

# Financial Results – FY25/3

(Matters related to Business Plan and Growth Potential)

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Microwave **Chemical**

**Make Wave,  
Make World.**

世界が知らない世界をつくれ

# Agenda

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1. Executive Summary
2. Financial Results - FY25/3
3. Forecasts & KPI
4. Mid-Term Vision and Growth Strategy
5. Company Overview / Reference



# Executive Summary (1/2): Financial Results and Forecasts

## FY25/3 Financial Results

- Sales of JPY1,608MM ((14)% YoY), operating profit of JPY187MM (+39% YoY)
  - SG&A expenses: 9% decrease compared to plan due to thorough cost management and underachievement of personnel plan.
  - Operating profit: Increased by 290% compared to the plan as a result of the above.
- KPI
  - New project acquisitions: Acquired 24 contracts compared to the target of 29 contracts.
  - Total number of contracts: Acquired 71 contracts compared to the target of 61 contracts.
- Focus areas: Progressed important projects linked to large-scale revenues, mainly in the metal smelting and chemical recycling business.

## FY25 Forecasts

- We plan to change fiscal year-end from March to June in FY25, resulting in a one-time 15-month fiscal period.
  - 12-month basis: FY26/3 sales of JPY1,317MM; operating loss of JPY662MM
  - 15-month basis: FY26/6 sales of JPY1,613MM; operating loss of JPY853MM
- COGS: COGS rate to be temporarily increased due to an increase of demonstration equipment installation in Phase 2 projects and the timing of revenue recognition, as high-margin scopes such as equipment design were preceded in FY25/3.
- SG&A to be increased due to personnel expansion for social implementation and R&D costs related to new business.
  - Labor costs increase: +c.JPY60MM (Comparison between FY25/3 (12-month) and FY26/3 (12-month))
  - R&D costs related to new business: +c.JPY90MM (FY26/6 15-month basis, including labor costs related to the development)
- CF : Executed debt financing below in March 2025 to secure cash position for FY26/6:
  - Borrowed JPY180MM from The Kiyo Bank, Ltd.
  - Extended JPY500MM commitment line with The Shoko Chukin Bank, Ltd. (5-year term)
- Operating surplus targeted for FY27/6.



# Executive Summary (2/2): Growth Strategy

## Mid-Term Growth Outlook

- While focusing on Microwave solutions business (collaboration business), we plan to create new businesses in parallel. Through this dual-engine strategy, we targets sales of JPY10Bn in FY30.
- Collaboration business: In addition to Phase 2 projects (unit price: tens of millions of yen), which have been the main revenue source, we plan to implement five Phase 3 projects (installation of commercial equipment with unit prices ranging from several hundred million to several billion yen) by 2030.
  - Plan to realize sales of JPY13–14Bn over the five years by FY30 in total.
  - Profit margins and lead times will also be improved through the initiatives outlined in “(1)” below.
- After 2030, we plan to establish our technology to enable multiple installation of commercial equipment every year.
- We also will launch new business initiatives to build a stable revenue as “(2)” below.

## (1) Expansion of Existing Collaboration Business

- Continue to focus on key projects with strong potential for commercialization.
  - Target areas include: metal smelting processes, chemical recycling, and carbon fiber manufacturing.
- Aim for large-scale revenue through installation of commercial equipment while progressing standardization of technologies and equipment to improve long-term gross margins and shorten lead times.
  - Invest in the development of new standard demonstration equipment for metal smelting processes.
  - Upgrade existing standard bench equipment.
- Due to increase of microwave oscillator costs and longer delivery time associated with the scale-up of microwave systems, which would decrease profitability, we will begin internal development to reduce costs from FY26/6.
  - An expert in microwave oscillator development has already been hired.
  - In the long term, we aim to sell oscillators to external companies.

## (2) Launch of New Business Initiatives

- We will build new business through strategic hypothesis testing.
  - Explore applications of microwave (MW) technology in other fields (e.g., semiconductor materials).
  - Leverage our integrated capabilities (e.g. business development, lab-scale testing, and engineering) to offer new solutions other than MW to our existing clients.
  - Small-scale M&A
- Aim to establish recurring revenue by 2030.



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# FY25/3 Income Statements Summary

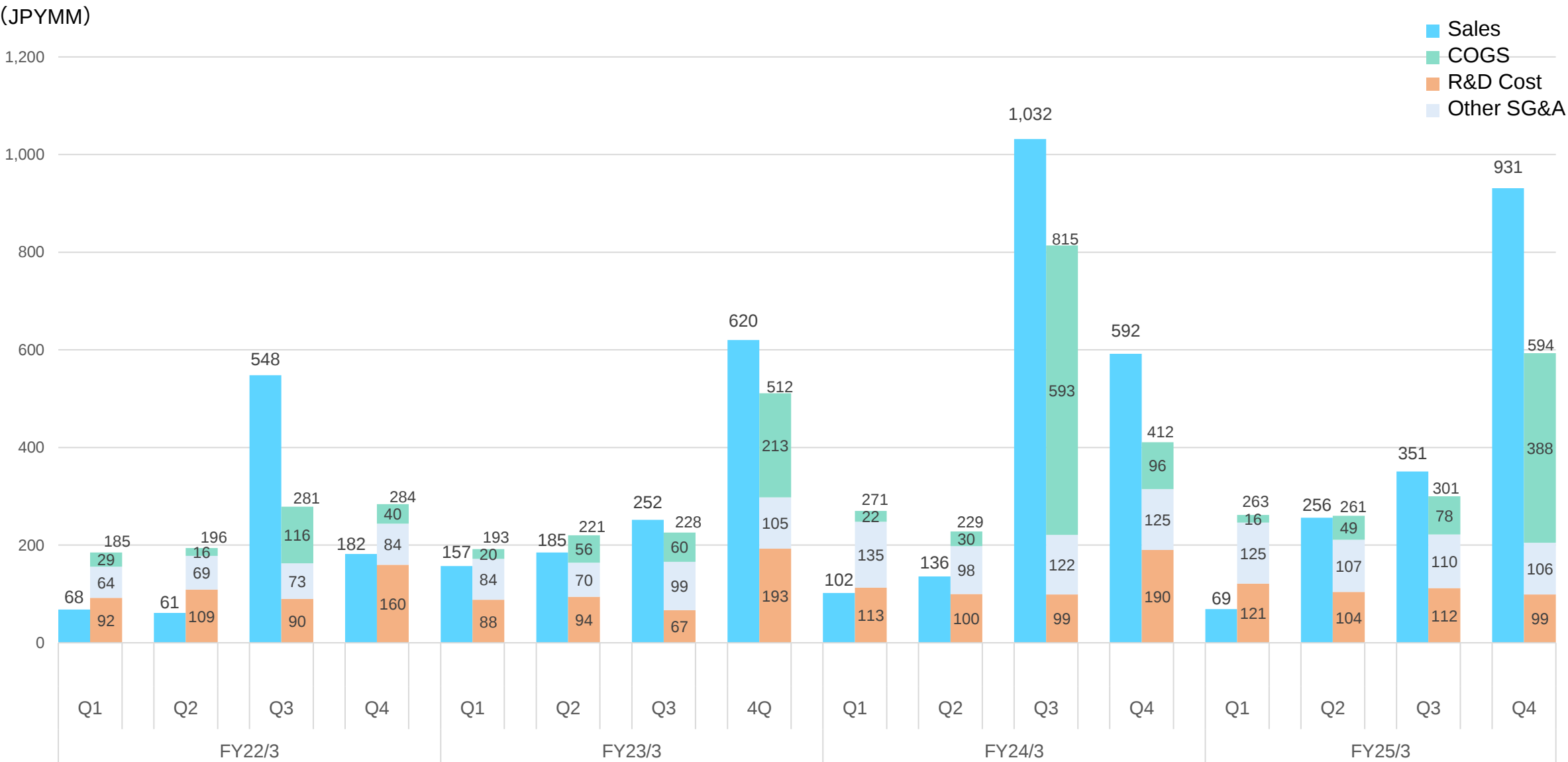
- In Phase 1, we deployed screening framework based on past experience to assess both the technical difficulty and business potential of each theme more effectively. As a result, while the number of contracts decreased year-on-year, we established selective business development with a focus on future profitability.
- We steadily developed large-scale Phase 2 projects. Portfolio optimization progressed well, particularly in chemical recycling and metal smelting business.
- SG&A expenses were more tightly controlled than expected based on thorough cost management and underachievement of personnel plan. As a result, operating profit through to net income exceeded the initial forecasts.

| (JPYMM)                        | FY24/3       | FY25/3       | YoY comparison |                | FY25/3                   | Progress      |
|--------------------------------|--------------|--------------|----------------|----------------|--------------------------|---------------|
|                                | Actual       | Actual       | Difference     | %              | Forecasts <sup>(2)</sup> | %             |
| <b>Net sales<sup>(1)</sup></b> | <b>1,863</b> | <b>1,608</b> | <b>(254)</b>   | <b>(13.7)%</b> | <b>1,710</b>             | <b>(5.9)%</b> |
| Phase 1                        | 565          | 258          | (306)          | (54.3)%        | 490                      | (47.3)%       |
| Phase 2                        | 1,274        | 1,330        | 56             | 4.4%           | 1,201                    | 10.8%         |
| Phase 3                        | -            | 15           | 15             | -              | 15                       | 0.0%          |
| Phase 4                        | -            | 0            | 0              | -              | -                        | -             |
| Others                         | 24           | 4            | (20)           | (83.2)%        | 3                        | 15.5%         |
| Gross profit                   | 1,120        | 1,075        | (45)           | (4.1)%         | 1,021                    | 5.3%          |
| % Net sales                    | 60.1%        | 66.8%        | 6.7pt          | -              | 59.7%                    | 7.1pt         |
| Operating profit               | 134          | 187          | 52             | 39.4%          | 48                       | 289.6%        |
| % Net sales                    | 7.2%         | 11.7%        | 4.4pt          | -              | 2.8%                     | 8.8pt         |
| Ordinary profit                | 130          | 182          | 51             | 39.1%          | 40                       | 354.2%        |
| Profit before tax              | (897)        | 164          | 1,061          | -              | 40                       | 309.8%        |
| Profit after tax               | (944)        | 161          | 1,106          | -              | 37                       | 333.5%        |

(1) Phase 1 is the R&D phase, Phase 2 is the demonstration development phase, Phase 3 is the actual equipment introduction (equipment sales) phase, and Phase 4 is the manufacturing support phase.

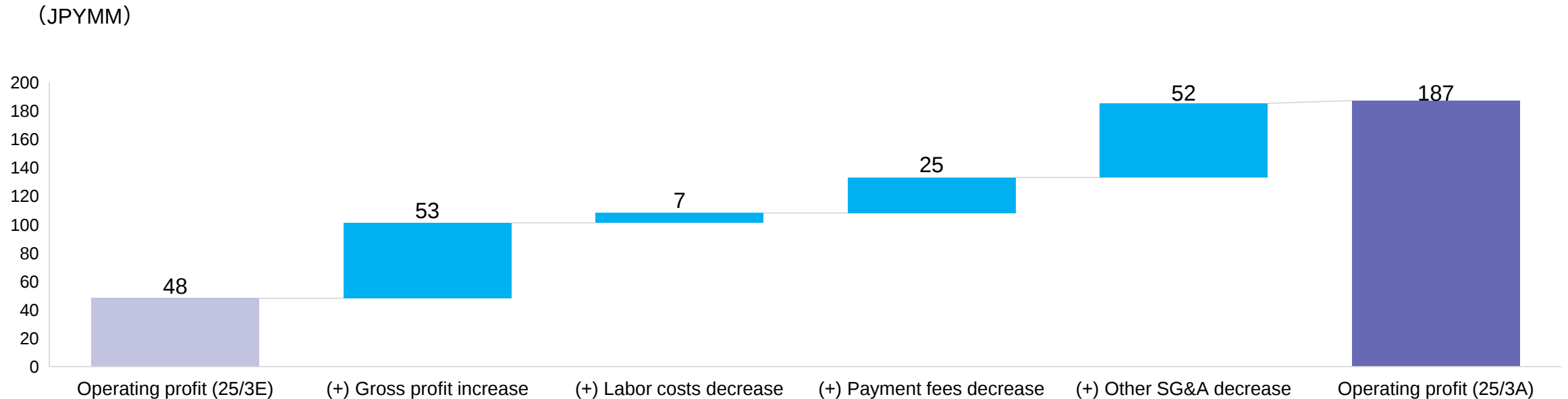
(2) Based on FY25/3 forecasts announced on May 9, 2025.

# Quarterly Sales and Costs (FY22/3Q1-FY25/3Q4)



# 25/3 Operating profit plan vs. actual analysis

- Development of large scale Phase 2 projects anticipated at the beginning of the fiscal year progressed steadily. We also increased contract value in some projects.
- SG&A expenses were 9% below the plan, due to strict cost control and partial underachievement of the hiring plan.
- As a result, operating profit exceeded the plan by 290%.



# Balance Sheet Summary

- In March 2025, we executed a loan of JPY180MM from The Kiyo Bank, Ltd.
- Cash and cash equivalents in FY25/3 declined slightly compared to the end of March 2024, primarily due to an increase in accounts receivable and a decrease in contract liability, driven by a lengthening of collection periods for certain contracts. As a result, total current assets increased by c.JPY200MM.

## FY24/3 Balance Sheet

(JPYMM)

|                              |              |                                  |              |
|------------------------------|--------------|----------------------------------|--------------|
| Cash and deposits            | 529          | Accounts payable                 | 4            |
| Accounts receivable          | 304          | Current portion of LTD           | 7            |
| Work on process              | 12           | Contract liability               | 287          |
| Others                       | 146          | Others                           | 241          |
| <b>Current assets</b>        | <b>993</b>   | <b>Current liabilities</b>       | <b>541</b>   |
|                              |              |                                  |              |
| Tangible fixed assets        | 816          | Long-term debt                   | 202          |
|                              |              | Lease obligation                 | 295          |
| Intangible assets            | 6            | <b>Fixed liabilities</b>         | <b>497</b>   |
|                              |              |                                  |              |
| Shares of affiliates         | 0            | Capital fund, etc.               | 3,398        |
| Others                       | 77           | Earned surplus                   | (2,542)      |
| Investments and other assets | 77           | <b>Net worth</b>                 | <b>856</b>   |
| <b>Total</b>                 | <b>1,894</b> | <b>Total debt and net assets</b> | <b>1,894</b> |

## FY25/3 Balance Sheet

(JPYMM)

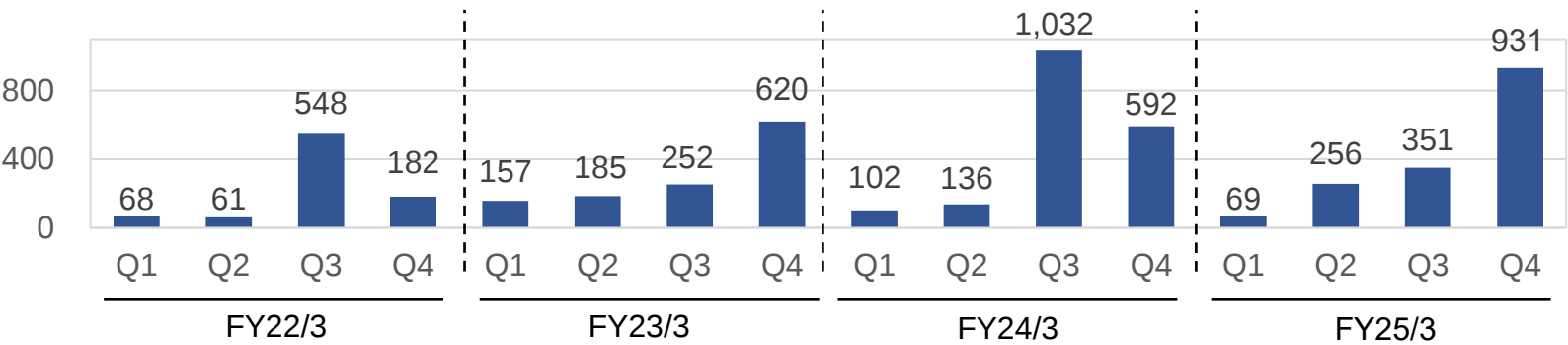
|                              |              |                                  |              |
|------------------------------|--------------|----------------------------------|--------------|
| Cash and deposits            | 507          | Accounts payable                 | 68           |
| Accounts receivable          | 598          | Current portion of LTD           | 28           |
| Work on process              | 43           | Contract liability               | 129          |
| Others                       | 64           | Others                           | 200          |
| <b>Current assets</b>        | <b>1,214</b> | <b>Current liabilities</b>       | <b>426</b>   |
|                              |              |                                  |              |
| Tangible fixed assets        | 809          | Long-term debt                   | 353          |
|                              |              | Lease obligation                 | 280          |
| Intangible assets            | 21           | <b>Fixed liabilities</b>         | <b>633</b>   |
|                              |              |                                  |              |
| Shares of affiliates         | --           | Capital fund, etc.               | 3,445        |
| Others                       | 78           | Earned surplus                   | (2,381)      |
| Investments and other assets | 78           | <b>Net worth</b>                 | <b>1,064</b> |
| <b>Total</b>                 | <b>2,124</b> | <b>Total debt and net assets</b> | <b>2,124</b> |

# Seasonal Fluctuations / Revenue Recognition

## Seasonal Fluctuations

- Our major clients, chemical companies, finalize budgets by March, just before the start of the new fiscal year, so projects with MWCC often begin in the first or second quarter. As a result, the completion of the contracts, in which **our revenues are recorded, tends to be biased toward the second half of the year**. There is also an impact from the completion timing of large-scale projects.
- In addition, as the majority of SG&A expenses are fixed costs, the proportion of profits also tends to be weighted toward the second half of the year, which would affect investors' decisions.

Quarterly Net Sales  
(JPYMM)



## Revenue Recognition

The following is a description of the main performance obligations in the Company's main business related to revenues arising from contracts with clients and the usual time at which such performance obligations are met. Payment is made generally within one month after obligation is fulfilled and does not include financial component.

