



# Reference Material for the Medium-Term Management Plan (TVC 2022)

## — Implementation and Plan of Action

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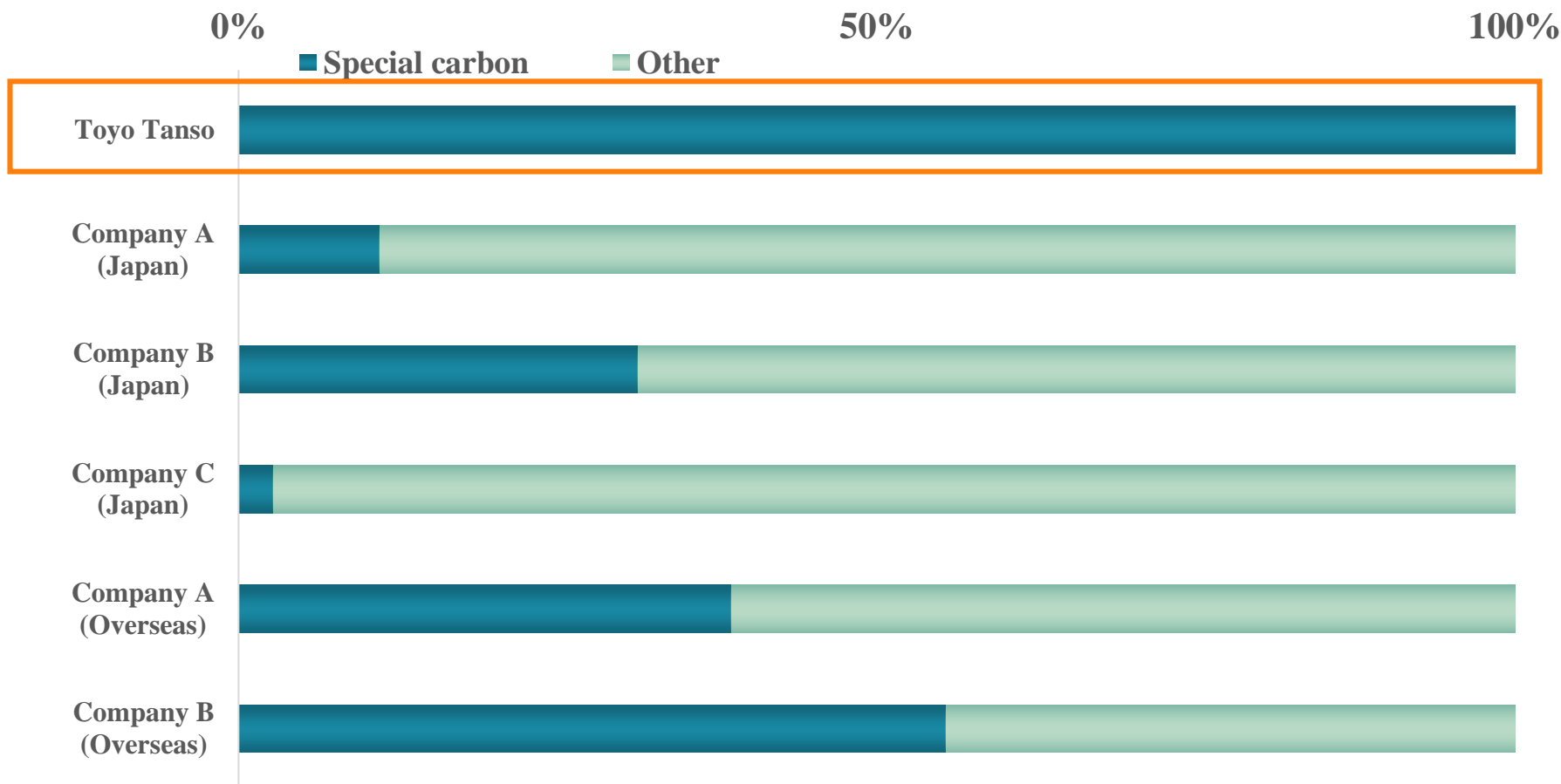
# 1. Overall Position of Toyo Tanso

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# 1. Overall Position of Toyo Tanso

## The only manufacturer specializing in fine carbon with a focus on special carbon

Special carbon (fine carbon) as a percentage of net sales per carbon manufacturer  
(Estimates prepared by Toyo Tanso)





## **2. Awareness of the Issues**

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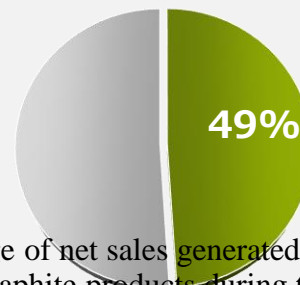
## 2. Awareness of the Issues

### (1) Propensities of the Business Portfolio



#### ✓ Business structure dependent on special graphite products

Prospect of sustainable growth unlikely from special graphite products alone amid intensifying competition due to emergence of Chinese companies

