



MITSUI KINZOKU

(Mitsui Mining & Smelting Co., Ltd. TSE5706)

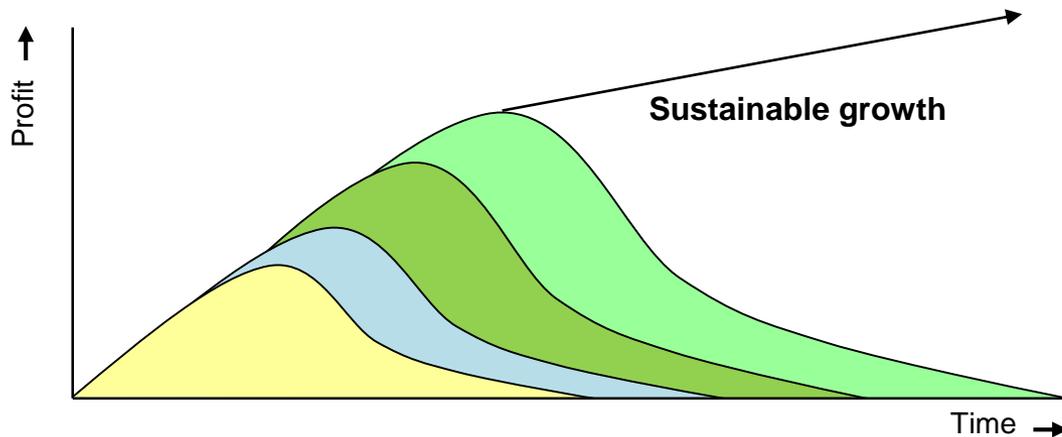
2019-2021 Medium Term Business Plan Progress

May 18, 2021

Vision for 2024

By 2024, we want to be a company that continually creates and develops growth products and businesses in our three core business segments (Engineered Materials, Metals, and Automotive Parts)

Continual corporate entrepreneurship



- By continually creating growth products and businesses, we will enable corporate growth and enhance corporate value.

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Positioning of 2019-2021 Midium Term Business Plan

Transform growth foundation to achieve vision for 2024

Below is a review of 2019-20. We continued to take important action in 2021.

Engineered Materials Segment

P13

- (Business Creation Sector) Steady development/commercialization of all-solid state batteries (ASSBs) materials and HRDP® (High Resolution De-bondable Panel)
- (Functional powders) Delayed some production increase and new business for copper powders for electronics
- (Copper foil) High-end electro-deposited copper foil for 5G applications and MicroThin™ for semiconductor packages exceeded targets, while growth in demand for MicroThin™ for HDI applications slowed
- (Catalysts) Sustained share in motorcycle market, steadily expanded sales in automobile market, started up GPF catalyst business as planned
- (PVD materials) Shifted focus from expanding ITO market share to earning profits, expanded IGZO market share

Metals Segment

P19

- (Zinc, lead) Processed more recycled raw materials, steadily operated Kamioka hydropower station
- (Copper business) Overhauled copper business to optimize portfolio, transferred copper mine interests

Automotive Parts & Components Segment

P23

- A certain amount of success from system product marketing
- Further strengthened cost competitiveness

Corporate

- Started telework, encouraged and entrenched diverse working lifestyles
- Sale of training center, Osaki head office, etc. after asset review helped improve financial strength

■ Performance Trends

(Unit: Billion yen)

	2016	2017	2018	2019	2020	2021 Forecast	2021 Medium Plan
Net sales	436.3	519.2	497.7	473.1	522.9	585.0	550.0
Operating income	38.5	49.5	18.2	13.0	51.1	36.0	37.0
Ordinary income	31.0	11.2	17.8	9.3	51.3	35.0	37.0
Profit (loss) attributable to owners of parent	18.7	-0.7	4.7	1.6	44.8	22.0	23.0
Free cash flow	-14.1	12.1	-4.1	1.3	11.3	25.0	* 50.0
CAPEX	37.7	40.5	36.1	34.0	28.2	34.5	* 105.0
Shareholders' Equity Ratio	33.5%	32.4%	32.5%	30.7%	33.4%	36.9%	40.0%
D/E ratio (net)	1.10	1.11	1.15	1.22	1.09	0.91	0.70

* 2019-2021 3 years total

■ Sales and Ordinary Income Forecasts by Segments

● Sales and Ordinary Income Forecasts by Segments

(Unit: Billion yen)

	2021 forecast		2021 Plan		Difference	
	Sales	Ordinary Income	Sales	Ordinary Income	Sales	Ordinary Income
Engineered materials	250.0	23.5	212.0	26.0	38.0	-2.5
Metals	205.0	9.0	163.0	3.0	42.0	6.0
Automotive parts and components	86.0	2.0	104.0	5.0	-18.0	-3.0
Affiliates coordination	113.0	3.0	134.0	6.0	-21.0	-3.0
Adjustment	-69.0	-2.5	-63.0	-3.0	-6.0	0.5
Total	585.0	35.0	550.0	37.0	35.0	-2.0

Excluding Inventory factors	2021 forecast		2021 Plan		Difference	
	Sales	Ordinary Income	Sales	Ordinary Income	Sales	Ordinary Income
Engineered materials	250.0	23.1	212.0	26.0	38.0	-2.9
Metals	205.0	10.1	163.0	3.7	42.0	6.4
Automotive parts and components	86.0	2.0	104.0	5.0	-18.0	-3.0
Affiliates coordination	113.0	3.0	134.0	6.0	-21.0	-3.0
Adjustment	-69.0	-2.5	-63.0	-3.0	-6.0	0.5
Total	585.0	35.7	550.0	37.7	35.0	-2.0

Assumption	2021 Forecast	2021 Medium Plan
Zinc Price (\$/t)	2,700	2,400
Copper Price (¢/lb)	350	295
Forex (yen/\$)	105	110

● Business Indicator

	2021 forecast	2021 target
Ordinary income (Billion yen)	35.0	37.0
Shareholders' equity ratio	36.9%	40%
ROE	10.6%	10%

