FY2024/12 2Q

# Financial Results

RS Technologies

**RS Technologies, Inc.**

Prime Market 3445

August 9, 2024

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# Company Profile

01

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# Company Profile

- **Top company** in the reclaimed wafer business with a global market share of 33% * 1
- Entered the prime wafer business through a joint venture with a Chinese central company * 2
- Expand business into areas where business synergies can be expected through M & A

| | |
|---|---|
| Company name | RS Technologies, Co.,Ltd. |
| Establishment | December 10, 2010 |
| Management Philosophy | “Respect the global environment, earn the trust of people, be creative and challenge ourselves” |
| Business Profile | • Reclaiming silicon wafers<br>• Manufacturing and sales of prime slicon wafers<br>• Manufacturing and sales of consumable materials for semiconductor manufacturing equipment<br>• Sales of scanning acoustic tomograph (SAT)<br>• Sales of electronic components |
| Head office | NT Building 1-47-1 Ohi, Shinagawa-ku, Tokyo, JAPAN |
| Manufacturing Facilities | Miyagi, Ibaraki, Taiwan (Tainan), China (Dezhou),Fukushima |
| Capital | 5,643 million yen (as of the end of December 2023) |
| President and CEO | Nagayoshi Ho |

**Major Consolidated subsidiaries**

**GRINM Semiconductor Material Co., Ltd.**
**GRITEK**
(Beijing)

| | |
|---|---|
| Registered Capital | RMB 1 billion |
| Investment ratio | 40.09%※3 |
| Listed | Shanghai Stock Exchange STAR market |

**RSTEC Semiconductor Taiwan Co., Ltd.**
(Taiwan)

| | |
|---|---|
| Capital | NT $300 million |
| Investment ratio | 100% |

**DG Technologies Co., Ltd.**
(Japan)

| | |
|---|---|
| Capital | 100 million yen |
| Investment ratio | 100% |

**Union Electronics Solutions Co., Ltd.**
(Japan)

| | |
|---|---|
| Capital | 27 million yen |
| Investment ratio | 100% |

*1 Estimated by our company based on SEMI data
*2 State-owned enterprises subject to management and supervision by the central government
*3 As of the end of December 2023

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# History

- **Since its establishment, RST has firmly established itself as the world's leading company in the reclaimed wafer business. In 2018, RST became a comprehensive wafer manufacturer by making a major Chinese prime wafer manufacturer a consolidated subsidiary.**

| | | | |
|---|---|---|---|
| 2010 | Dec. | RS Technologies Co., Ltd. was established with the main business of reclaimed wafer. | Reclaimed |
| 2014 | Feb. | Established RSTEC Semiconductor Taiwan Co., Ltd. (consolidated subsidiary) in Taiwan | Reclaimed |
| 2015 | Mar. | Listed on Tokyo Stock Exchange “Mothers Market” | |
| 2016 | Sep. | RST transferred to “the First Section” of the Tokyo Stock Exchange | |
| 2018 | Jan. | Chinese prime wafer manufacturer, GRINM Semiconductor Material Co., Ltd. (GRITEK) became a consolidated subsidiary of RST | Prime |
| 2018 | May | Acquired 100% shares of Union Electronics Solution Co., Ltd. | Semi |
| 2018 | Aug. | Established Shandong GRIMN Semiconductor Materials Co., Ltd. (Shandong GRITEK), A consolidated subsidiary of GRITEK. | Prime |
| 2019 | Jan. | Acquired 100% shares of DG Technologies Co., Ltd. | Semi |
| 2020 | Feb. | Established Shanghai Union Semiconductor Co., Ltd. (Shanghai Union) | Semi |
| 2022 | Apr. | Transferred from the First Section of the Tokyo Stock Exchange to the “Prime Market” Establishment of Nomination and Compensation Committee | |
| 2022 | Nov. | GRITEK listed on Shanghai Stock Exchange (STAR market) | Prime |
| 2023 | Dec. | Established LE System Co.,Ltd, manufacturer of electrolyte for vanadium redox flow batteries (VRFB) | Energy |

Reclaimed Reclaimed Wafer Business

Prime Prime Wafer Business

Semi Semiconductor-related Equipment and Materials Business

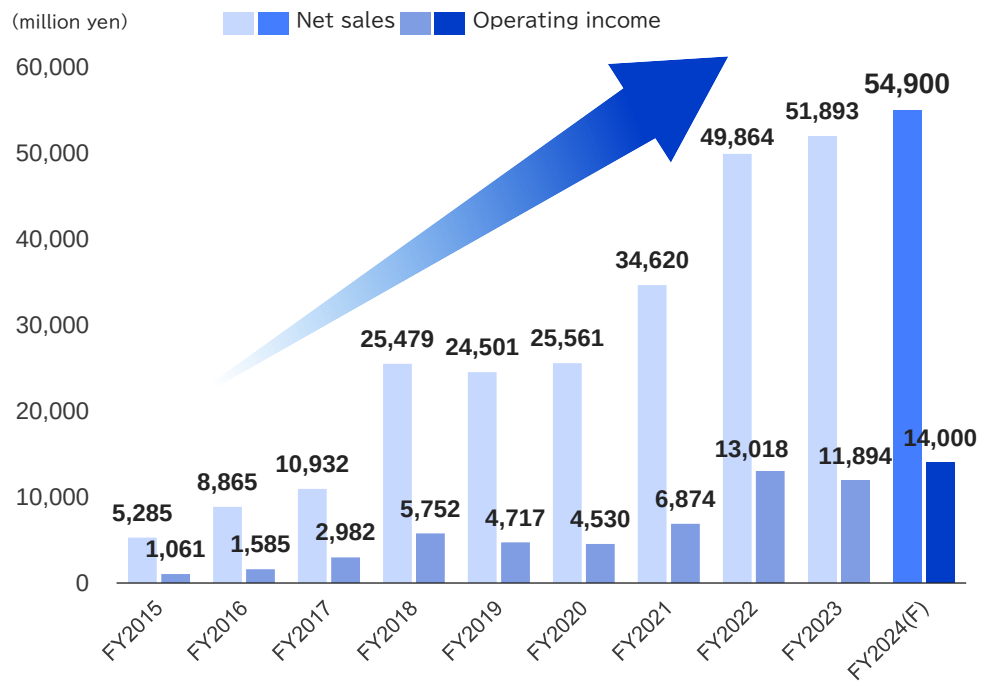
Energy Renewable energy related

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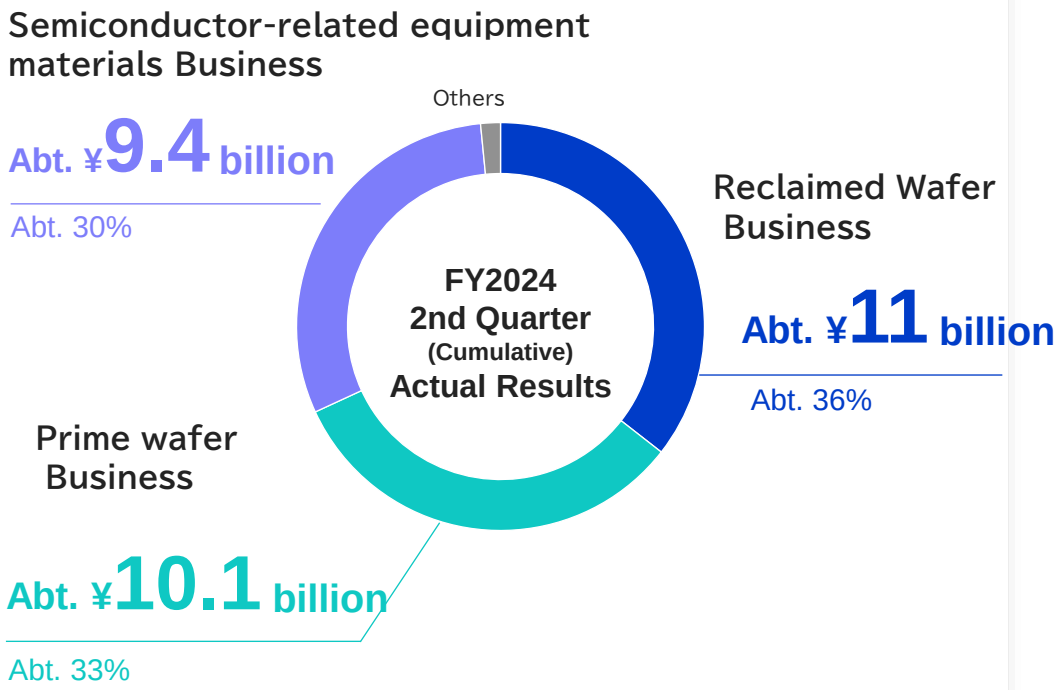
# Current RS Technologies

- RST became comprehensive wafer manufacturers with the Reclaimed Wafer Business and Prime Wafer Business
- Expansion of business areas as Semiconductor-related equipment and materials Business
- No1 in global market share in reclaimed wafer business, and development of prime wafer business mainly in China

## Consolidated net sales and operating income




## Net sales by segment



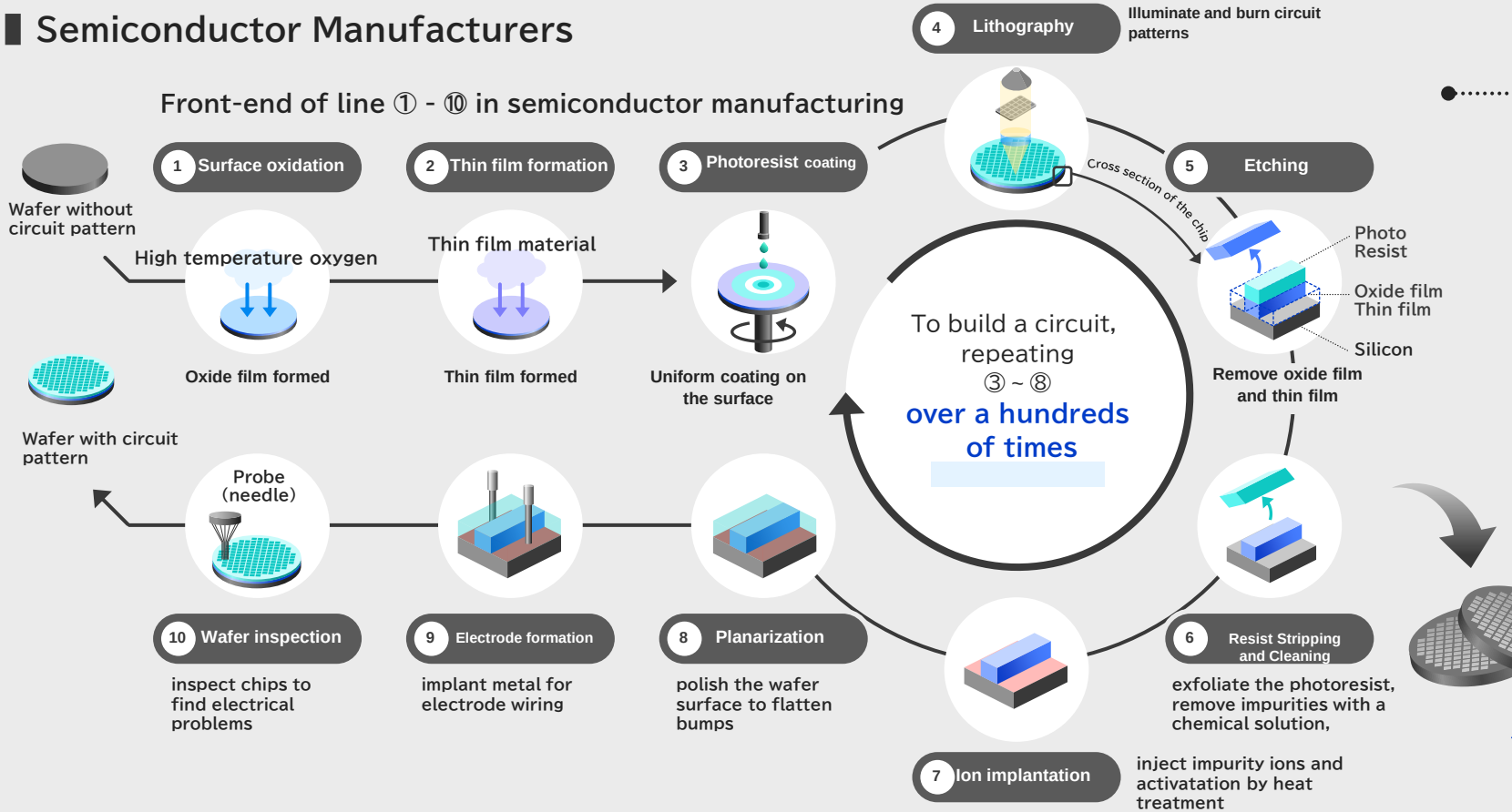

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# Business Profile (1/5 What Reclaimed Wafers is)

- Reclaimed wafers are wafers that have been reclaimed from test wafers used in the process of semiconductor manufacturing.
- Reclaimed wafers are used repeatedly by our customer. With our technology, RST can reclaim test wafers more than 10 times, helping to reduce costs for our customers, semiconductor manufacturers and executing eco-friendtly business model.

