode supplier.

■ Invest in calcination validation equipment

- ✓ Build validation equipment at Ehime Works to validate technology in our proprietary cathode manufacturing process

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 Tanaka Chemical Corporation

- Highly productive calcination process
- Analysis/Evaluation technology
- Our proprietary recycling technology selected for GI fund this April

- Automotive precursor manufacturing technology
- Expertise with mass production
- Better leverage empirical knowledge by introducing DX

Mid- to long-term initiatives to grow the business further

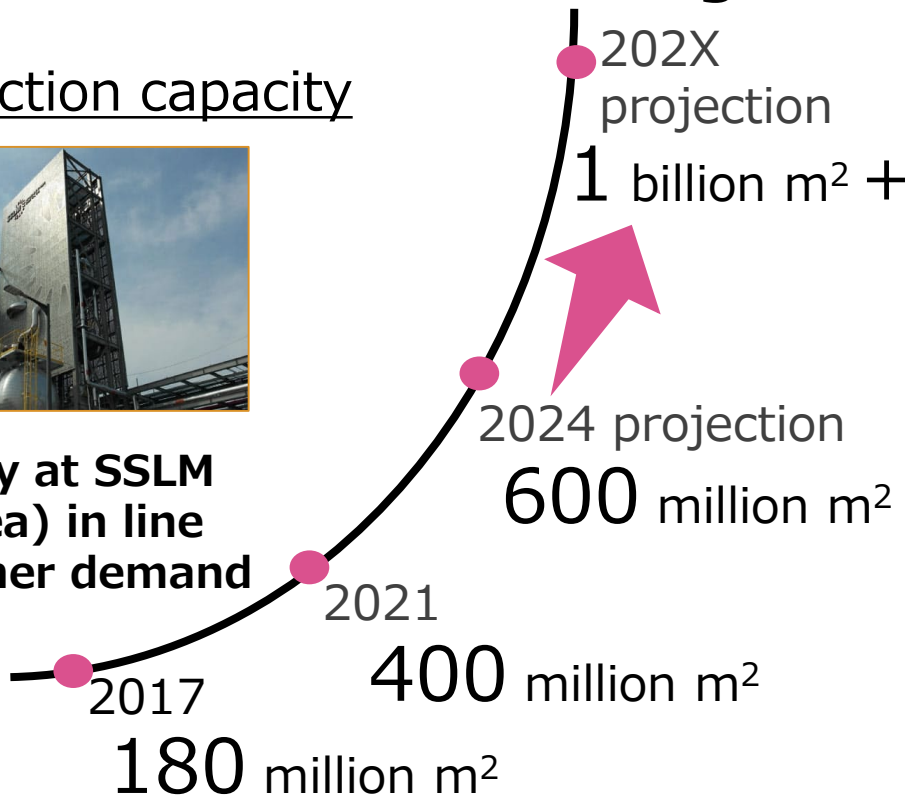
Separators

Plan to increase production capacity as customer demand grows

Our production capacity



Add capacity at SSLM (South Korea) in line with customer demand



Cathodes

Out to 2024

- ✓ Verify competitiveness of our proprietary process
- ✓ Track record mass-producing calcination products as a cathode materials supplier

Deployment

Introduce mass production equipment

- ✓ Study business strategy with our proprietary process

Partnerships with Other Companies

location

Cutting-edge technology

- ✓ Advanced liquid LiB (low-Co/Co-free) design technology
- ✓ Direct recycling
- ✓ Solid-state batteries