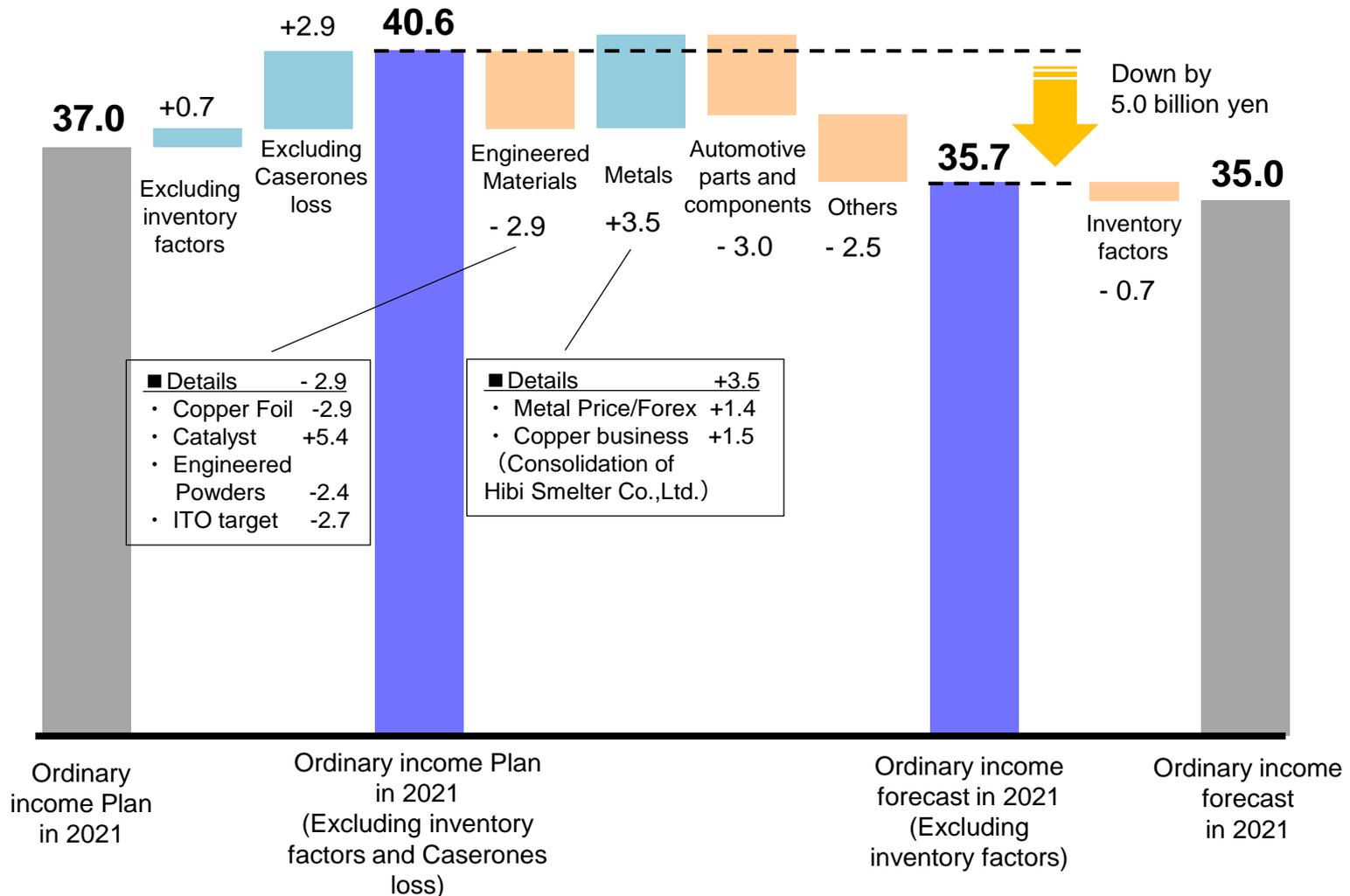
● Business Figure

(Unit: Billion yen)

	2019-2021 Forecast	2019-2021 Medium Plan
Free Cash Flow	37.6	50.0
CAPEX	96.7	105.0

Business Indicator Progress (2) – Ordinary income

Ordinary income forecast of 2021, excluding inventory factors and Caserones loss, is expected to be lower than that of 2021 Medium plan.

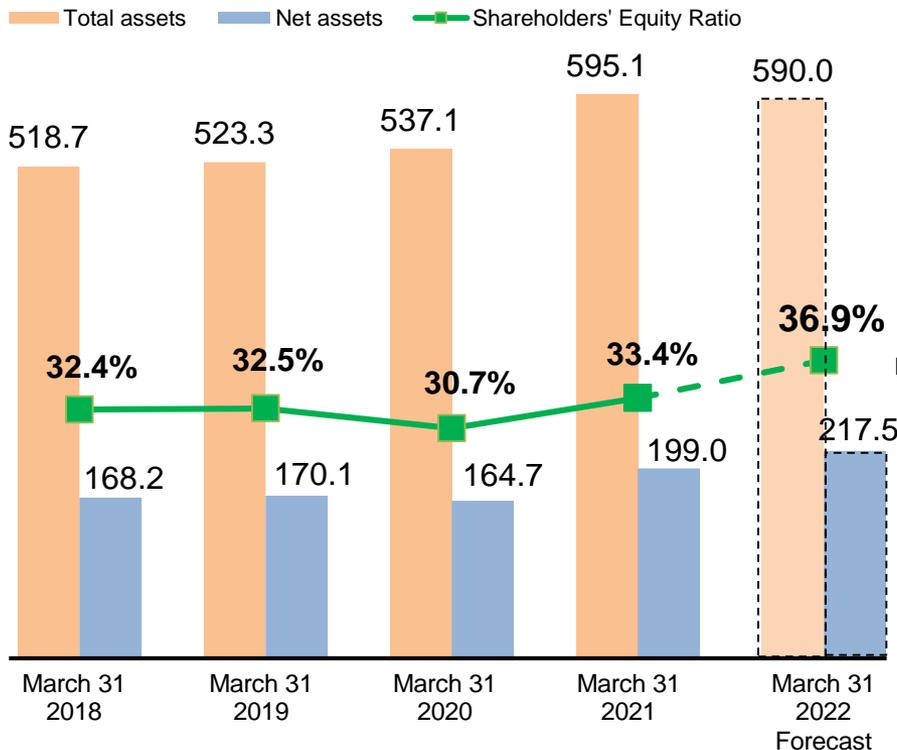


Business Indicator Progress (3) - Shareholders' Equity Ratio, ROE Material Intelligence

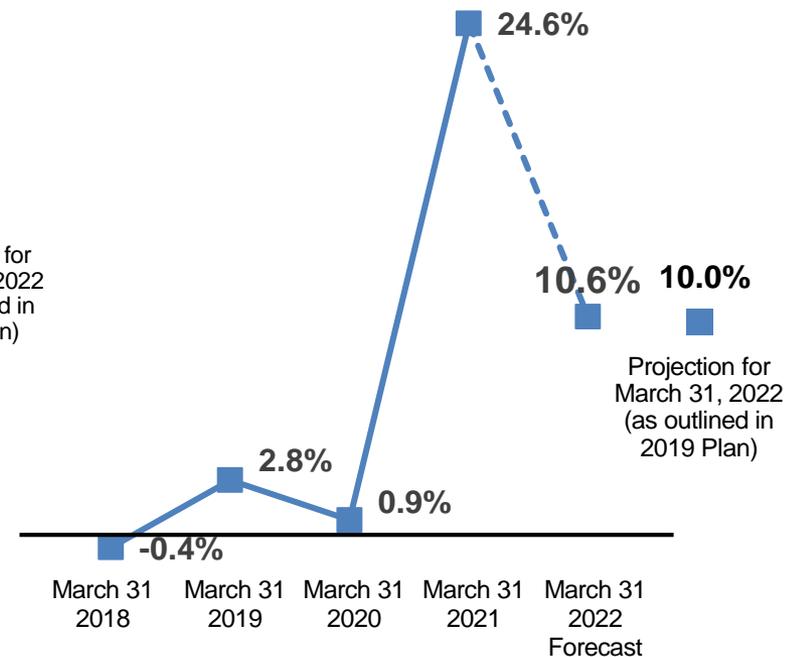
We forecast we will not achieve the 2019 Plan's target due to lingering inventory and accounts receivable from higher metal and precious metal prices and the consolidation of a copper smeltery accompanying the copper business overhaul.

Trends in Shareholders' Equity Ratio

(Unit: Billion yen)

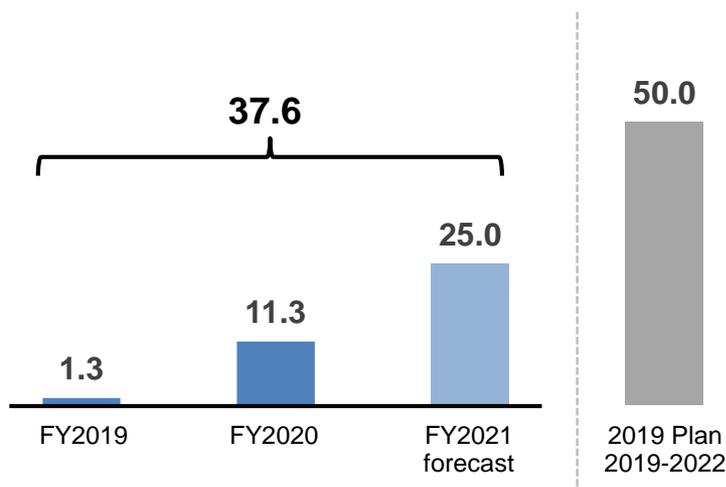


ROE



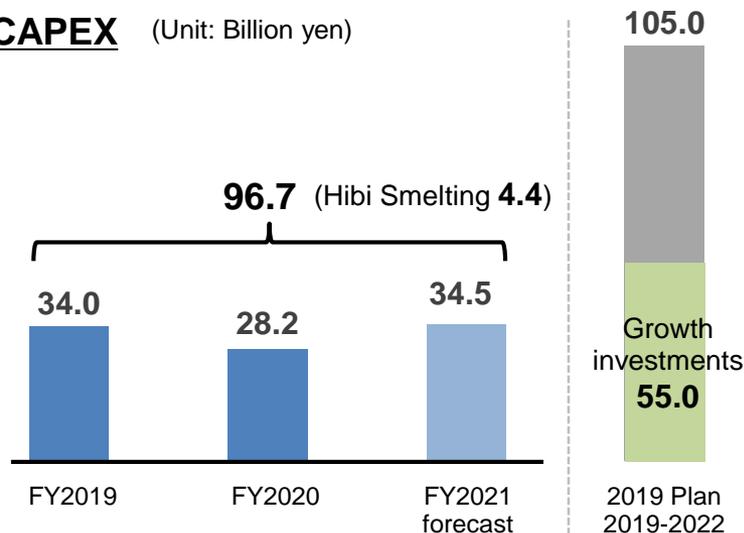
We forecast better financial strength from stronger management of inventory and the transfer of our interest in the Caserones mine accompanying the copper business overhaul.