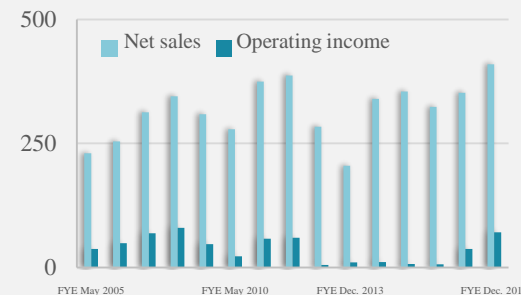


Percentage of net sales generated by special graphite products during the fiscal year ended December 31, 2018



#### ✓ Earnings structure affected by circumstances in the electronics market

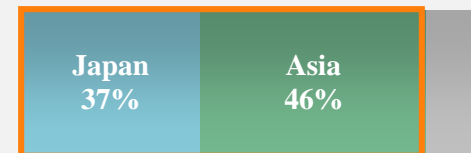
Substantial earnings volatility makes it difficult to consistently engage in investment, which in turn hampers prospects for spurring growth in major pillars of business



#### ✓ Expansion centered on Asia

Building robust foundations in Japan and elsewhere in Asia, but presence in other geographic regions is limited

**Total 83%**



Proportion of net sales by geographic region in the fiscal year ended December 31, 2018

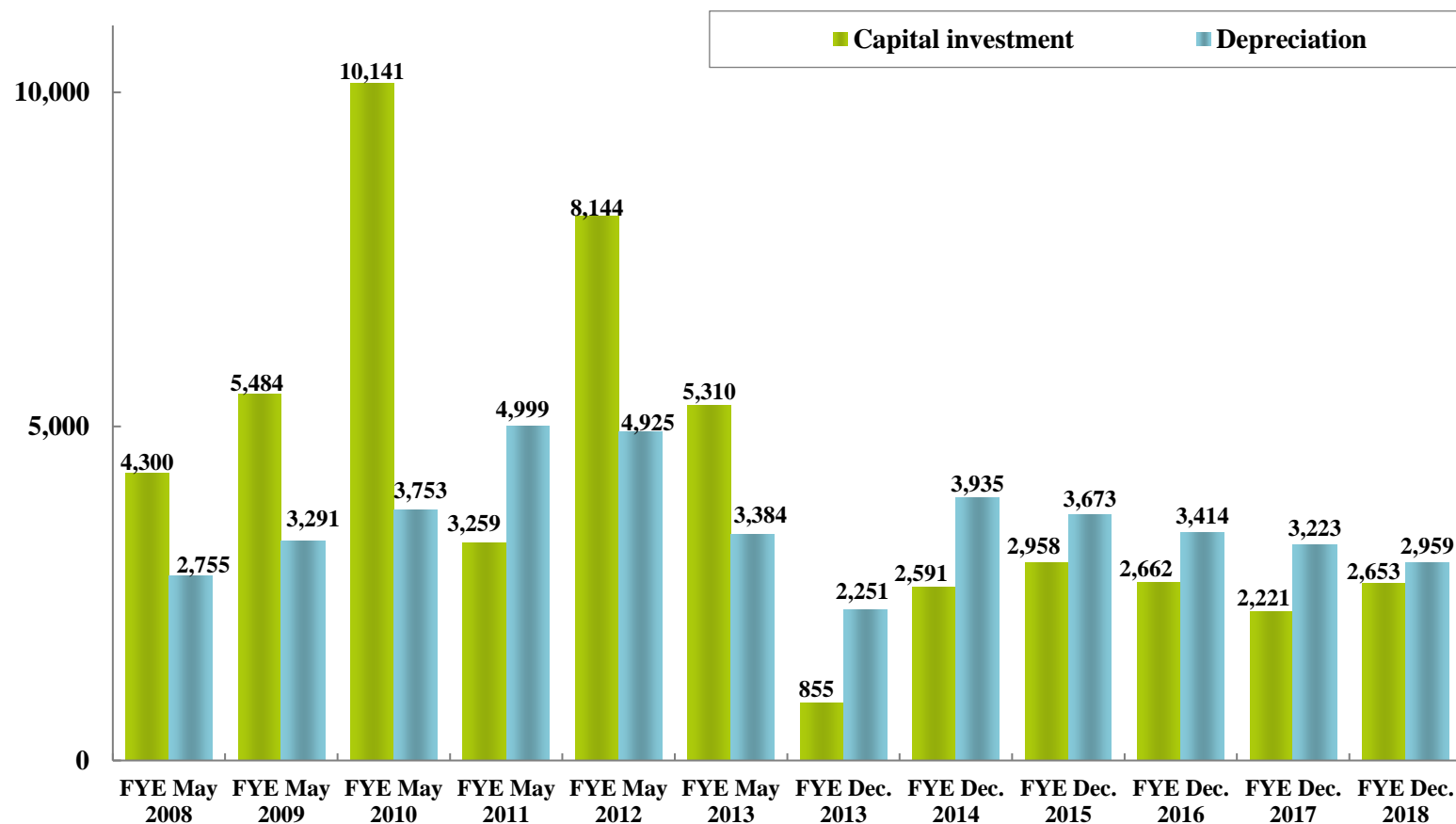


## 2. Awareness of the Issues

### (2) Insufficient Investment

✓ Very little investment has been made over the last several years with sights set on medium- to long-term growth

(Unit: Yen, millions)



Note: The final day of the fiscal period was changed from May 31 to December 31 as of the fiscal year ended December 31, 2013.