Business strategy

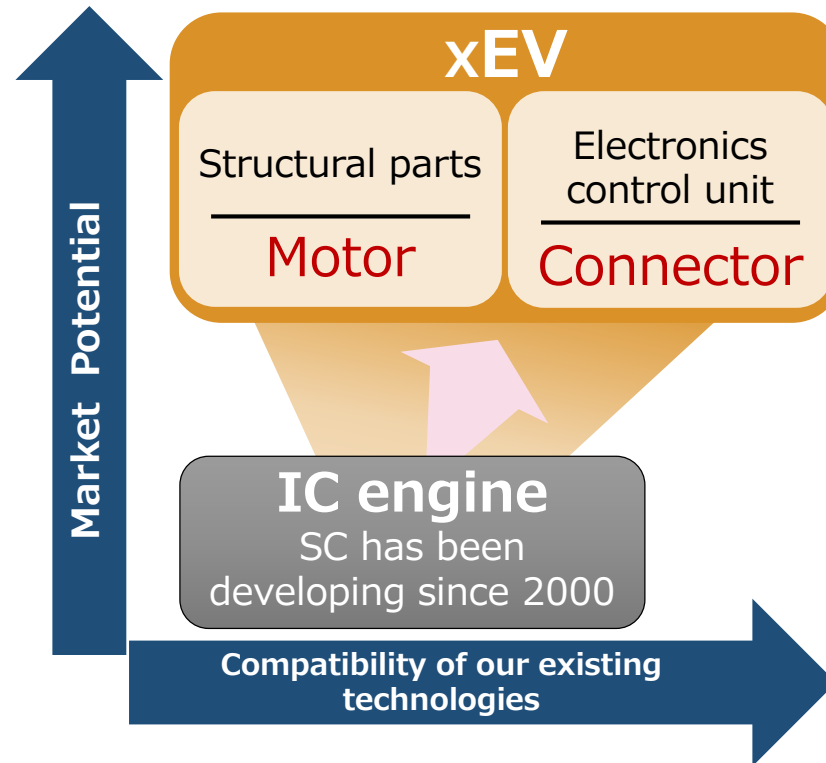
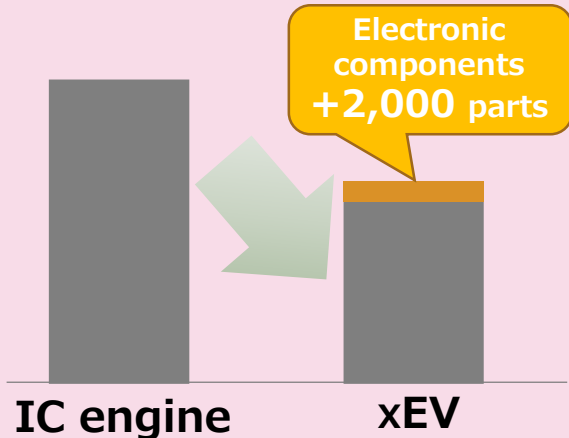
Improve production infrastructure to support strong demand and expand sales to EV applications

- Launch additional plant. Expand compounding plant in line with demand.
- Expand sales of connectors for automotive and high-speed telecommunications

Shift to EV drives increase in the number of parts related to automotive connectors and EV motors

Number of parts

- ✓ Shift to EV leads to reduction in the number of engine parts. Total part count decreases by 10,000.
- ✓ Meanwhile, the number of **electronic components increases**



Market Needs

- ✓ As demand for EV motors and coils surges, there is growing demand for part productivity gains through heat plasticization

Our Strengths

- Polymer structure with superb heat resistance and liquidity
- Compound design technology
- Part design support (molding support, etc.)
- Track record of stability in supply and quality
- IATF16949 certified