### (1) Joint development agreement (JDA)

The Company submits reports, samples, etc. stipulated in the JDA and receives payment. Under such agreements, **revenue is booked upon acceptance of the report, samples, etc. by the client.**

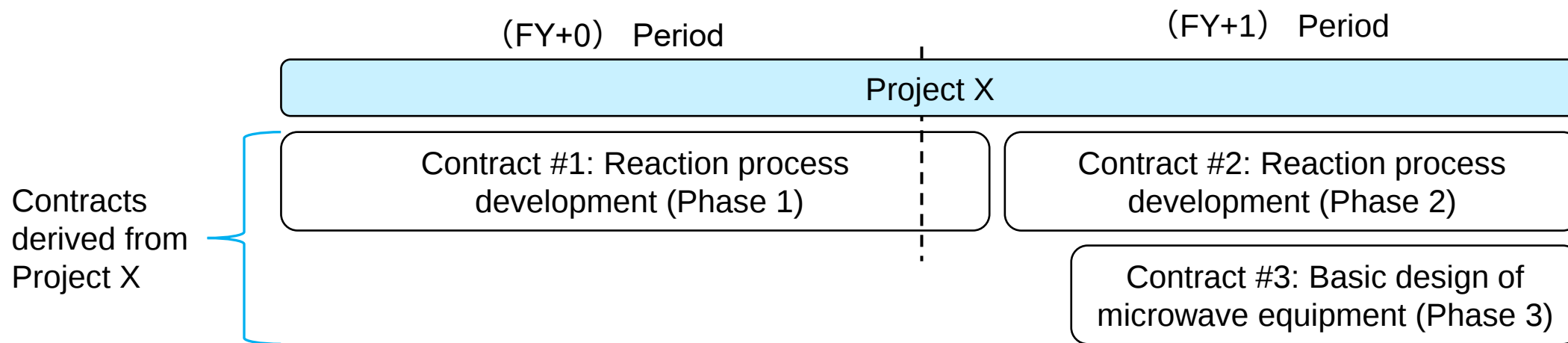
### (2) License agreement

Under license agreements, the Company licenses its intellectual property to clients and receives upfront payments and running royalties as compensation. The upfront payment is booked as revenue at the time the intellectual property is licensed. Running royalties are based on the sales revenue of the licensee company, and revenue is recognized when the product is sold by the licensee company.



# KPI (Key Performance Indicator)

- Important KPIs for our business are **(1) number of new contracts**, **(2) total number of contracts**, and **(3) sales by phase**.
  - Contracts are executed with clients based on our solutions and service per phase.
  - Multiple contracts would be executed with one project as indicated below.
- (3) Sales by phase shows progress of the contracts by sales in each phase.
- Contracts are basis of our sales. We disclose number of contracts which are expected to be completed and book sales within this FY.



# (Ref) Grant Information

- Development has been accelerated, mainly in the green business areas, with the support of the following grant programs.
- In addition to the grant directly received by us, there are also multiple development projects where our client companies utilize grant programs.

| Institution | Project                                                                                                                                                                                                                              | Theme                                                                                                                                                                                            | Grant (JPY Thou)                                        |
|-------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------|
| NEDO        | <ul style="list-style-type: none"><li>• Program for Promotion of R&amp;D and Social Implementation of Energy-saving Technologies toward Realization of a Decarbonized Society / Demonstration and Development</li></ul>              | <ul style="list-style-type: none"><li>• Demonstration and development of a new chemical recycling method for plastics using a microwave process</li></ul>                                        | <ul style="list-style-type: none"><li>• 2,624</li></ul> |
| NEDO        | <ul style="list-style-type: none"><li>• Program for Promotion of R&amp;D and Social Implementation of Energy-saving Technologies toward Realization of a Decarbonized Society/Priority Subjects Promotion Scheme (Phase I)</li></ul> | <ul style="list-style-type: none"><li>• Development of Innovative Naphtha Cracking Technology Using Microwave Heating</li></ul>                                                                  | <ul style="list-style-type: none"><li>• 8,421</li></ul> |
| AMED        | <ul style="list-style-type: none"><li>• Basic drug discovery technology development project for next-generation treatment and diagnosis (RNA-targeted drug discovery technology)</li></ul>                                           | <ul style="list-style-type: none"><li>• Development of basic technologies for manufacturing raw materials and APIs for manufacturing, purification, and analysis of nucleic acid drugs</li></ul> | <ul style="list-style-type: none"><li>• 545</li></ul>   |

# FY25/3 KPI Highlights

## 1 Number of New Contracts

- Acquired 24 new contracts compared with the target of 29 contracts.

## 2 Total Number of Contracts

- Executed 71 contracts compared with the target of 61 contracts.

## 3 Sales by Phase

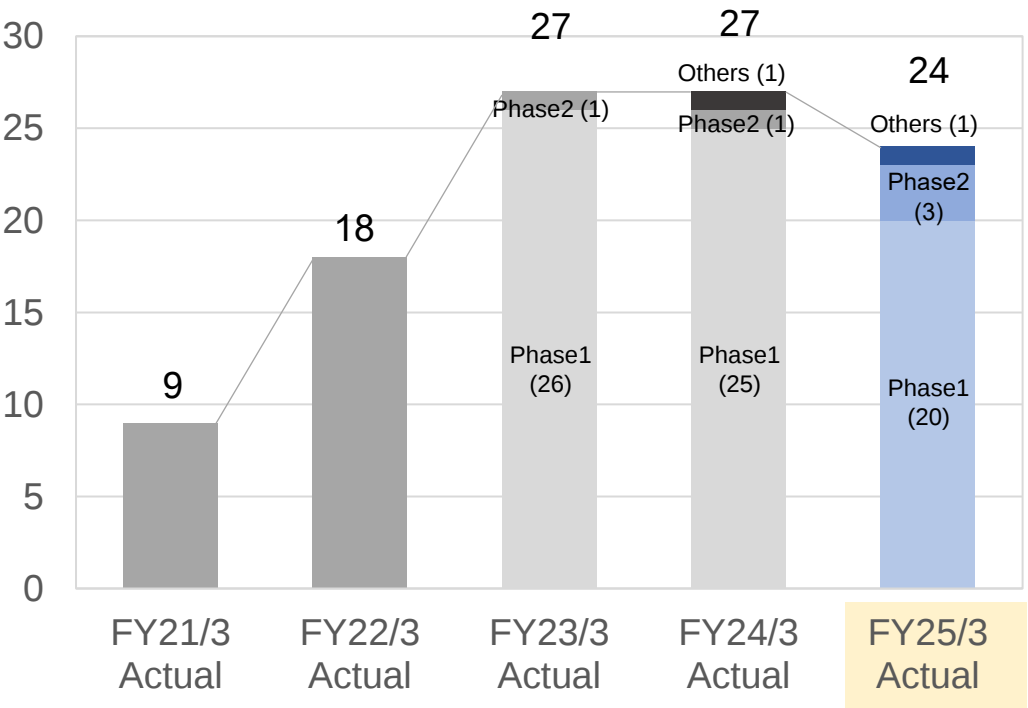
- Achieved JPY1,608MM, compared with the target of JPY1,710MM, representing 94% achievement.
- While Phase 1 lagged behind plan, Phase 2 achieved +11% of the plan and accounted for 83% of total sales (compared to 68% in FY24/3).



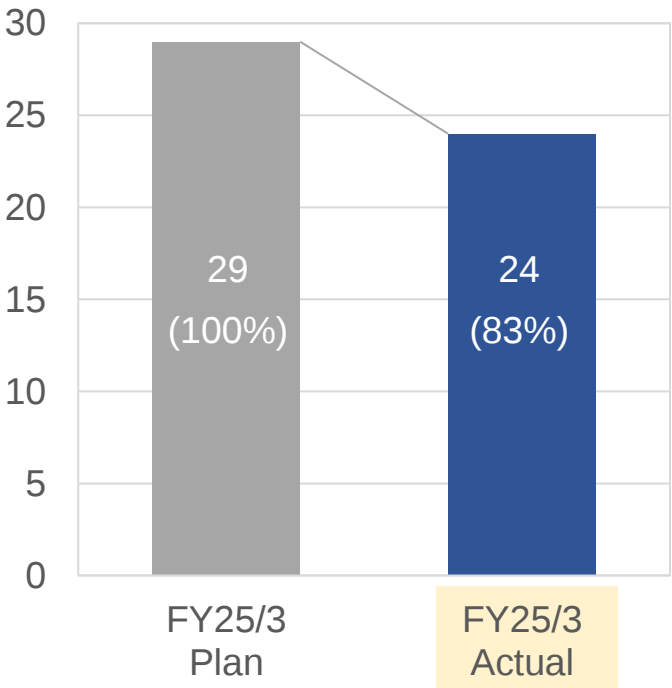
# KPI (1) Number of New Contracts

- Acquired 24 new contracts compared with the target of 29 contracts.
- In Phase 1, the number was strategically narrowed through a focused selection process based on the experience. At the same time, progress in technology standardization enabled the acquisition of multiple projects starting from Phase 2, resulting in a more sophisticated development process and faster path to larger revenue.

# of New Contracts



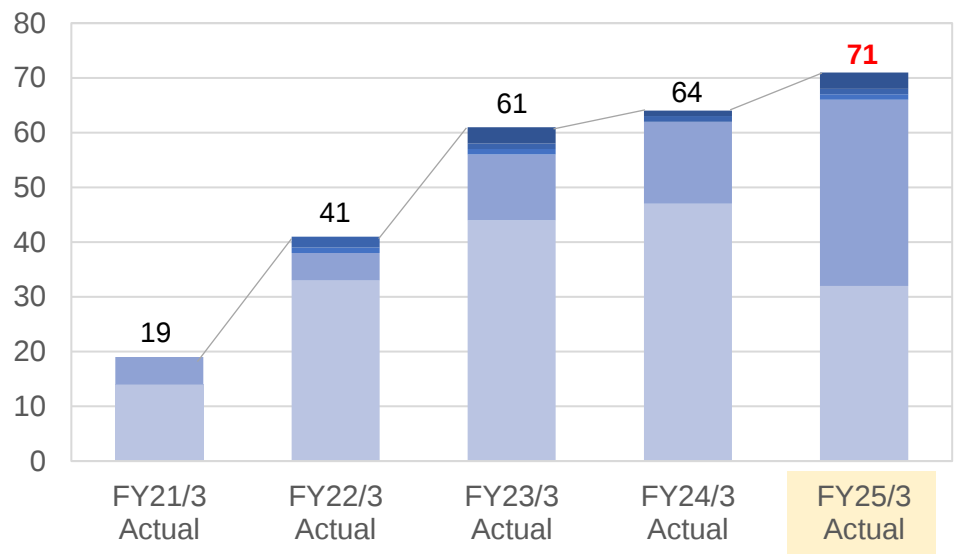
vs. Forecast



# KPI (2) Total Number of Contracts

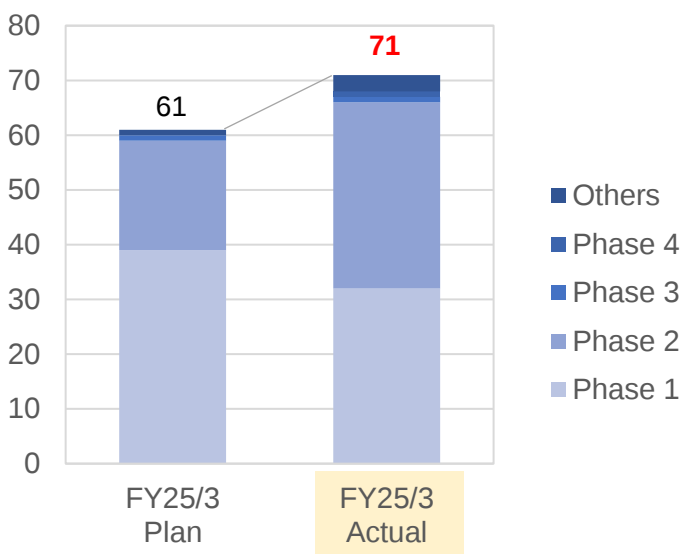
- Executed 71 contracts compared with the target of 61 contracts.
- In Phase 2, several projects saw an increase in the number of contracts due to scope division in response to client requests during the period. As a result, the average contract value (JPY39MM) fell below initial plans (JPY60MM). However, we have built trustworthy relationship with clients to execute projects with agility.

Total Number of Contracts



|         |    |    |    |    |    |
|---------|----|----|----|----|----|
| Phase 1 | 14 | 33 | 44 | 47 | 32 |
| Phase 2 | 5  | 5  | 12 | 15 | 34 |
| Phase 3 | 0  | 1  | 1  | 0  | 1  |
| Phase 4 | 0  | 2  | 1  | 1  | 1  |
| Others  | 0  | 0  | 3  | 1  | 3  |
| Total   | 19 | 41 | 61 | 64 | 71 |

vs. Forecasts



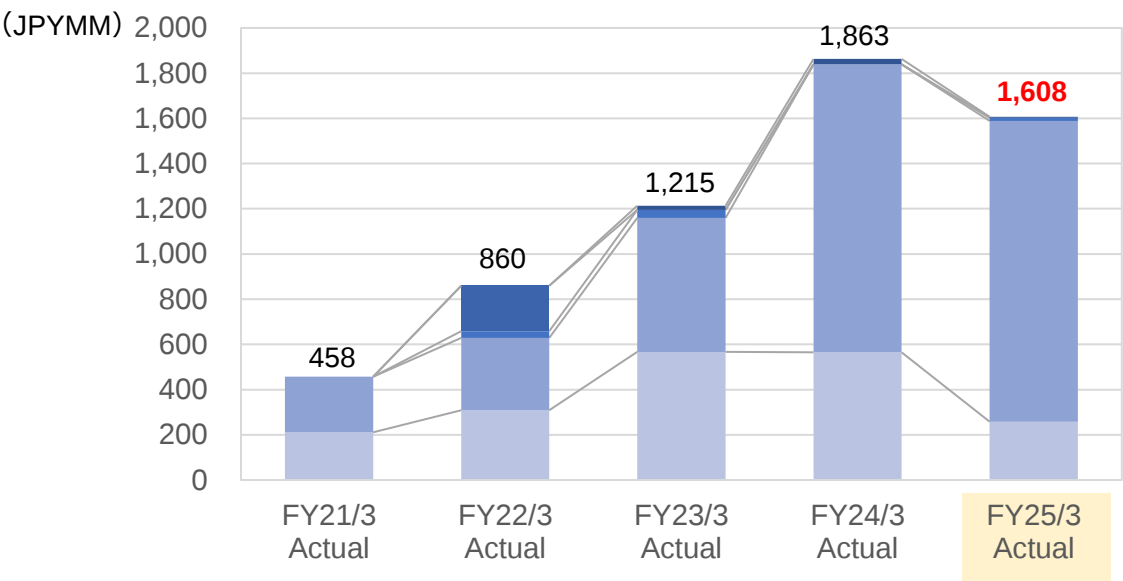
| (Difference) |    |     |
|--------------|----|-----|
| 39           | 32 | (7) |
| 20           | 34 | 14  |
| 1            | 1  | 0   |
| 0            | 1  | 1   |
| 1            | 3  | 2   |
| 61           | 71 | 10  |



# KPI (3) Sales by Phase

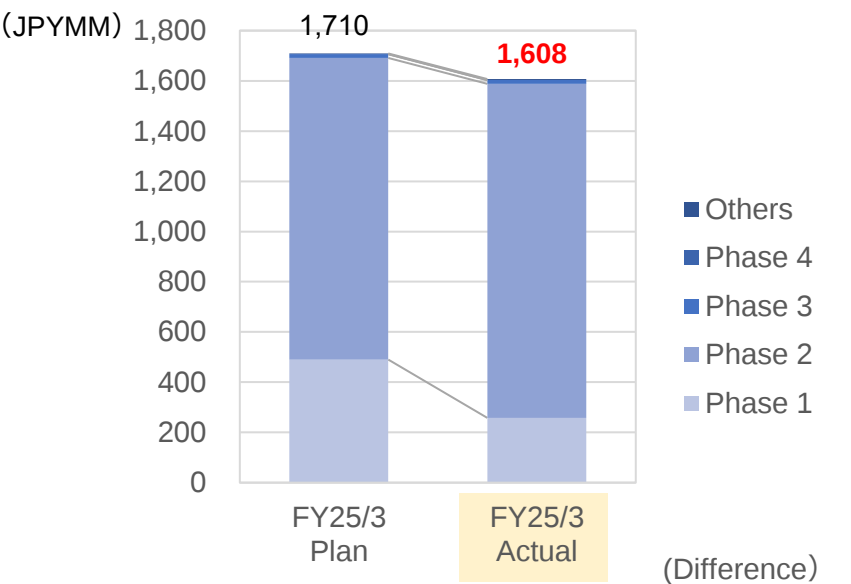
- Phase 1: As earlier noted, the number of development projects was strategically narrowed through focused selection based on the experience, resulting in a year-on-year decline in revenue.
- Phase 2: Steady progress was made, mainly on large-scale projects.
  - FY24/3: Revenue was significantly driven by a carbon fiber project with Mitsui Chemicals, Inc.
  - FY25/3: Shifted to a more balanced structure by reducing dependency on specific projects and generating revenue from multiple Phase 2 projects.

Sales by Phase



|         |     |     |       |       |       |
|---------|-----|-----|-------|-------|-------|
| Phase 1 | 211 | 309 | 567   | 565   | 258   |
| Phase 2 | 246 | 320 | 593   | 1,274 | 1,330 |
| Phase 3 | —   | 30  | 35    | —     | 15    |
| Phase 4 | —   | 200 | —     | —     | 0     |
| Others  | —   | —   | 19    | 24    | 4     |
| Total   | 458 | 860 | 1,215 | 1,863 | 1,608 |

vs. Forecasts



|  |       |       |       |
|--|-------|-------|-------|
|  | 490   | 258   | (232) |
|  | 1,201 | 1,330 | 129   |
|  | 15    | 15    | —     |
|  | —     | 0     | 0     |
|  | 3     | 4     | 0     |
|  | 1,710 | 1,608 | (101) |



- While we acquired new contracts with high profitability and strategic significance, the total number of contracts fell short of the initial plan.
- Development of key projects progressed steadily and our technology platform further was deepened and expanded.



# FY25/3 Business Highlight

- Key projects with potential to lead to large-scale deal—particularly in the green business areas—have been acquired and are currently underway.

|                         |                        | Theme                                                                                                                           | Partner                        | Announcement Date    |
|-------------------------|------------------------|---------------------------------------------------------------------------------------------------------------------------------|--------------------------------|----------------------|
| Focus on Green Business | Metal Smelting Process | • Completed standard bench equipment using microwaves in metal smelting processes                                               | • (Internal project)           | • April 24, 2024     |
|                         |                        | • Successful calcination and reduction of nickel ore using the standard bench equipment                                         | • PACIFIC METALS CO., LTD.     | • May 10, 2024       |
|                         |                        | • Received order for designing and manufacturing of MW-based pilot reactor to produce beryllium for fusion reactors             | • MiRESSO Co.Ltd.              | • July 22, 2024      |
|                         |                        | • Strategic alliance for the designing and manufacturing of MW-based rotary hearth furnaces for ore smelting                    | • CHUGAI RO CO., LTD.          | • September 11, 2024 |
|                         |                        | • Started calcination tests of Mn nodule ores found in the sea off Minami-Torishima Island, Japan                               | • The University of Tokyo      | • December 19, 2024  |
|                         | Chemical Recycling     | • Launch full-scale development of chemical recycling technology to directly convert used plastics into basic chemical products | • Resonac Holdings Corporation | • March 27, 2025     |



## Project Highlight: Strategic alliance for designing and manufacturing of microwave-based rotary hearth furnaces for ore smelting (CHUGAI RO CO., LTD.)