For this reason, the fiscal year ended December 31, 2013 was an irregular seven-month fiscal period (nine months for some subsidiaries).

## 2. Awareness of the Issues

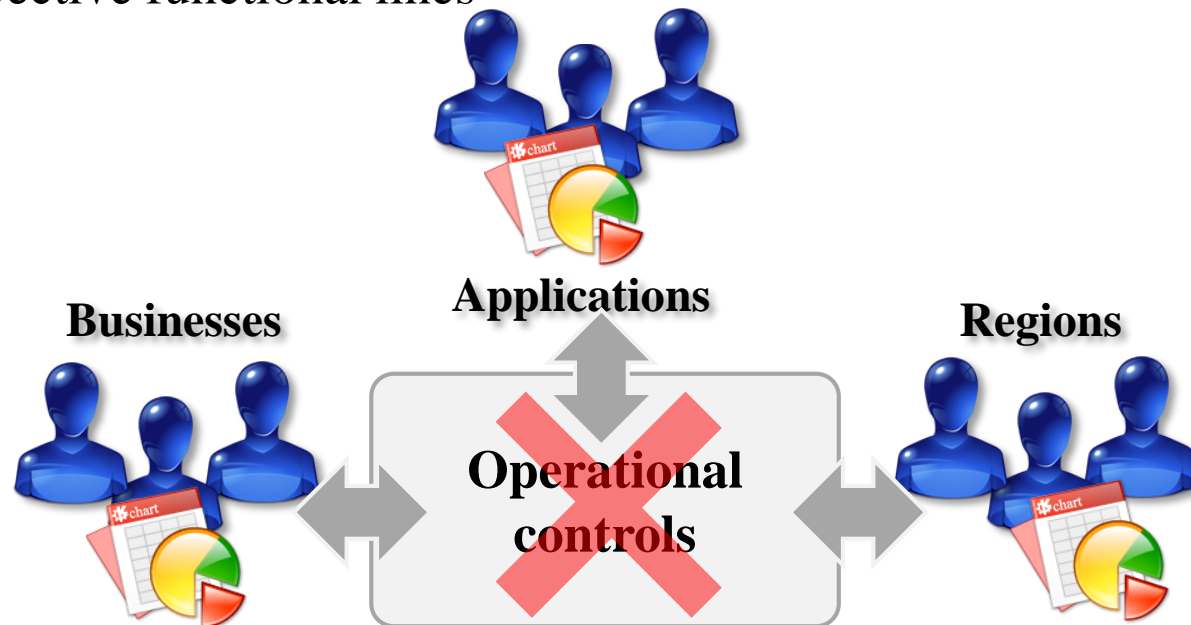
### (3) Barriers to Promoting Growth Scenarios

#### ✓ Growth strategy lacking specific aims

A strategic investment budget of 30 billion yen and ROE of 8% are the only quantitative targets disclosed externally under the new medium-term management plan released in February 2018

#### ✓ Development of strategy promotion framework is halfway to completion

The different strategies are inconsistent given a lack of operational controls along respective functional lines







## **3. Medium-Term Management Plan (TVC 2022): Implementation and Plan of Action**

## 3-1. Its Significance



**Our business objective is to create a path geared to transformation involving a shift to growth**

⇒ This will involve securing financing, enhancing functional/organizational capabilities, and robustly executing the strategies under the firm leadership of management

In order to achieve growth, we will focus on the aims of **building stable foundations of business that do not rely on specific markets and improving production efficiency to achieve a leap forward into the future.**

## 3-2. Environmental Awareness

<p>Market environment</p>	<p>✓ Although the electronics applications sector, auto industry, general industries applications, and other such fields will be subject to an adjustment phase in some respects, <b>we anticipate consistent growth</b> over the medium to long term largely amid the increasing prevalence of IoT, AI, and EV technologies.</p>
<p>Competitive environment</p>	<p>✓ We lack businesses that have an overwhelming market presence, which is precisely why <b>there is room for further growth in our existing areas of business</b></p> <p>✓ With our competitors undertaking bold investments encompassing mergers and acquisitions, Toyo Tanso must establish a firm position by strengthening alliances and M&amp;A initiatives in <b>domains where independent coverage is not possible</b> (carbon-related business and technologies), based on the notion of achieving growth in our existing businesses</p>
<p>Conceivable risk</p>	<p>✓ It is possible that Chinese companies will also mount a future offensive in the value-added domain of isotropic graphite</p> <p>✓ Industry reorganization</p>

### Transitioning away from our current business structure

Business structure dependent on special graphite products

Earnings structure affected by circumstances in the electronics market

Expansion centered on Asia

### Vision over the medium to long term

#### Building pillars of growth and enhancing the earnings platform

We will **tap growth domains and place focus on high value-added products** in order to build new pillars of growth and enhance our earnings platform, thereby shifting to a business structure that does not solely rely on special graphite products

#### Establishing a consistent portfolio

We hold electronics volatility in check and build stable business foundations by **diversifying operations across end-market industries**

#### Making the leap to becoming a global company

Toyo Tanso will make the leap toward becoming a global enterprise extending beyond our current operations in Asia which will involve **enhancing capabilities of our subsidiaries (production, sales, and management)** in order to more rapidly achieve overseas expansion primarily in Europe, the US, and emerging countries