Characteristics of 5G

Ultra high-speed

Ultra short lag

Multiple Simultaneous connections



Technology needed

Technology that does not degrade signals or telecommunications

Low transmission loss

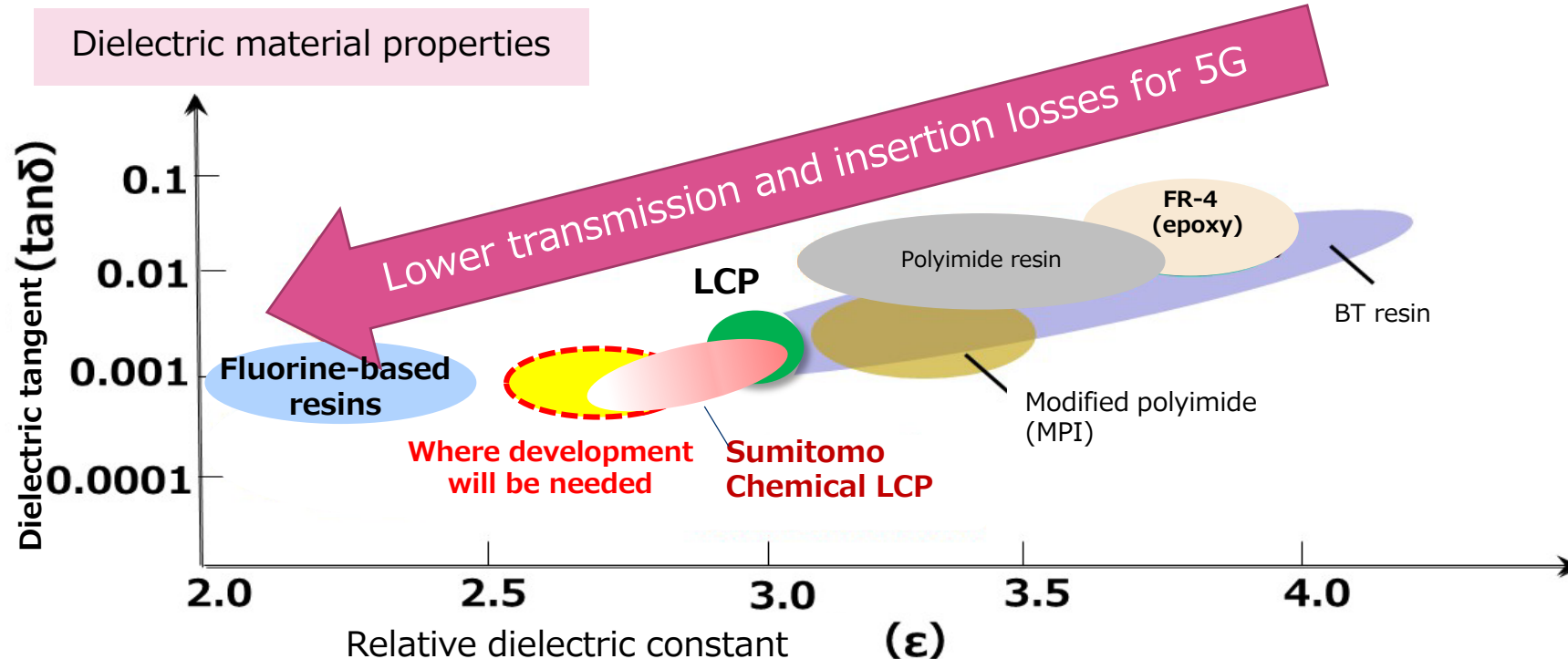
Toward 5G ramp up