- In September 2024, we announced a strategic alliance with CHUGAI RO, a leading industrial furnaces manufacturer in Japan, to **accelerate the designing and manufacturing of microwave-based rotary hearth furnaces for ore smelting**.
  - Rotary kiln is a commonly used technology in metal smelting processes such as ore reduction and dust treatment, but it conventionally uses fossil fuels resulting in emission of a huge volume of CO<sub>2</sub>.
  - Then we focus on rotary hearth furnaces, which offer advantages of space efficiency and ease of handling. We will collaborate with CHUGAI RO, having extensive knowledge of industrial furnaces including rotary hearth furnaces, to develop microwave-based rotary hearth furnaces and address the challenges above.



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# Change in Fiscal Year End

- Subject to a special resolution at the General Shareholders' Meeting, we plans to change its fiscal year-end from March to June starting from FY25. As a transitional measure, FY25 is scheduled to be an irregular fiscal period covering 15 months.
    - Background: Most of our clients are domestic companies with a March fiscal year-end, and budgets for our joint development projects are typically determined around April. Since our own budget planning coincides with this period, we have been required to determine earnings forecasts while continuing budget negotiations with clients until the last minute—or in some cases, before negotiations were concluded.
- ⇒By shifting to a June fiscal year-end and delaying our budget formulation by three months, we aim to improve the accuracy and efficiency of our financial planning.
- \*This change is contingent upon approval of the “Partial Amendment to the Articles of Incorporation” at the General Shareholders' Meeting scheduled for June 2025. For further details, please refer to the disclosure materials released on May 9, 2025.

|                                  | 2025             |                                     | 2026             |               |
|----------------------------------|------------------|-------------------------------------|------------------|---------------|
|                                  | January to March | April to December                   | January to March | April to June |
| Before: fiscal year ending March | FY25/3           | FY26/3                              |                  | FY27/3        |
| After: fiscal year ending June   | FY25/3           | FY26/6 (15-month financial results) |                  |               |

|                               |                                                                                                                                                                                                                     |
|-------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| General Shareholders' Meeting | <ul style="list-style-type: none"><li>• The General Shareholders' Meeting for FY26/6 is scheduled to be held in September.</li></ul>                                                                                |
| Financial results disclosure  | <ul style="list-style-type: none"><li>• The five quarterly and full-year financial disclosures for FY26/6 are scheduled as follows: August 2025, November 2025, February 2026, May 2026, and August 2026.</li></ul> |



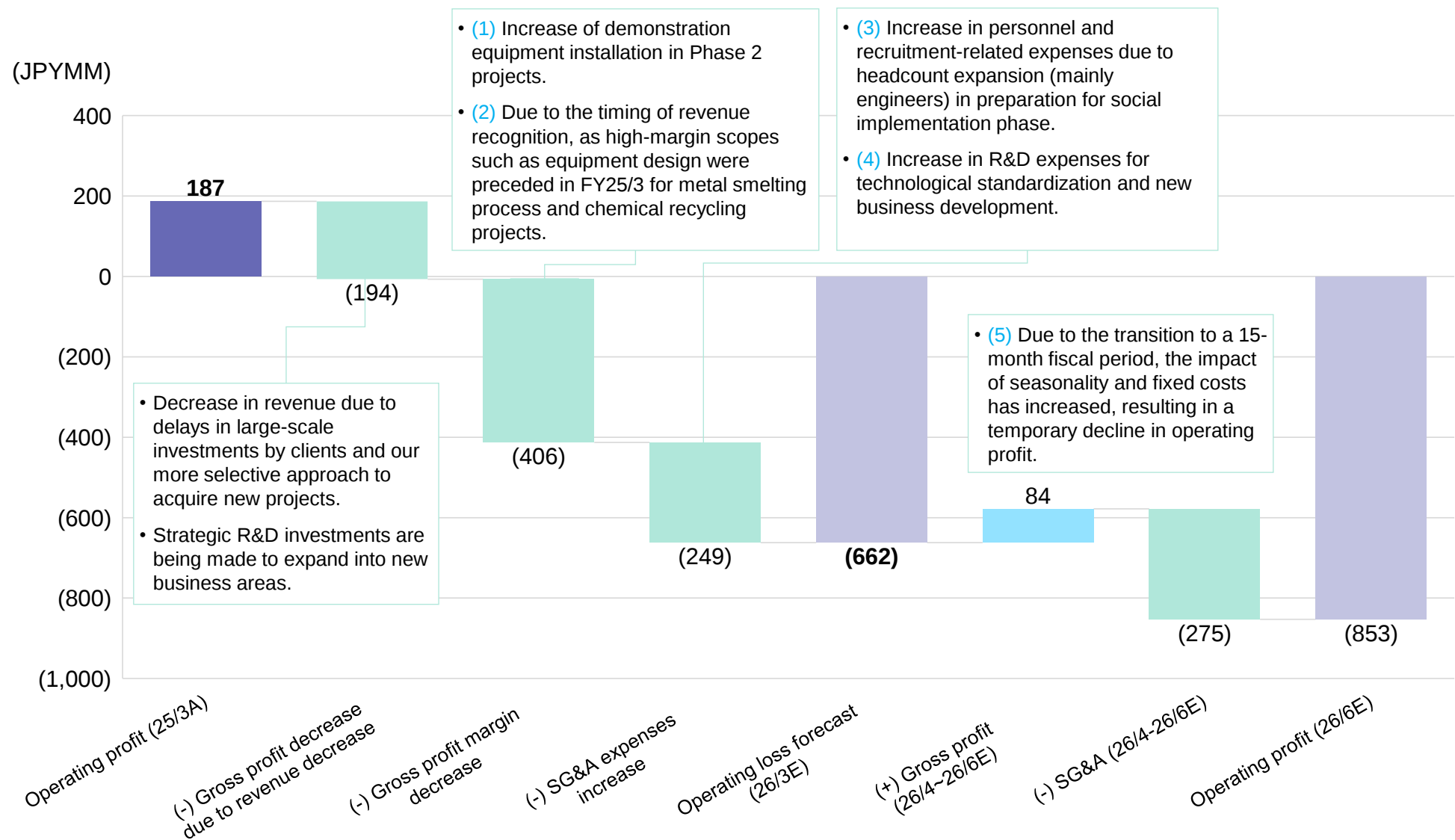
# FY26/6 Forecasts

- FY26/6 will be a transitional 15-month fiscal year. For reference, forecasts based on the 12-month period ending March 2026 are also disclosed in the table.
- FY26/6 is positioned as an investment phase to accelerate social implementation and is expected to result in an operating loss. This is temporary and is based on the following structural factors:
  - Temporary increase in COGS:
    - (1) increase of demonstration equipment installation for Phase 2 projects,
    - (2) changes in gross profit margin composition
  - Temporary increase in SG&A expenses:
    - (3) increase of personnel for the social implementation phase
    - (4) increase of research and development costs
  - (5) Factors due to a transitional 15-month fiscal year accounting

| (JPYMM)           | FY25/3<br>Actual | FY26/3<br>12-month | FY26/6<br>15-month | YoY comparison |              |
|-------------------|------------------|--------------------|--------------------|----------------|--------------|
|                   |                  |                    |                    | 25/3 vs.26/3   | 25/3 vs.26/6 |
| <b>Net sales</b>  | <b>1,608</b>     | <b>1,317</b>       | <b>1,613</b>       | <b>(18.1)%</b> | <b>0.3%</b>  |
| Phase 1           | 258              | 169                | 169                | (34.4)%        | (34.4)%      |
| Phase 2           | 1,330            | 1,090              | 1,283              | (18.1)%        | (3.5)%       |
| Phase 3           | 15               | 58                 | 160                | 286.7%         | 966.7%       |
| Phase 4           | 0                | -                  | -                  | (100.0)%       | (100.0)%     |
| Others            | 4                | -                  | -                  | (100.0)%       | (100.0)%     |
| Gross profit      | 1,075            | 474                | 558                | (55.9)%        | (48.0)%      |
| % Net sales       | 66.8%            | 36.0%              | 34.6%              | (30.8)pt       | (32.2)pt     |
| Operating profit  | 187              | (662)              | (853)              | -              | -            |
| % Net sales       | 11.7%            | -                  | -                  | -              | -            |
| Ordinary profit   | 182              | (671)              | (864)              | -              | -            |
| Profit before tax | 164              | (682)              | (881)              | -              | -            |
| Profit after tax  | 161              | (685)              | (884)              | -              | -            |

# Operating Profit Waterfall Analysis

- An operating loss is expected for FY26/6 due to the following factors.



# Cash Flow

|                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|-------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>FY25/3<br/>Initiatives</b> | <ul style="list-style-type: none"><li>• In preparation for increased hiring and R&amp;D expenses in FY26/6, we have executed a long-term loan of JPY180MM from The Kiyo Bank, Ltd. in March 2025.<ul style="list-style-type: none"><li>– Proper loan: JPY100MM, 5 years.</li><li>– Loans with guarantee association: JPY80MM, 10 years.</li></ul></li><li>• Also in March, the commitment line agreement with The Shoko Chukin Bank, Ltd. was renewed to secure working capital (total facility of JPY500MM, 5 years).</li></ul> |
| <b>FY26/6<br/>Initiatives</b> | <ul style="list-style-type: none"><li>• Hiring and investments in new business areas are expected to be carried out stepwise, based on the progress of operations during the fiscal year.</li><li>• We plan operating surplus in FY27/6, recovering the cash position.</li></ul>                                                                                                                                                                                                                                                 |



## 1 Number of New Contracts

- Target 25 contracts, compared to 24 contracts in FY25/3.

## 2 Total Number of Contracts

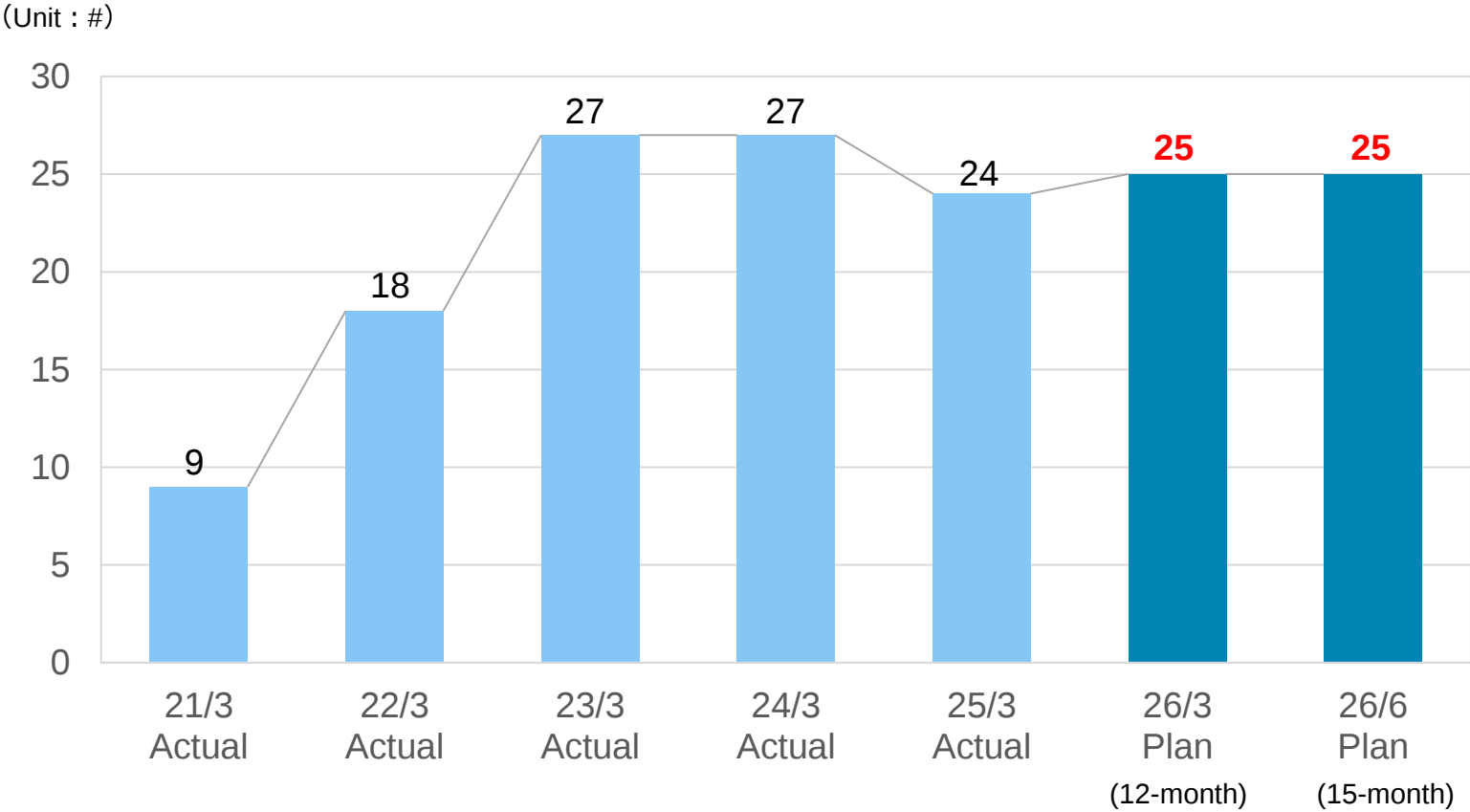
- Target 64 contracts, compared to 71 contracts in FY25/3.

## 3 Sales by Phase

- Phase 1: JPY169MM, Phase 2: JPY1,283MM, Phase 3: JPY160MM
  - Sales from Phase 2 will account for 80% of total sales.

# KPI (1) Number of New Contracts

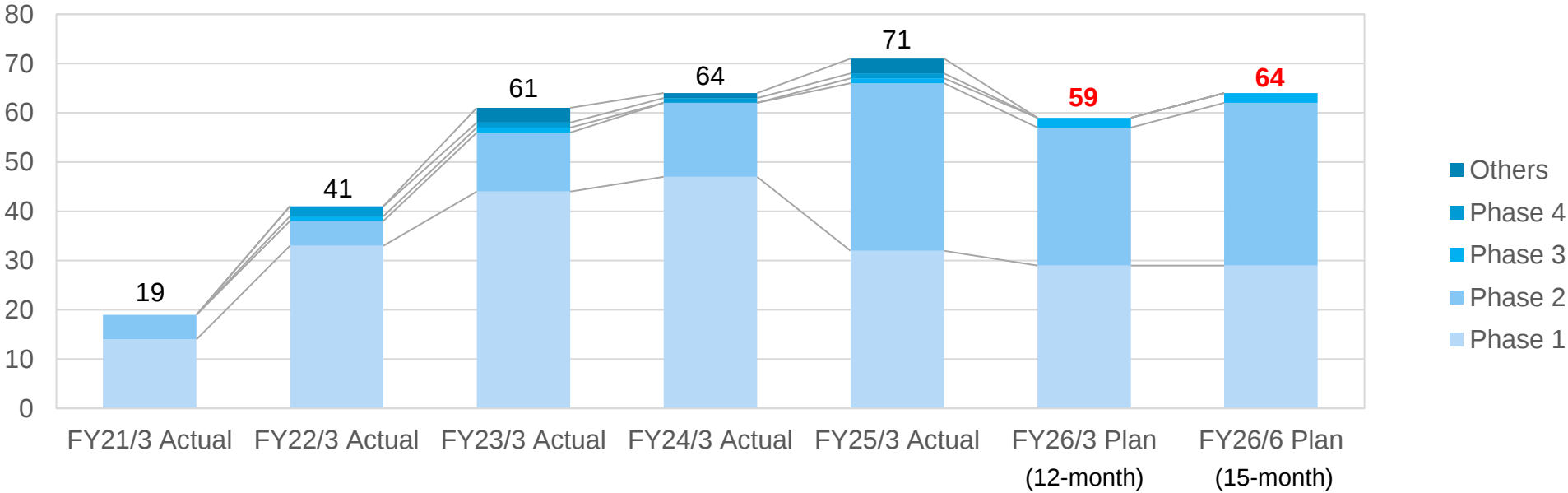
- Leveraging insights gained through past development projects on the microwave “sweet spot,” we will strengthen efforts to explore new themes and acquire new clients, including foreign companies.



# KPI (2) Total Number of Contracts

- While the total number of contracts is expected to decline compared to FY25/3, key Phase 2 projects are making steady progress, and development and social implementation related to Phase 3 are planned in some projects. We accelerate the transition to the social implementation phase.

(Unit : #)

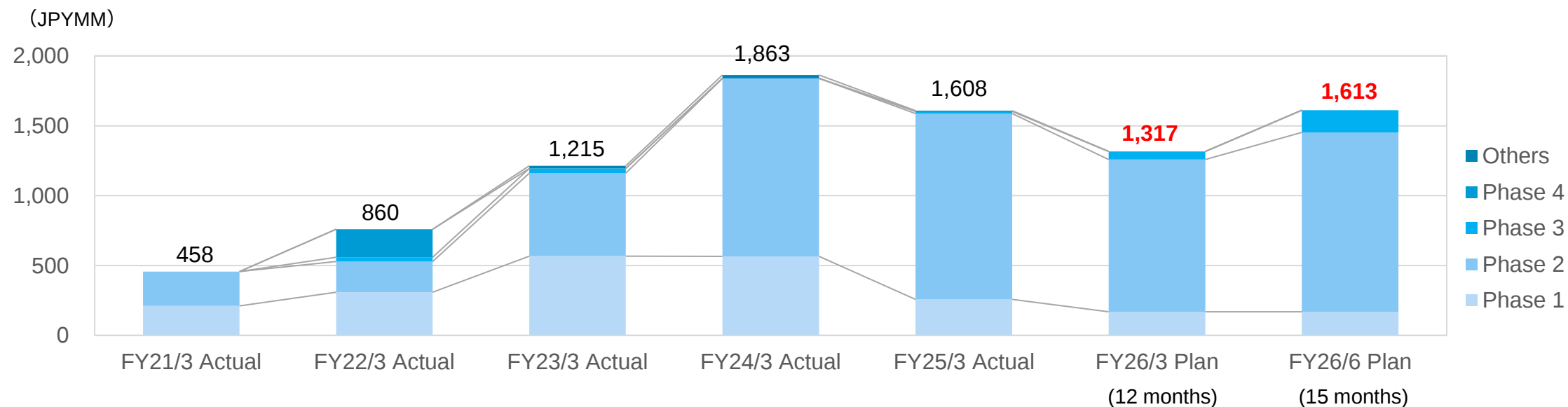


|         |    |    |    |    |    |    |    |
|---------|----|----|----|----|----|----|----|
| Phase 1 | 14 | 33 | 44 | 47 | 32 | 29 | 29 |
| Phase 2 | 5  | 5  | 12 | 15 | 34 | 28 | 33 |
| Phase 3 | 0  | 1  | 1  | 0  | 1  | 2  | 2  |
| Phase 4 | 0  | 2  | 1  | 1  | 1  | 0  | 0  |
| Others  | 0  | 0  | 3  | 1  | 3  | 0  | 0  |
| Total   | 19 | 41 | 61 | 64 | 71 | 59 | 64 |



# KPI (3) Sales by Phase

- For Phase 1 projects, we plan to explore new themes through small-scale hypothesis testing, resulting in the decrease of contract value per contract (c.JPY8MM→c.JPY6MM).
- We anticipate steady progress and revenue from Phase 2 projects, along with social implementation of Phase 3 projects.