## Semiconductor Manufacturers

Front-end of line ① - ⑩ in semiconductor manufacturing




## RS Technologies (RST)

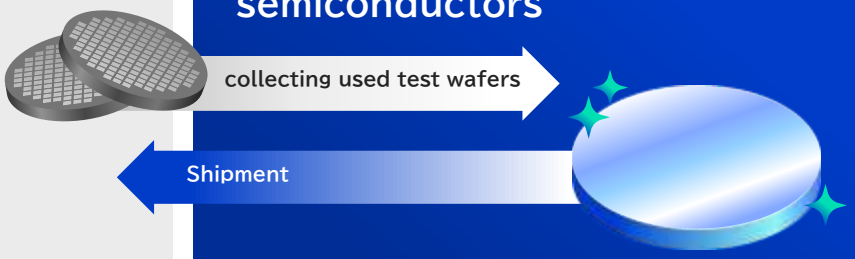
Used in **almost all processes**

- Monitor Wafer
  - (application: process and processing accuracy evaluation)
- Dummy Wafer
  - (application: precision processing stability improvement)

RST **reclaims** the used test wafers for and returns to semiconductor manufacturers

## Wafer Reclamation

**Wafer reclaimation is essential for manufacturing semiconductors**




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# Business Profile (2/5 Reclaimed Wafer Business)

- **Achieve continued growth as a global supplier in the reclaimed wafer industry**

## Market Characteristics

### Continued growth in the semiconductor industry

The global semiconductor market size was 2023 to 2030 and grew at a CAGR of about 10% in 2030.
**It** is projected to reach **US $1 trillion** *1

*1 Source: "Semiconductor Market Forecast" by SEMI Japan

### Resilient to economic fluctuations

- Used by various applications such as the start-up of semiconductor manufacturing equipment
- When customers become more cost-conscious during a recession,
the amount of Reclaimed wafers' input increases

⇒ **Less susceptible to the silicon cycle**

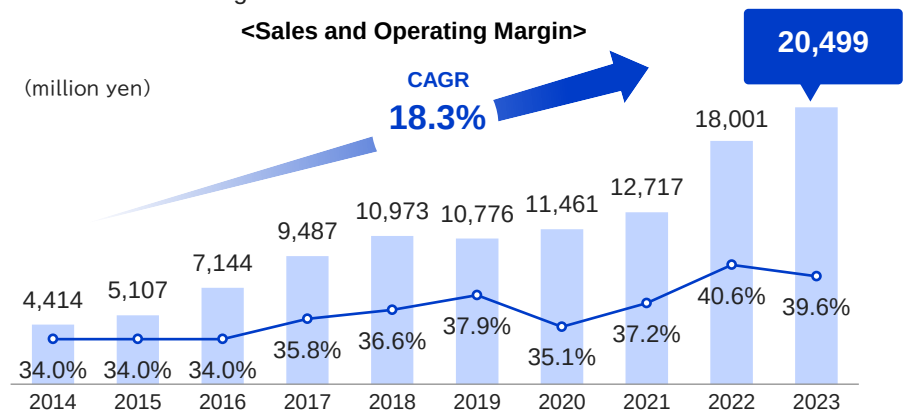
**The reclaimed wafer business is expcted to grow more in the future**

## Results

### Performance Trends (Reclaimed Wafer Business)

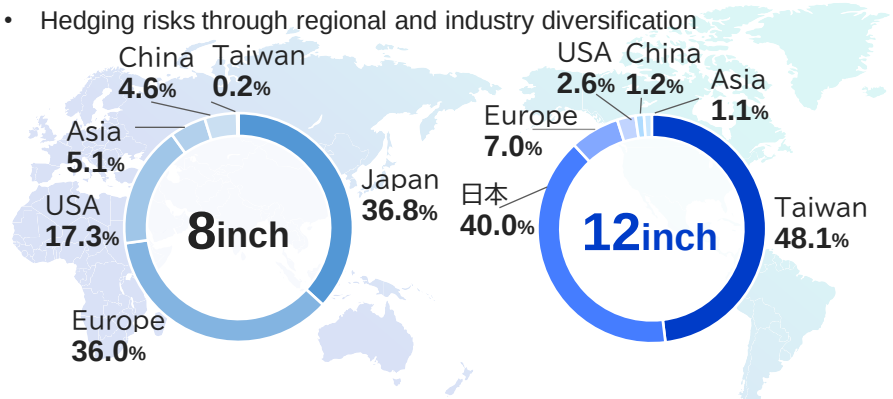
- Achieve significant growth by expanding production capacity and increasing the manufacturing sites

<Sales and Operating Margin>




### Shipping Countries

- Securing a wide range of countries including Japan, Taiwan, Europe and North America
- Hedging risks through regional and industry diversification



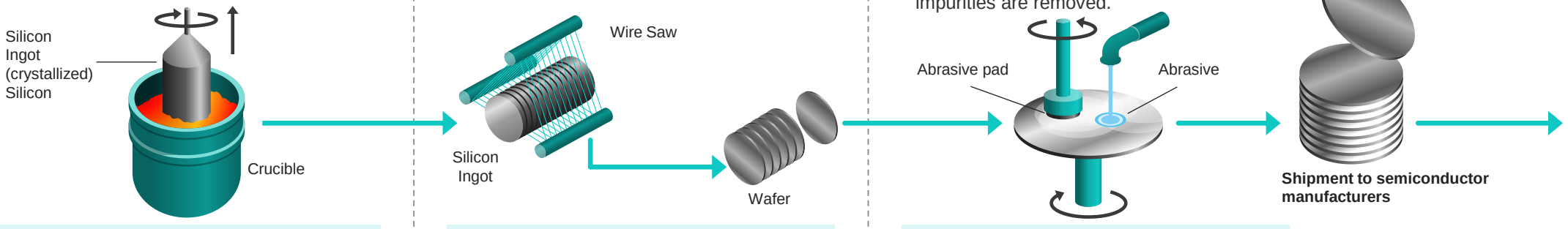

FY2024/12 2Q Actual Results

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# Business Profile (3/5 Prime Wafer)

- **A prime wafer is a silicon wafer that is a substrate material for semiconductors and used for semiconductor chips.**
- **Made from 99.999999999% silicon, it has the highest flatness of any material currently on Earth.**

| | ① Silicon ingot raising | ② Silicon ingot cutting | ③ Wafer polishing |
|---|---|---|---|
| **Manufacturing process** | Crystallized in crucible<br>Silicon is pulled up while rotating | Sliced, using a wire saw and cut into disk-shaped wafers | By polishing the surface of the wafer, distortion and scratches are corrected and impurities are removed. |
| **Point** | By controlling mixture, temperature, pulling speed, etc., **high purity and defect-free single crystals can be formed** | From a single crystal, how many **high-quality wafers is sliced** | To go through advanced processing steps, **ultra-flat, ultra-clean wafers** can be manufactured |




**All processes require very high crystal and polishing techniques**

**Market**

**The silicon wafer market is more than 1 trillion JPY and will expand further in the future.**

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# Business (4/5 Prime Wafer Business in RST)

- **In 2018, the company entered the industry through a joint venture with China's largest state-owned research institute in the field of nonferrous metals, GRINM as a consolidated subsidiary, GRINM Semiconductor Material Co., Ltd.(GRITEK)** * 1.
- **Construction of a flagship plant for prime wafers in Shandong Province, China**

## Strengths of GRITEK

### High Technological Capability

Poroviding high quality products in China through collaboration with GRINM

### Business synergies with our core business

In polishing, cleaning and inspection,our know-how from the reclaimed wafer business is applied

### Market advantage

By taking advantage of the GRINM group's sales channels,we gain an advantage in Chinese market

### Strategic market selection

Focusing on investment in volume zones with a large number of shipments (low to middle end)

## Progress

**Establish a global quality mass-production line**

**8 Inch** → Production capacity reaches to 130,000 wafers per month → **12 Inch**

- Completion of flagship plant
- Joint venture with Dezhou Municipal Government Fund
- Production capacity of 60,000 wafers per month

## Action Plan



**Expand production capacity through capital investment**



**Strengthen sales promotion activities by taking advantage of customer network in the reclaimed wafer business**



**Aim for a global market through the use of mergers and acquisitions**

*(1) Current: Aiken Semiconductor Silicone Materials Co., Ltd.

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# Business (5/5 Semiconductor-related equipment and materials Business)

- **Manufacture of silicon and quartz consumables for semiconductor manufacturing equipment and sales of scanning acoustic tomograph (SAT), laser diode and electronic components**

| | Manufacturing and sales functions | Trading company functions |
|---|---|---|
| Business Entity | **DG Technologies Co., Ltd.** (subsidiary) | • **RS Technologies Co., Ltd.**<br>• **Union Electronics Solutions Co., Ltd.** (subsidiary) |
| Overview | Utilizing precision processing technologies for silicon and quartz<br>**Manufacture and sale of consumable materials for semiconductor manufacturing equipment**<br><br>Focuses on quartz glass and monocrystalline and polycrystalline silicon products | **Sales of the latest products on behalf of overseas markets**<br><br>Laser Diode (Sharp)<br><br>Ultrasonic Imaging System (Hitachi) |
| Action Plan | Purchase materials from RST's subsidiary, GRITEK<br>Cross-selling to Customers for reclaimed wafers<br>**Sell products globally with competitive edge** | Expand product lineup<br>Expand sales area<br>**Expanding sales and customer segment** |

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# Summary of Financial Results for FY2024/12 2Q

02

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# Financial Results for the Second Quarter of FY 2024 (Cumulative)

- **Net sales increased by 15.0% year on year to 30,068 million yen**
- **Operating income decreased 4.8% year on year to 6,082 million yen**

(million yen)

| | FY 2023 2Q | FY 2024 2Q | Year-on-Year | Difference |
|---|---|---|---|---|
| Net Sales | 26,126 | 30,068 | +15.0% | +3,942 |
| Operating Income | 6,395 | 6,082 | △4.8% | △313 |
| Operating Margin | 24.4% | 20.2% | | △4.2pt |
| Ordinary Income | 7,741 | 7,896 | +2.0% | +155 |
| Ordinary Margin | 29.6% | 26.2% | | △3.4pt |
| Net income attributable to owners of parent | 3,722 | 3,833 | +2.9% | +111 |
| EPS (JPY) | 141.64 yen | 145.42 yen | +2.6% | +3.78 yen |

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# Financial Results for the Second Quarter of FY2024 Segment Trends (Cumulative)

- In the reclaimed wafer business, sales and profits increased year on year due to the start of orders from a new semiconductor customers.
- Sales and profits in the prime wafer business decreased year-on-year, partly due to the slowdown in the Chinese market, but the recent business has recovered substantially.
- Sales in the semiconductor-related equipment &materials business increased year-on-year, partly due to the impact of large projects in the first quarter.