Intensify development of high-frequency materials



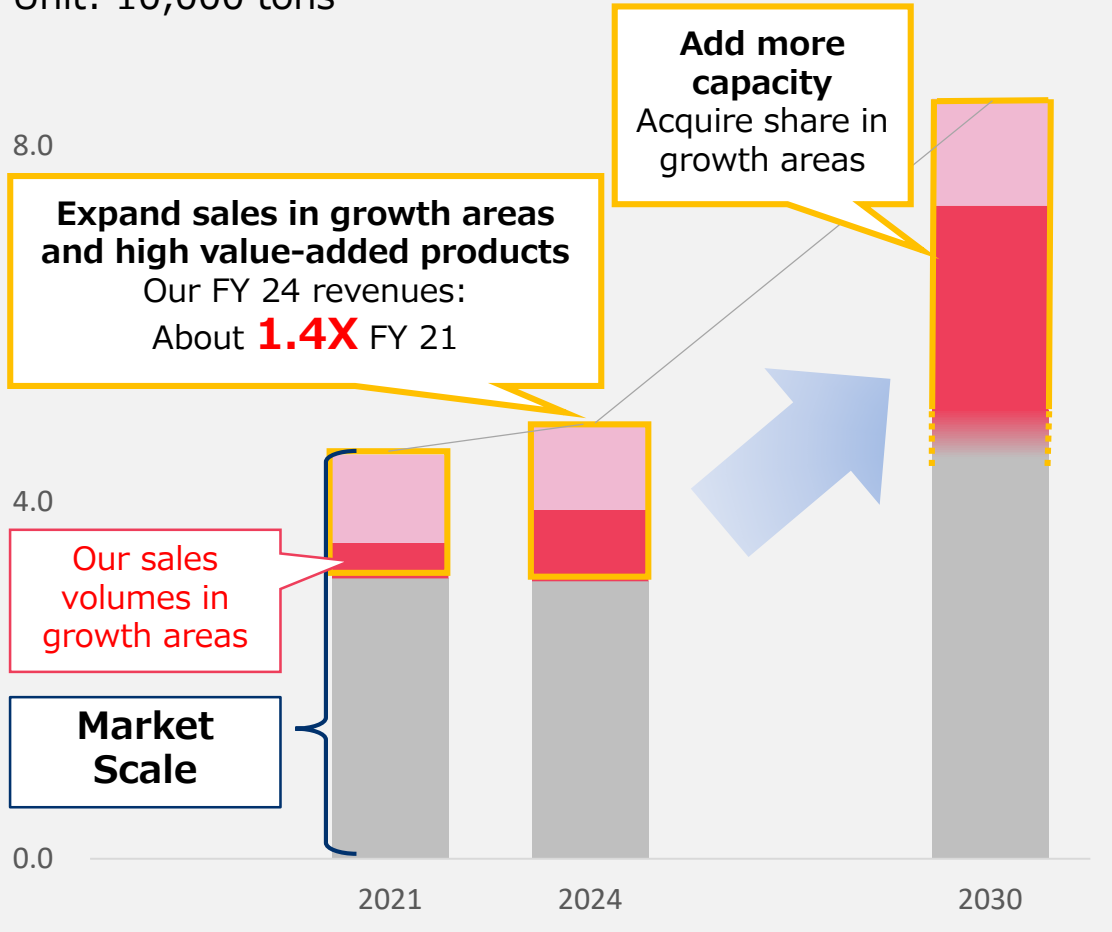
Accelerate development to capture growing demand

- ✓ Better dielectric properties by rigid polymer design
- ✓ Well-balance of process ability & physical properties by compound formulation