## 3-4. Key Initiatives and Significance of Respective Businesses

### Key initiatives

#### Enhancement and innovation of production technology

- Main theme involves **improving productivity** and **shifting to higher value-added products**
- Under the long-term vision optimize functions of production and appropriately set up next-generation production facilities incorporating AI and automation
- Give consideration to the environment and future labor shortage

#### Reinforcement of overseas expansion efforts

- Despite having steadily developed a presence abroad, multiple applications have not captured overseas market share
- We are currently installing/upgrading equipment and developing human resources at respective subsidiaries given the need to embark on **enhancement of processing capabilities overseas** to make inroads

### Significance of businesses

Special graphite products	<b>Differentiation</b>	<b>Focus on domains entailing high added value</b> , rather than recklessly scaling up operations, given that these products generate top earnings when market conditions are positive, yet are prone to volatility
Carbon products for general industries (mechanical applications, electrical applications)	<b>Stability</b>	Support position with the aim of building a business platform that generates consistent cash flows not susceptible to electronics market conditions
Compound materials and other products (SiC, C/C, Graphite sheet)	<b>Growth</b>	<b>Develop into a business that drives earnings</b>

# 3-5. Trajectory of Business Strategy

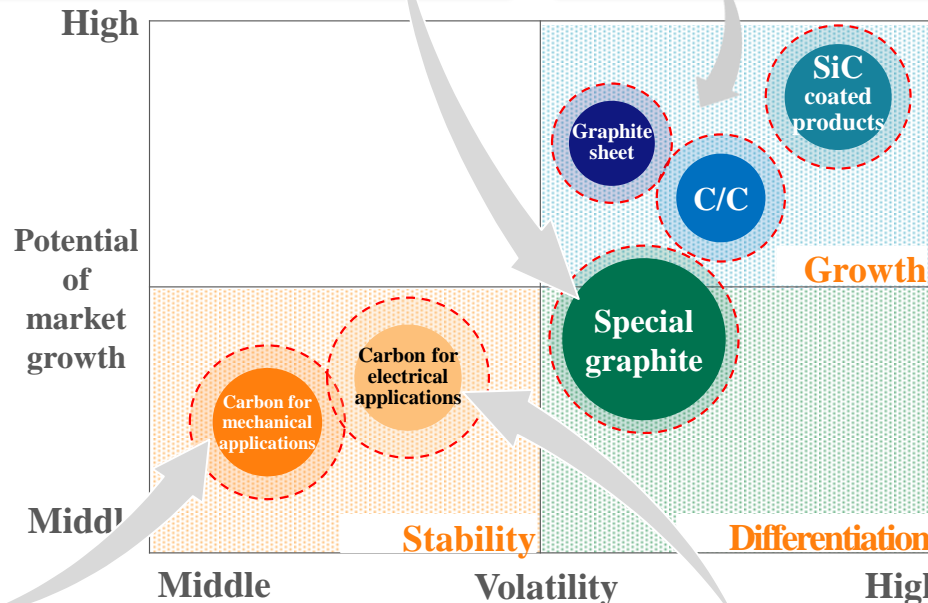
## Resources to be concentrated in four domains promising growth, earnings, and stability

### (1) Expand market share in high value-added domains

- Substantial potential in terms of both earnings and consistency
- Low level of threat from Chinese companies given emphasis on quality

### (4) Win over customers abroad by enhancing development of applications involving compound materials

- Sufficient competitive strengths in terms of technological capabilities
- Potential for further stabilization and streamlining of operations if we win over European and US customers



- Depicts current earnings performance
- Depicts future earnings performance

### (2) Win over customers abroad by enhancing cost competitiveness

- Anticipation of consistent growth
- Potential to achieve the next level of growth by heightening cost competitiveness through efforts to enhance production technologies

### (3) Enhance market entry efforts with respect to carbon brushes for automotive and industrial applications

- Anticipation of consistent growth
- Low level of threat from Chinese companies given emphasis on quality

## 3-6. Quantitative Targets

Alliances  
and M&A

**Existing (peripheral) products/businesses**

**Currently seeking alliances and M&A opportunities focused on carbon-related business/technology with plus-alpha potential**

New products and  
businesses to get into

### Medium-Term Plan (2022)

Aiming for  
**net sales** of at least **50 billion yen**,  
**operating income** of at least **8 billion yen**, and **ROE** of at least **8%**

➤ **Driven by mainstay existing businesses (independent and existing domains)**

Newly  
developed/cultivated  
products

**Existing domains**

**New business domains**

# 3-7. Business Strategy <Special Graphite Products>

## Currently

- Captured a certain share of the market in Japan/Asia, but maintained a weak presence in Europe and the US
- Chinese players are entering the scene in China's solar power market