(million yen)

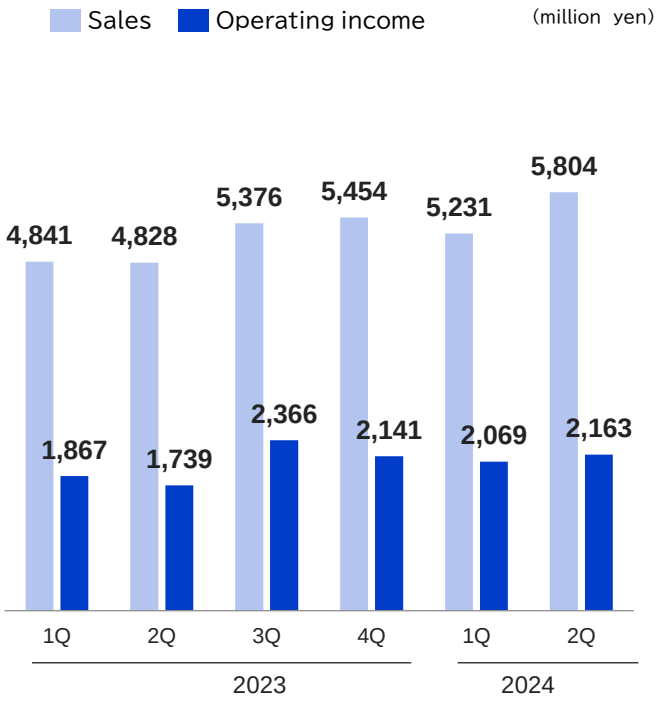
| | Reclaimed Wafer Business | YoY | Prime Wafer Marketing Business | YoY | Semiconductor-related Equipment & Materials Business | YoY | Other adjustments | YoY | Consolidated total | YoY |
|---|---|---|---|---|---|---|---|---|---|---|
| Sales | 11,035 | +14.1% | 10,111 | △1.1% | 9,408 | +37.7% | △486 | – | **30,068** | **+15.0%** |
| Operating Income | 4,232 | +17.3% | 2,206 | △15.4% | 454 | △25.4% | △810 | – | **6,082** | **△4.8%** |
| Operating Margin | 38.3% | +1.1pt | 21.8% | △3.6pt | 4.8% | △4.1pt | – | – | **20.2%** | **△4.2pt** |

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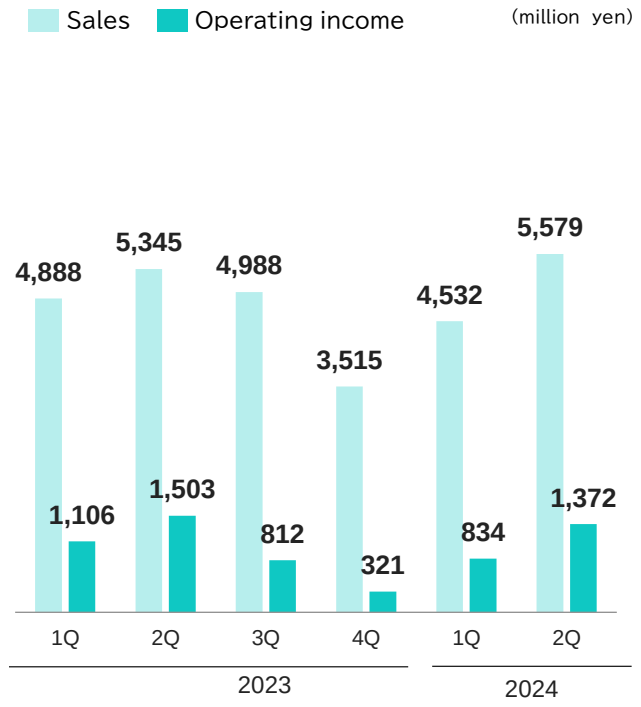
# Quarterly Results for the FY2024

- Reclaimed wafer business grew both in unit price  compared to the first quarter of 2024. OP margin: 37.2%
- Shipments in prime wafer business increased markedly due to the recovery of the semiconductor market in China. OP margin: 24.5%
- In the semiconductor-related equipment and materials business, sales of scanning acoustic tomograph  were strong. OP margin: 9.4%

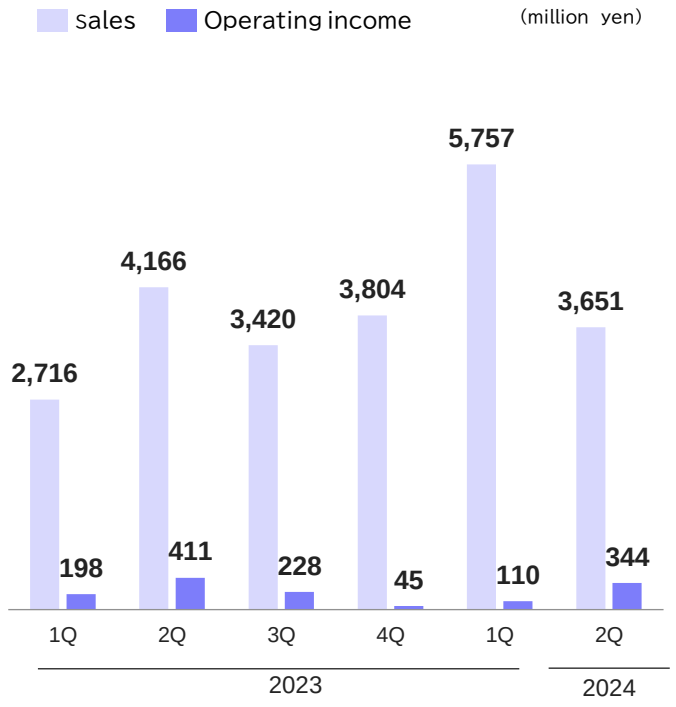
## Reclaimed Wafer Business




## Prime Wafer Business




## Semiconductor-related equipment and materials business




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# Balance Sheet

**Net assets increased by ¥14.6 billion from the end of the previous year to ¥130 billion (¥115.4billion in the previous year)**

| (million yen) | FY 2023/12 | FY 2024/12 2Q |
|---|---|---|
| Current Assets | 96,409 | **104,605** |
| Cash and Deposits | 70,758 | **77,802** |
| Notes and accounts receivable-trade | 12,673 | **17,107** |
| Merchandise and finished goods | 6,507 | **3,557** |
| Fixed assets | 44,256 | **50,841** |
| tangible fixed assets | 35,326 | **41,139** |
| intangible fixed assets | 266 | **277** |
| Investments and other assets | 8,663 | **9,424** |
| **Total assets** | 140,666 | **155,446** |
| Current liabilities | 18,265 | **18,275** |
| Notes and accounts payable | 5,174 | **6,265** |
| Short-term debt | 3,355 | **3,625** |
| non-current debt | 6,973 | **7,122** |
| Long-term debt | 2,092 | **1,561** |
| **Total liabilities** | 25,238 | **25,397** |
| Net assets | 115,428 | **130,049** |
| **Total liabilities and net assets** | 140,666 | **155,446** |

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# Medium-Term Management Plan

03

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# Overview of the Medium-Term Management Plan (2024-2026) (Base Plan)

➢ **While a strong sense of stagnation in the semiconductor market will be still remained in the first half of 2024, sales are expected to exceed 2023 as the recovery trend is expected from the second half of the year.**

- **In the reclaimed wafer business, capital investments at 3 sites in Japan, Taiwan, and China to increase production capacity will be carried out.**
- **In the prime wafer business, capital investments to increase our market share at 8 inches and 12 inches in China will be executed.**
- **In the semiconductor equipment and materials business, entering into new markets and acquiring new customers.**

## Base Plan*1

*1: Medium-term management plan for three existing businesses (Reclaimed Wafer Business, Prime Wafer Business, and Semiconductor Equipment and Materials Business)

| (Million Yen) | FY2023 (Actual) | FY2024 | FY2025 | FY 2026 |
|---|---|---|---|---|
| Net Sales | 51,893 | 54,900 | 59,300 | 64,100 |
| *growth rate* | | *106%* | *108%* | *108%* |
| Operating Income | 11,894 | 14,000 | 15,330 | 16,830 |
| % | 22.9% | 25.5% | 25.9% | 26.3% |
| Ordinary Income | 14,921 | 15,400 | 16,730 | 18,230 |
| % | 28.8% | 28.1% | 28.2% | 28.4% |
| Net Income | 7,703 | 7,600 | 8,200 | 8,800 |

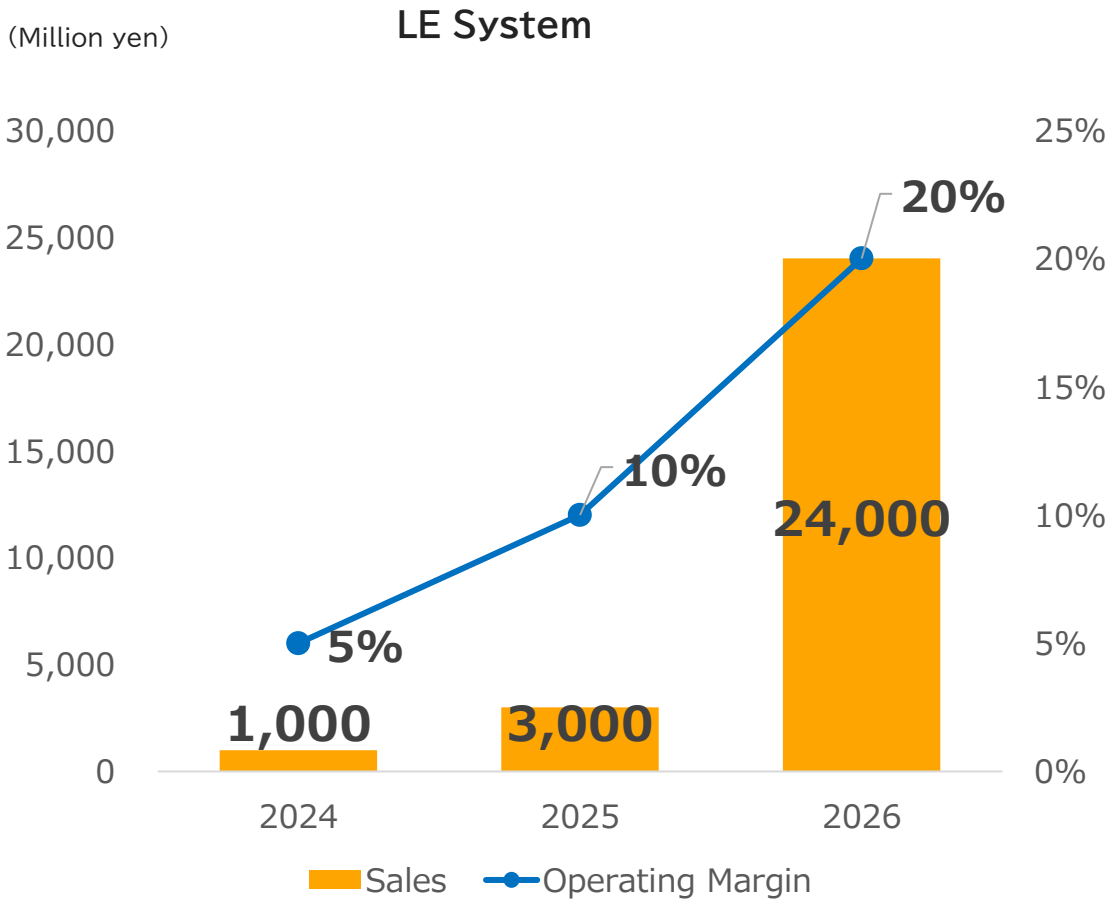
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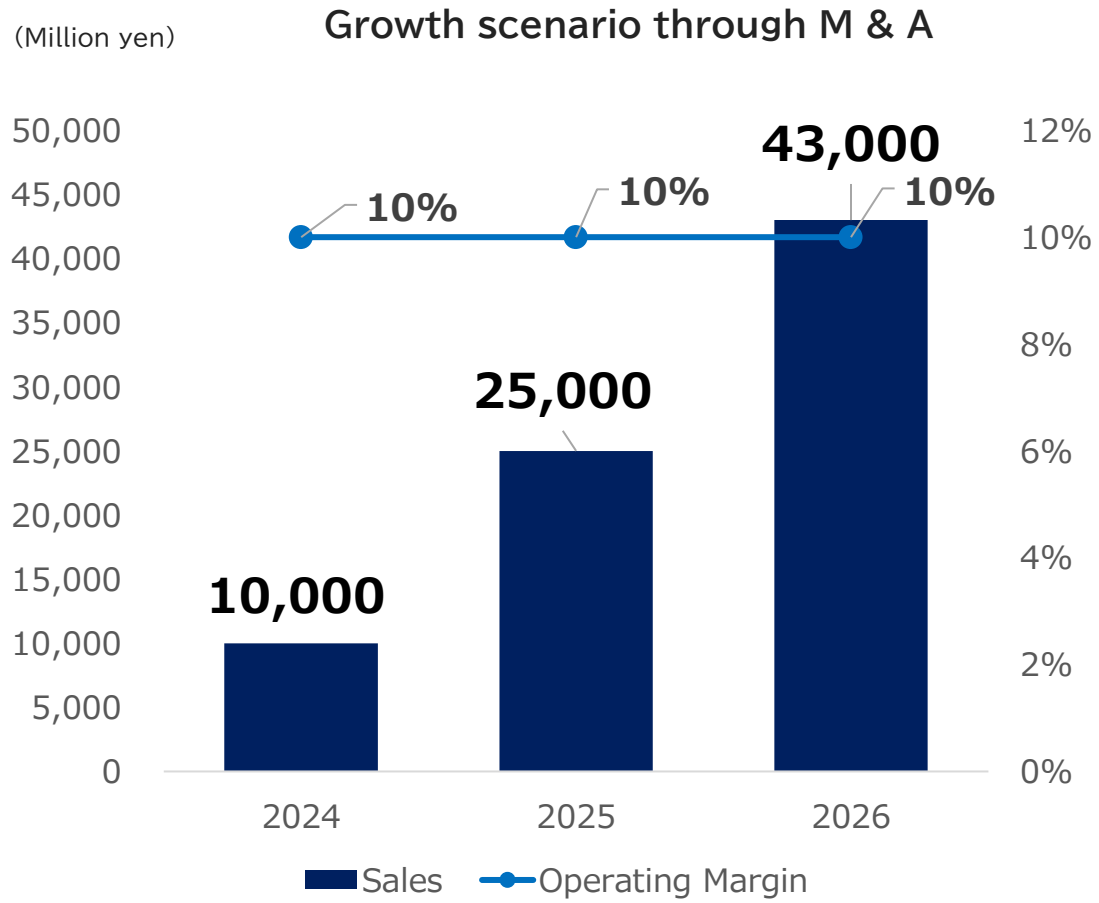
# Overview of the Medium-Term Management Plan (2024-2026)
## (Upside Plan - Target Value) 1/2