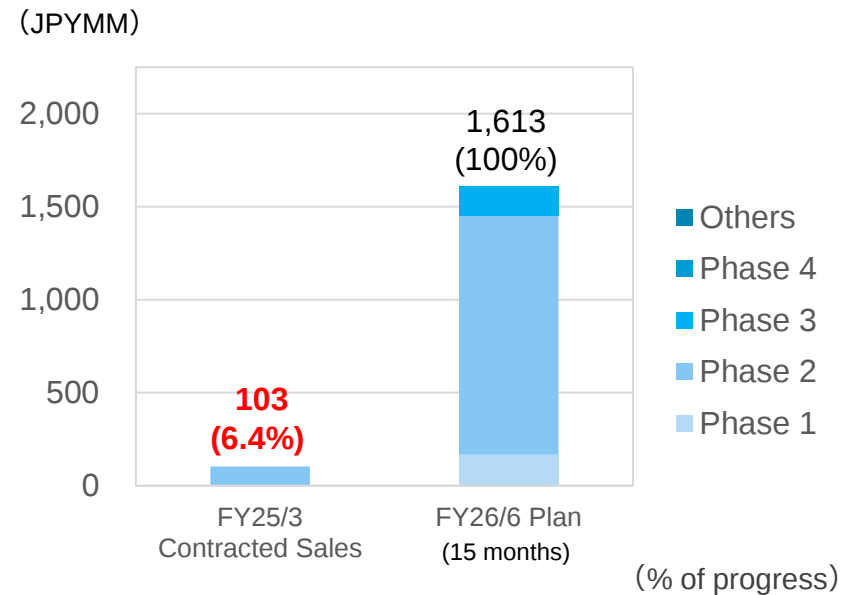


|              |            |            |              |              |              |              |              |
|--------------|------------|------------|--------------|--------------|--------------|--------------|--------------|
| Phase 1      | 211        | 309        | 567          | 565          | 258          | 169          | 169          |
| Phase 2      | 246        | 320        | 593          | 1,274        | 1,330        | 1,090        | 1,283        |
| Phase 3      | —          | 30         | 35           | —            | 15           | 58           | 160          |
| Phase 4      | —          | 200        | —            | —            | 0            | —            | —            |
| Others       | —          | —          | 19           | 24           | 4            | —            | —            |
| <b>Total</b> | <b>458</b> | <b>860</b> | <b>1,215</b> | <b>1,863</b> | <b>1,608</b> | <b>1,317</b> | <b>1,613</b> |

# (Ref) Contracted Sales

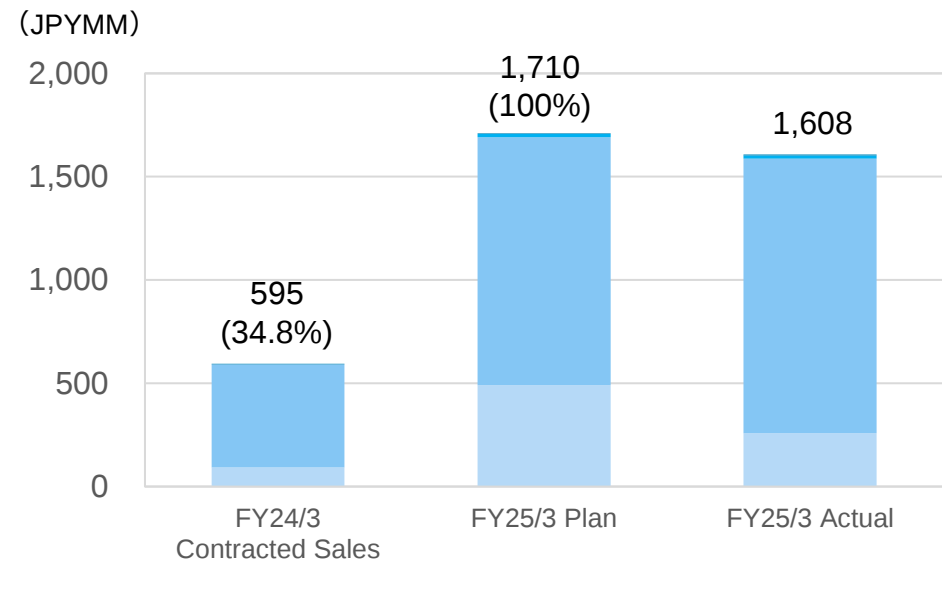
- As of the end of March 2025, the progress of contracted sales compared with FY26/6 sales target is **c.6.4%**, while there are **many potential projects which have not been executed yet but are in the negotiation stage**, and we aim to steadily execute and complete these contracts.

Contracted sales for FY26/6 as of the end of March 2025



|         |     |       |      |
|---------|-----|-------|------|
| Phase 1 | 1   | 169   | 0.6% |
| Phase 2 | 102 | 1,283 | 8.0% |
| Phase 3 | —   | 160   | 0.0% |
| Phase 4 | —   | —     | —    |
| Others  | —   | —     | —    |
| Total   | 103 | 1,613 | 6.4% |

(Ref) Contracted sales for FY25/3 as of the end of March 2024



|         |     |       |       |
|---------|-----|-------|-------|
| Phase 1 | 93  | 490   | 258   |
| Phase 2 | 498 | 1,201 | 1,330 |
| Phase 3 | —   | 15    | 15    |
| Phase 4 | —   | —     | 0     |
| Others  | 3   | 3     | 4     |
| Total   | 595 | 1,710 | 1,608 |



# Strategic Investment Plan

- To achieve business growth through the acceleration of social implementation and the sustainable expansion of our value proposition, we are planning strategic development and investments in the following key areas:
- Accelerating social implementation through technology standardization and in-house production of core components
    - We aim to standardize the technologies accumulated in our core business areas and bring the production of critical components in-house. By doing that, we will enhance the speed of development and deployment, thereby accelerating the transition to the social implementation phase (Phase 3 and beyond). This will enable simultaneous, multi-domain deployment, leading to improved profitability and increased scalability.
  - Expanding our value proposition through new business creation
    - In addition to strengthening existing businesses, we will launch new initiatives aligned with evolving social challenges and emerging technology trends. Through this multi-pronged approach, we seek to broaden the value we deliver and reinforce our mid- to long-term growth portfolio, ultimately driving sustainable enhancement of corporate value.

## Overview

|                                                     |                                                                                                                                                                                                |
|-----------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Standardization of metal smelting technologies      | <ul style="list-style-type: none"><li>• Manufacturing and upgrading of standardized equipment for metal smelting processes</li></ul>                                                           |
| In-house production of microwave oscillators        | <ul style="list-style-type: none"><li>• Development toward in-house production of MW oscillators</li><li>• Initial year to begin with small-scale testing in laboratory</li></ul>              |
| New business initiatives / Small-scale M&A          | <ul style="list-style-type: none"><li>• Investments related to new business development</li><li>• Initial phase to begin with small-scale hypothesis testing</li></ul>                         |
| FY26/6 investment amount in relation to items above | <ul style="list-style-type: none"><li>• SG&amp;A expenses: ~c.JPY90MM (15 months basis, including labor costs related to the development)</li><li>• Capital expenditures: ~c.JPY70MM</li></ul> |



# R&D Costs (1) Total Amount and Percentage to SG&A

- The plan includes an increase in R&D expenditures to accelerate technology standardization and expansion into new business areas.

## SG&A and R&D costs: Actual and Plan

| (JPYMM)                             | <u>FY24/3 (12M)</u> | <u>FY25/3 (12M)</u> | <u>26/3(12M)</u> | <u>26/6(15M)</u> |
|-------------------------------------|---------------------|---------------------|------------------|------------------|
|                                     | Actual              | Plan                | Actual           | Plan             |
| <b>Total SG&amp;A</b>               | <b>985</b>          | <b>973</b>          | <b>887</b>       | <b>1,137</b>     |
| <b>R&amp;D costs</b>                | <b>504</b>          | <b>432</b>          | <b>437</b>       | <b>618</b>       |
| % SG&A                              | 51%                 | 44%                 | 49%              | 54%              |
| Labor costs                         | 253                 | 203                 | 238              | 322              |
| % Total R&D costs                   | 50%                 | 47%                 | 54%              | 52%              |
| Raw material, equipment costs, etc. | 113                 | 88                  | 52               | 155              |
| % Total R&D costs                   | 22%                 | 21%                 | 12%              | 25%              |
| Equipment costs, etc.               | 137                 | 140                 | 146              | 140              |
| % Total R&D costs                   | 27%                 | 32%                 | 33%              | 23%              |
| <b>Other</b>                        | <b>481</b>          | <b>540</b>          | <b>449</b>       | <b>518</b>       |

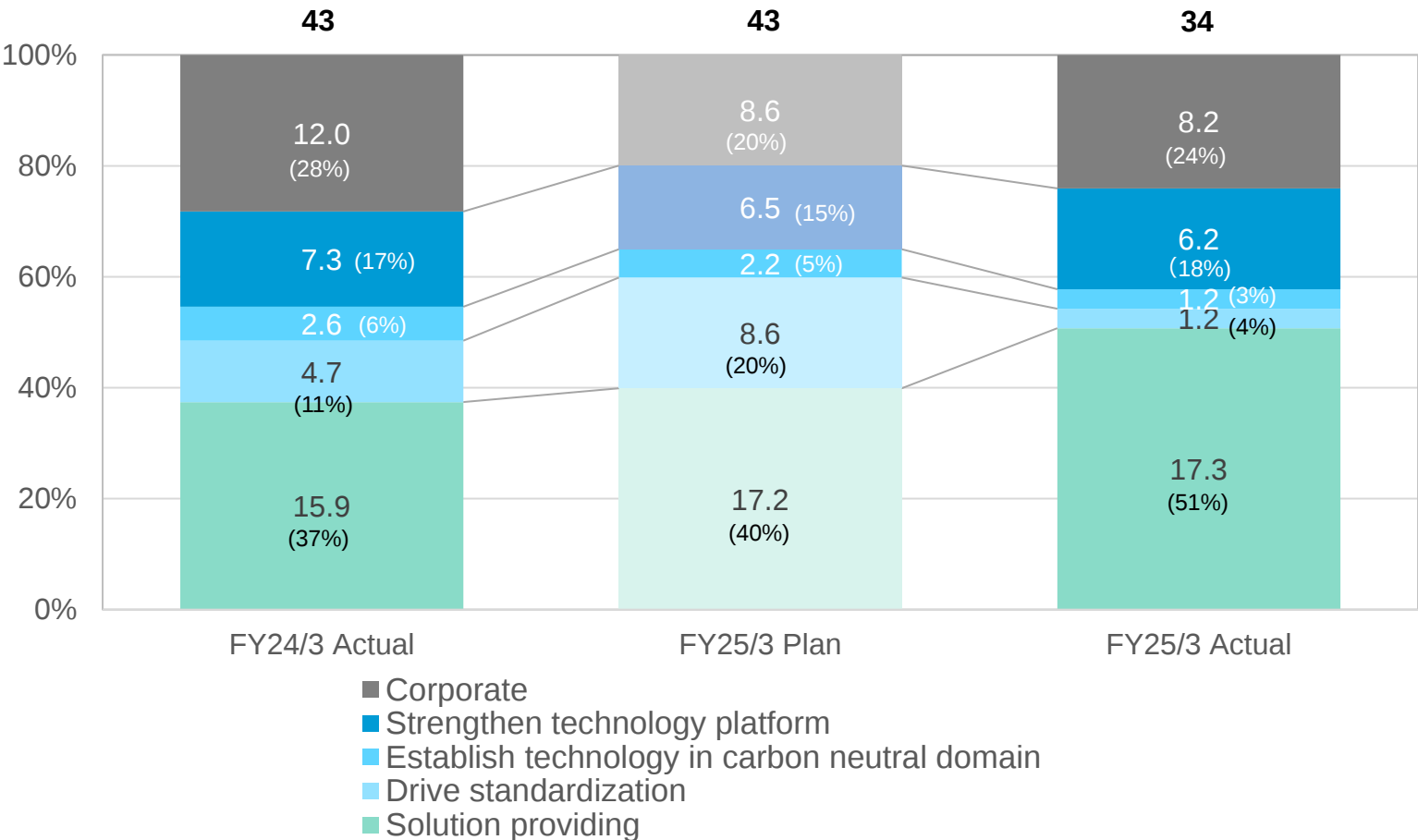


# R&D Costs (2) Manpower Policy

- In FY25/3, a larger portion of R&D and engineering staff resources was allocated to solution provision in collaborative projects.
- While continuing to focus on collaborative projects aimed at social implementation, we also enhance overall operational efficiency and standardization.

R&D and engineering staff resource allocation results and plans (based on our original calculations)

(Unit: persons)



# Capacity Expansion: Personnel Plan

- Implemented the following initiatives to strengthen organizational capabilities:
  - ✓ Base salary increase planned for FY26/6
  - ✓ Organizational improvement initiatives led by employees
- Personnel plan for FY26/6 includes strengthening the engineering team in preparation for increased social implementation projects
  - ✓ Launched a dedicated recruitment project under the direct supervision of an Executive Officer

## Number of Employees and Plan for FY26/6

(Excluding directors and temporary employees)

| (Unit: persons)                            | FY23/3 End<br>Actual | FY24/3 End<br>Actual | FY24/3 End<br>Plan | FY25/3 End<br>Actual | FY26/6 End<br>Plan |
|--------------------------------------------|----------------------|----------------------|--------------------|----------------------|--------------------|
| Business Development and<br>Administration | 18                   | 16                   | 16                 | 15                   | 15                 |
| R&D and Engineering                        | 46                   | 43                   | 43                 | 34                   | 44                 |
| <b>Total</b>                               | <b>64</b>            | <b>59</b>            | <b>59</b>          | <b>49</b>            | <b>59</b>          |



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1. Executive Summary
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# Executive Team

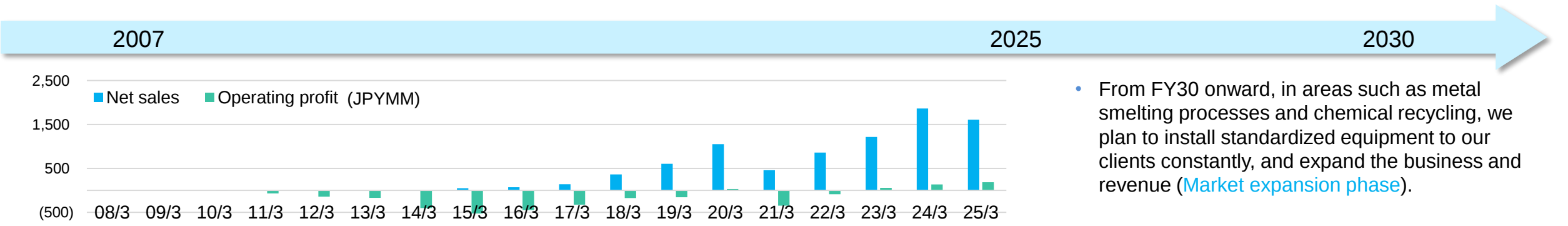
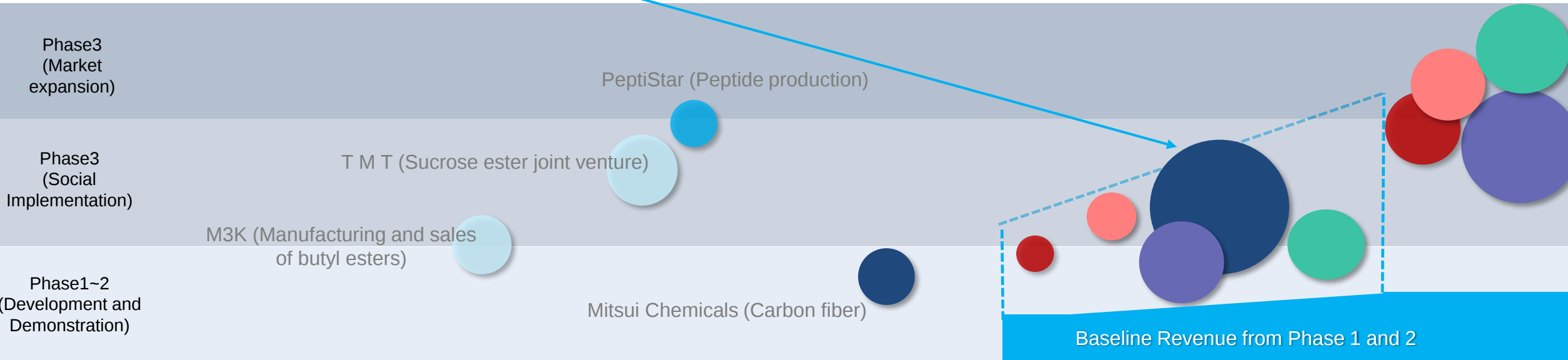
- Executive Officer System introduced as of April 1, 2025
  - Two key members from our core team appointed; will lead the company alongside the Representative Director
- Objective: In response to the rapidly changing management environment, we aim to accelerate decision-making and improve operational efficiency by establishing a more agile execution framework, while also fostering the next generation of management talent to enhance corporate value.

| Name               |                                                                                     | Title                                                                                                               | Background                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|--------------------|-------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Iwao Yoshino       |    | <ul style="list-style-type: none"><li>Representative Director and CEO</li></ul>                                     | <ul style="list-style-type: none"><li>After leaving Mitsui &amp; Co., Ltd. (Chemicals Division), engaged in ventures and consulting in the U.S. Founded MWCC in August 2007 and assumed the position of Representative Director (currently serving).</li><li>Graduated from Keio University, Faculty of Law, Department of Law in 1990; obtained MBA from UC Berkeley in 2002.</li></ul>                                                                                                                                                       |
| Yasunori Tsukahara |    | <ul style="list-style-type: none"><li>Representative Director and CSO</li></ul>                                     | <ul style="list-style-type: none"><li>Completed doctoral program at the Graduate School of Science, Osaka University in 2003. Appointed as Specially Appointed Researcher at the Graduate School of Engineering, Osaka University in 2004, and as Specially Appointed Associate Professor at the same graduate school in 2006. Appointed as Visiting Associate Professor at the Graduate School of Engineering, Osaka University in 2018, and as Visiting Professor at the Graduate School of Engineering, Osaka University in 2023.</li></ul> |
| Yuri Katoda        |   | <ul style="list-style-type: none"><li>Executive Officer, General Manager, Business Development Department</li></ul> | <ul style="list-style-type: none"><li>Engaged in multiple projects at Sojitz Corporation, primarily in the gas chemical plant business and waste management sector.</li><li>Joined MWCC in 2024 as General Manager of the Business Development.</li><li>Graduated from the Faculty of Law, Keio University in 2007.</li></ul>                                                                                                                                                                                                                  |
| Yohei Nagai        |  | <ul style="list-style-type: none"><li>Executive Officer, General Manager, Business Promotion Department</li></ul>   | <ul style="list-style-type: none"><li>Engaged in product development, planning, and management of multiple development projects at KEYENCE CORPORATION.</li><li>Joined MWCC in 2024 as General Manager of the Business Operations.</li><li>Graduated from the Faculty of Engineering, the University of Tokyo in 2004; completed a Master's program at the Graduate School of Information Science and Technology, the University of Tokyo in 2006.</li></ul>                                                                                   |



# Business Expansion Image of Microwave Solutions Business

- To date, our revenue has primarily been derived from Phase 1 and 2 projects (development and demonstration phases), providing R&D scopes.
- In our key focus areas—such as carbon fiber, metal smelting processes, and chemical recycling (CR)—technology standardization and platform development have been steadily progressing, and the business is now entering a "transition phase" toward Phase 3, social implementation phase.
  - Over the five years leading up to FY30, we plan to achieve five Phase 3 projects (commercial equipment installations), and, together with baseline revenue from Phases 1 and 2, aim to realize **JPY13–14Bn in total revenue over the five years**.