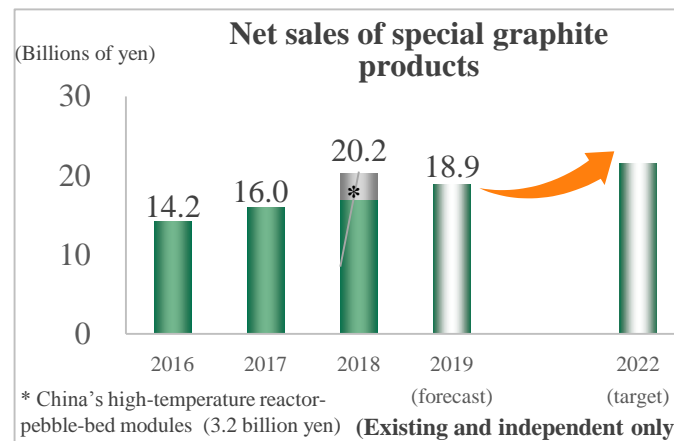
## Size of primary target market

**63 billion yen**

- Semiconductor-related applications: 58 billion yen
- EDM (high value-added domains): 5 billion yen (EDM = electrode for electric spark machining)

## CAGR of primary target market (2017-2022)

Semiconductor-related applications: **18%**



## Policy

- **Increase net sales to 20 billion yen (2022 target year)**
- **Expand market share in high value-added domains**  
We will focus on areas with low susceptibility to risk of market erosion by Chinese players such as semiconductor-related applications (susceptors for MOCVD devices, large crucibles for the manufacture of single-crystal silicon, etc.) and high value-added EDM. We also aim to focus our efforts on expanding market share mainly in Asia and North America by enhancing volume and quality of processing and technical sales overseas and improving lead times.
- In the Chinese market, we will maintain and expand business involving solar cells and EDM for general-purpose items where volatility risk is high, while striving to maintain balance.



# 3-7. Business Strategy <Carbon Products for General Industries — Carbon Products for Mechanical Applications>

## Currently

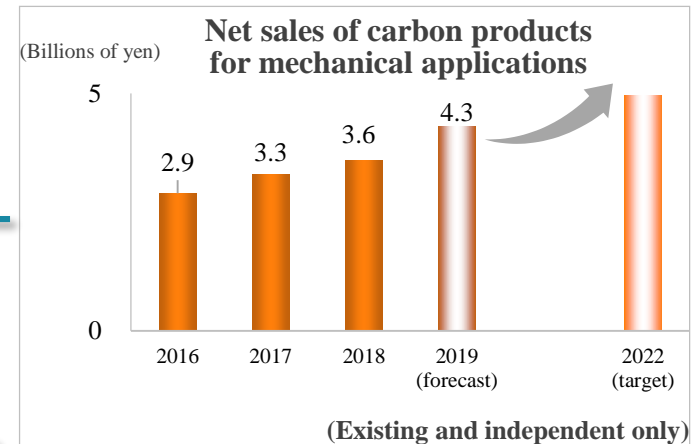
- Initiated deliveries for German automotive applications and are furthermore in the process of achieving steady expansion
- Captured a substantial share of the Japanese market for pantograph sliders, and gained orders for Chinese subways which will help open the door for full-fledged overseas expansion going forward

## Size of primary target market

Automotive applications, water pump applications: **22 billion yen**  
Pantograph sliders: **2 billion yen**

## CAGR of primary target market (2017-2022)

Automotive applications, water pump applications: **8-10%**  
Pantograph sliders: **7-12%**



## Policy

### • Reinforcement of overseas expansion efforts for automotive applications

We will augment production systems of German subsidiaries looking toward capturing share mainly with respect to European and US automotive applications. We aim to become a player with a certain market presence.

### • Reinforcement of overseas expansion efforts with respect to pantograph sliders

We will develop sliders for the Chinese market which is poised for growth, and otherwise gain access to markets. We are currently developing sliders for Japanese high-speed railways.

# 3-7. Business Strategy <Carbon Products for General Industries — Carbon Products for Electrical Applications>

## Currently

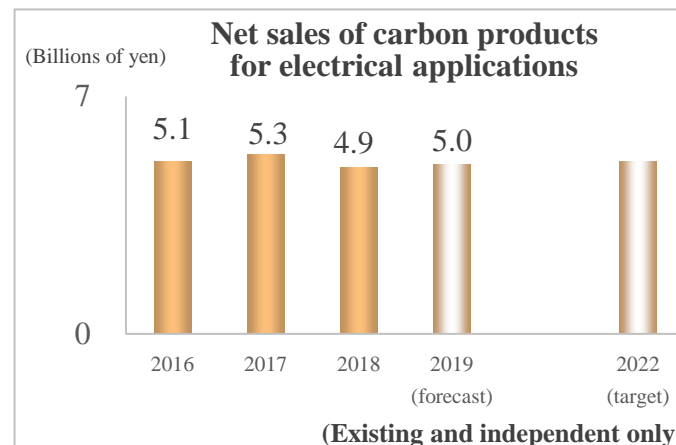
- Share of the overall market for carbon brushes amounts to several percent despite having captured a certain share of the markets for home electronics and power tool applications and for some automotive applications
- Major Chinese players lack market presence, and the risk of Chinese players entering the scene still remains seemingly low

## Size of primary target market

Industrial applications: **45 billion yen**  
 Automotive applications: **45 billion yen**  
 Home electronics and power tool applications: **60 billion yen**

## CAGR of primary target market (2017-2022)

**4%**



## Policy

- **Enhancement of market entry efforts with respect to carbon brushes for automotive and industrial applications**