◆In addition to the Base Plan, the Upside Plan, which anticipates growth through the LE system and M & A, is also set as a target value

・The LE system will expand into China, the largest market for vanadium redox flow batteries. Target sales of 24 billion yen and operating margin of 20%

・Accelerate business expansion by achieving sales of approximately 43 billion yen in 3 years through M & A



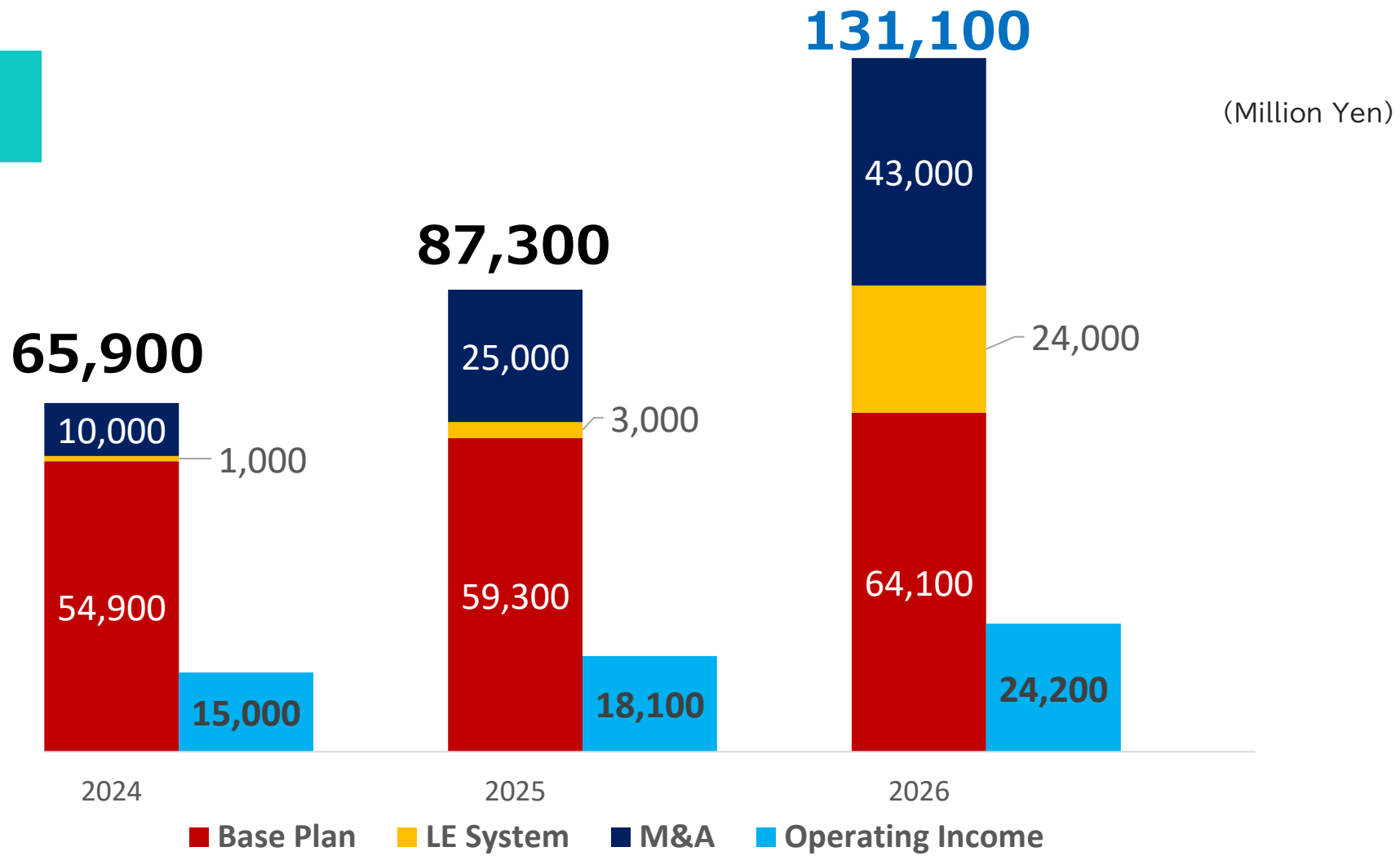




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# Overview of the Medium-Term Management Plan (2024-2026)
## (Upside Plan - Target Value) 2/2

- Set a target of approximately 130 billion yen in net sales by 2026 as the Upside Plan (Target Value)
- Promote scale expansion through LE system and M & A in 3 years of 2024-2026

**Upside Plan**
**(Target value)**




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# Capital Investment Plan: Reclaimed Wafer Business

- Increasing production capacity in Japan and Taiwan and mass production in Shandong Province, China, to meet strong demand
- Planning production capacity of 890,000 wafers per month by 2026 to meet its demand

## Japan

**Total investment** **3 billion JPY**

| FY 2024 | FY 2025 | FY 2026 |
|---|---|---|
| 200 million yen | 1.3 billion yen | 1.5 billion yen |

Expansion of production capacity for 12 inch reclaimed wafers and response to miniaturization

2024 – 2026:

Monthly production: increasing + 40,000 wafers/month

**Monthly production capacity of 12 inch reclaimed wafers**

| 2023 | 2024 | 2025 | 2026 |
|---|---|---|---|
| 310,000 | 320,000 | 340,000 | 360,000 |

## Taiwan

**Total investment** **6 billion JPY**

| FY 2024 | FY 2025 | FY 2026 |
|---|---|---|
| 1 billion yen | 1.5 billion yen | 3.5 billion yen |

Expansion of production capacity for 12 inch reclaimed wafers and response to miniaturization

2024 – 2026:

Monthly production: increasing +70,000 wafers/month

**Monthly production capacity of 12 inch reclaimed wafers**

| 2023 | 2024 | 2025 | 2026 |
|---|---|---|---|
| 230,000 | 260,000 | 280,000 | 330,000 |

## China

**Total investment** **6.1 billion JPY**

| FY 2024 | FY 2025 | FY 2026 |
|---|---|---|
| 100 million yen | 3 billion yen | 3 billion yen |

Expansion of production capacity for 12 inch Reclaimed wafers

2024 – 2026:

Monthly production: increasing + 150,000 wafers/month

**Monthly production capacity of 12 inch reclaimed wafers**

| 2023 | 2024 | 2025 | 2026 |
|---|---|---|---|
| 50,000 | 50,000 | 150,000 | 200,000 |

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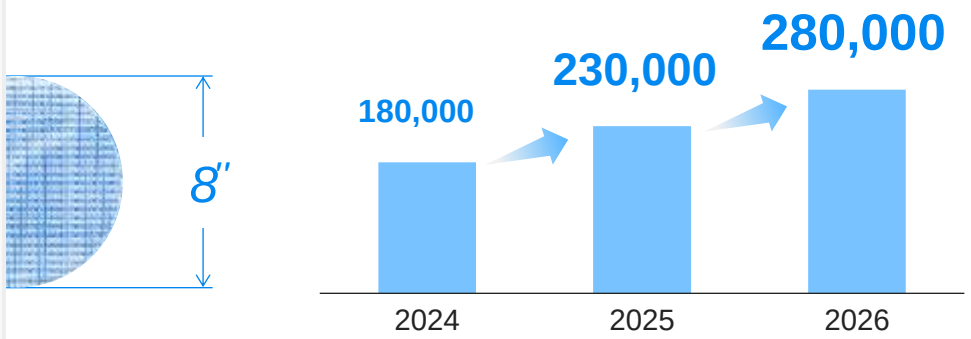
# Capital Investment Plan: Prime Wafer Business

- **Production of 8 inch prime wafers is expected to increase from 180,000 to 280,000 per month between 2024 and 2026.**
- **Production of 12 inch prime wafers is expected to increase from 60,000 to 210,000 per month between 2024 and 2026.**

## China 8 inch

- Aim to build a stable mass production and improve production efficiency

**Monthly production capacity for 8 inch prime wafers**

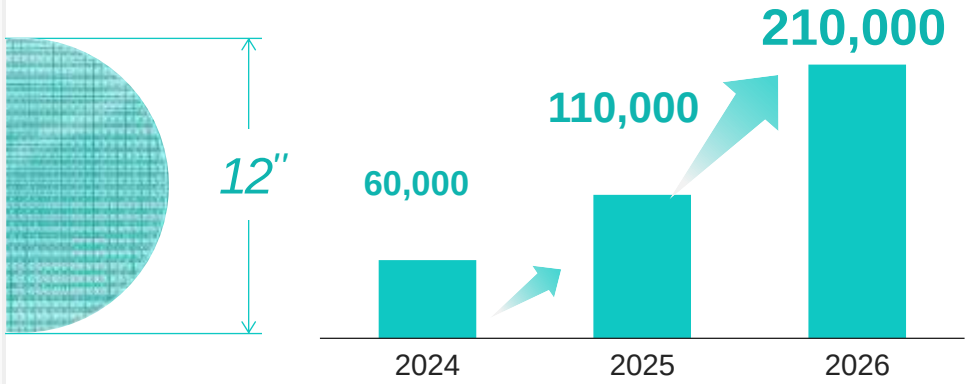



| FY 2024 | FY 2025 | FY 2026 |
|---|---|---|
| 4 billion JPY | 2 billion JPY | 2 billion JPY |

## China 12 inch

- Increase production capacity for 12 inch prime wafers

**Monthly production capacity for 12 inch prime wafers**




| FY 2024 | FY 2025 | FY 2026 |
|---|---|---|
| 6 billion JPY *1 | 4 billion JPY *1 | 10 billion JPY *1 |

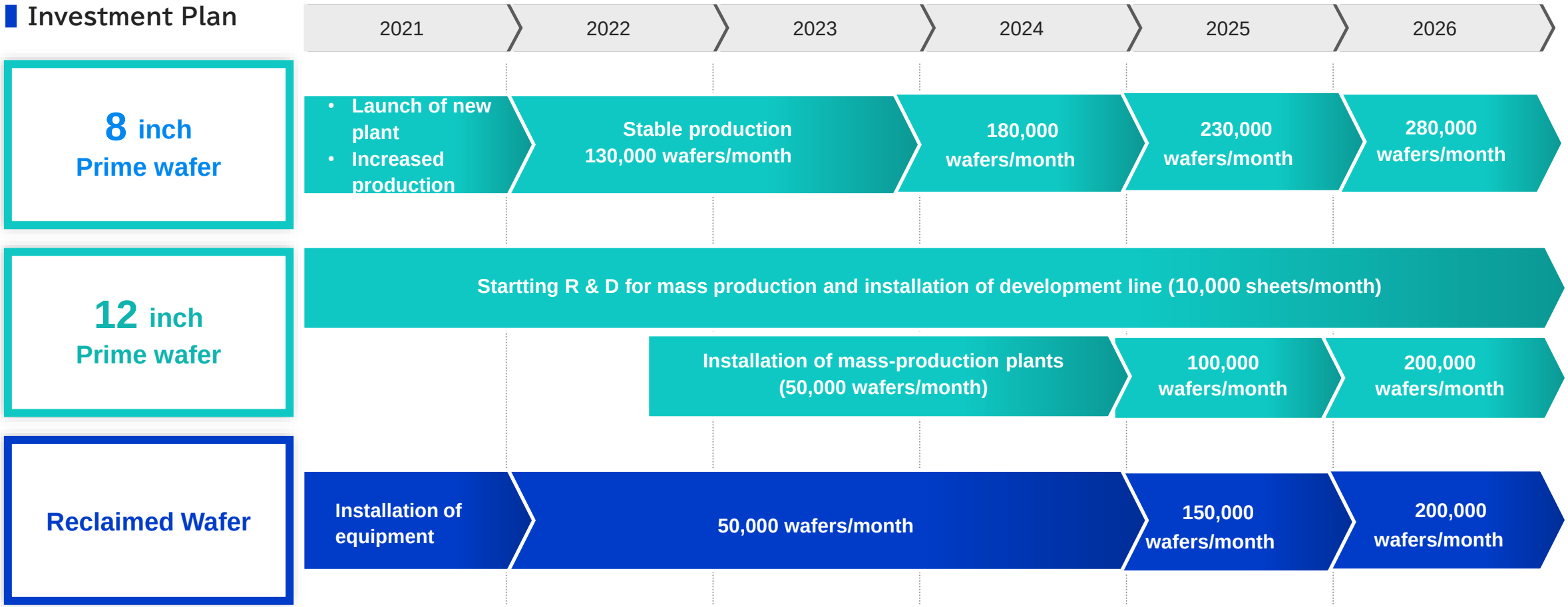
*1 The 12 inch business is an investment from an equity method affiliate.