LCP Market Estimate

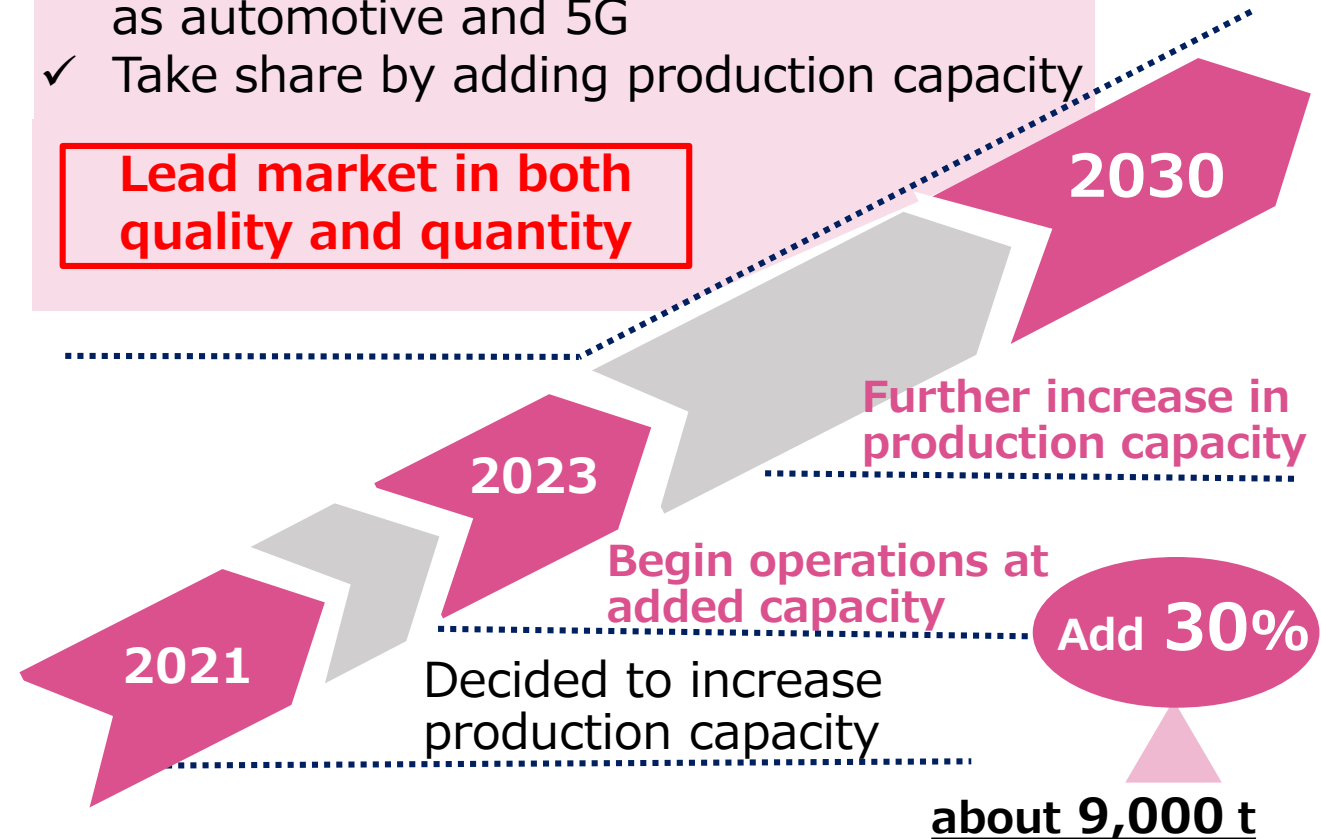
Unit: 10,000 tons



Our Future Goals

- ✓ Focus on expanding sales and shifting to higher value-added in growth areas such as automotive and 5G
- ✓ Take share by adding production capacity