We will pursue expansion of market share through proactive investment to improve product quality, and will also explore possibilities involving alliances with other companies and consider going in the direction of strengthening operations drawing on other strengths

# 3-7. Business Strategy <Compound Materials and Other Products — SiC-Coated Graphite Products>

## Currently

- Captured substantial market share with respect to Japanese, South Korean, and Taiwanese customers in the MOCVD device aftermarket, and currently increasing sales looking toward greater share of the market for Chinese and European/US
- Already captured substantial share of the SiC-Epi and Si-Epi aftermarkets

## Size of primary target market

**12 billion yen**

– MOCVD device aftermarket: 9 billion yen

## CAGR of primary target market (2017-2022)

**14%**



## Policy

- **Aiming to double sales by 2022 (in comparison with 2018)**
- **Expansion of share of MOCVD device aftermarkets**  
We will gain a greater share of the Chinese and European/US MOCVD device aftermarkets, where there is potential for expansion of our share, by improving coating technologies, engaging in joint research and other such means.
- We will invest approximately 3.0 billion yen and augment our coating capabilities amid strong interest in applications for MOCVD, Si-Epi, and SiC-Epi. A new building is slated for completion in 2020, and some equipment will be installed beforehand in 2018. We are also considering possibilities of making further investment.

### 3-7. Business Strategy < Compound Materials and Other Products — Compound C/C Composite Products and Graphite Sheet Products >

#### Currently

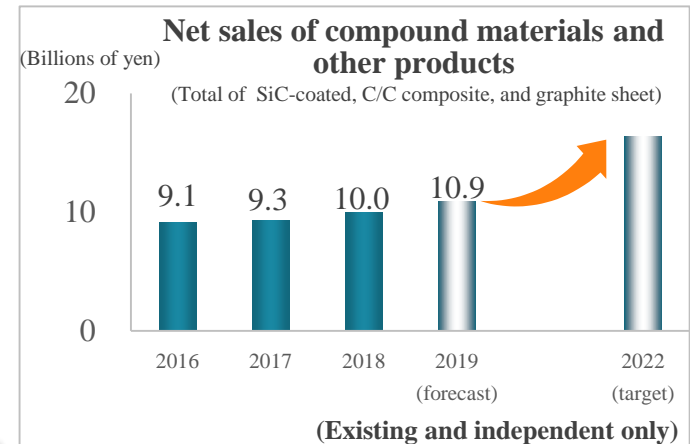
- We maintain a certain share of the market for C/C composite products for industrial furnaces Japan, but limited presence overseas
- Graphite sheet products business mainly involves semiconductor and automotive applications in Japan, but there is a lot of potential for gaining access to business involving untapped markets for applications and areas with respect to chemical plants, petroleum and gas applications, and overseas for automotive applications

#### Size of primary target market

Industrial furnace applications: **35 billion yen**  
 Graphite sheet products : **7 billion yen**  
 (Pipe applications involving chemical plants and petroleum/gas plants)

#### CAGR of primary target market (2017-2022)

Industrial furnace applications: **5-10%**  
 Graphite sheet products : **5-7%**  
 (Pipe applications involving chemical plants and petroleum/gas plants)