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# China Investment Plan (Schedule)

- Increase production of 8 inch prime wafers from 130,000 to 180,000 per month
- Set up a mass production line of 12 inch prime wafers, producing 50,000 wafers per month
- Continue mass production of 50,000 reclaimed wafers per month

## Investment Plan




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# Demand for Reclaimed Wafers: New 12 inch semiconductor Plants

- In the global market, new 12 inch semiconductor plants are under construction in China, Europe, the United States and Japan.
- RST meets new demand for reclaimed wafers through capital investment in Japan, Taiwan and China.




Note:RST Survey

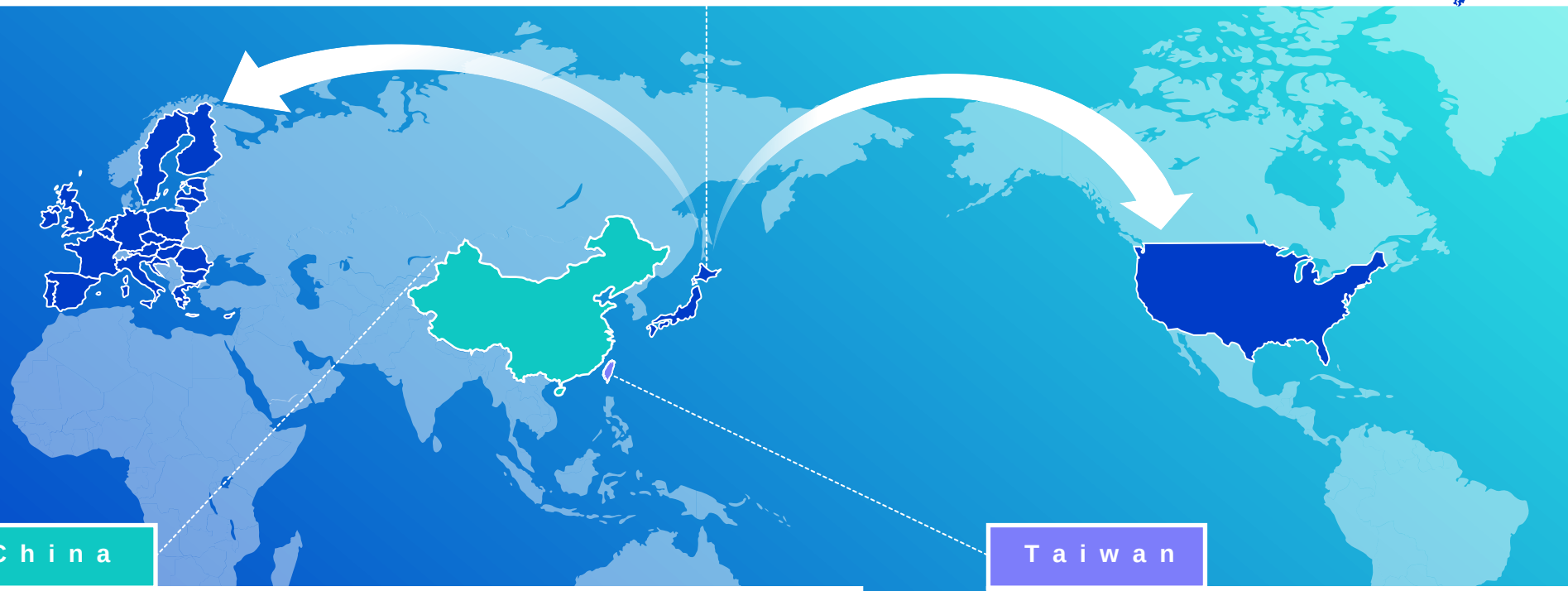
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# Regional strategies not to be affected by “Decoupling”

**Japan, North America and Europe**

**Sanbongi Factory** (Japan's flagship factory) **covers mainly North America, Europe and Japan**





**China**

Prime wafers at present
is sold mainly in China



**Taiwan**

Taiwan plant covers
Semiconductor foundry companies
based in in Taiwan



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# New Business

## LE System

04

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# New entry into the renewable energy business

- **In December 2023, LE System Co., Ltd. (100% subsidiary of RST) inherited the electrolyte business for vanadium redox flow batteries (VRFB) from the former LE System**

## Overview of the New Company

株式会社LEシステム

| | |
|---|---|
| **Company Name** | LE System Co., Ltd. |
| **Establishment** | October 13, 2023 (Succession date: December 2023) |
| **Business** | Electrolyte production of vanadium redox flow battery |
| **Address** | NT Building, 1-47-1 Ohi, Shinagawa-ku, Tokyo, Japan (The same office with RS Technologies, Inc.) |
| **Manufacturing Base** | Namie-machi, Fukushima, Japan |
| **Capital** | 30 million yen |
| **President and CEO** | Nagayoshi Ho |

- From December 2023, the former LE System business was completely succeeded.
- The key technology of the former LE System is technology originated in Japan, and it has received a lot of support including investment by INCJ, Ltd. (Public and Private Sector Fund in Japan).

## Strengths of LE Systems

**01** **Established mass production process of high-quality electrolytes**

**02** **Business collaboration with global battery manufacturers**

**03** **Production of electrolyte with low cost through proprietary technology** (more than 10 patents hold)

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# What is Vanadium Redox Flow Battery (VRFB)?

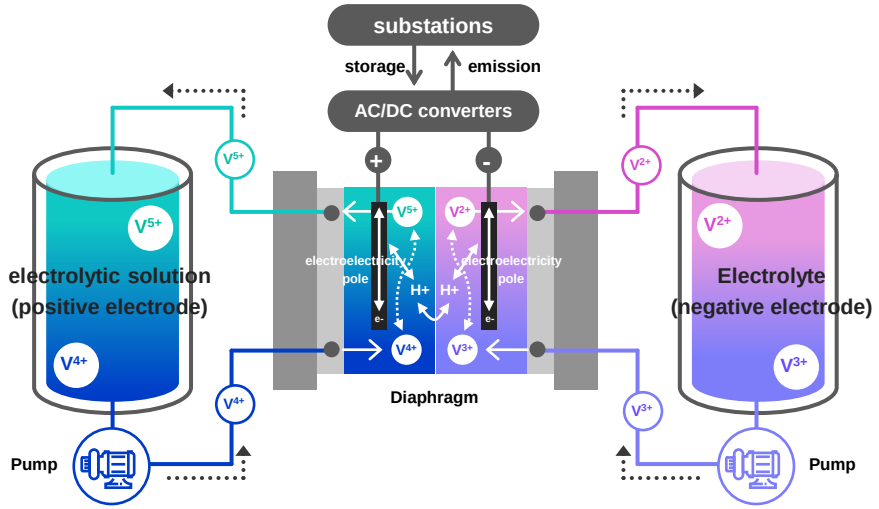
- VRFB is a battery that charges and discharges by circulating and chemically reacting vanadium electrolyte.
- LE system manufactures vanadium electrolyte for VRFB

**Primary Use**

## Use as large-scale, large-capacity stationary storage batteries for wind and solar power generation

## Mechanism

VRFB realizes charge and discharge by chemical change (redox) of electrolytic solution, while other batteries charge and discharge by chemical change of electrode.




## Features

Since the number of charge and discharge is unlimited and there is no deterioration, it is possible to conduct stable operation over a long period Moreover, it has high safety and it is well-matched with renewable energy.



**High Safety**
nonflammable electrolytes



**Easy for Expansion**
charge/discharge time can be designed freely



**Long Life**
There is no limit to charge/discharge cycle



**Cost Reduction**
Long-term operation provides cost advantage



**Asynchronous Linkage**
renewable energy well-matched with VRFB

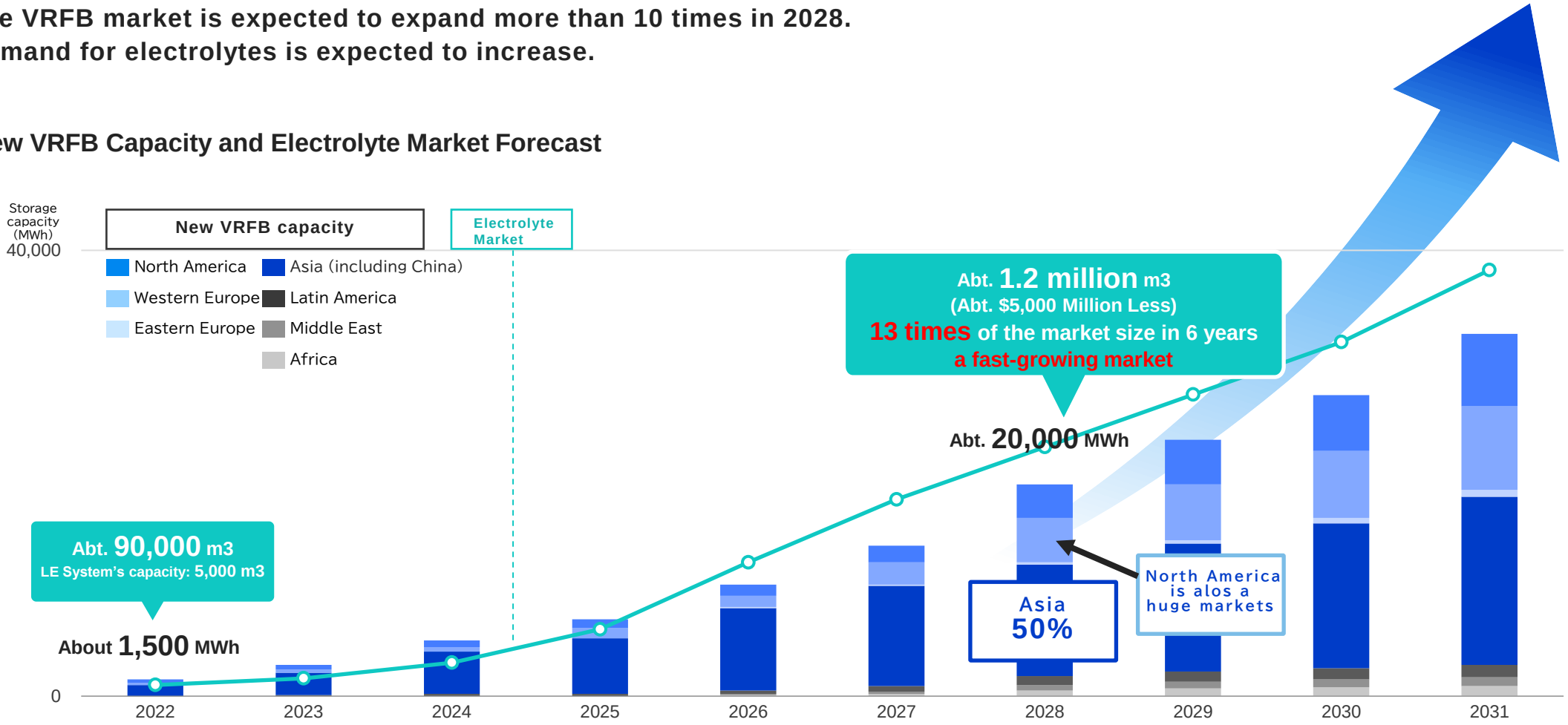
**VRFB is a high-capacity stationary storage battery with high safety and stable supply suitable for wind and solar power generation, etc.**

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# Market Size of Vanadium Redox Flow Battery (VRFB)

- **The VRFB market is expected to expand more than 10 times in 2028. Demand for electrolytes is expected to increase.**

## New VRFB Capacity and Electrolyte Market Forecast




- **LE System will take advantage of** RST's overseas network (especially its strengths in Asia, including China).
- **Aiming to achieve top global market share by 2028**

Source: Guidehouse Insights

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# RST’s Intent to incorporate LE system and LE System’s growth strategy

**・LE system, established in October 2023, manufactures electrolytes for vanadium redox flow batteries (VRFB).**
**・In 2024, LE Sytem began sales activities globally to expand their business .**

## Intent to incorporate LE System

- “Revitalization” has been a key word for RST’s business growth since the establishement of RST
- LE System owns the business model which conforms to RST’s "Revitalization" and is expected to grow in the future.