- From FY30 onward, in areas such as metal smelting processes and chemical recycling, we plan to install standardized equipment to our clients constantly, and expand the business and revenue (Market expansion phase).



# Illustrative Image of Our Value Proposition Expansion

- We have focused on applying microwave technology to the fields of chemistry and materials, but going forward, we will work to expand our value proposition:
  - i We will conduct hypothesis testing and demonstration trials to apply microwave technology into new business areas, such as semiconductor materials.
  - ii By leveraging our integrated capabilities—business development, lab work, and engineering—we aim to acquire new solutions in addition to microwave and offer them to our clients.
    - We will also utilize small-scale M&A and business partnerships.

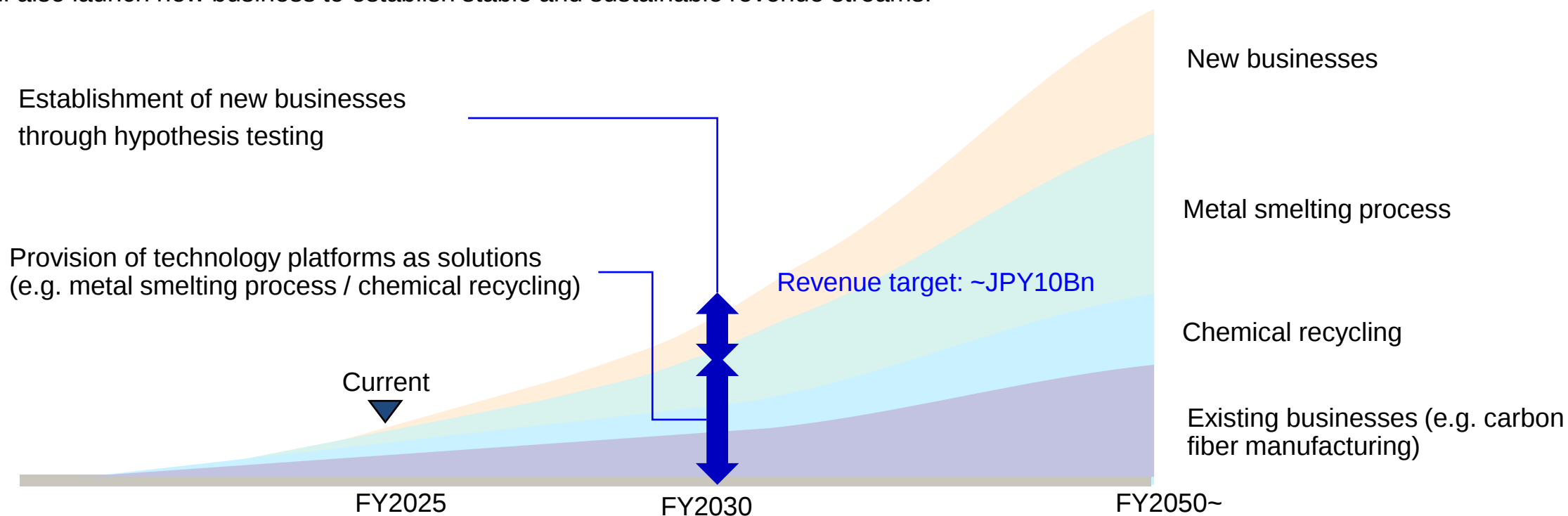
|   |                   | ii                    |                                           |       |       |     |     |
|---|-------------------|-----------------------|-------------------------------------------|-------|-------|-----|-----|
|   |                   | Our Value Proposition |                                           |       |       |     |     |
|   |                   | Technology Platform   |                                           |       |       |     |     |
|   |                   | Microwave             | [TBD]                                     | [TBD] | [TBD] |     |     |
| i | Business Segments | Chemicals             | Efficient Manufacturing / Decarbonization | •     | -     | -   | -   |
|   |                   |                       | New Materials                             | •     | -     | [•] | -   |
|   |                   |                       | Recycling                                 | •     | [•]   | -   | -   |
|   |                   | Metals                | Efficient manufacturing                   | •     | -     | -   | [•] |
|   |                   |                       | Recycling                                 | [•]   | [•]   | -   | -   |
|   |                   | [Semiconductors]      | Efficient manufacturing                   | [•]   | -     | -   | [•] |
|   | Recycling         |                       | -                                         | [•]   | -     | -   |     |



# Illustrative Image of Long-Term Growth

While positioning the existing microwave solutions business (collaboration business), which we have been engaged in over the years, as our core business, we will develop a dual-engine growth strategy by simultaneously creating new business to achieve sales of JPY10Bn by FY30.

- Microwave solutions business: In addition to Phase 2 projects (unit price: several tens of millions of yen), which have been the main source of revenue to date, we aim to implement five Phase 3 projects (commercial equipment installation) with unit prices ranging from several hundred million to several billion yen by 2030.
  - In [chemical recycling business and the metal smelting process business](#)—where technology standardization and accumulation of track records are underway—we will promote horizontal deployment to [expand business and maximize profitability](#).
- We will also launch new business to establish stable and sustainable revenue streams.



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  - Chemical Recycling Business
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# Overview of the Metal Smelting Process Business

- We are currently advancing multiple projects related to metal smelting processes in collaboration with domestic and foreign companies.
- To deliver [the first commercial-scale equipment by 2029](#), we will:
  - (1) enhance precision and speed of development through investment in a new standardized demonstration unit, and (2) strengthen our EPC (Engineering, Procurement, and Construction) development capabilities.
    - We have executed the strategic alliance with CHUGAI RO CO., LTD. and are accelerating the development of rotary hearth furnace by leveraging the expertise of this leading industrial furnace manufacturer.
- [From 2030 onward, we will enter the phase of full-scale deployment and market expansion](#), accelerating global rollout across a wide range of ores and applications. We aim to (1) standardize the smelting processes and equipment, and (2) establish a recurring revenue model through equipment sales, licensing, and maintenance services. Particularly, we will focus on overseas deployment in regions rich in renewable energy and with lower electricity costs.

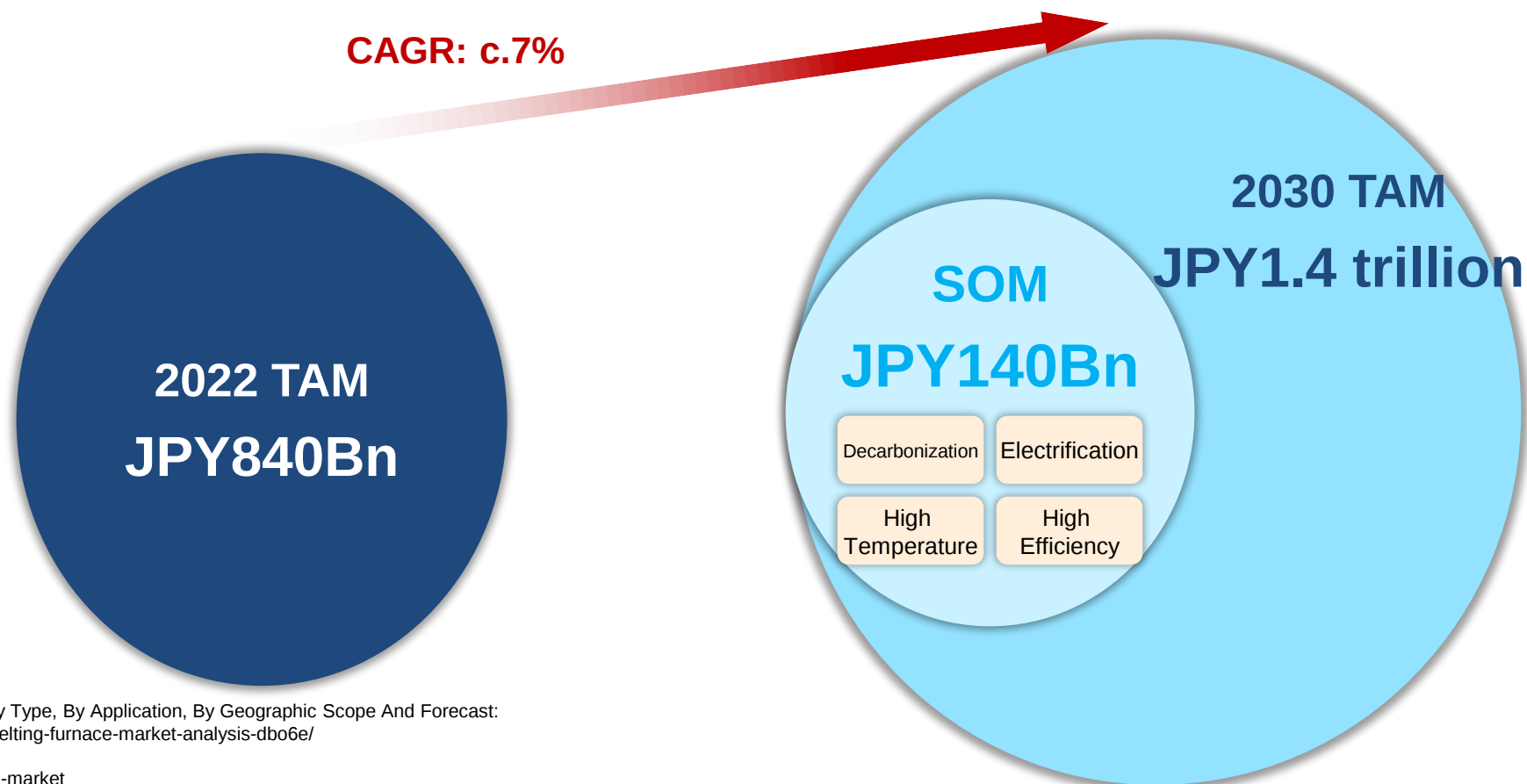
## Selected projects in metal smelting processes

| Ore Type     | Partner                  | Process                                                                   | Phase                                                     | Status                                                                                                                                                                 |
|--------------|--------------------------|---------------------------------------------------------------------------|-----------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Lithium      | Mitsui & Co.             | <ul style="list-style-type: none"><li>• Calcination</li></ul>             | <ul style="list-style-type: none"><li>• Phase 2</li></ul> | <ul style="list-style-type: none"><li>• Demonstration started in FY23.</li></ul>                                                                                       |
| Nickel       | PACIFIC METALS CO., LTD. | <ul style="list-style-type: none"><li>• Calcination / Reduction</li></ul> | <ul style="list-style-type: none"><li>• Phase 2</li></ul> | <ul style="list-style-type: none"><li>• Small-scale verification started in FY23.</li><li>• Aiming for commercial installation by FY30.</li></ul>                      |
| Beryllium    | MiRESSO Co., Ltd.        | <ul style="list-style-type: none"><li>• Smelting</li></ul>                | <ul style="list-style-type: none"><li>• Phase 2</li></ul> | <ul style="list-style-type: none"><li>• Small-scale demonstration started in FY22.</li><li>• Received pilot equipment order in FY24.</li></ul>                         |
| Iron ore     | Internal project         | <ul style="list-style-type: none"><li>• Reduction</li></ul>               | <ul style="list-style-type: none"><li>• —</li></ul>       | <ul style="list-style-type: none"><li>• Small-scale verification successfully completed.</li><li>• Demonstration test planned using standard bench equipment</li></ul> |
| Confidential | Confidential             | <ul style="list-style-type: none"><li>• —</li></ul>                       | <ul style="list-style-type: none"><li>• —</li></ul>       | <ul style="list-style-type: none"><li>• Commercial installation planned within a few years.</li></ul>                                                                  |
| Confidential | Confidential             | <ul style="list-style-type: none"><li>• —</li></ul>                       | <ul style="list-style-type: none"><li>• —</li></ul>       | <ul style="list-style-type: none"><li>• Undergoing verification for scale-up</li></ul>                                                                                 |



# Target Market Size for Metal Smelting Processes

- Focusing on the market for thermal processing equipment used in non-ferrous metal smelting—such as lithium and nickel—we aim to replace existing fossil-fuel-burner-based processes (e.g., calcination, firing, and reduction) with microwave-based processes and equipment.
- Driven by growing battery demand and increased investment in decarbonization technologies, the target market is expected to expand by annual growth of c.7%.
- In 2030, the total addressable market (TAM) is projected to reach JPY14 trillion globally (including Japan), and we aim to capture 10% of this market through the deployment of microwave processing technologies.



Source

(1) Global Non-ferrous Metal Melting Furnace Market By Type, By Application, By Geographic Scope And Forecast:

<https://www.linkedin.com/pulse/non-ferrous-metal-melting-furnace-market-analysis-dbo6e/>

(2) Rotary Kiln Market:

<https://www.credenceresearch.com/report/rotary-kiln-market>

(Assumes an exchange rate of USD/JPY = 140. Overlapping segments within the market have been adjusted internally by us.)

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# Overview of the Chemical Recycling Business

- We are promoting multiple joint development projects with various partners aimed at social implementation of chemical recycling technologies.
- To date, we have engaged with over 20 companies and involved in more than 30 projects. As a result, we have steadily accumulated microwave-related elemental technologies in the chemical recycling domain.
- Leveraging the technological capabilities developed so far, we will focus our resources on projects with high potential for early commercialization and successful social implementation.

## Selected chemical recycling projects

| Target Plastic                  | Partner                         | Decomposition Method                                         | Decomposed Product                                        | Phase                                                    | Status                                                                                                                                                          |
|---------------------------------|---------------------------------|--------------------------------------------------------------|-----------------------------------------------------------|----------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|
| PMMA<br>(Acrylic resin)         | Mitsubishi Chemical Corporation | <ul style="list-style-type: none"><li>• Pyrolysis</li></ul>  | <ul style="list-style-type: none"><li>• Monomer</li></ul> | <ul style="list-style-type: none"><li>• Phase2</li></ul> | <ul style="list-style-type: none"><li>• Pilot equipment completed; demonstration finished.</li><li>• Under discussion for commercialization.</li></ul>          |
| PE&PP<br>(Mixed waste plastics) | Resonac Holdings Corporation    | <ul style="list-style-type: none"><li>• Pyrolysis</li></ul>  | <ul style="list-style-type: none"><li>• Monomer</li></ul> | <ul style="list-style-type: none"><li>• Phase2</li></ul> | <ul style="list-style-type: none"><li>• Ongoing demonstration using GI Fund.</li><li>• Pilot demonstration planned from FY27.</li></ul>                         |
| Polyamide 66<br>(Nylon 66)      | Asahi Kasei Corp.               | <ul style="list-style-type: none"><li>• Solvolysis</li></ul> | <ul style="list-style-type: none"><li>• Monomer</li></ul> | <ul style="list-style-type: none"><li>• Phase2</li></ul> | <ul style="list-style-type: none"><li>• Continued demonstration on small-scale unit.</li><li>• Targeting commercial operation in FY27.</li></ul>                |
| PE&PP<br>(Mixed waste plastics) | (Internal project)              | <ul style="list-style-type: none"><li>• Pyrolysis</li></ul>  | <ul style="list-style-type: none"><li>• Oil</li></ul>     | <ul style="list-style-type: none"><li>• Phase2</li></ul> | <ul style="list-style-type: none"><li>• Continued demonstration on small-scale unit.</li><li>• Targeting commercial operation in FY29.</li></ul>                |
| Confidential                    | Confidential                    | <ul style="list-style-type: none"><li>• —</li></ul>          | <ul style="list-style-type: none"><li>• —</li></ul>       | <ul style="list-style-type: none"><li>• —</li></ul>      | <ul style="list-style-type: none"><li>• Continued demonstration on small-scale unit.</li><li>• Aiming for commercial installation within a few years.</li></ul> |
| Confidential                    | Confidential                    | <ul style="list-style-type: none"><li>• —</li></ul>          | <ul style="list-style-type: none"><li>• —</li></ul>       | <ul style="list-style-type: none"><li>• —</li></ul>      | <ul style="list-style-type: none"><li>• Basic development completed.</li><li>• Demonstration using small-scale unit to begin.</li></ul>                         |