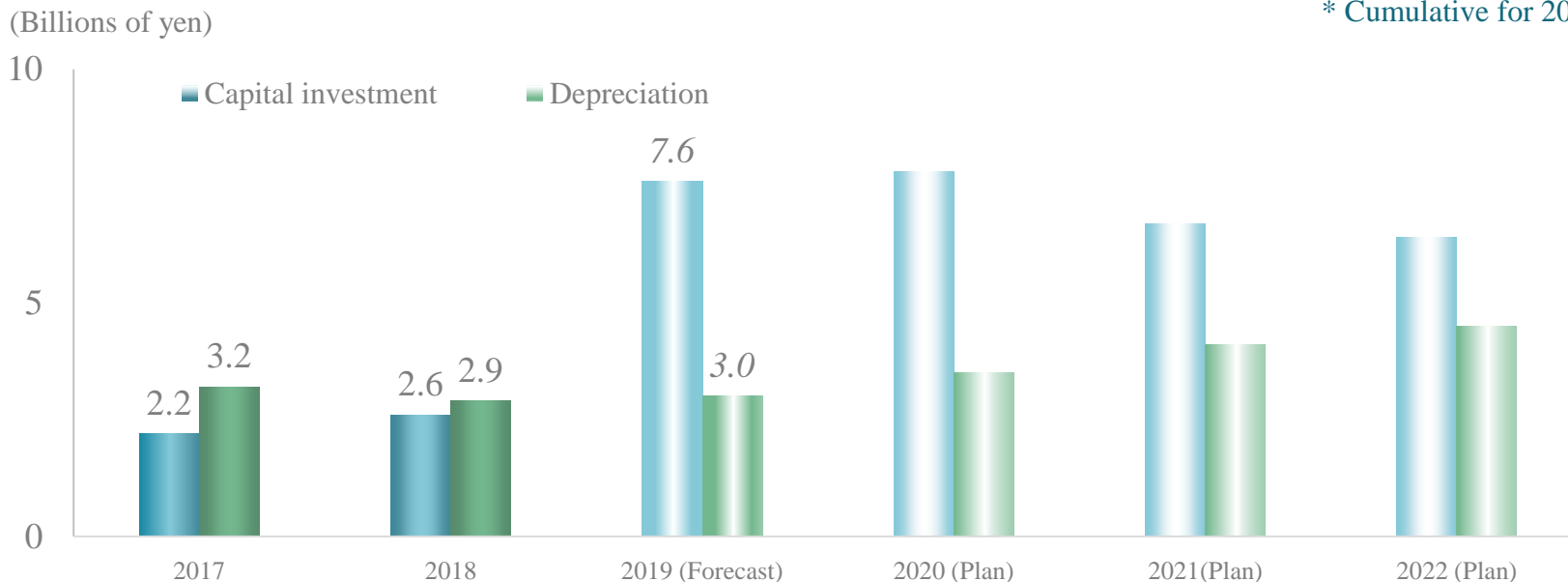
#### Policy

- **Reinforcement of overseas expansion efforts involving industrial furnace applications**  
 We will focus on the North American market which we have yet to enter, and expand market share by enhancing technical sales. We will augment our capabilities by 2018 to be ready for growing demand in the future.
- **Reinforcement of efforts to expand applications for graphite sheet products**  
 We will develop opportunities for pipe applications involving as yet untapped chemical plants and petroleum/gas plants, in addition to semiconductor and automotive applications focused on thus far. We will augment capabilities with investment amounting to approximately 0.7 billion yen in 2018, undertaken to increase production efficiency.

## 3-8. Trajectory of Capital Investment

### Investment on the scale of 30 billion yen\* mainly in existing and independent domains

\* Cumulative for 2018-2022



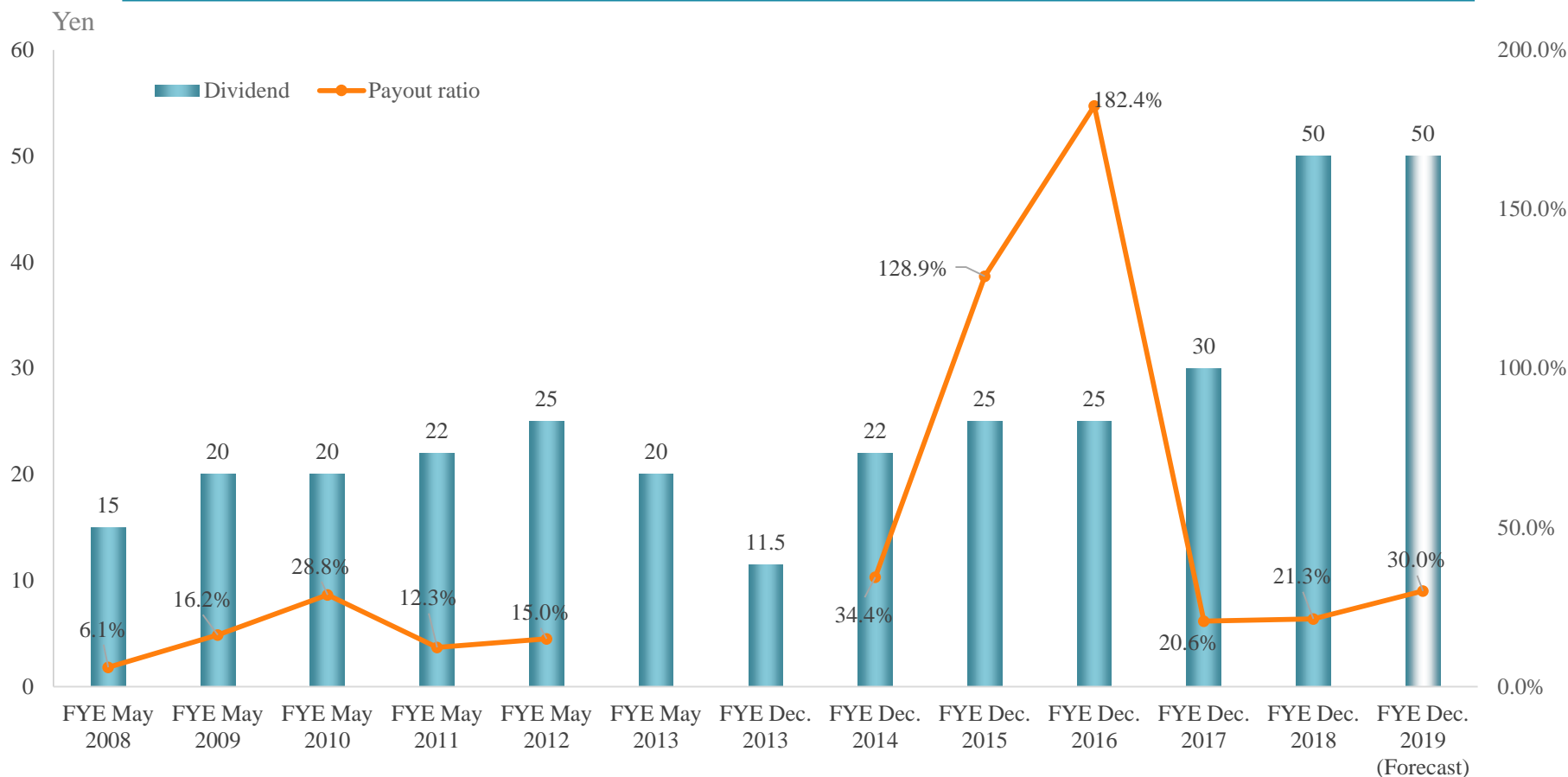
- Drawing up grand design for capital investment in four factories in Japan  
Priority placed on augmenting capabilities with respect to high value-added and key fields of business on that basis