  1) Expect rapid growth in the renewable energy sector

  2) Possess technology to produce vanadium electrolyte by recycling residues generated at oil plnats

  3) Electrolyte itself can be recycled

## Future Growth Strategy

- China has adopted VRFB as its national policy next to lithium-ion batteries, and China will become its largest market.
- Leverage the cost competitiveness of the LE system's proprietary technology and RST's business base in China to achieve the top share of the VRFB market in China.
- Continue to invest in Japan as a research and development base
- Establish a system capable of mass production in Japan when the need for large-capacity stationary storage batteries grows in Japan

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# Appendix

05

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# Strengths of Nagayoshi Ho

- President and CEO, Nagayoshi Ho has used the knowledge accumulated in Japan for more than 20 years. His strength includes **ability to sell, network, partner and fund globally**
- He has assembled a team of professionals from a broad range of fields, including advanced technology and finance.



## Nagayoshi Ho

- Born in 1970 in Fujian Province, China
- Josai International University : Ph.D in Business Administration
- 1998: He established Eiki Shoji Co.,Ltd
- 2010: He established RS Technologies Co.,Ltd
- Naturalized in Japan in 2014

**Specialty**

M & A, Business Alliance

**Favorite Maxim**

Where there is a will, there is a way

**Note**

- He came to Japan after graduating from high school. He has invested in various industries such as fund, trade, hotel, IT, and agriculture in addition to semiconductor business.
- Based on his belief that "Japan's manufacturing is the best in the world," he has been traveling around the world to spread his belief.

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# Sanbongi Plant (RS Technologies, Reclaimed Wafer Business)

- **Jan. 2011: Started operations of Sanbongi Factory Plant**
- **Jun. 2015: Started production at Plant 8 with state-of-the-art facilities**






| | |
|---|---|
| **Company name** | RS Technologies, Co.,Ltd. |
| **Establishment** | December 2010 |
| **Product** | 5, 6, 8, 12 inch Reclaimed Wafer |
| **Production capacity** | 8 inch : 150,000 wafers per month<br>12 inch : 310,000 wafers per month |
| **Address** | Osaki City, Miyagi Prefecture, Japan |
| **Certification** | ISO9001, ISO14001 |

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# Taiwan Plant (RSTW, Reclaimed Wafer Business)

- **Dec. 2015: Production commenced at RSTEC Semiconductor Taiwan Co., Ltd. (RSTW).**





| | |
|---|---|
| **Company name** | RSTEC Semiconductor Taiwan Co., Ltd |
| **Establishment** | December 2015 |
| **Product** | 12 inch Reclaimed Wafer |
| **Production capacity** | 12 inch: 230,000 wafers per month |
| **Address** | Tainan, Taiwan |
| **Certification** | ISO9001, ISO14001 |

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# Dezhou Plant (Shandong GRITEK, 8-inch Prime Wafer Business)

- **Aug. 2018: Shandong GRITEK Co.,LtdShandong GRITEK, a consolidated subsidiary of GRITEK) was established.**
- **Oct.  2020: The Dezhou plant started prime wafer production.**







| | |
|---|---|
| **Company name** | Shandong GRITEK Co., Ltd. |
| **Establishment** | October 2020 |
| **Product** | 5,6,8 inch Prime Wafer |
| **Production capacity** | 5 inch: 50,000 wafers per month<br>6 inch: 200,000 wafers per month<br>8 inch: 130,000 wafers per month |
| **Address** | Dezhou city, Shandong, China |
| **Certification** | ISO9001, ISO14001 |

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# SGRS Research and Development Center (SGRS, 12 inch Prime Wafer Business)

- **Mar. 2020, GRINM RS Semiconductor Materials Co., Ltd. (SGRS) was established.**
- **In 2021, R&D line for 12 inch prime wafer (10,000 wafers per month) was established.**





| | |
|---|---|
| **Company name** | GRINM RS Semiconductor Materials Co., Ltd. |
| **Establishment** | March 2020 |
| **Products** | ① 12 inch Prime Wafer<br>② 12 inch Reclaimed Wafer |
| **Production capacity** | ① 50,000 wafers per month<br>10,000 wafers per month (R&D line)<br>② 50,000 wafers per month |
| **Address** | -Dezhou, Shandong, China<br>-Beijing, China |

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# Namie Plant (LE System, Renewable Energy Business)

- **In December 2023, RST completely succeeded the electrolyte manufacturing business [*1] of the former LE System.**

*(1) The key technology of the former LE System is technology that originated in Japan, and has received a lot of support including investment by INCJ Co., Ltd. (Public and Private Sector Fund in Japan).



Namie Plant in Namie, Fukushima, Japan (Constructed in 2021)



Office in Tsukuba City, Ibaraki Prefecture
(Constructed in 2013. Technical research/pilot plant)

| | |
|---|---|
| **Company name** | LE System Co., Ltd. |
| **Establishment** | October 13, 2023<br>(Business Succession Date: December 2023) |
| **Business Profile** | Electrolyte for vanadium redox flow batteries |
| **Production capacity** | 5,000m3 per year |
| **Location** | Namie-machi, Fukushima Prefecture (Plant)<br>Tsukuba City, Ibaraki Prefecture (office) |

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# Kamisu Plant (DG Technologies, Semiconductor-related equipment and materials Business)

- In January 2019, DG Technologies became a consolidated subsidiary of RS Technologies.
- To meet growing demand,  DG Technologies increases production through capital investment and the improvement of productivity.





| | |
|---|---|
| **Company Name** | DG Technologies Co., Ltd. |
| **Establishment** | October 1981 |
| **Product** | For dry etching equipment<br>Consumable member made of quartz and silicon |
| **Address** | Kamisu City, Ibaraki Prefecture |
| **Certification** | ISO9001 |

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# Kurihara Plant (DG Technologies, Semiconductor-related equipment and materials business)

- **In May 2021, the Kurihara Plant was set up in Miyagi Prefecture.**
- **The Kamisu Plant and the Kurihara Plant were established as two production bases to meet increasing orders.**








| | |
|---|---|
| **Company Name** | DG Technologies Co., Ltd. |
| **Commencement of operation** | May 2021 |
| **Product** | For dry etching equipment<br>Consumable member made of quartz and silicon |
| **Address** | Kurihara City, Miyagi Prefecture |
| **Building area** | 5,000m2 |

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# Reclaimed Wafer Business (1)

Customer follow-up
Reciept
Primary Inspection
Stripping/Etching
Pre-sort Inspection
Polishing
Primary Cleaning
(Primary Inspection)
Secondary Cleaning
Final Inspection/Packing
Shipping

clean room

RST's Strengths

01

## Identify exact needs through direct sales system

Communicate directly with all customers
Make it possible to reduce SGA cost by handling only from Tokyo headquarters

02

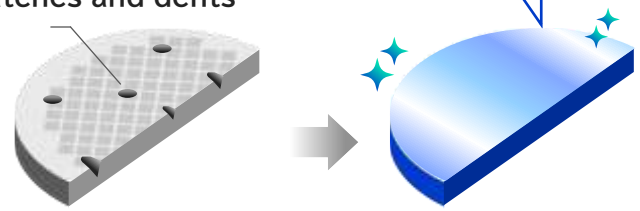
## Strip off all filims

Due to chemical treatment, surface damage is minimized

Increase the number of reclamation

More cost reduction possible

Inherited original technology from Lasa Industries




Smooth scratches and irregularities on the surface by polishing (polishing).

03

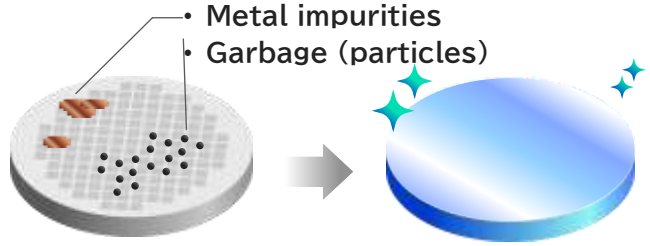
## Remove metal impurities

Remove fine dust and dirt from wafer surface by cleaning

+

Removal of metal impurities

Especially, strong in decontamination and removal of copper (Cu)

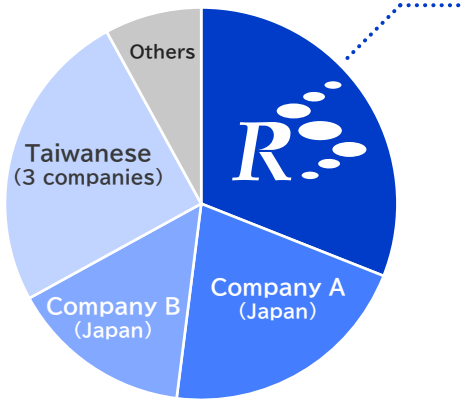



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# Reclaimed Wafer Business (2)

## Increasing market share in the reclaimed wafer

### Market share in the 12 inch regeneration market




### RS Technologies

Due to the new construction and expansion of Sanbongi in Taiwan, production capacity increased, and the current market share rose to about 33%.

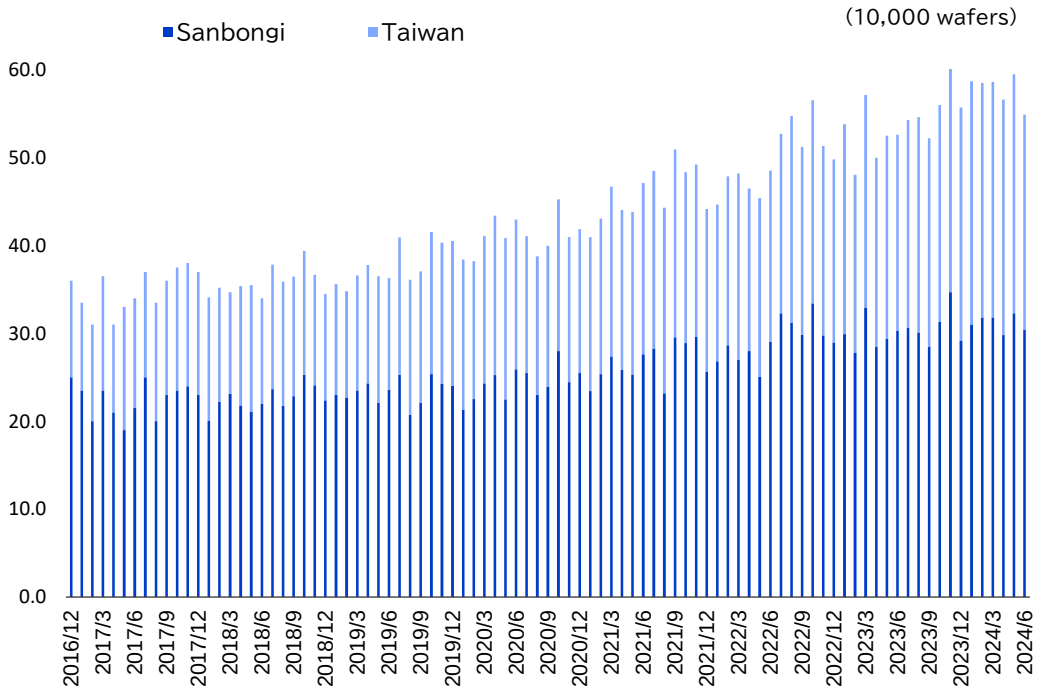
By further increasing production capacity through existing facilities at both factories, using an empty factory in Sanbongi, and using business tie-ups and M & As, etc.
RST aims to increase market share.

| Year | Second half of 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 |
|---|---|---|---|---|---|---|---|---|---|
| RST capacity | 240k | 280k | 300k | 340k | 400k | 420k | 460k | 550k | 590k |
| Market Share | 24% | 29% | 30% | 31% | 33% | 33% | 33% | 33% | 33% |

Estimated in our company based on SEMI data

## Shipments at the Sanbongi Plant and Taiwan Plant

### Trends in the number of 12 inch wafers shipped at the Sanbongi Plant and Taiwan Plant




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# Expansion into the Prime Wafer business