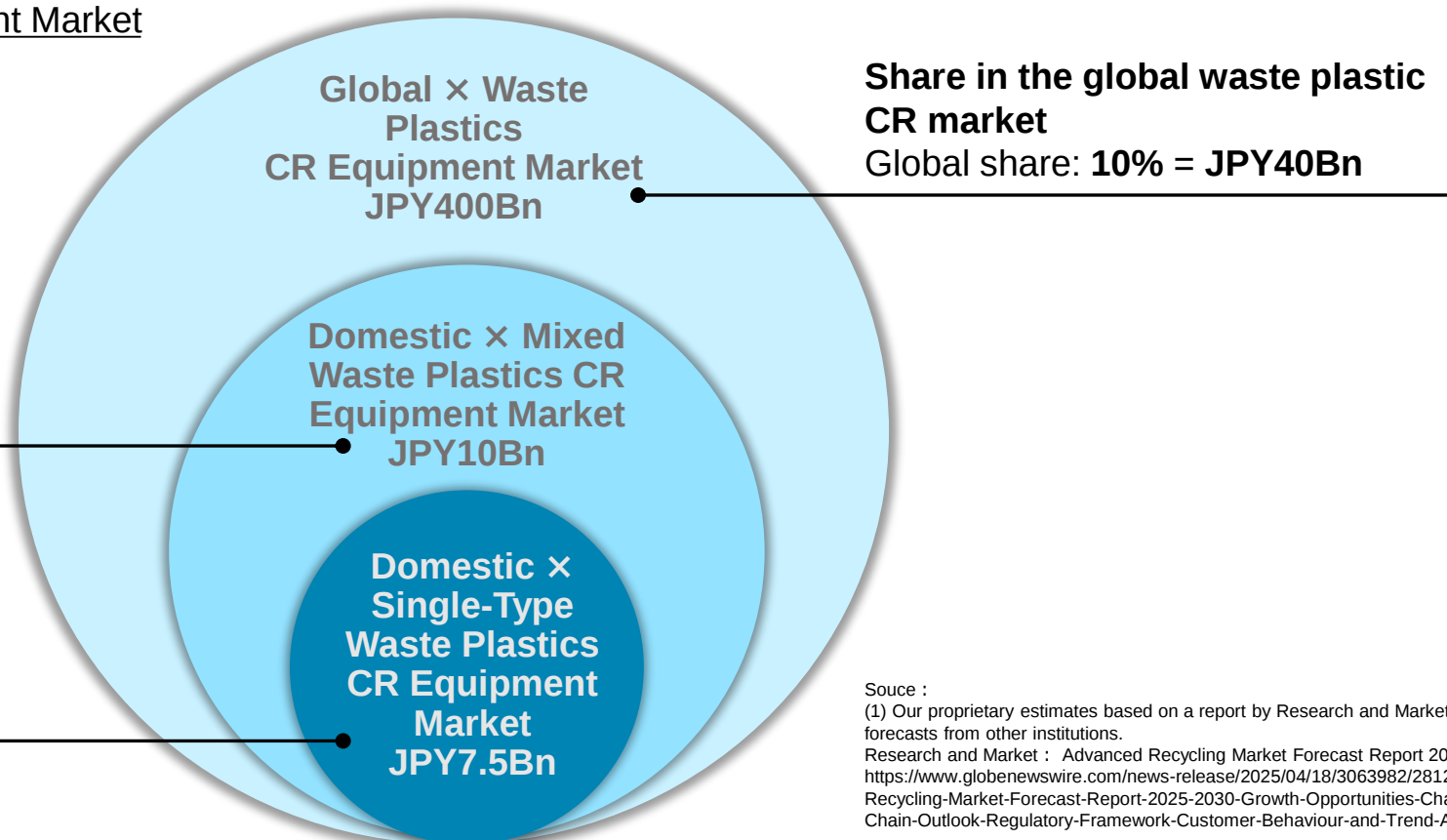
# Target Market Size for Chemical Recycling

- As of 2025, the social implementation of chemical recycling (CR) is led by PET, while other single-type and mixed waste plastics remain in the business development stage.
- Market growth is driven by the premium placed on environmentally friendly materials, including recycled content. Europe is taking the lead, starting with regulations such as ELV (End-of-Life Vehicles).
- Full-scale expansion of the CR market is expected around 2030. The global market for CR equipment is projected to reach c.JPY400Bn<sup>(1)</sup>.
- We are collaborating with leading companies across various types of plastics, aiming to establish our CR technologies and equipment as a major solution in the market by 2030.
- In addition, by contributing to CR supply chain—such as optimizing waste plastic feedstock and ensuring traceability—we aim to maximize profitability.

Image of the 2030 Chemical Recycling Equipment Market and Our Market Share

**Share in the domestic CR equipment market for mixed waste plastics**  
Domestic share: 10% = JPY1Bn

**Share in the domestic CR equipment market for single-type waste plastics**  
Domestic share: 20% = JPY1.5Bn



Source :  
(1) Our proprietary estimates based on a report by Research and Markets, as well as forecasts from other institutions.  
Research and Market : Advanced Recycling Market Forecast Report 2025-2030  
<https://www.globenewswire.com/news-release/2025/04/18/3063982/28124/en/Advanced-Recycling-Market-Forecast-Report-2025-2030-Growth-Opportunities-Challenges-Supply-Chain-Outlook-Regulatory-Framework-Customer-Behaviour-and-Trend-Analysis.html>

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## **【Mission】**

**Make Wave, Make World**

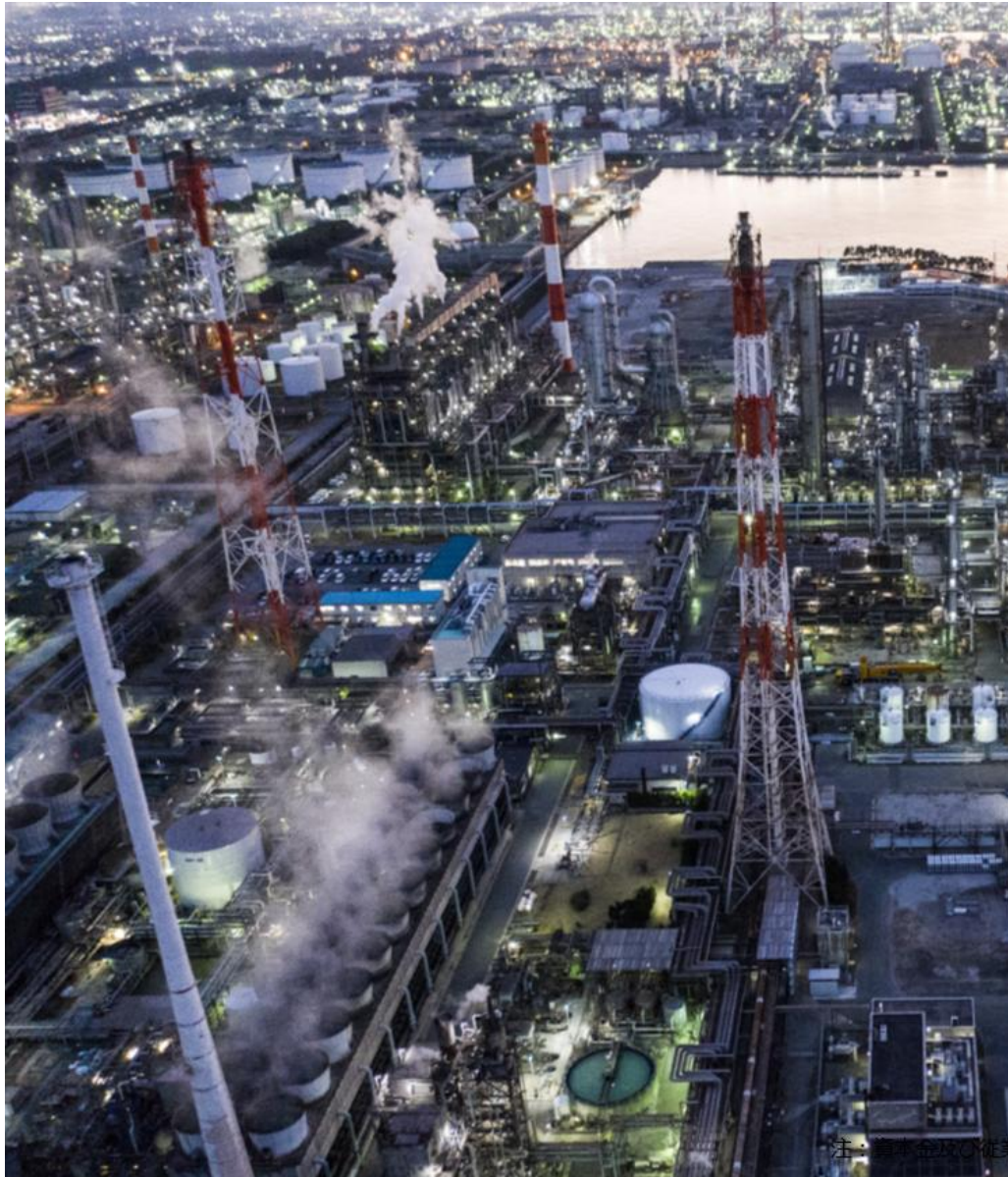
## **【Vision】**

**Innovate chemical industry, which has been left unchanged for more than a century,  
and revolutionize the world of manufacturing**

**-Making the microwave process a global standard-**



# Company Overview



## Name

Microwave Chemical Co., Ltd.

## Founded

August 15, 2007

## Representative

Iwao Yoshino, CEO

## # of Employees

49 (including 7 Ph.D.)<sup>(1)</sup>

## Head Office

Photonics Center 5F, 2-1 Yamadaoka, Suita,  
565-0871 Osaka

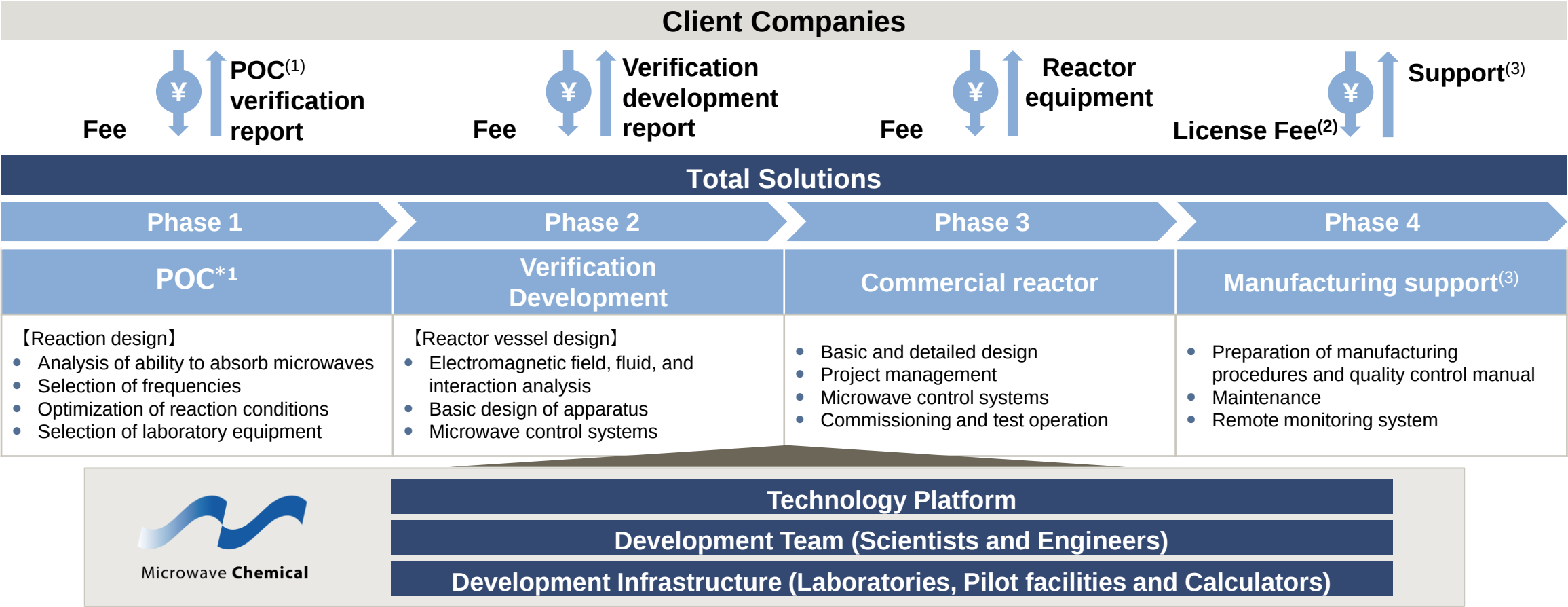
## Business

Provide R&D and engineering solutions for clients  
based on our microwave technology platform

(1) Number of enrolled employees as of the end of FY25/3. Excluding directors and temporary employees.

# Business model

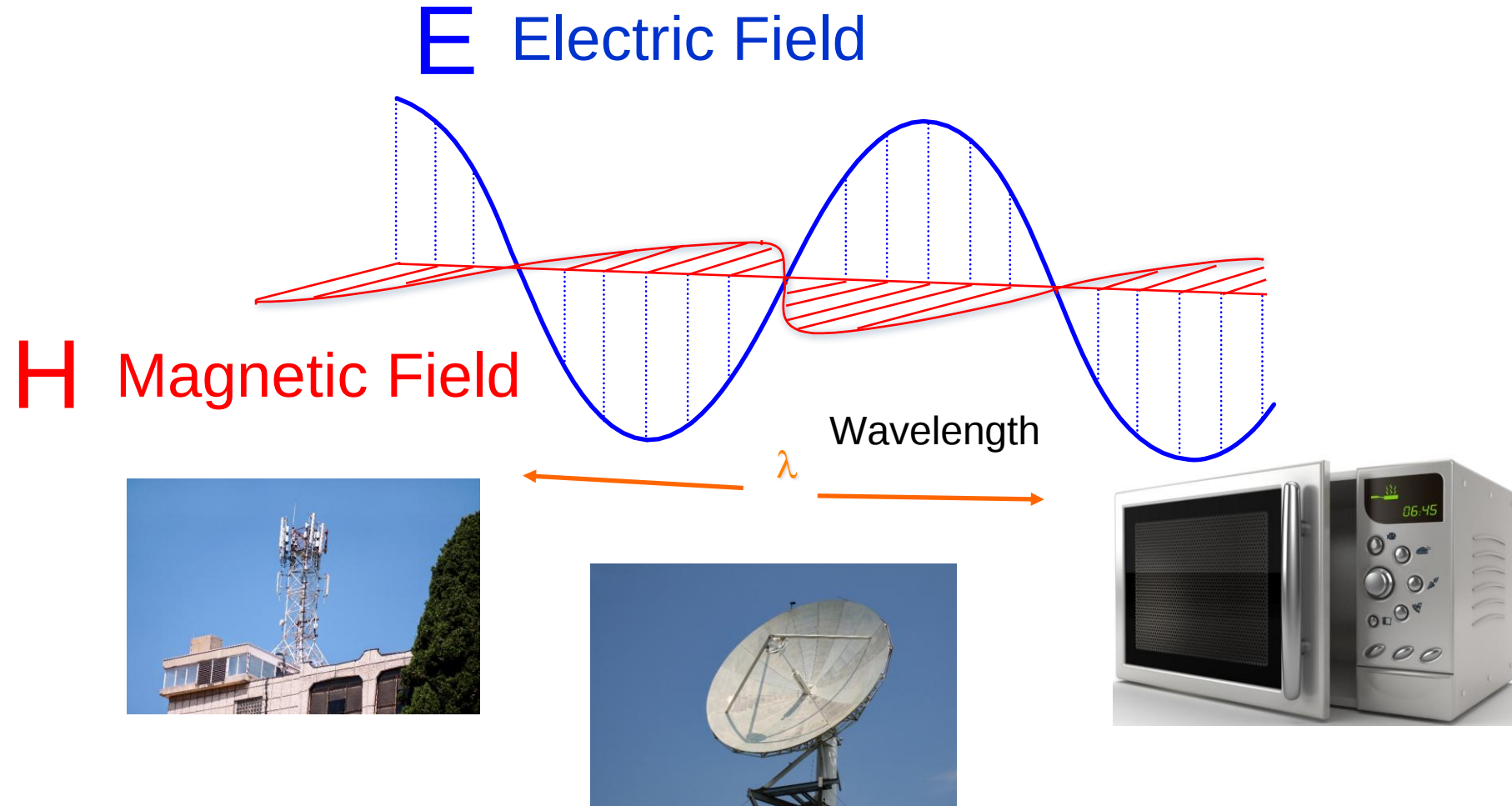
- (1) Provide total solutions from R&D to engineering
- (2) Realize profit on each phase and license fee when commercialized by our clients



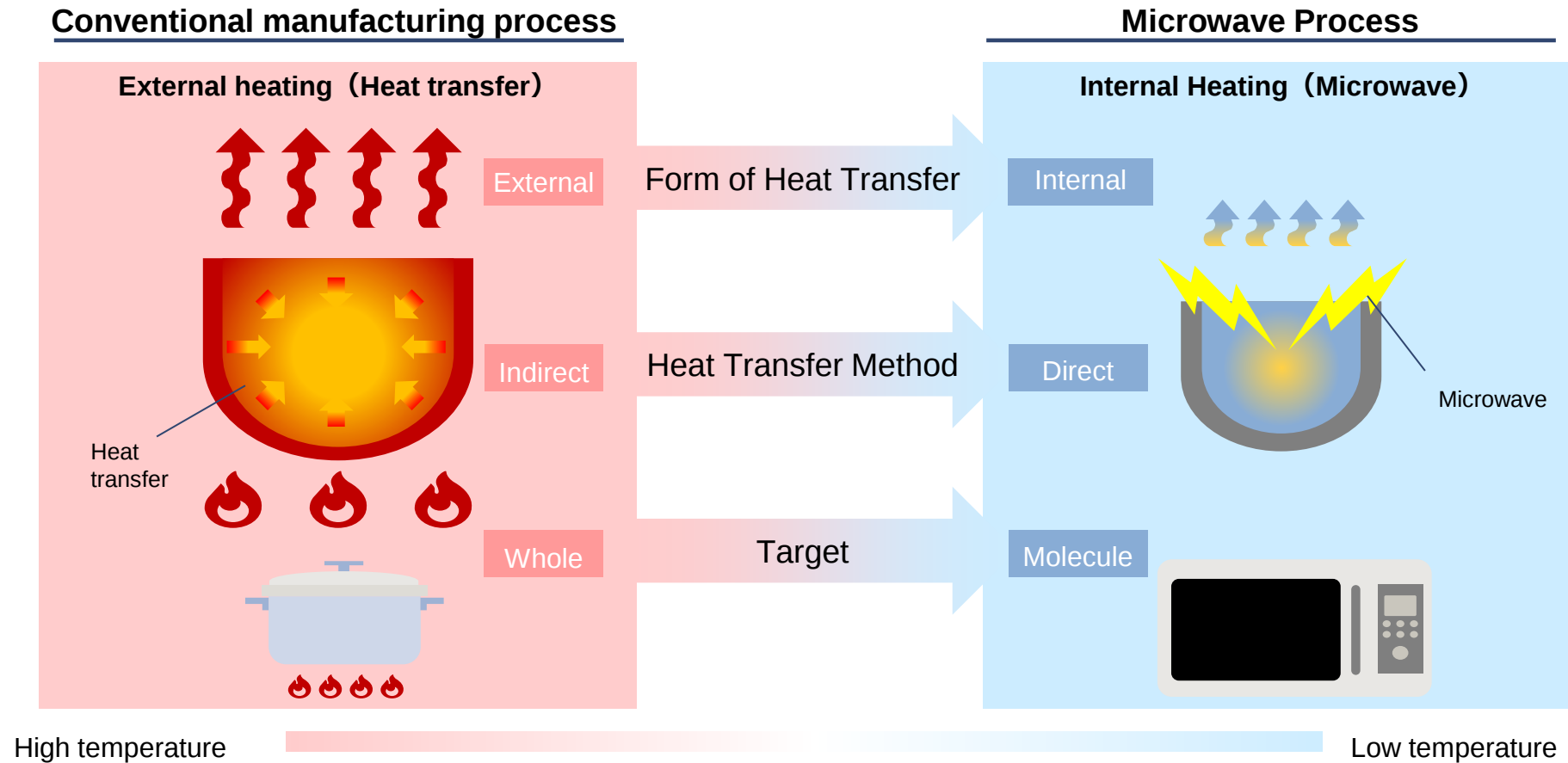
**Notes:** (1) POC: Proof of Concept. The process of testing the feasibility and effectiveness of new concept or idea before actual development  
(2) License: Share the client value earned by introduction of microwave process as license fees. Specifically, receive as upfront payment and recurring royalties  
(3) Manufacturing support and maintenance: Support clients who have installed microwave reactors in their manufacturing process. In addition, provide maintenance of microwave reactors and other facilities

# What is Microwave ?

Microwave is an electromagnetic wave used in applications such as wireless base stations, radar-communication systems, and microwave ovens.