Lead market in both quality and quantity

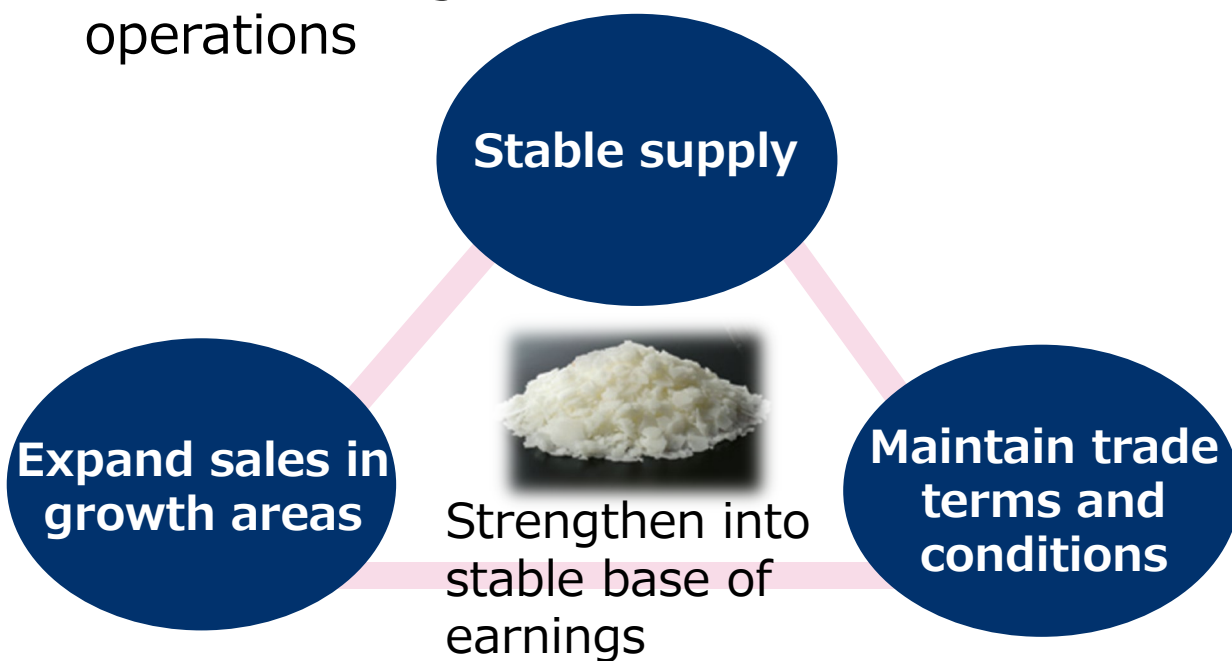


* Based on neat resin. Varies depending on grade mix.

Resorcinol

Business Environment

- Global demand expected to grow moderately mainly for tires
- Market prices softening as new Chinese makers emerge and followers resume operations



Alumina and HPA

Business Environment

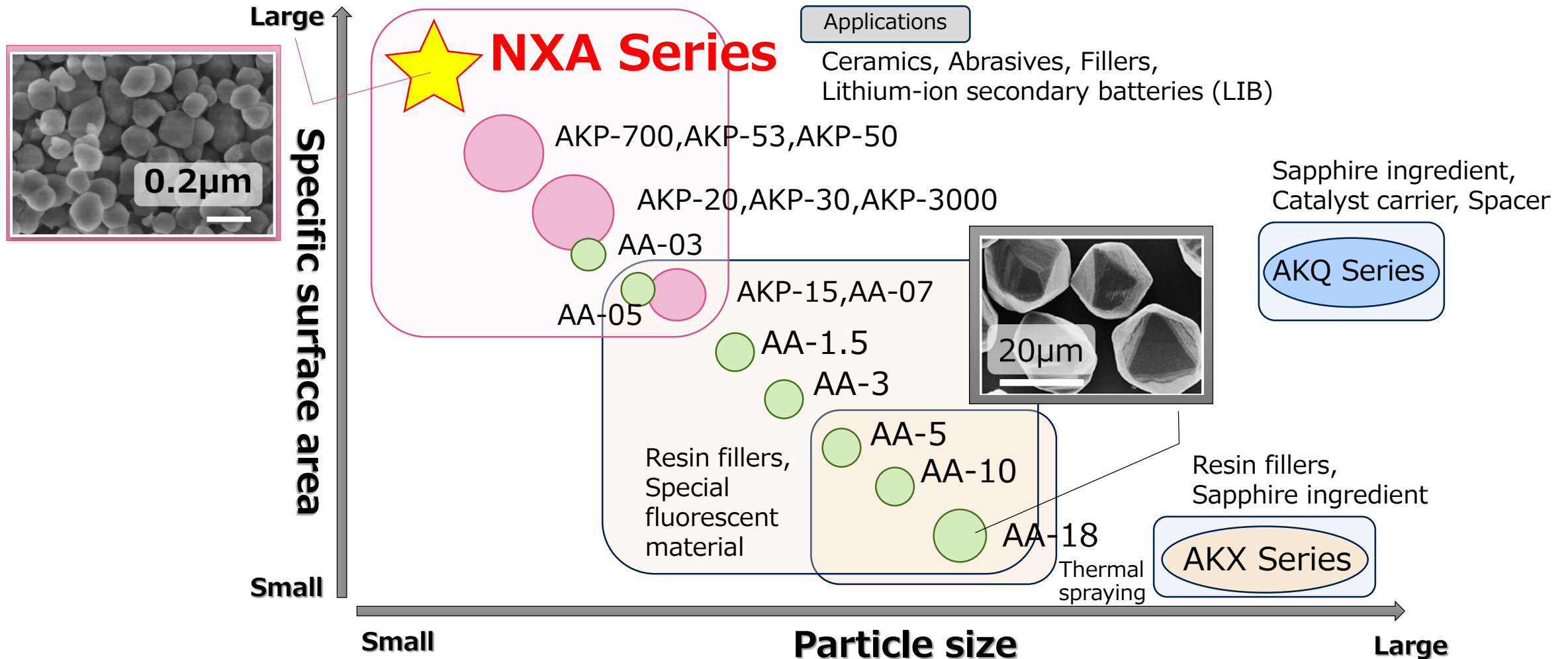
- Growing demand for semiconductors
- Demand growing for thermally conductive fillers mainly in automotive as electronic components get smaller and more powerful