- **With a Chinese central company *1 ,GRINM, GRINM Semiconductor Material Co., Ltd (GRITEK) was established.**

Ingot Pulling
Slicing
Wrapping
Etching
Polishing
Primary Cleaning (Primary Inspection)
Secondary Cleaning
Final Inspection/Packing
Shipment

Clean Room

## Synergistic between RST and GRITEK

Strengths

**01** GRITEK's technological capabilities



**02** Benefit from China's semiconductor policy

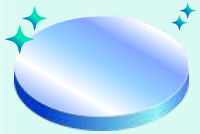


**03** RST's global sales network to sell to global customers



**04** Utilizing RST reclaimed technology

With more than 30 years of knowledge and insight from RST



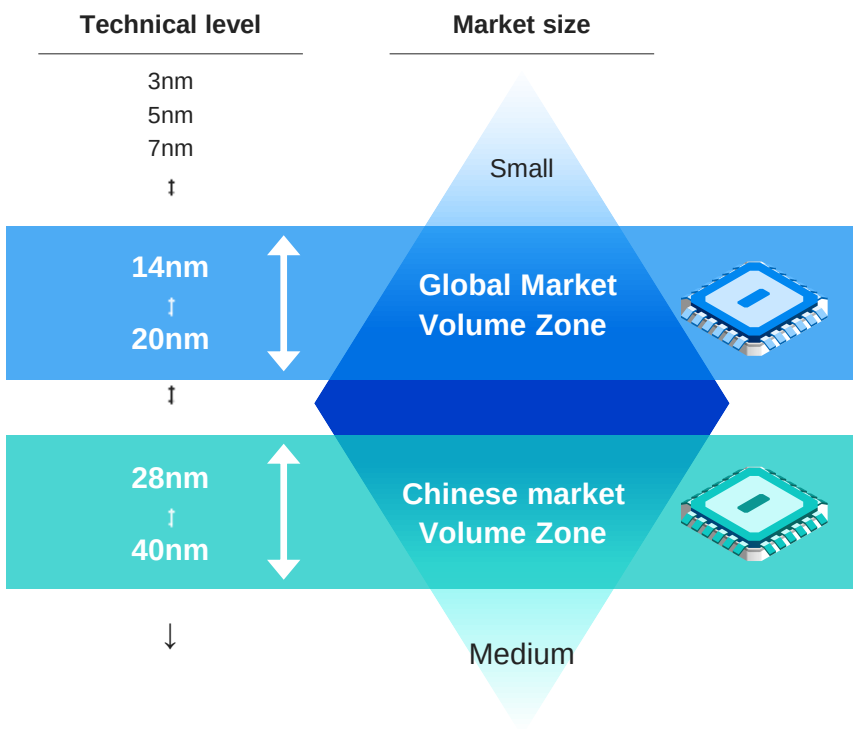
*(i) State-owned enterprises subject to management and supervision by the central government
*(ii) Current status: Riken Semiconductor Silicone Material Co., Ltd.

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# China 12 inch prime wafer market strategy

- Targeting No.1 share in Chinese market by securing volume zone quality in Chinese market
- After achieving No.1 share in Chinese market, next step will be to become a prime wafer manufacturer who is able to provide products with global standard quality to global semiconductor manufacturers

## Technology level and market size of semiconductor




## Market strategy of China's prime wafer business

### Aiming to Ensure Global Quality

- Quality: Achieve Quality of Global Standard
- Price: Achieve Attaractive price by production in China
- Sales: Utilizing the customer for reclaimed wafer to sell prime wafers

▶ **Sell GRITEK's wafers globally**

### Target Quality of 12 inch Prime Wafers

- Quality: **Ensuring volume zone quality** in the Chinese market
- Price: Low-cost acquisition of equipment through M & A
  Realization of low prices through

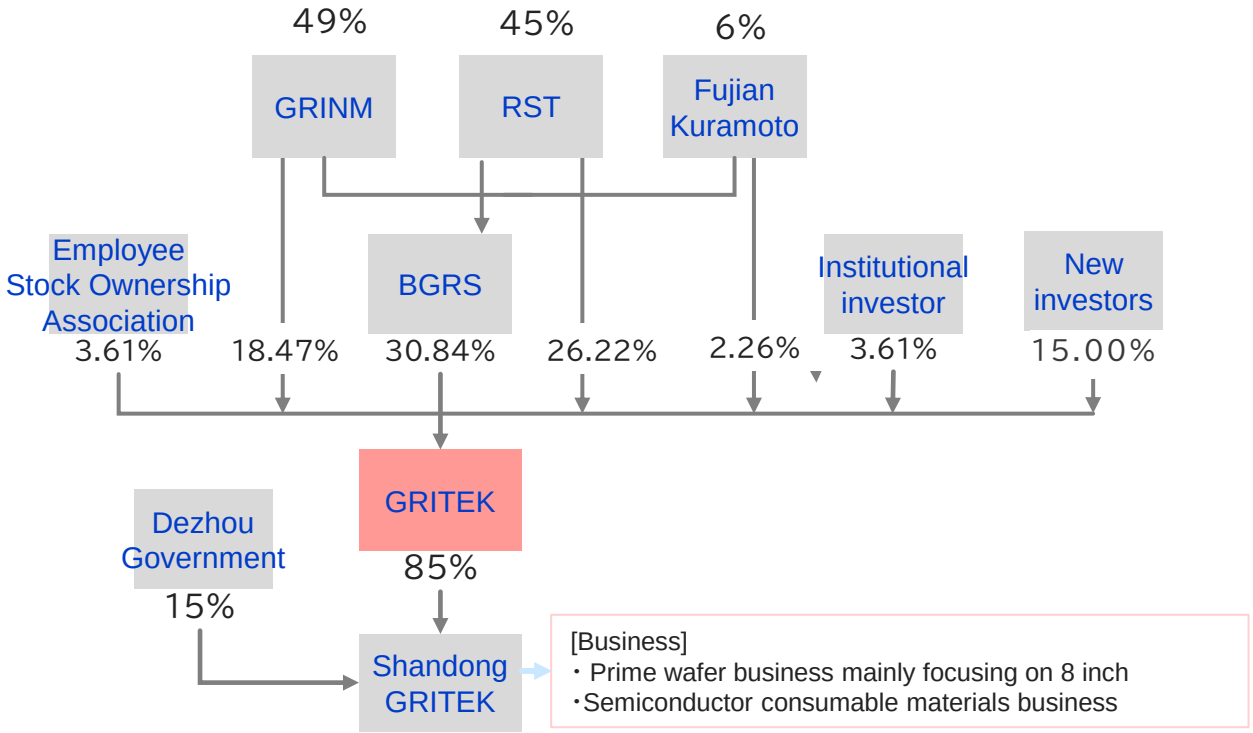
▶ **Gain No.1 market share in China**

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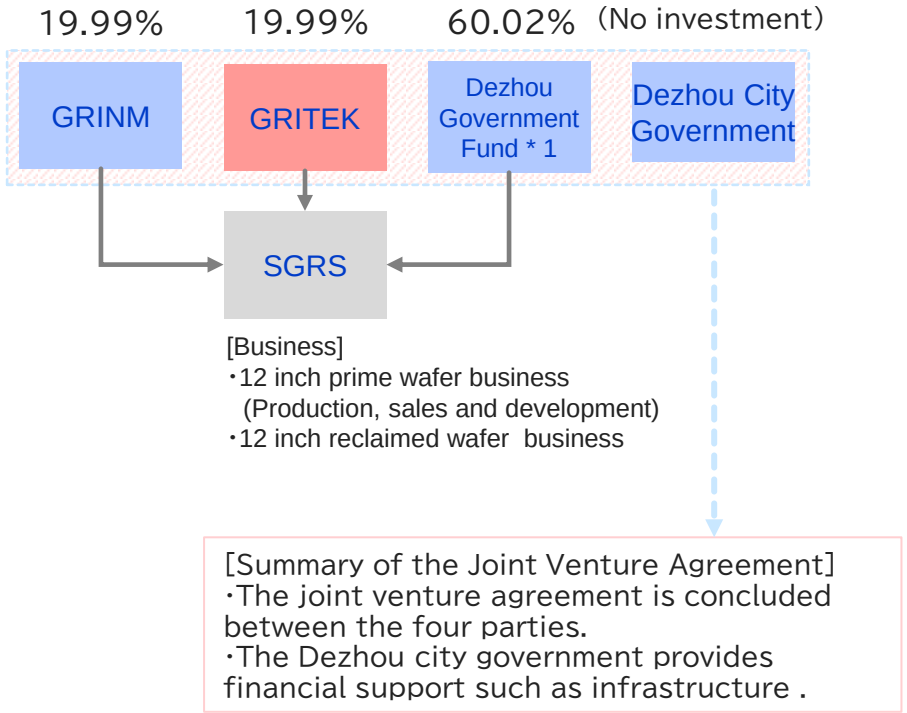
# Business scheme to invest in the prime wafer business

- **GRITEK is listed on the Shanghai Stock Exchange, STAR Market (SHA: 688432).**
- **The below risk-controlled model involving a Chinese sovereign wealth funds**

## 8 inch prime wafer business scheme




## 12 inch prime wafer business scheme * 1

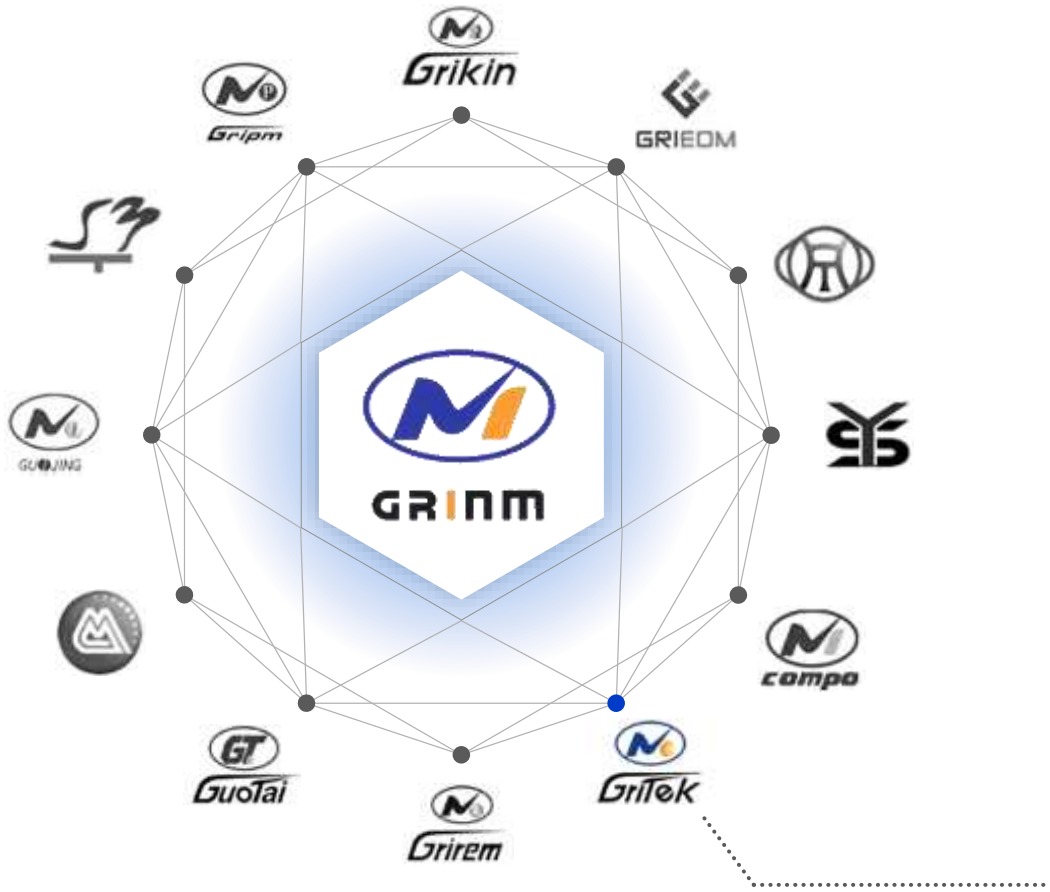



※1 Dezhou Huida Semiconductor Equity Investment Fund Partnership

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# About Joint Venture Partner (GRINM)




Established in 1952

**largest state-owned research institute in the field of nonferrous metals in China**

About 2,000 researchers out of about 4,100 employees

460,000 state-owned companies out of about 45 million companies in China and out of 460,000 companies, 98 central companies exist and GRINM is one of them

a research institute integrating government, industry, and academia. Policies in the metal field are communicated through GRINM