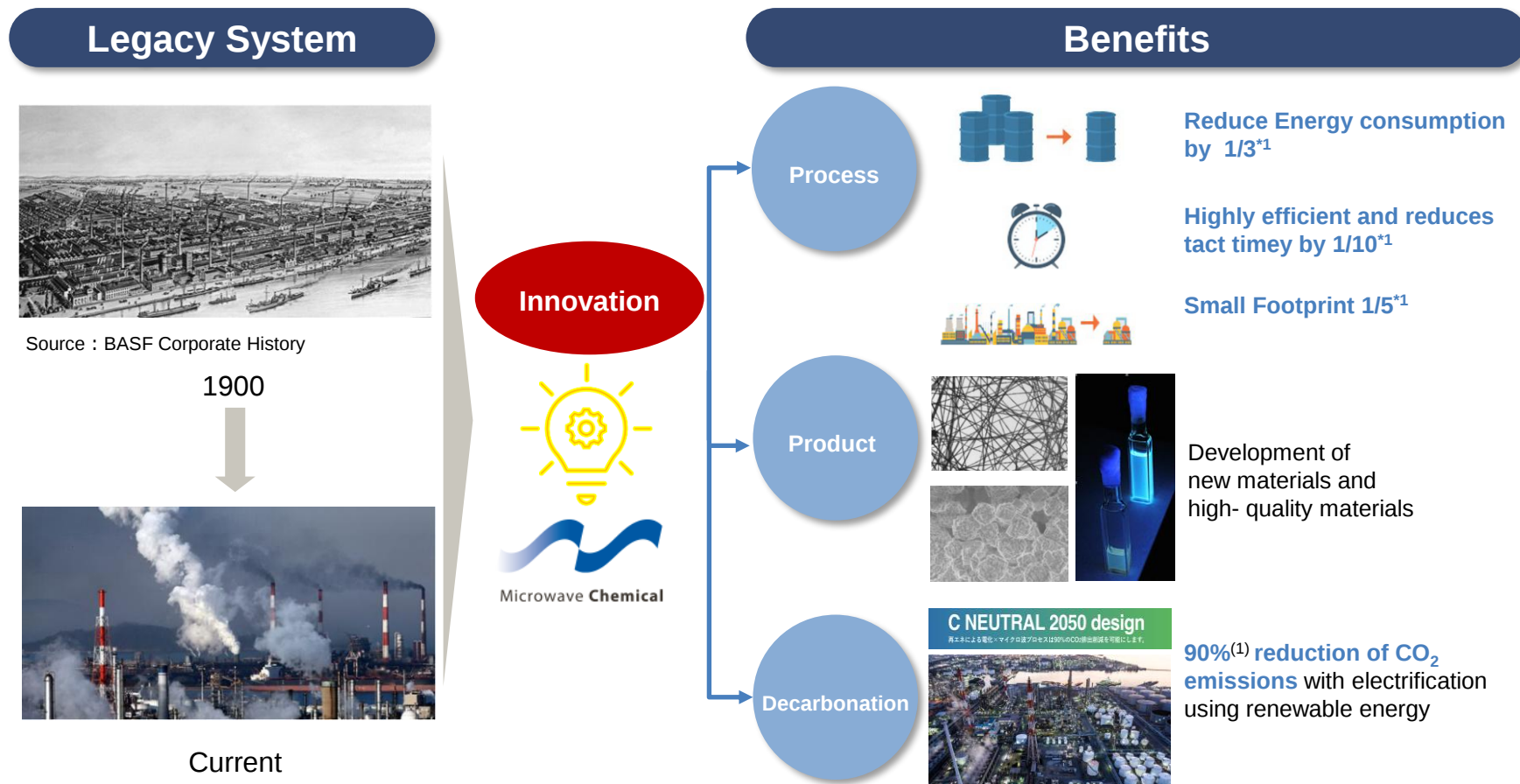
# Feature of Microwave Process



\*In the Conventional heat transfer process, energy is transferred to the whole object indirectly through external material. On the other hand, microwaves process transfers energy to the target molecule directly from inside. **Totally opposite approach.**

# Benefit of Microwave Process (1/2)

- The chemical industry has relied on heat and pressure-based manufacturing methods for more than 100 years, and the introduction of microwave technology, which is completely different from conventional methods, offers various benefits **such as improved manufacturing processes, new materials development, and decarbonization.**



**Note:**

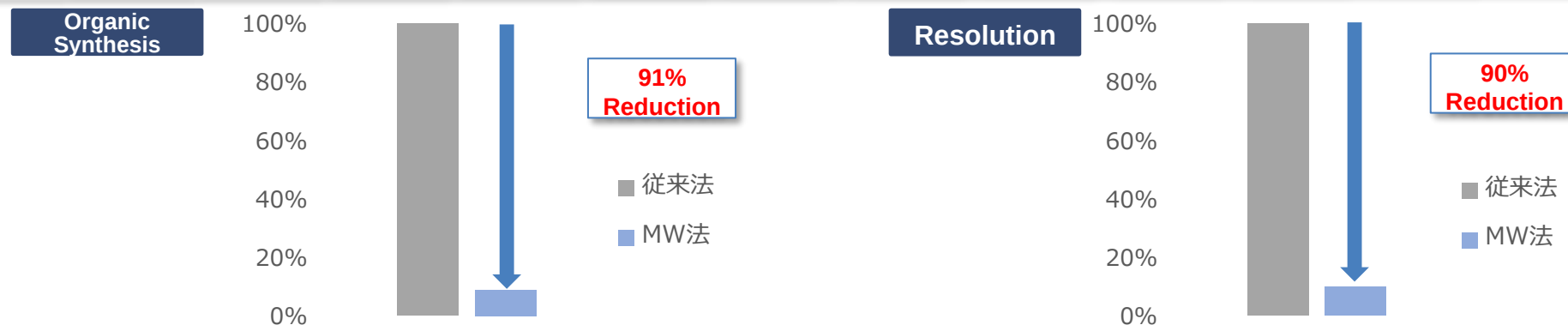
(1) The figures are estimated from our plant of fatty acid esters operated in Osaka

# Benefit of Microwave Process (2/2)

## Energy consumption: (1) Energy saving with microwave systems



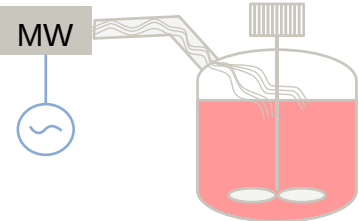
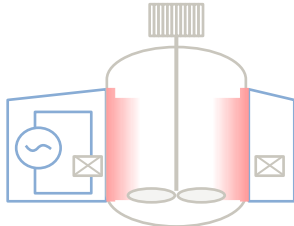
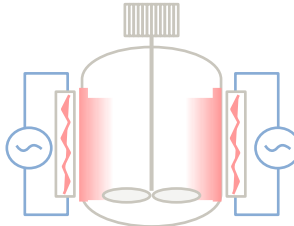
## CO<sub>2</sub> Emissions Cuts: (1) Microwave-assisted energy efficiency × (2) CO<sub>2</sub> emission intensity by energy source



- CO<sub>2</sub> emission cuts are calculated by multiplying (1) energy consumption by (2) energy sources used. Use of microwaves reduces energy consumption in many chemical reaction processes. There is a trend that chemical manufactures across the world are laying out their roadmaps, assuming that they significantly reduce the use of conventional fossil fuels to shift to natural energies, which will diminish the intensity of CO<sub>2</sub> emission from energy sources.
- MW Method assumes the use of photovoltaic electricity, CO<sub>2</sub> emission reductions and energy equivalent reductions are our estimates. Conventional method data is our trial calculation, and MW method data is based on our demonstration machine at commercial level

# Comparison – Electrification Technology

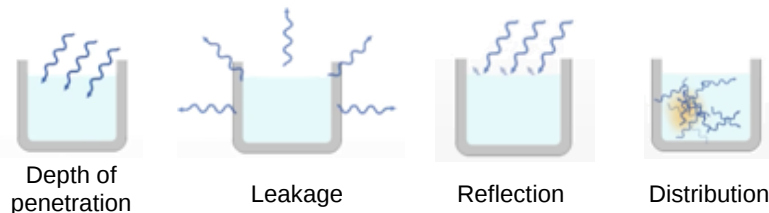
Microwave process is the only process that transfers energy directly, which provides advantage, such as scaling up, energy efficiency, and temperature range.

|                   | Microwave Heating                                                                                         | Induction Heating                                                                                           | Electric heater Heating                                                                                     |
|-------------------|-----------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------|
|                   |                         |                          |                          |
| Energy Transfer   | Direct                                                                                                    | Indirect                                                                                                    | Indirect                                                                                                    |
| Scaling Up        | <br>Easy                 | <br>Restricted           | <br>Restricted           |
| Energy Efficiency | <br>High                | <br>Medium              | <br>Low                |
| Temperature Range | <br>-100°C 0°C 1,000°C | <br>-100°C 0°C 1,000°C | <br>-100°C 0°C 1,000°C |

# Success in Scaling Microwave Process to Industrial Level

## Challenges for Industrial Applications of Microwaves

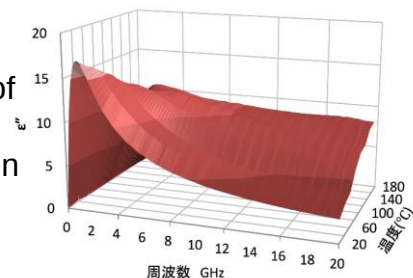
In the chemical industry, many useful experimental results using microwaves have been reported in papers since the 1980s. However, because microwaves are "waves," it is extremely difficult to control. Therefore, industry norm was that the microwave technology cannot be used in industrial setting and only in the lab.



## Solved by Our Unique Approach

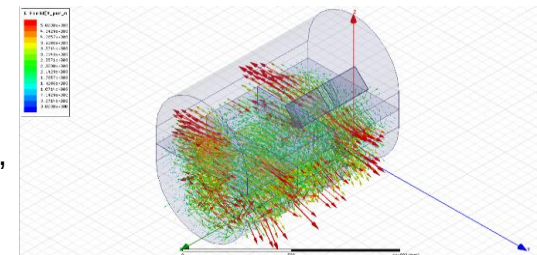
### 【Reaction System Design】

Developed data base of absorption rate of each molecule through our proprietary measurement technology. Design reaction utilizing the database by recognizing the pattern.



### 【Reactor Vessel Design】

Develop simulation technologies, couple electromagnetic field and thermic fluid analyses to increase the granularity in simulating the state, and introduce supercomputers, so as to apply to large-sized and complex reactor vessels



## Realizing Industrial Applications of Microwaves

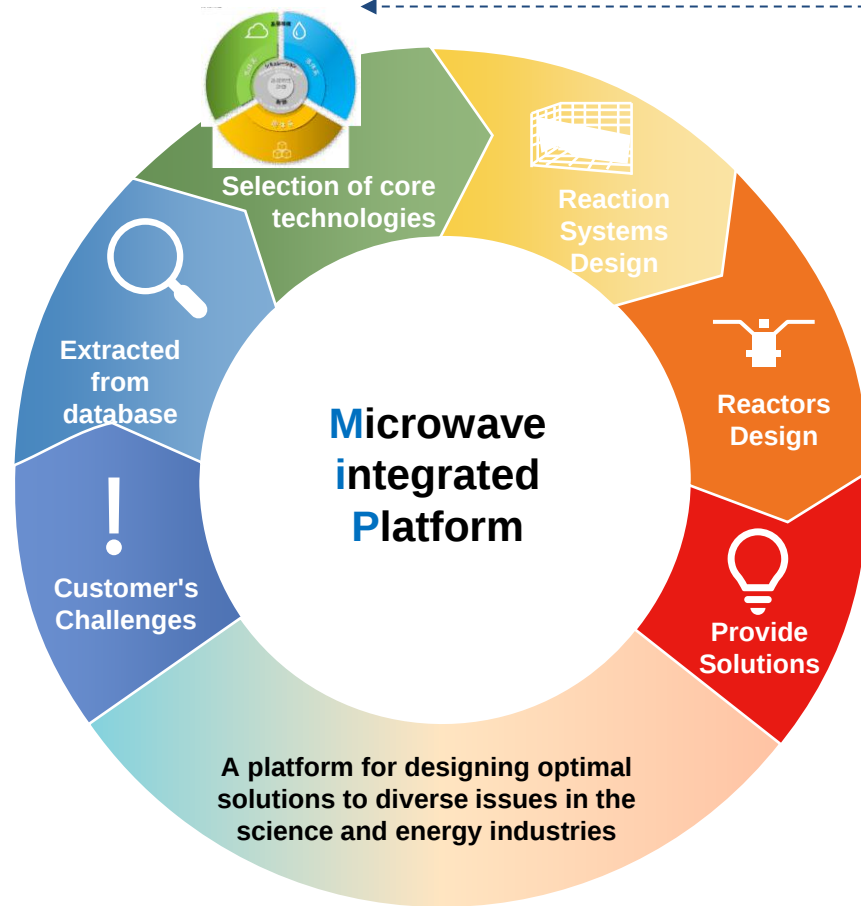
Completed large-scale chemical plant using microwave chemical process in Osaka in 2014 and started commercial operation complying with various laws and regulations such as the Fire Service Act.



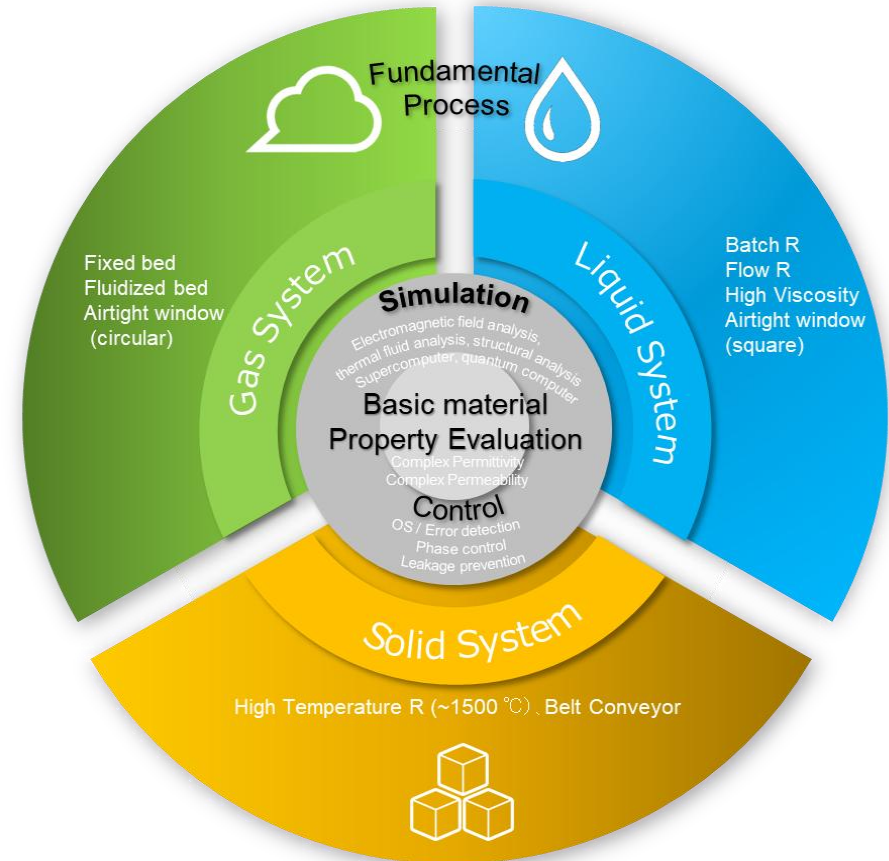
# Technology Platform and Core Technologies

After extracting hypotheses from the database for the customer's problem, we select the technology to be used from a group of elemental technologies, design the reaction system and reactor, and finally provide a solution.