Expand sales of ultrafine particle alumina NXA

- Succeeded in developing world's first 0.1 μ m-diameter α alumina particles
- Fine and uniform particle array
- Smooth launch of mass production equipment
- Launch into market in FY 2022

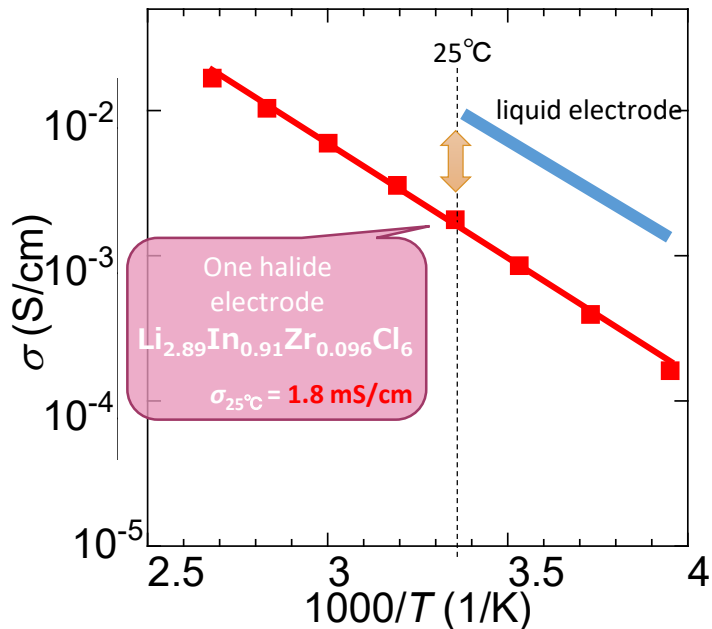
Our High Purity Alumina Lineup

To meet wide-range needs of diverse products

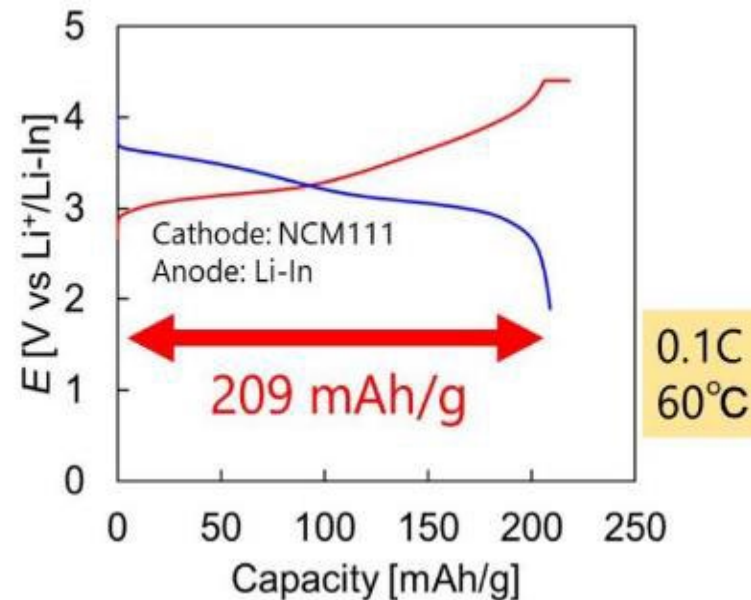


- Through collaboration with Kyoto University since 2020, lead compounds were identified, which have been confirmed to have the equivalent capacity compared to the high-performance liquid LiB.
- **Our development of materials will be completed by the end of 2023 as planned.**
- **Energy density of 500Wh/kg (2x vs. current liquid LIB)** will be achieved by the end of FY 2024 by the optimization of cell design of solid battery system.

One halide electrode shows high ion conductivity close to liquid electrode at RT



Solid-state battery using halide electrode shows high capacity.



Our newly developed Single-Ion-Conducting polymer swollen with ionic liquid balances processability, flame retardancy, and ion conductivity.



Cathodes Direct recycling

Recycling technology that regenerates cathodes collected from used lithium ion batteries without returning it to metal