Free cash flow (Unit: Billion yen)



- Total 3-year free cash flow is forecast at 37.5 billion yen, below the 2019 Plan's target of 50 billion yen.
- We forecast that we will not meet the 2019 Plan's targets. This is because capital expenditures were less than in the 2019 Plan and we created cash by selling assets, but operating capital increased due to higher metal and precious metal prices in FY2020.

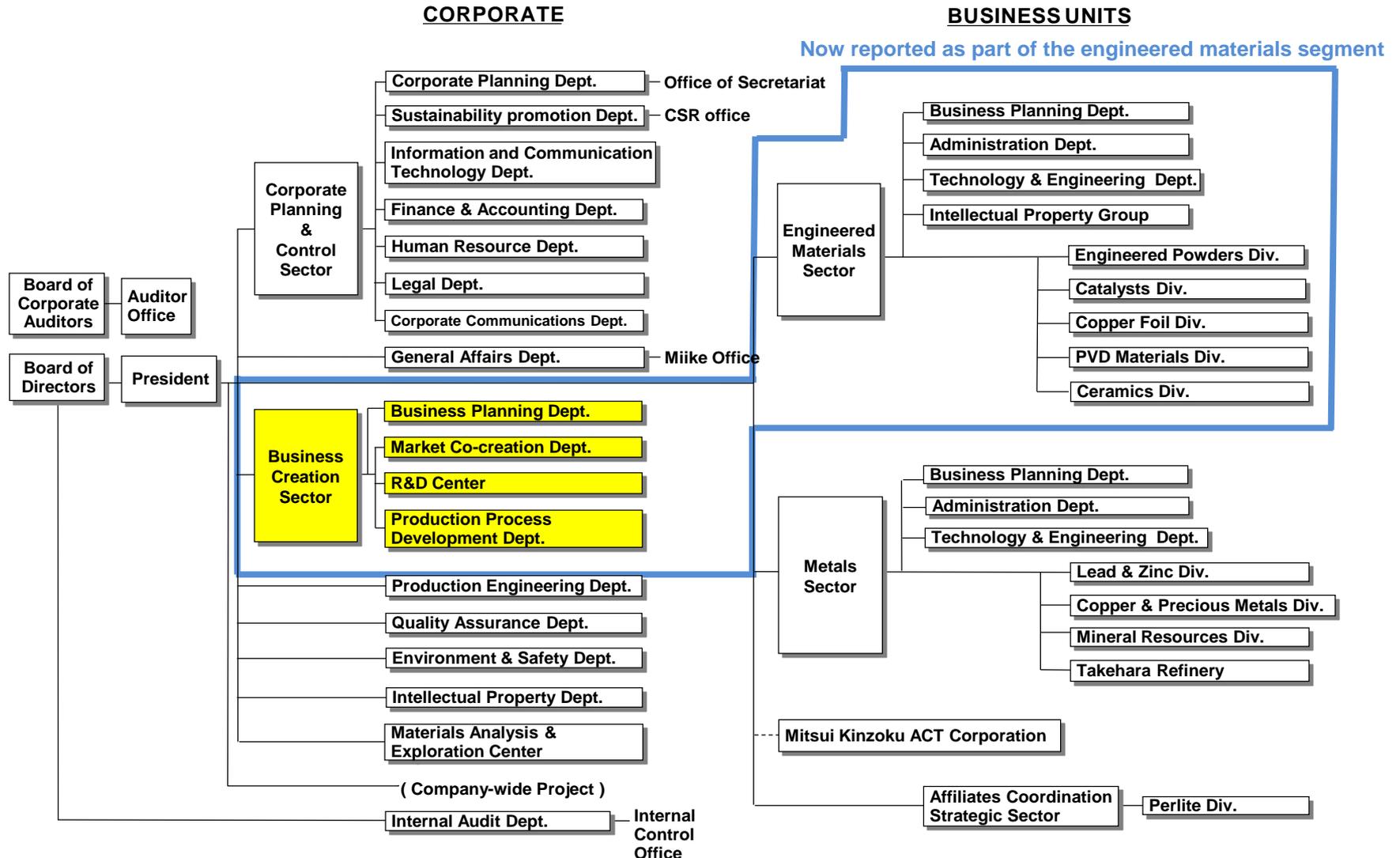
CAPEX (Unit: Billion yen)



- Total 3-year capital expenditures are forecast at 96.7 billion yen, less than the 2019 Plan's target of 105 billion yen. Expenditures decreased in 2020 due to the pandemic.
- We will make most of the 55 billion yen in growth investments in the 2019 Plan.

Business Creation Sector (1)

We established the Business Creation Sector under Corporate because our goal since April 2020 is to do better creating growth products and business.



Actions to develop new business ideas

We established a new corporate sector (Business Creation Sector) to generate more products and business ideas with growth potential, and generate them more efficiently.

Co-creation strategy for generating new markets

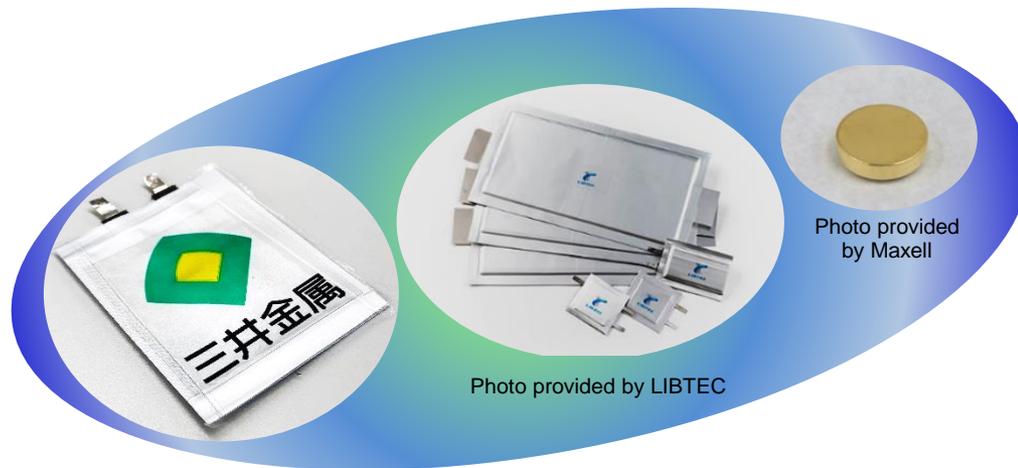
- Cultivate tomorrow's opportunities with consumers and other external contributors (markets).
- Combine our resources* with those of external contributors to generate new products and markets.

Examples of our resources

- Core tech
 - Electrochemical tech
 - Powder control tech
 - Complex compound tech
- Knowhow
 - Material design
 - Evaluation
 - Apparatus
- Sales channels
 - Electronic substrate / electrical device makers
 - Battery makers
 - Automakers



Solid electrolyte for All-Solid State Batteries (ASSBs)



Characteristics

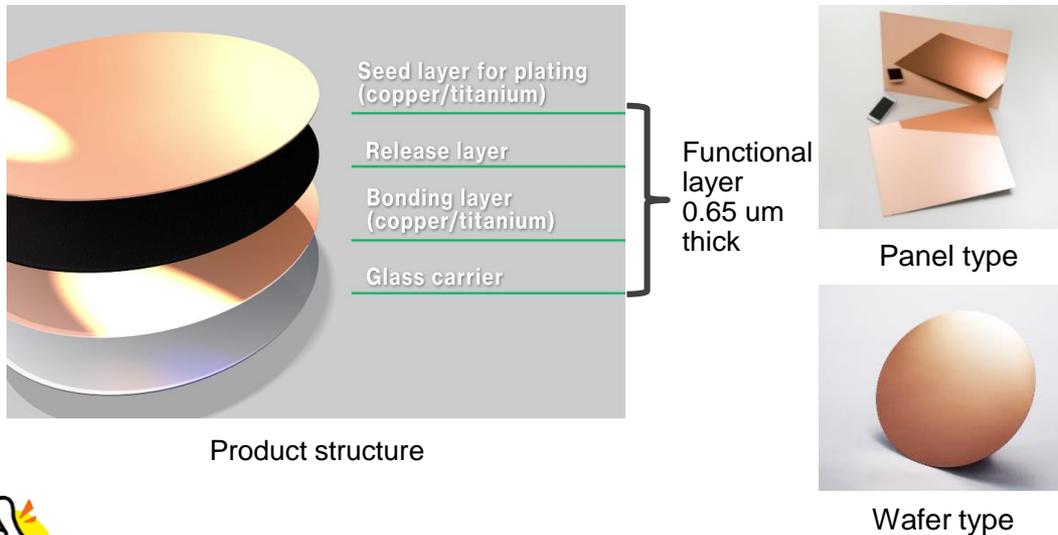
- Powdered solid electrolyte sulfide needed for ASSBs
- The argyrodite crystal structure has high ion conductivity, demonstrating excellent battery properties.