## Our Technology Platform

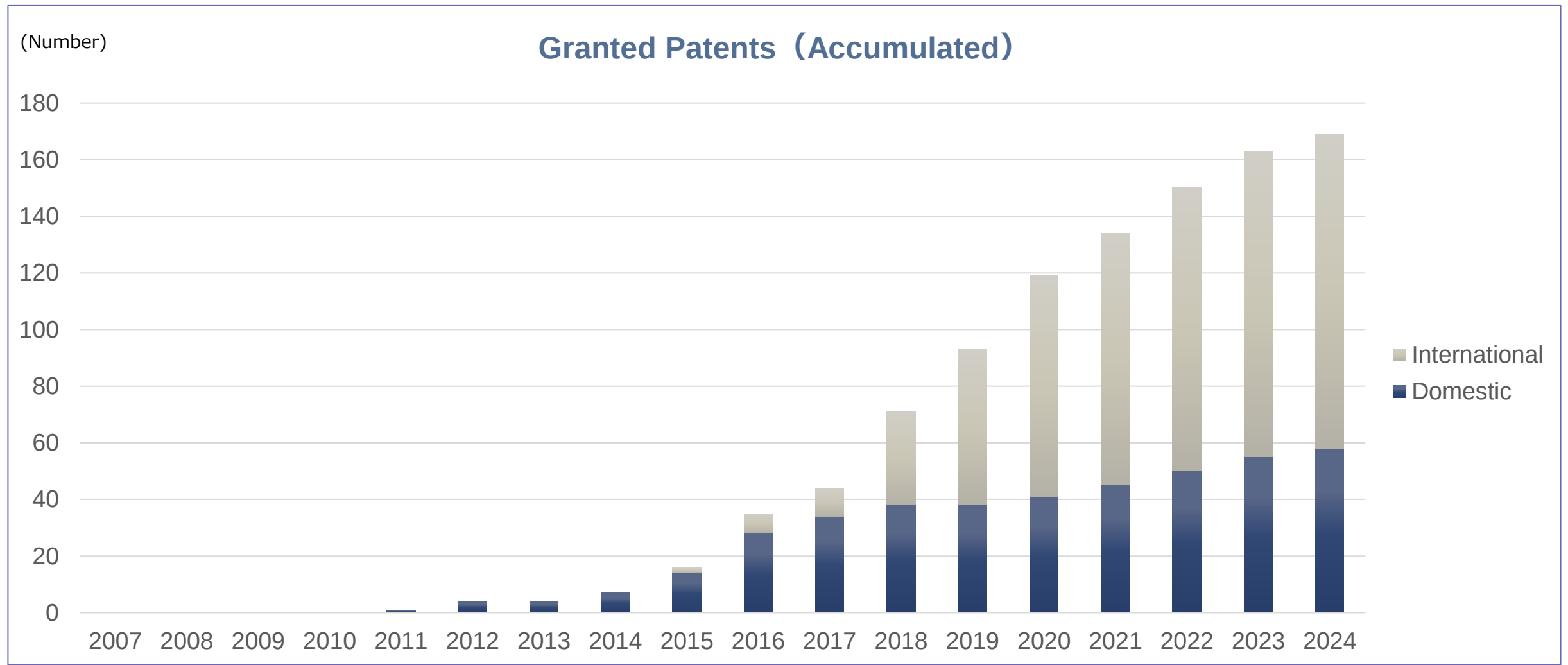


## Our Core Technologies

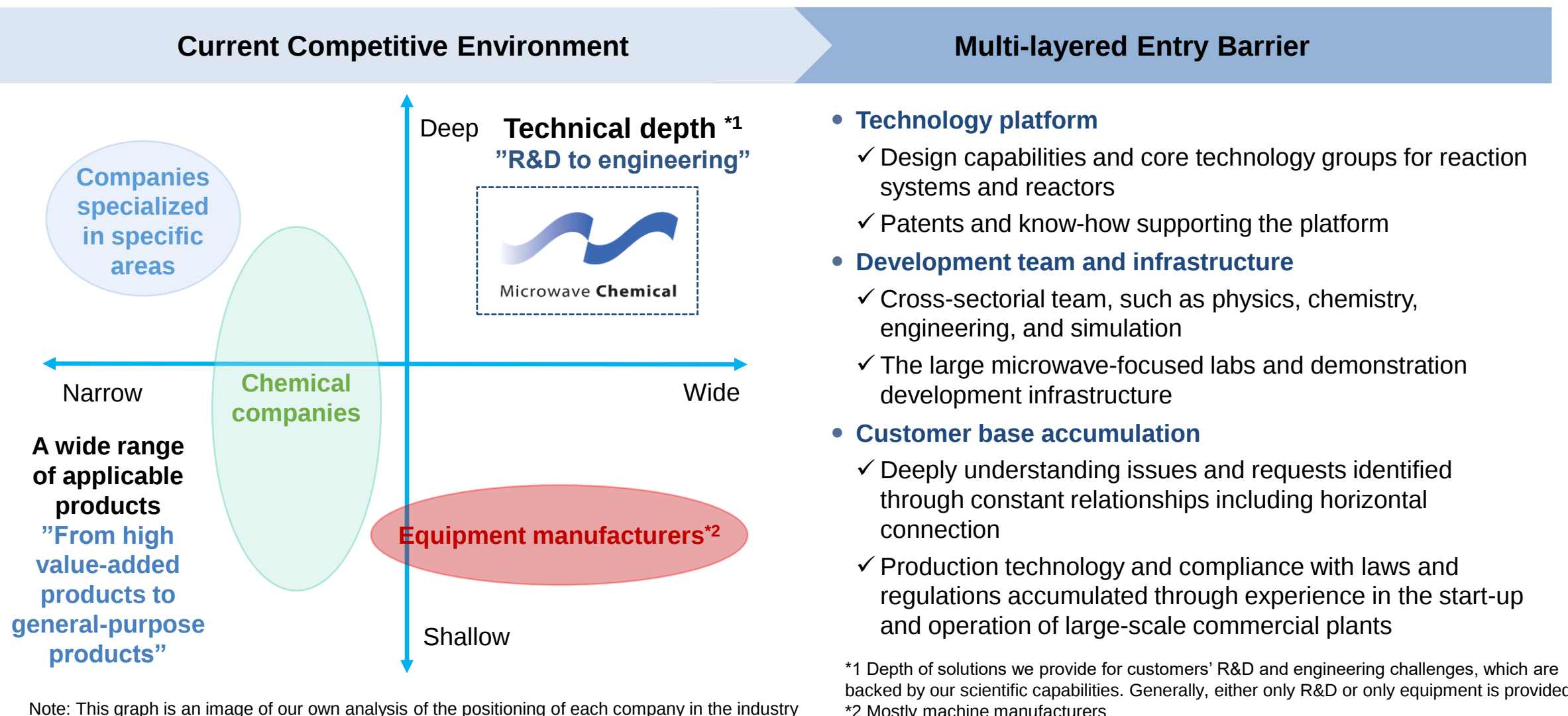


# Patent Strategy

We keep secrecy about (build the know-how of) designs of reaction systems and vessels we have developed and obtain patents on the knowledge mainly of hardware development to secure our competitive advantage.

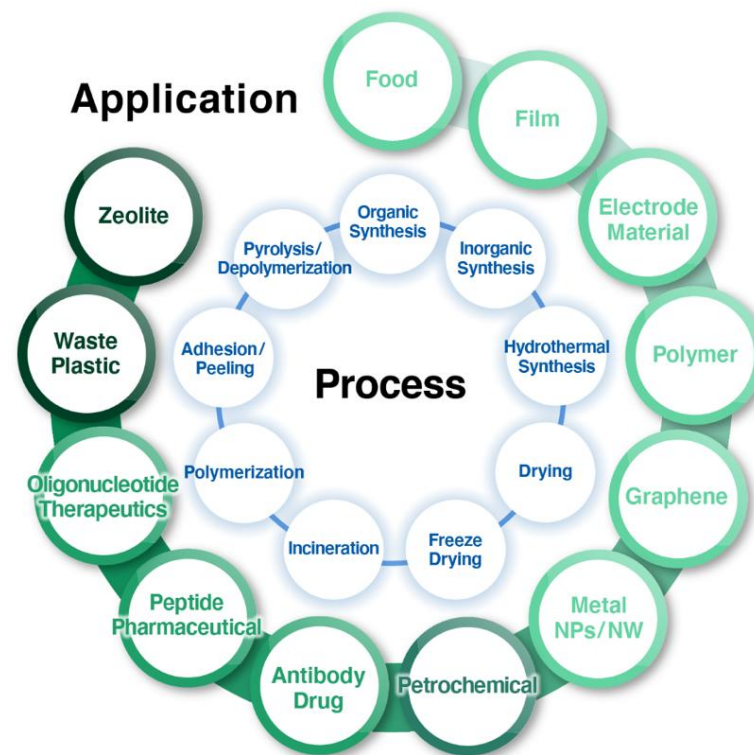
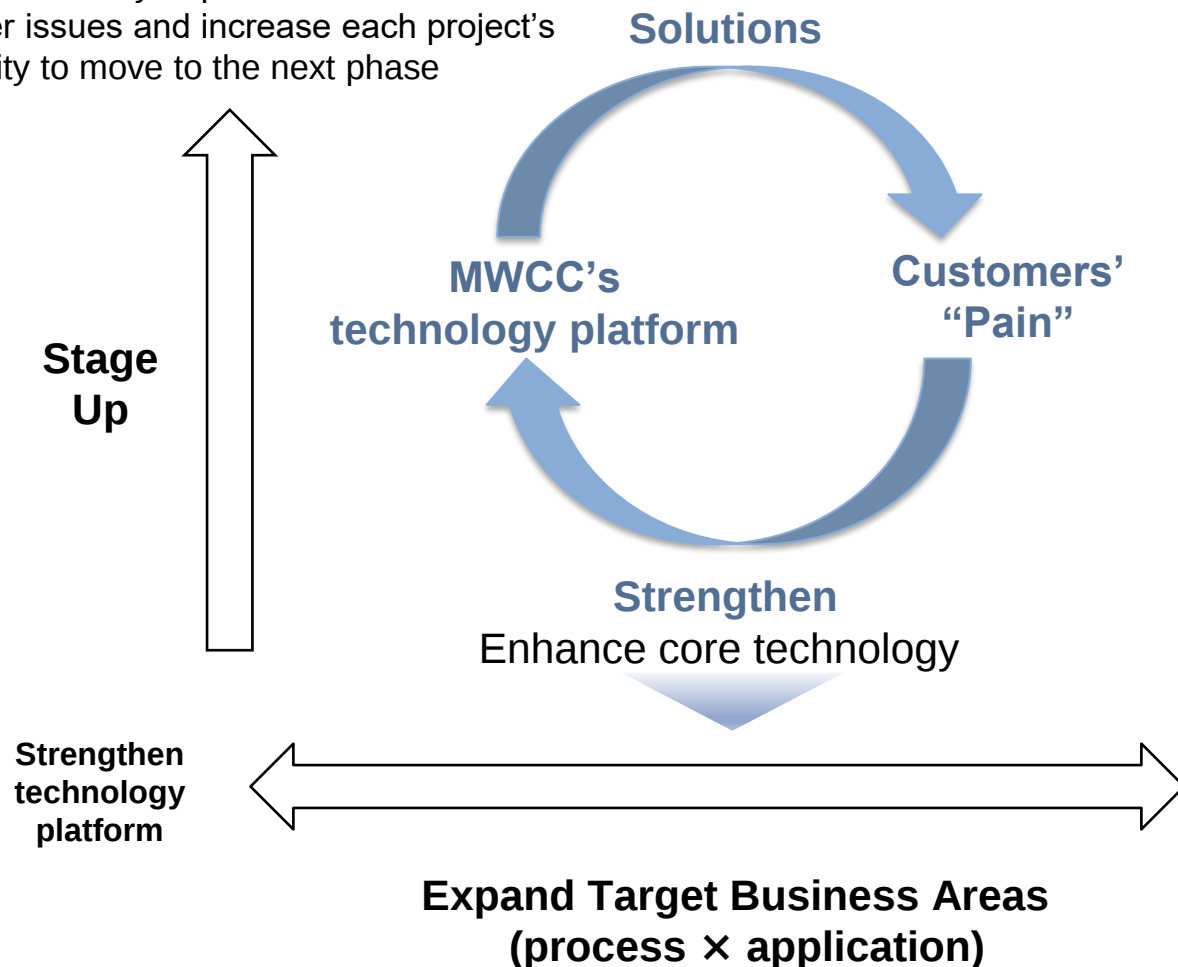


# Competitive Landscape



# Virtuous Cycle Drives Growth

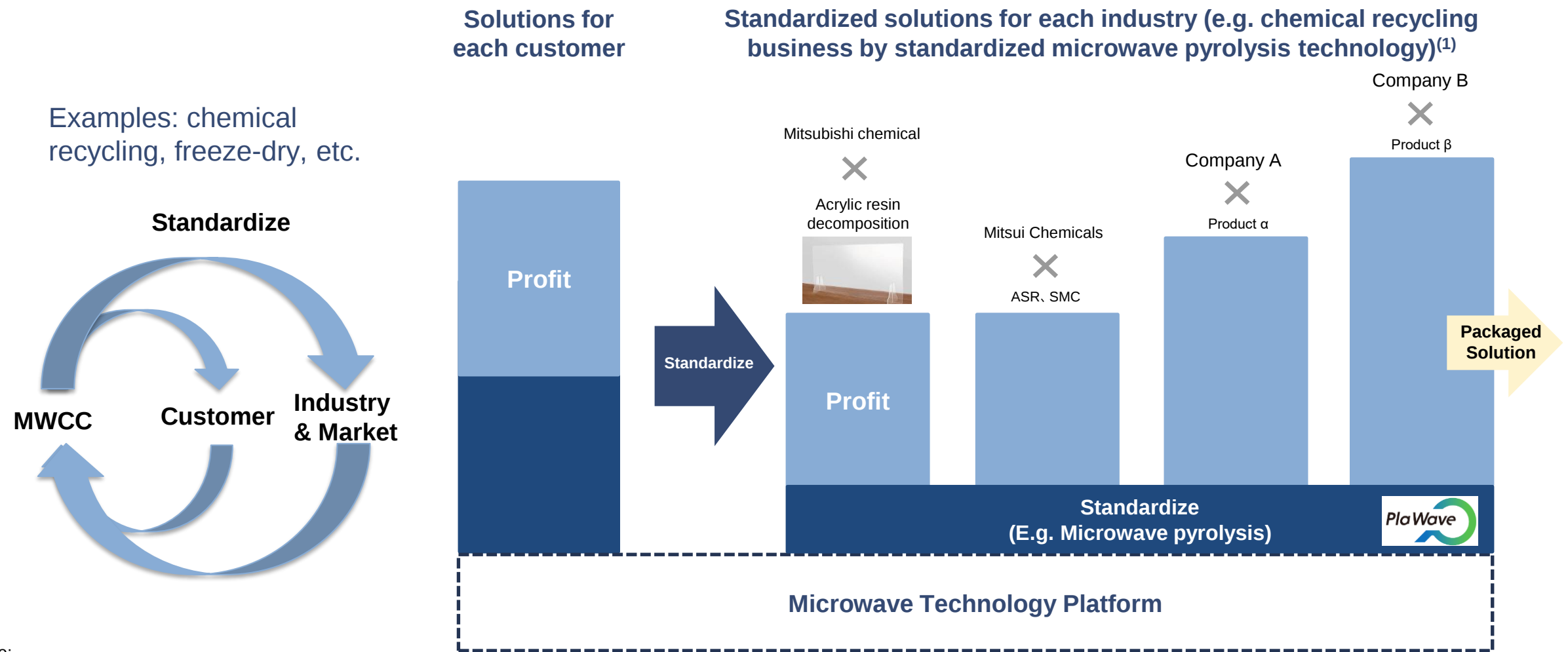
Strengthening of our technology platform will improve the ability to provide solutions to customer issues and increase each project's probability to move to the next phase



Enhanced core technology will increase the number of processes (manufacturing methods) and applications (products) for which microwave technology platform can be used

# Business Expansion based on Standardization of Solutions

We scale our business by “standardizing” our technology platform and providing solutions to “pains” which is common to industries and markets. For example, we have conducted chemical recycling business using microwave pyrolysis technology, pharmaceutical-related and food-related business using microwave freeze-drying technology.



Note:  
(1) The graph is an illustration of our own analysis of the scale of the business

# Main Business Risks and Mitigation Measures

| Items                                         | Main Business Risks                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Possibility/<br>Timing<br>of<br>Occurrence | Mitigation Measures                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|-----------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Expansion of Technological Application Fields | We have successfully achieved the scale-up of the previously challenging microwave process and launched the large-scale microwave chemical plant called 'M3K.' Following this success, we have expanded the application areas to various fields such as food additives, pharmaceuticals, carbon materials, and electronic components. We believe that microwave processes can be applied in diverse domains including commodity chemicals, functional products, and fuels. However, due to being a new technological field with high uncertainty, if the penetration of our technology into the market does not proceed as planned, it may potentially impact our business strategy and performance.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Med/<br>Medium to Long Term                | We adopt a strategy to mitigate such uncertainties by engaging in partnerships through joint development agreements and joint venture contracts with chemical companies and other entities that possess expertise in the relevant fields.                                                                                                                                                                                                                                                                                  |
| New market entry and technological innovation | We have established proprietary platform technologies as the foundation of our business, and we believe that we have secured a strong competitive advantage in the field of microwave chemistry. However, it is also possible for new entrants with research and development capabilities surpassing ours to emerge, or for technologies that do not infringe upon our patented technologies to be developed, surpassing our own capabilities.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Low/<br>Medium to Long Term                | We believe that by advancing the construction of plants utilizing microwave processes in numerous domains and accumulating knowledge in microwave chemistry, we can strengthen this competitive advantage.                                                                                                                                                                                                                                                                                                                 |
| Intellectual property                         | To date, there have been no known facts of litigation or claims related to intellectual property rights, including patents, associated with our business. At present, we consider the likelihood of significant hindrance to our business due to infringement on patents held by others to be low. We continue to conduct technology investigations and strive to avoid infringement incidents. However, for research and development-oriented companies like ours, it is difficult to completely avoid the occurrence of intellectual property infringement issues. In the event that our company becomes involved in legal disputes with third parties, we will consult with lawyers and patent attorneys to consider specific countermeasures based on the nature of the case. However, regardless of the validity of the claims made by the third parties, it is possible that such disputes could require significant time and expenses to resolve. While we diligently manage our technology, there is a possibility of time-consuming and costly resolution even in cases where third parties infringe upon our technology. In such cases, it could have a significant impact on our business strategy and performance. | Low/<br>Medium to Long Term                | Currently, in the domain of component technologies, we have adopted a strategy of keeping fundamental property evaluation, simulation, and control, which are common element technologies centered around reaction system design, confidential. On the other hand, we patent and make publicly known the underlying mechanisms, which are individual element technologies primarily focused on reactor design. Through this approach, the intellectual property we have accumulated has become a strength for our company. |

\* For other risks, please refer to the 'Business Risks' section of the Annual securities report.



# Disclaimer

- This document is prepared solely for informational purposes. It is not intended to solicit the sale or purchase of securities in Japan, the United States, or any other region.
- This document contains forward-looking statements. These statements regarding future prospects are based on information available at the time of the preparation. However, such statements do not guarantee future results or performance. These forward-looking statements inherently involve known and unknown risks and uncertainties, and as a result, actual future performance and financial condition may significantly differ from the explicitly or implicitly predicted future performance and results stated in the forward-looking statements.
- The factors that may influence the actual results mentioned above include changes in domestic and international economic conditions, as well as industry trends in which we operate, among others. However, these factors are not limited to the ones stated.
- Furthermore, information regarding matters and organizations other than our company is based on generally available information. We have not verified the accuracy or appropriateness of such publicly available information and does not provide any warranties regarding it.
- The updates of “Matters related to Business Plan and Growth Potential” will be disclosed around the time of the announcement of the annual financial results. The next update is expected to be made after the announcement of financial results around August 2026.

# End of Document

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Microwave **Chemical**

**Make Wave,  
Make World.**

世界が知らない世界をつくれ