Vs. conventional way
Process
simplification

Direct
Recycling

Reduced CO₂ emissions

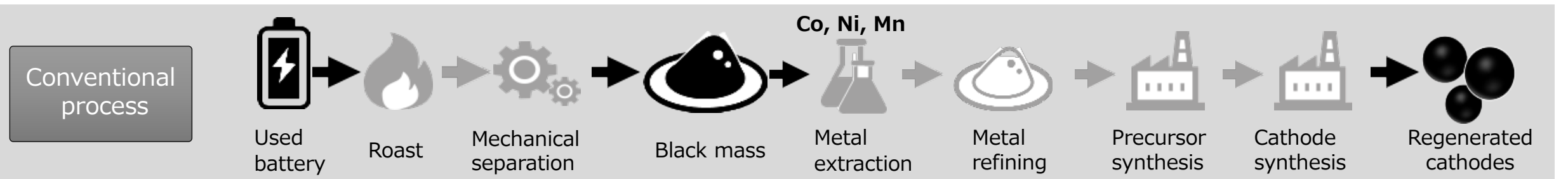
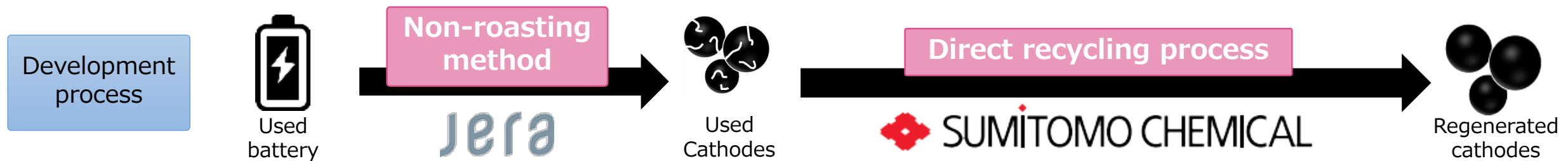
Lower
cost

Less energy

High metal
recovery rate

**Achieve recycling technology with
less environmental impact**

✓ Work together with JERA to develop and deploy into society.



Cautionary Statement

Statements made in this document with respect to Sumitomo Chemical's current plans, estimates, strategies and beliefs that are not historical facts are forward-looking statements about the future performance of Sumitomo Chemical. These statements are based on management's assumptions and beliefs in light of the information currently available to it, and involve risks and uncertainties.

The important factors that could cause actual results to differ materially from those discussed in the forward-looking statements include, but are not limited to, general economic conditions in Sumitomo Chemical's markets; demand for, and competitive pricing pressure on, Sumitomo Chemical's products in the marketplace; Sumitomo Chemical's ability to continue to win acceptance for its products in these highly competitive markets; and movements of currency exchange rates.