News

- Now shipping small ASSB samples (mAh-class coin-shaped, substrate-mounted) to Maxell
- Started shipping ASSB samples with world-class 1,000 mAh to Hitachi Zosen
- Spurred development of large automotive ASSBs, receiving more inquiries on our solid electrolytes
- Completed mass production test equipment,* working to establish mass production techniques

*December 5, 2019 news release

HRDP[®] - Special Glass Carrier for Next-Gen Semiconductor Chip Mounting -



Characteristics

- Special glass carrier for efficient production of fan-out packaging^{*1}
- Fan-out, chip-last process^{*2} addresses technical process issues to help optimize the customer's process capabilities

 **News** (January 25, 2021 news release)

- In first mass production phase, started shipping to Japanese composite chip module makers in January 2021
- In second phase, will mass produce for major overseas mount manufacturers in FY2021
- Getting more assessments/making preparations with over 30 suppliers developing next-generation semiconductor packaging
- Plan to start mass production for diverse applications: 5G market devices, HPC,^{*3} mobile, etc.

*1. Substrateless packaging technology with fine rewiring expanded to the chip's outside

*2. The rewired layer is formed first and the chip is mounted later

*3. High-Performance Computing: uses computers with extremely fast computing capabilities on a large scale

Progress in 2019 medium-term business plan (as of May 2021)

Business unit	Action plan for 2019–2021	Progress
Functional powders	<ul style="list-style-type: none"> Expand sales of 5G-related products Expand abrasives business 	<p>Poor • Copper powders for electronics have sold less well than planned</p> <p>Good • Abrasive materials sales volume higher than planned</p>
Catalysts	<ul style="list-style-type: none"> Maintain share in motorcycle market Expand sales in automobile market and strengthen technology development 	<p>OK • Maintaining share for motorcycles, but sales volume below target</p> <p>Good • Progress for cars largely as planned</p> <p>Good • Smooth start toward beginning mass production of GPF catalysts in FY2022</p>
Copper foil	<ul style="list-style-type: none"> Expand sales of 5G-related products Expand MicroThin™ sales to HDI makers and non-smartphone PKG makers 	<p>Good • Sales volume of high-end copper foil for 5G above target</p> <p>Poor • Sales volume of MicroThin™ for HDI applications below target</p> <p>Good • MicroThin™ for non-smartphone packaging as planned</p>
PVD materials	<ul style="list-style-type: none"> Make ITOs and IGZOs more competitive and increase their share 	<p>Poor • Shifted focus from expanding ITO market share to earning profits</p> <p>Good • Expanded IGZO market share</p>

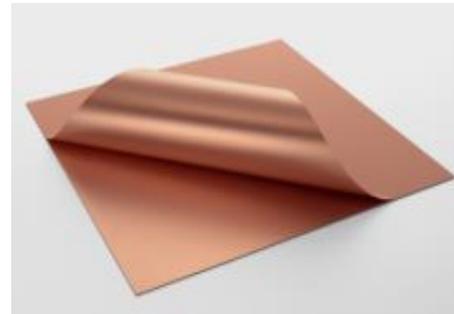
■ copper powders for electronics (right)



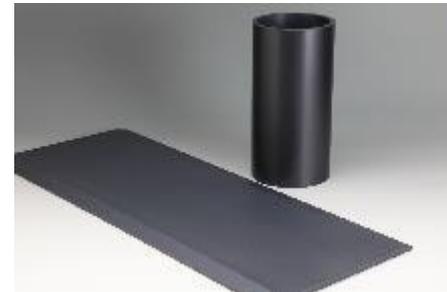
■ catalysts for automobiles



■ MicroThin™



■ ITO sputtering targets (PVD materials)

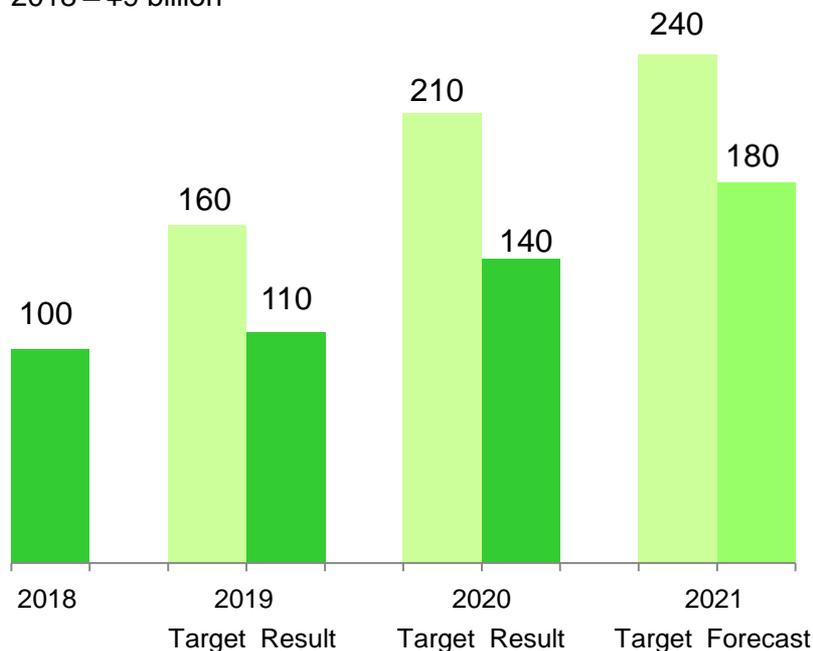


■ Engineered Materials Segment: Performance of 5G products Material Intelligence

Although increased demand is forecast for MLCC copper powder and copper foil from 5G electronic components handling higher frequencies and with better performance, we do not expect to fulfill the FY2021 sales target.

5G product sales

(2018 scaled at 100)
2018 = ¥9 billion



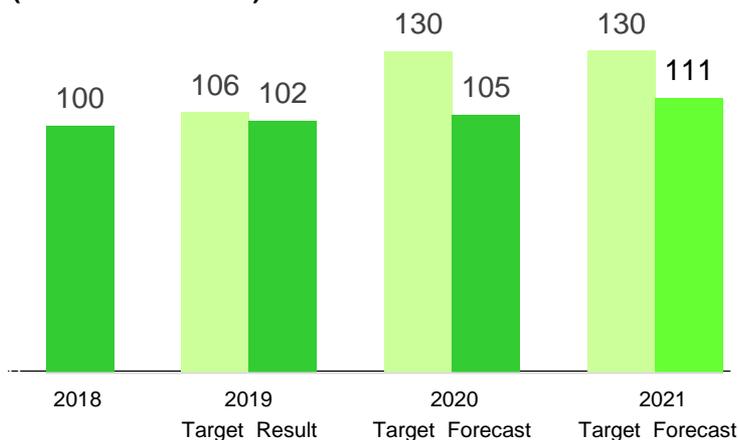
FY2021 5G product trends

- Engineered Powders Div.
 - Copper Powder for MLCC
 - Tantalum oxide for surface acoustic wave filters
 - Both will be far short of targets
- Copper Foil Div.
 - High-end electro-deposited copper foil for 5G
 - Forecast exceeds target, but US-China trade friction could damp growth
 - MicroThin™ for PKG makers
 - Will hold at target level
- Ceramics Div.
 - MLCC firing trays are largely on target

Lower sales of copper powder and tantalum oxide have a big impact that growth in high-end copper foil for 5G cannot cover.

Year-on-year sales rose in FY2020 despite COVID-19. We also forecast growth in FY2021, but the semiconductor shortage is a concern. For the medium to long term, we will use our development capabilities to build our business foundation.