GRINM established operating companies that serve as evidence of its successful research.Currently, 4 research institutes and 30 operating companies exist

**GRITEK, a consolidated subsidiary of RST, was established as GRINM's first operating company and listed on the Shanghai Stock Exchange.**

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# RS Technologies's Targeting Business Portofolio

Business

Growth Expansion

Expanding RST's business and its sales areas

| | | | Japan | China | Asia (other than China) | Europe and America |
|---|---|---|---|---|---|---|
| Manufacturing | Reclaimed wafer | | ● | ● | ● | ● |
| | Prime wafer | 12inch | ○ | ● | ○ | ○ |
| | | 8inch, etc. | ◉ | ● | ◉ | ◉ |
| | Consumables related to semiconductor manufacturing | | ● | ● | ● | ● |
| | semiconductor manufacturing | | ○ | ○ | ○ | ○ |
| "renewable /recycled/ revititalized" business | New Business | | ○ | ○ | ○ | ○ |
| | Vanadium Redox Flow Battery | | ● | ◉ | ◉ | ◉ |
| Function of Trading Company | Manufacturing Equipment | | ● | ● | ● | ● |
| | Semiconductors, Electronic Components, Consumables | | ● | ● | ● | ◉ |
| | Others (solar, etc.) | | ● | ○ | ● | ○ |

Region

● current business area ◉ Planned Regional expansion ○ Possibility of future expansion

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# Year by Year Results

| (millions yen) | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sales | 3,475 | 4,566 | 5,285 | 8,864 | 10,932 | 25,478 | 24,501 | 25,561 | 34,620 | 49,864 | 51,893 |
| Gross profit | 1,173 | 1,820 | 1,852 | 2,544 | 4,252 | 8,366 | 7,940 | 8,681 | 11,870 | 18,432 | 17,413 |
| SG & A expenses | 471 | 654 | 791 | 958 | 1,269 | 2,615 | 3,223 | 4,151 | 4,995 | 5,413 | 5,519 |
| Operating income | 703 | 1,166 | 1,061 | 1,585 | 2,982 | 5,751 | 4,717 | 4,530 | 6,874 | 13,018 | 11,894 |
| Ordinary income | 819 | 1,247 | 770 | 1,444 | 3,159 | 6,141 | 5,416 | 5,252 | 8,832 | 15,500 | 14,921 |
| Net income (＊1) | 525 | 664 | 143 | 861 | 2,113 | 3,620 | 3,035 | 2,824 | 3,303 | 7,739 | 7,703 |
| Dividends (yen) (＊2) | - | - | - | 10 | 5 | 10 | 15 | 20 | 25 | 35 | 30 |
| Capital investment | 338 | 3,503 | 4,665 | 209 | 95 | 1,328 | 4,809 | 12,409 | 7,827 | 5,379 | 5,999 |
| Depreciation | 87 | 103 | 326 | 682 | 714 | 1,298 | 1,814 | 1,674 | 2,942 | 3,498 | 3,774 |
| R&D expenses | 1 | 6 | 11 | 85 | 183 | 501 | 449 | 929 | 1,308 | 1,657 | 1,764 |
| Number of employees | 152 | 191 | 265 | 373 | 434 | 1,159 | 1,277 | 1,187 | 1,333 | 1,533 | 1,534 |

(＊1) Net income attributable to owners of the parent (＊2) Dividends for FY2023 are shown after the split (1/2) on January 1, 2023.

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# Principal financial statements

| (million yen) | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Assets** | | | | | | | | | | | |
| **Current Assets** | 1,811 | 2,759 | 3,732 | 5,348 | 7,388 | 26,074 | 32,760 | 32,626 | 45,804 | 90,470 | 96,409 |
| Cash and deposits | 397 | 1,190 | 1,842 | 1,952 | 3,243 | 14,879 | 22,156 | 19,082 | 25,438 | 67,939 | 70,758 |
| Notes and accounts receivable-trade | 681 | 696 | 795 | 2,531 | 2,916 | 6,958 | 6,047 | 6,321 | 9,517 | 11,651 | 12,673 |
| Goods and products | 396 | 376 | 361 | 348 | 446 | 1,343 | 1,713 | 2,116 | 2,783 | 3,833 | 6,507 |
| **Non-current Assets** | 508 | 4,064 | 5,845 | 5,333 | 4,843 | 10,516 | 15,873 | 26,124 | 33,206 | 37,084 | 44,256 |
| Property,factory, and equipment assets | 461 | 3,918 | 5,667 | 5,152 | 4,674 | 8,963 | 14,635 | 24,146 | 29,023 | 31,285 | 35,326 |
| Intangible fixed assets | 19 | 15 | 29 | 23 | 19 | 1,099 | 732 | 527 | 417 | 270 | 266 |
| Investments and other assets | 27 | 130 | 148 | 158 | 149 | 453 | 506 | 1,451 | 3,766 | 5,529 | 8,663 |
| **Total assets** | **2,320** | **6,823** | **9,577** | **10,682** | **12,231** | **36,591** | **48,634** | **58,750** | **79,010** | **127,554** | **140,666** |
| **Liabilities** | | | | | | | | | | | |
| **Current Liabilities** | 960 | 2,292 | 2,295 | 2,993 | 3,370 | 4,979 | 7,252 | 12,631 | 14,171 | 17,622 | 18,265 |
| Notes and accounts payable | 138 | 151 | 186 | 283 | 398 | 1,554 | 1,614 | 2,871 | 4,317 | 6,466 | 5,174 |
| interest-bearing debt | 136 | 827 | 1,216 | 1,538 | 1,276 | 976 | 1,730 | 1,522 | 3,020 | 4,694 | 3,355 |
| **Non-current Liabilities** | 709 | 2,934 | 4,798 | 4,317 | 3,335 | 2,474 | 5,400 | 5,754 | 9,827 | 8,458 | 6,973 |
| Long-term loans payable | 615 | 2,925 | 4,079 | 3,620 | 2,767 | 1,848 | 2,232 | 1,613 | 5,097 | 3,514 | 2,092 |
| **Total Liabilities** | **1,670** | **5,227** | **7,093** | **7,310** | **6,705** | **7,453** | **12,652** | **18,385** | **23,999** | **26,081** | **25,238** |
| **Net assets** | | | | | | | | | | | |
| Net assets | 649 | 1,596 | 2,483 | 3,371 | 5,526 | 29,137 | 35,981 | 40,365 | 55,011 | 101,473 | 115,428 |
| **Total liabilities and net assets** | **2,320** | **6,823** | **9,577** | **10,682** | **12,231** | **36,591** | **48,634** | **58,750** | **79,010** | **127,554** | **140,666** |

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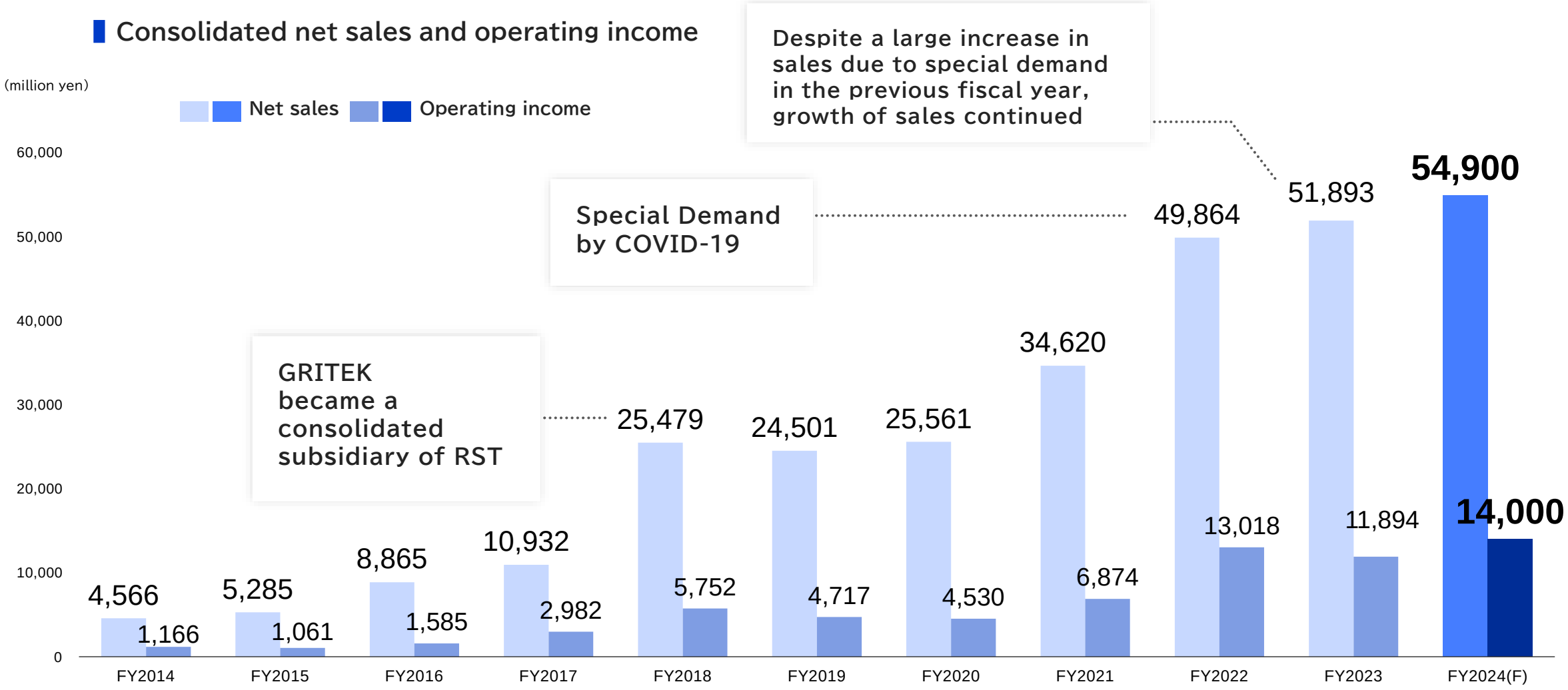
# Performance by Segment

| (million yen) | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sales | | | | | | | | | | | |
| Reclaimed Wafer Business | 3,347 | 4,414 | 5,107 | 7,144 | 9,487 | 10,973 | 10,776 | 11,461 | 12,717 | 18,001 | 20,499 |
| Prime Wafer Business | - | - | - | - | - | 11,918 | 10,058 | 8,755 | 14,780 | 22,752 | 18,736 |
| Semiconductor-related equipment and material Business | - | - | - | 1,654 | 1,393 | 2,918 | 4,047 | 6,272 | 8,450 | 11,265 | 14,057 |
| Other adjustments | 127 | 151 | 178 | 66 | 52 | △331 | △380 | △927 | △1,327 | △2,154 | △1,399 |
| Segment profit | | | | | | | | | | | |
| Reclaimed Wafer Business | 916 | 1,444 | 1,377 | 1,765 | 3,396 | 4,011 | 4,081 | 4,027 | 4,731 | 7,312 | 8,114 |
| Prime Wafer Business | - | - | - | - | - | 2,048 | 1,503 | 1,041 | 2,539 | 5,995 | 3,742 |
| Semiconductor-related equipment and material Business | - | - | - | 230 | 130 | 366 | 171 | 211 | 382 | 914 | 882 |
| Other adjustments | △214 | △278 | △316 | △409 | △543 | △675 | △1,038 | △749 | △778 | △1,203 | △844 |
| segment assets | | | | | | | | | | | |
| Reclaimed Wafer Business | 1,337 | 5,040 | 6,987 | 5,657 | 8,120 | 9,150 | 10,336 | 11,698 | 14,302 | 18,530 | 21,833 |
| Prime Wafer Business | - | - | - | - | - | 21,313 | 29,311 | 35,697 | 53,202 | 95,788 | 100,768 |
| Semiconductor-related equipment and material Business | - | - | - | 1,137 | 1,305 | 1,939 | 3,179 | 5,387 | 7,310 | 6,801 | 8,775 |
| Other adjustments | 982 | 1,783 | 2,589 | 3,887 | 2,805 | 4,315 | 5,806 | 5,968 | 4,243 | 6,435 | 9,290 |

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# Consolidated Financial Results

## Consolidated net sales and operating income




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# Notes

The content of these materials was prepared based on generally recognized economic potential and certain assumptions considered reasonable by the Company but is subject to revision without notice due to changes in various business environments affecting management.

Materials and information provided for this announcement contain forward-looking statements. This information is based on assumptions pertaining to the current outlook, forecasts and risks, and contains uncertainties that could result in different outcomes.

Even in the case of new information, future events, or other relevant matters, the Company is under no obligation to update or revise the forward-looking statements contained in this material.

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