	Investments	Target	Investment amount	Launch
Examples	Augment capabilities involving SiC-coated graphite products	Address increasing demand for MOCVD, Si-Epi, and Sic-Epi	3 billion yen	2020
	Augment capabilities involving high grades of purity	Address increasing demand for semiconductor applications (MOCVD & SiC semiconductors), etc.	2 billion yen	2020

- Plans are in place to proactively invest in improving production efficiency and updating aging equipment

## 3-9. Dividend

Aiming to achieve stable dividend increases while striking a balance between profit distribution and capital investment geared to growth, against a backdrop of ongoing profit gains



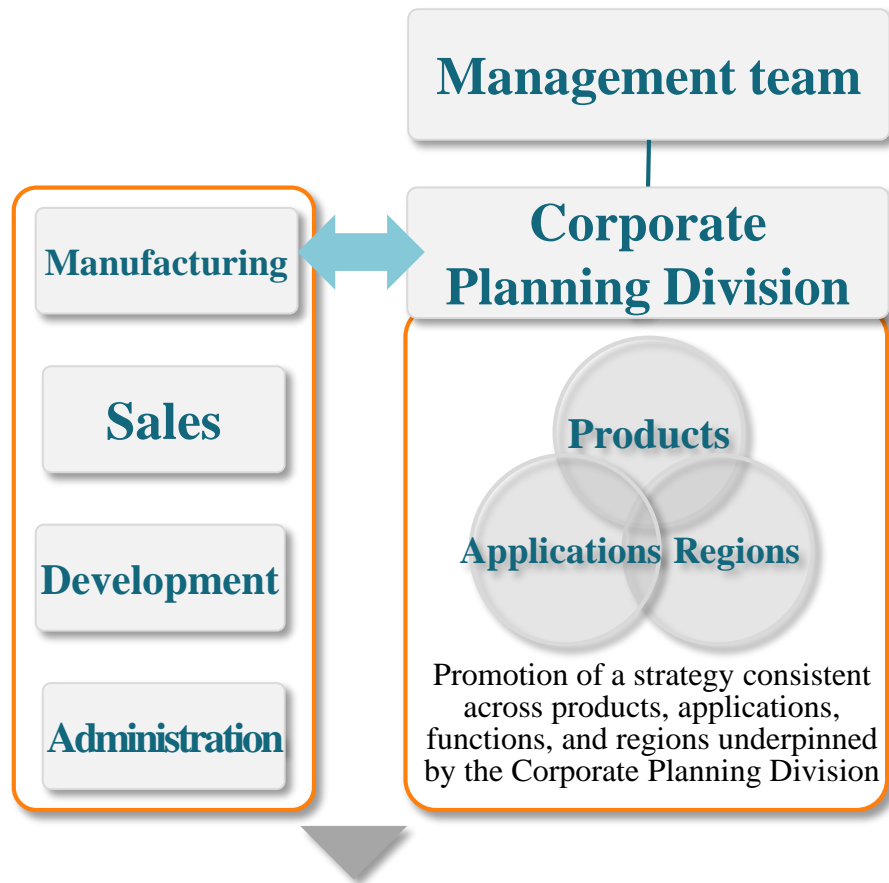
Note 1. The final day of the fiscal period was changed from May 31 to December 31 as of the fiscal year ended December 31, 2013.

For this reason, the fiscal year ended December 31, 2013 was an irregular seven-month fiscal period (nine months for some subsidiaries).

2. Since profit was negative in the fiscal year ended May 31, 2013 and the fiscal year ended December 31, 2013, information on consolidated payout ratio is excluded here.

# 3-10. Initiatives for Enhancing Organizational Capabilities

## Robust promotion of the Medium-term Management Plan undertaken by a strong lineup of talent



- ▶ **Clarification of responsibilities and authority along with strengthened commitment**  
Ensure managerial transparency Group-wide encompassing management teams of subsidiaries in Japan and overseas
- ▶ **Reinforcement of controls for strategic operations**  
On February 1, 2019, established Corporate Planning Division to serve as a control tower for promoting business strategy
- ▶ **Reinforcement of subsidiary management**  
Unified supervision of governance management under head office control  
Enhance Group-wide cooperation with respect to strategy implementation, and realize a solid strategy promotion framework on a global basis

### Establishment of cross-functional teams

Formation to teams to address challenges across the organization classified by business and theme, in order to thoroughly carry out the strategy

# TOYO TANSO

Inspiration for Innovation



(Note) Business forecasts, plans, etc. contained herein were based on information and assumptions of economic conditions, etc. available at the time of writing. Actual business results may vary from forecasts, plans, etc. because of a wide range of factors going forward.

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