Expected sales of catalysts for motorcycles (2018 scaled at 100)



● Sales volume in 2020

- We had forecast higher unit sales of catalysts due to India's shift to the BS6 standard in April 2020 (1→2 per vehicle), but COVID-19 kept them flat year-on-year.

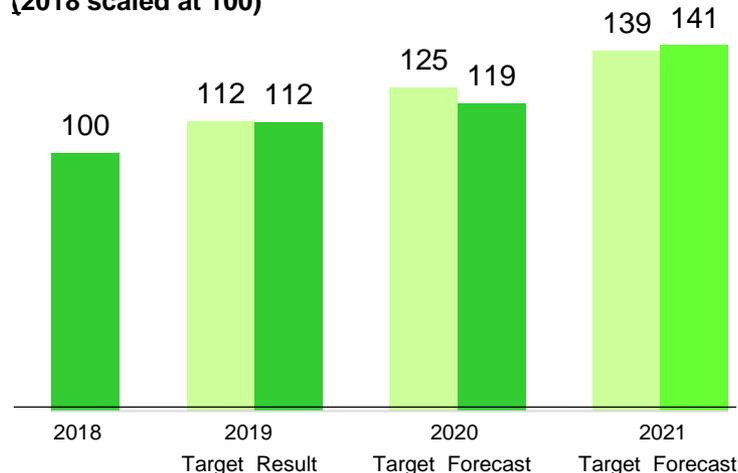
● Sales volume in 2021

- COVID-19 has slowed the recovery and sales are forecast below target.

● Upcoming Strategy

- Sustain share by adapting to reduction of precious metals and forthcoming regulations in different countries.

Expected sales of catalysts for automobiles (2018 scaled at 100)



● Sales volume in 2020

- COVID-19 slowed the market down, but new orders in Japan and India increased year-on-year sales.

● Sales volume in 2021

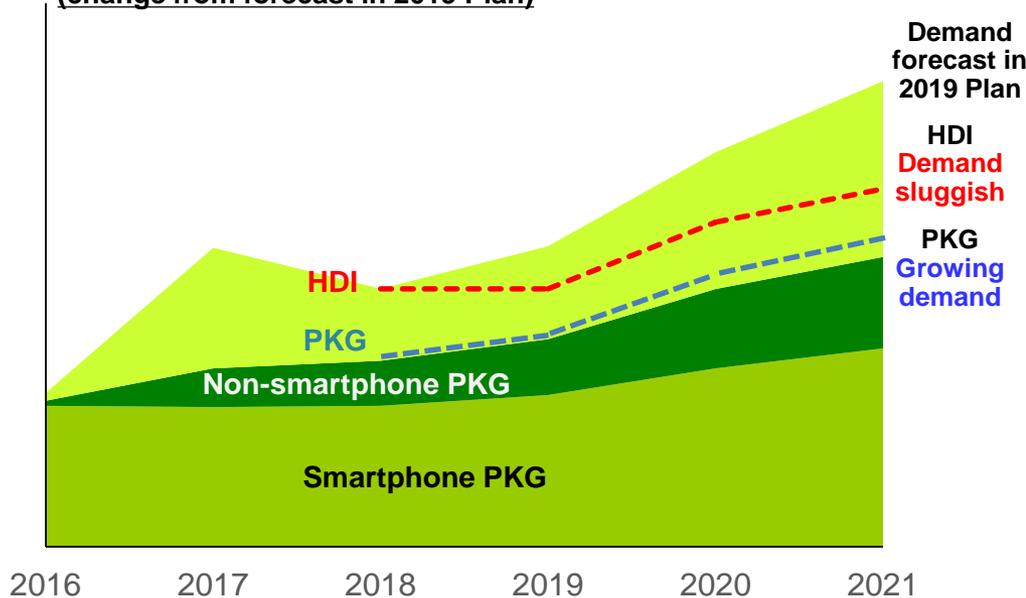
- We forecast sales meeting our target.

● Upcoming Strategy

- With more electrification forthcoming, recover investments, including those in GPF catalysts.
- Find new growth opportunities by developing technology to adapt to reduction of precious metals and forthcoming regulations in different countries.

Growth in demand for MicroThin™ in HDI** boards has slowed due to slower take-up. **HDI = High density interconnect
 5G-related demand for MicroThin™ for PKG* is forecast to exceed expectations. * PKG = Package substrate

Demand Forecast for MicroThin™ (change from forecast in 2019 Plan)



MicroThin™ in HDI boards

- From 2021
 - More 5G smartphones
 - New adoption by Korean and Chinese firms stalled
 ⇒ Will ascertain in the next medium-term business plan

MicroThin™ for PKG

- Demand for smartphone and non-smartphone uses (external memory, etc.) will steadily rise.
 - ⇒ We forecast higher demand accompanying the 5G rollout.
- Steady relocation of production to Malaysia
 - Malaysia location will cover demand beyond production capacity in Japan
 - Flexible supply from Japan and Malaysia
 ⇒ Variable demand, stronger BCP

MicroThin™ Sales for PKG (2016 scaled at 100)

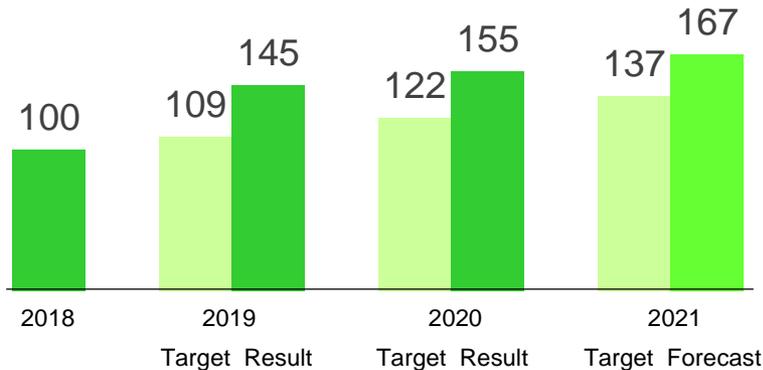
Year	2016	2017	2018	2019	2020	2021 forecast	2021 Plan
Sales Volume	100	112	108	130	155	175	160

MicroThin™ for PKG = Smartphone PKG + Non-smartphone PKG

5G commercialization is expected to pick up speed in 2021.

Deployment of full-spec 5G from 2022 will increase 5G-related demand for copper foil.

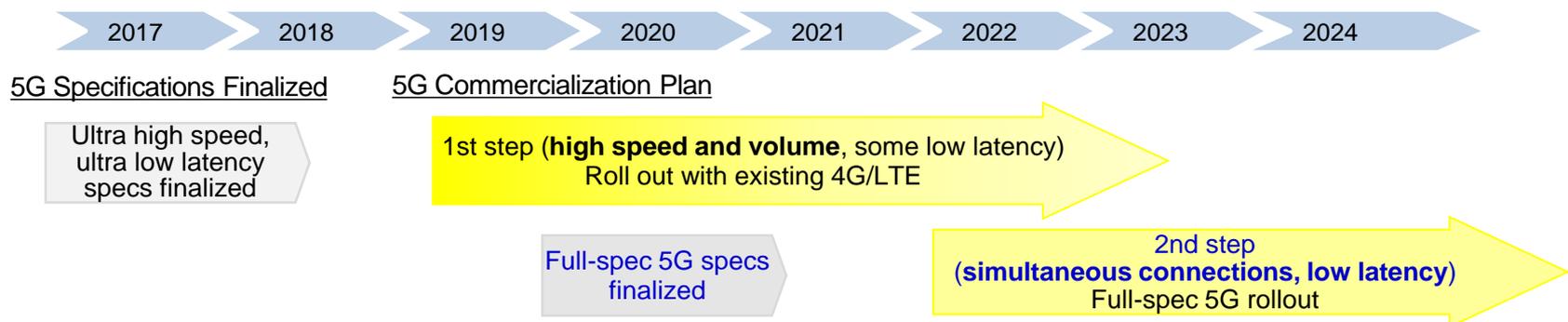
High-end electro-deposited copper foil for 5G markets (2018 scaled at 100)



- For high-frequency communications: Demand for high-end copper foil for 5G markets will grow faster than expected, so sales are forecast to continue growing.
 - We will steadily obtain new certifications.
- ⇒ Demand for mid-range copper foil in servers is also forecast to grow.

Applications: servers, routers, base stations

Ref: 5G Roadmap

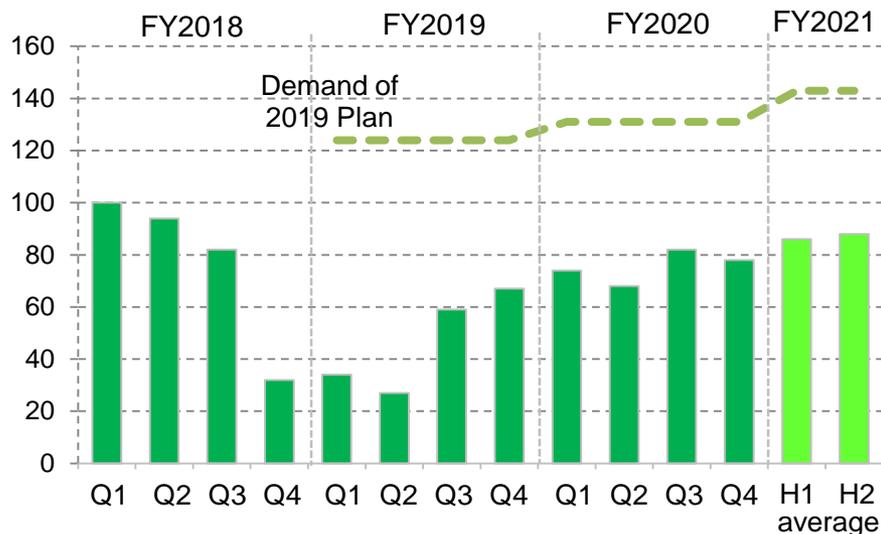


■ Engineered Materials Segment

– Copper powders and ITO sputtering targets for electronics

Sales of copper powders for electronics

(18Q1 scaled at 100)



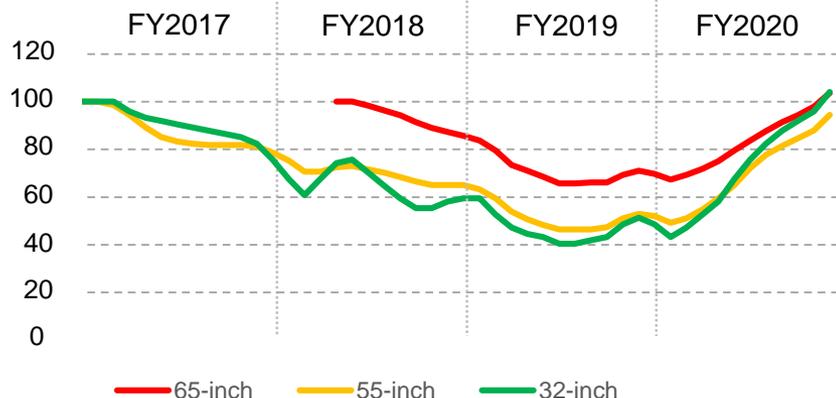
- Segment has maintained recovery trend that began in FY2019 Q3. Demand is lower than expected, but should increase in the long run.
- Among production capacity increases,* we will reconsider further investment in the delayed new Hikoshima plant in the next medium-term business plan.

*August 2, 2018 news release

- Production capacity increased at Kamioka plant (Hida City, Gifu Prefecture).
- Only the building at the new Hikoshima plant (Shimonoseki, Yamaguchi) is done.

PVD materials (ITO sputtering targets)

LCD panel prices (April 2017 scaled at 100)
(for 65-inch, August 2018 is scaled at 100)



- Panel prices have risen 10 straight months and returned above levels at the end of FY2019. The market environment continues to improve.
- We are implementing the business improvement plan, including the end of production and sales by our Korean subsidiary*

⇒ We will continue global action to cut costs and raise prices.

*December 10, 2020 news release

Action plan for 2019–2021

Action plan for 2019–2021 (targets)		Progress	Future policies
Smelting	<ul style="list-style-type: none"> Start operation at Kamioka hydropower station 	<p>Good • Power station started supplying power in April 2019</p> <p>Good • Power output/profits both as planned</p>	<ul style="list-style-type: none"> Ensure stable operation Examine new deals
	<ul style="list-style-type: none"> Increase processing of recycled materials (including lead) 	<p>OK • Increased raw materials process on target</p>	<ul style="list-style-type: none"> Exploit new raw materials and further raise processing
	<ul style="list-style-type: none"> Sell more corrosion-resistant zinc alloys 	<p>Poor • Sales volume has decreased due to COVID-19</p> <p>Good • Concentrating on joint development</p>	<ul style="list-style-type: none"> Sales to recover demands after COVID-19 Continue product development in accordance with the market needs
	<ul style="list-style-type: none"> Make copper and precious metals business more competitive 	<ul style="list-style-type: none"> PPC* copper smelting business overhaul (April 2020) Caserones interest transferred (February 2021) Collahuasi interest transferred (March 2021) 	<ul style="list-style-type: none"> Rebuild smelting network to recover more valuable metal

*PPC = Pan Pacific Copper Co., Ltd.



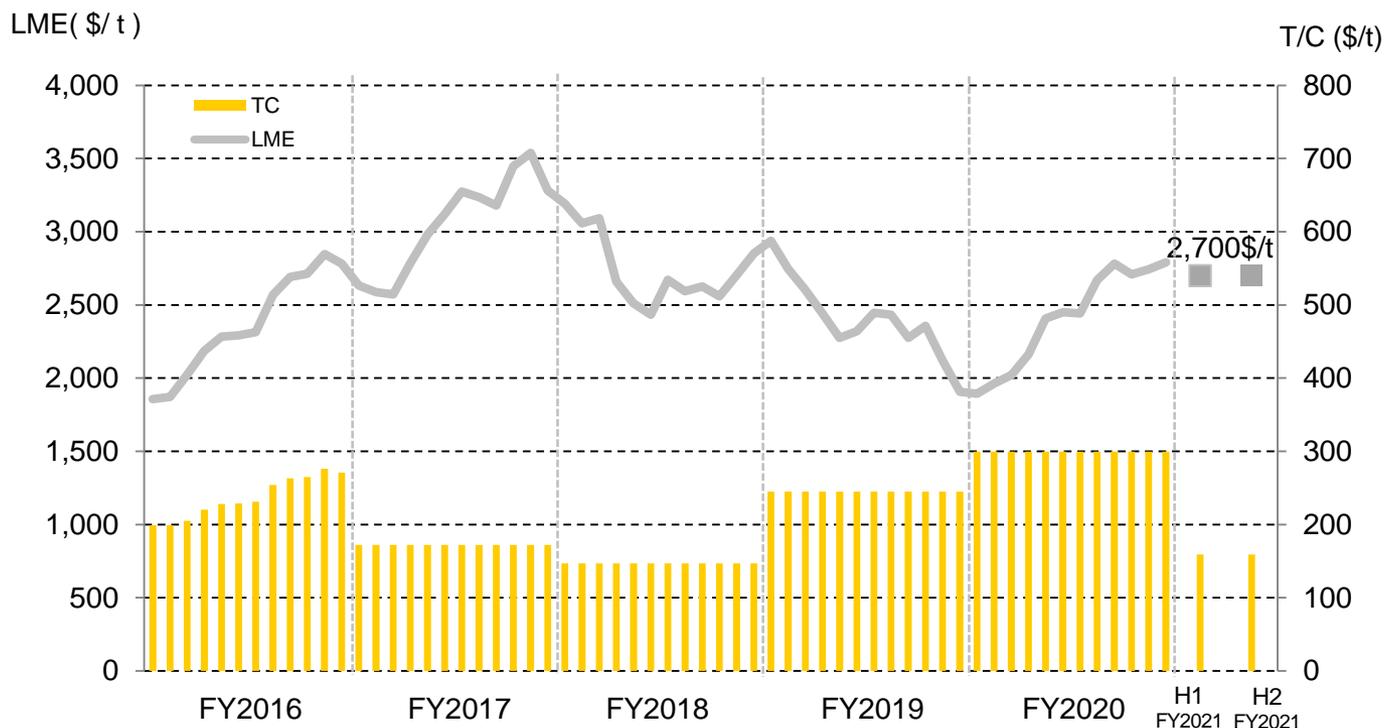
Discarded boards from recycled materials (example)



Unprocessed lead recovered by smelting recycled materials (example)

- TC settled at \$159/t in 2021.
- In FY2020, worldwide monetary easing caused speculative funds to flow in and boost the price of zinc to \$2,795/t by the end of the year. In FY2021, the price is forecast to keep rising to \$2,700/t due to the prolonged pandemic and further inflows of funds.

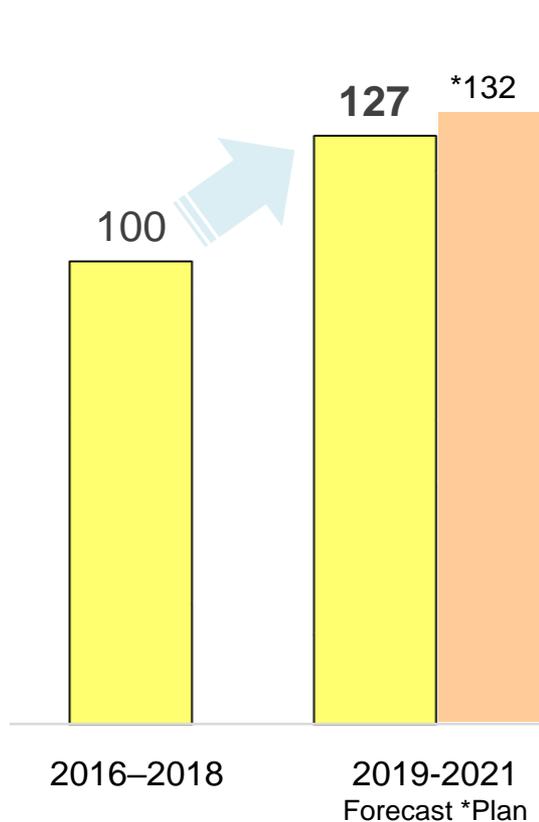
● Trends in zinc price (LME) and treatment charge (TC)



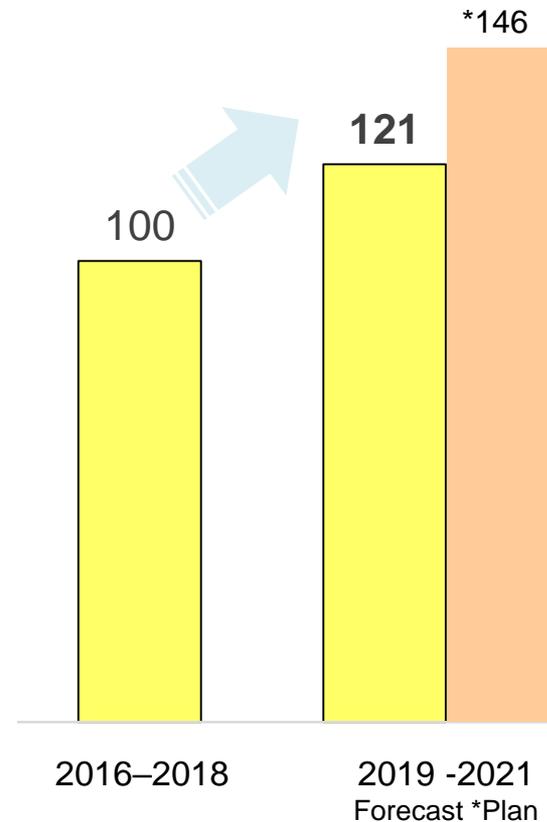
TC	\$203 /t	\$172/t	\$147/t	\$245/t	\$299.75/t	\$159/t
Benchmark	(\$2,000/t)	(-)	(-)	(-)	(-)	(-)

We are steadily processing more recycled materials and making more byproducts compared to during the 2016 Plan (2016-2018), although we have not met targets due to lower overseas procurement of raw materials because of COVID-19.

● Recycled lead processing

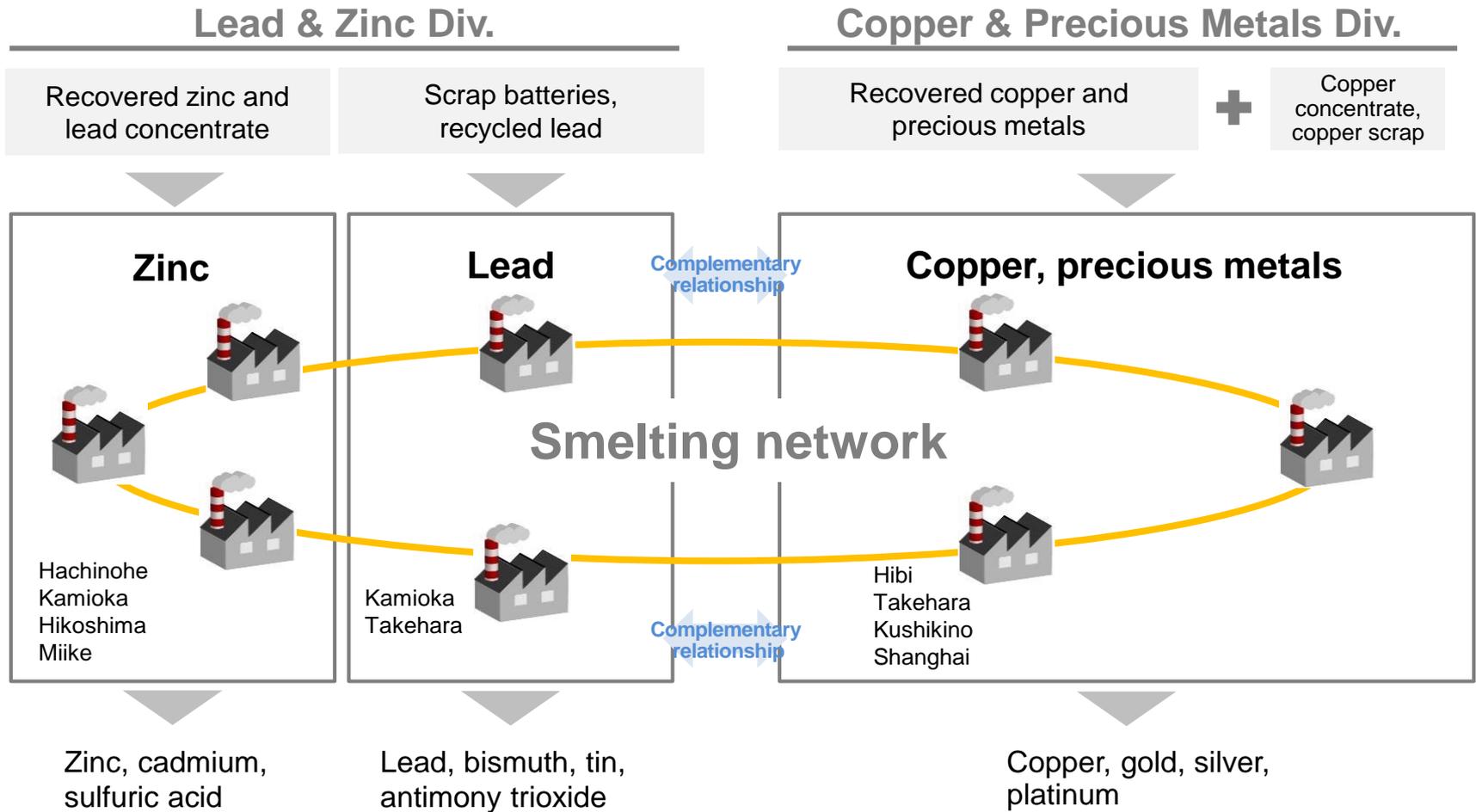


● Lead by-products production



Metals Segment - Smelting network

The two divisions will reinforce and supplement each other to enable better overall efficiency and synergy.



Action plan for 2019–2021

Actions	Progress
<p>Win large strategic orders (expand sales) → Secure business for 2022 and beyond</p> <ul style="list-style-type: none"> • Continuing to promote system products for CASE mobility (with focused investment of business resources) • Expand business and R&D organization in North America and Europe • Start up Moroccan plant 	<p>Good • Won orders for four sliding door systems in cars (e.g. EVs used for sharing services)</p> <p>Good • Offer door latches to European OEMs to win orders</p> <p>Good • Start door latch assembly and production in February 2021</p>
<p>Improve cost competitiveness → Achieve 2019 Plan's goals; prepare foundation for 2022 and beyond</p> <ul style="list-style-type: none"> • Lower costs to reflect smaller global market / demand • Cut fixed costs by adopting smart, ICT-driven production systems in overseas plants and investing more judiciously 	<p>Poor • Sales are much lower due to the pandemic</p> <p>Good • Additional/heavier cost-cutting measures worldwide</p> <p>Good • Deploy knowledge from smart plant retrofitting in Japan (since FY2019) to overseas plants</p>

In response to the COVID-19 impact on sales, we are doing more to lower costs, while investing more in efforts to market products for automotive systems.

Moroccan plant (Mitsui Kinzoku ACT Tanger Maroc SARL)



Door latch production line



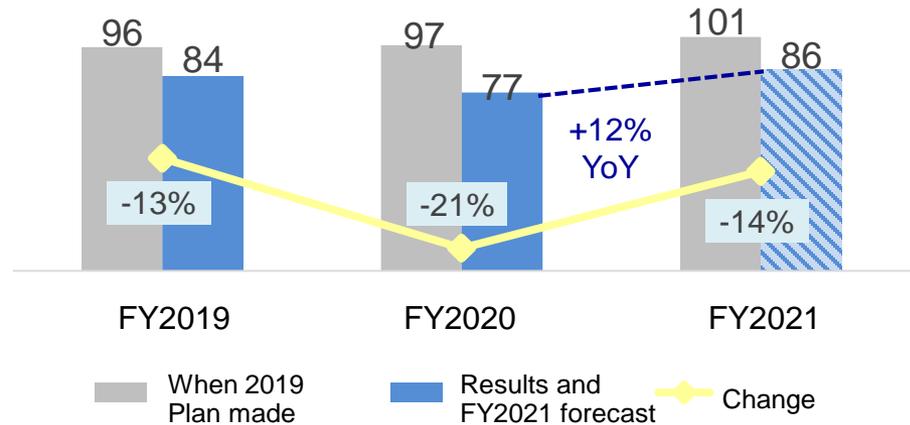
Current business environment

- Global automobile production fell significantly due to US-China trade friction and COVID-19.
- The market will gradually recover from FY2021

FY2021 Global Automobile Production

- 15 million fewer from time of 2019 Plan production (-14%)
- 9 million more compared to FY2020 (+12%)

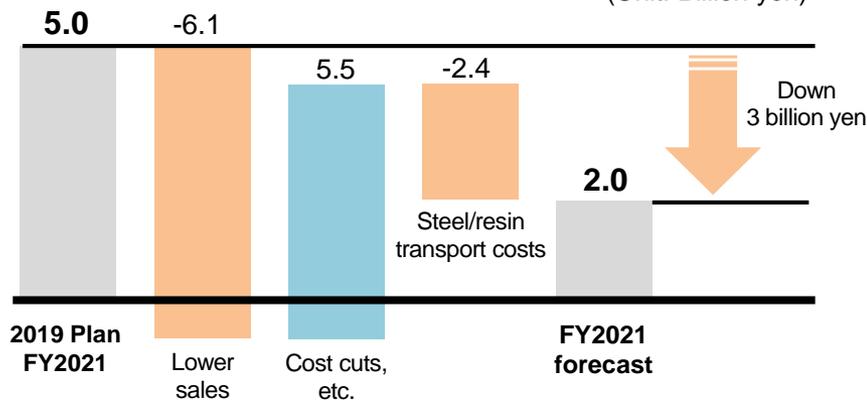
Change in cars produced globally (million vehicles)



Source: IHS Markit

FY2021 results forecast

(Unit: Billion yen)



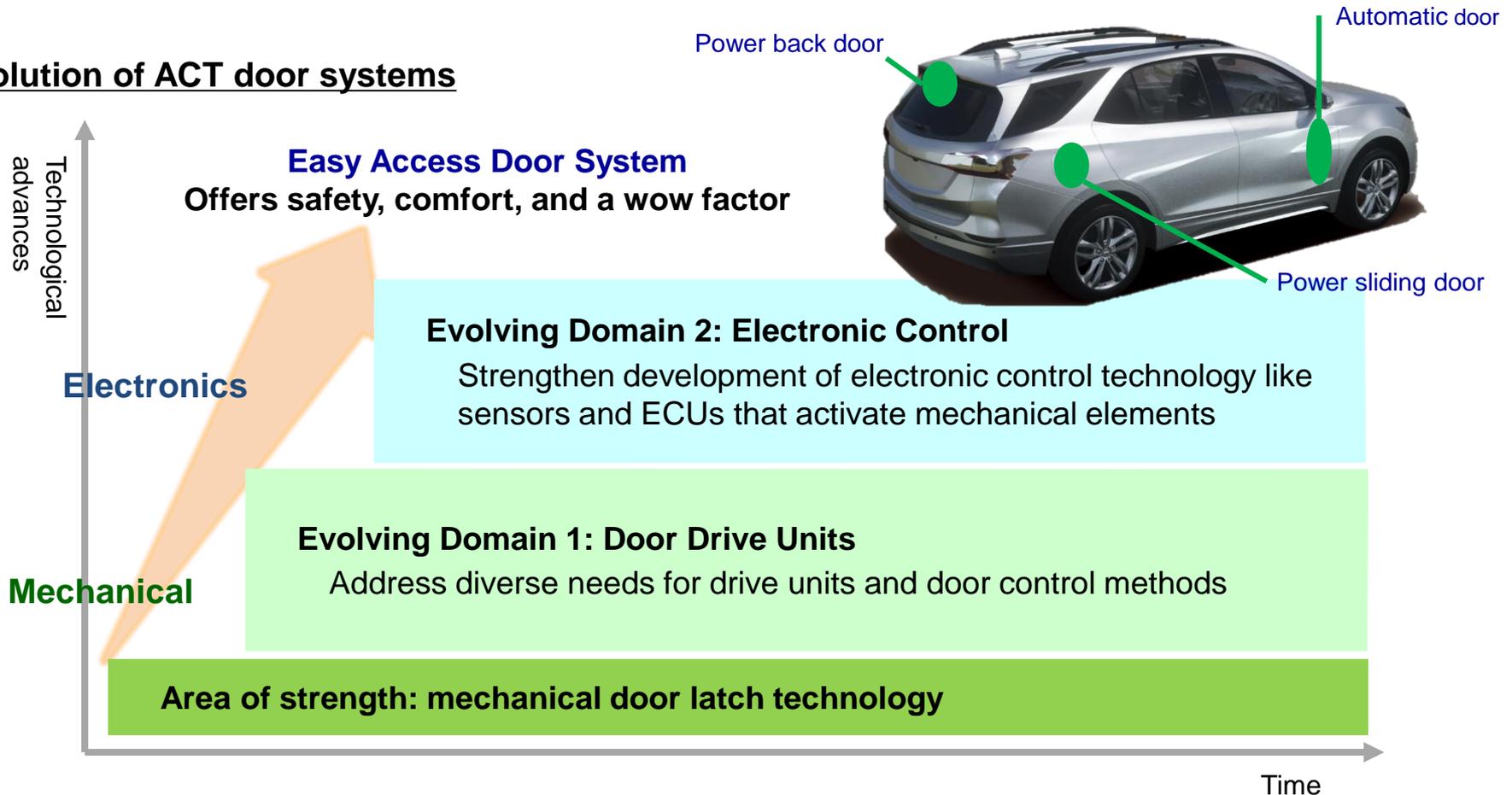
- Reduced automobile production, soaring material prices, and higher transport costs affect profit/loss
- Even greater cost cuts than in the 2019 Plan cannot make up for much lower sales

Product ideas and marketing for CASE* mobility; future vision

* CASE stands for Connected, Autonomous, Shared, Electric. It describes a new market trend for next-gen auto technology and services.

- The emerging CASE trend should fuel demand for door systems
- Focus on combining our electronic control technology with our latch tech accumulated over long years, offering new door products as a door system supplier, and promoting CASE-compatible mobility applications

Evolution of ACT door systems



We will take the following action to be a company that creates long-term value.

- 1 Purpose
- 2 Management under a unified concept
- 3 Ambidextrous management
- 4 Improved governance

We will have in-depth deliberations on the above that will connect to the 2022 Plan.

Statements contained in these materials regarding forecasts of future events are qualified by various risks, both existing and unknown, and uncertainties, which may have a material impact on the actual business conditions and operational activities. Consequently, please be aware that actual performance may differ substantially from forecasts and business plans indicated herein because of various unforeseeable factors.

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