

Mitsubishi Chemical Group

Sustainability Briefing 2026

February 25, 2026

Mitsubishi Chemical Group Corporation (MCG)
Executive Officer, Chief Sustainability Officer
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Given the uneven and inconsistent progress, the global outlook is unclear

- US: Polarized market and society. While affected by the change of government, the market will likely drive slow progress.
- Europe: Continues to uphold green goals while also pursuing industrial competitiveness by adjusting its pace
- China: Makes massive advanced investments to harness the vast potential of carbon-neutral (CN) energy
- Due to a lack of strong leadership to drive global initiatives, region-based approaches will likely be taken. (cf. COP30)

Even with twists and turns, the overall direction is likely to remain unchanged

- The major focus will be on securing resources and energy and strengthening supply chains.→ Pursuit of CN energy and circular economy (CE) to serve as a strong driving force
- Real threat of environmental problems, particularly climate change→ People's support

Sustainability and decarbonation and circularity as the competitiveness and security agenda

- Government: Autonomous economic growth, stable supply of resources and energy, strengthened supply chains
- Companies: Sources of new added value and competitiveness (Providing value to value chains)
- Global issues arising from regulatory differences among countries/regions (extraterritorial application, border adjustments, requirements for support measures, supply chain management)

Long-term Decarbonation and Circularity Strategy

Decarbonation and circularity as a source of competitiveness

- Social and customer needs for CN energy and CE will remain a part of the security and energy/resources agenda.
- If the Japanese chemical industry is to compete globally with its massive, low-cost rivals, it must meet these CN/CE needs as a major source of competitiveness. The focus should be on functions that address diverse customer needs and on transitioning away from fossil materials.
- Rival countries with high potential in CN energy and other areas are rapidly advancing. We must outpace them by capitalizing on our technology, advantage in developed markets, and existing supply chains, while keeping security in mind.
- The public sector is anticipated to contribute by providing infrastructure (supplying CN energy), creating markets, and establishing rules (level playing fields).

		As supply side (business)	As demand side
CN	Supply stable energy, GHG emissions reduction	<ul style="list-style-type: none"> ● Supply CN energy ● Contribute to customers' energy conservation and fuel transition efforts ● Supply low carbon-footprint products 	<ul style="list-style-type: none"> ● Procure CN energy (fuel transition) ● Energy conservation (process transition) and reducing activity ● Procure low carbon-footprint products
CE	Resource efficiency, securing resources	<ul style="list-style-type: none"> ● Supply components and materials for CE (recycled materials) ● Contribute to customers' CE-based processes ● CE-based business models (establish supply chain) 	<ul style="list-style-type: none"> ● Procure components and materials for CE ● Switch to CE-based processes (sharing, reusing waste, etc.)

Long-term Decarbonation and Circularity Strategy

Basic perspectives

- Long-term vision
- Time axis
 - ✓ In descending order of economic efficiency and competitive advantage
 - ✓ Take preemptive steps from a long-term perspective to gain first-mover advantage
- Competitive advantage

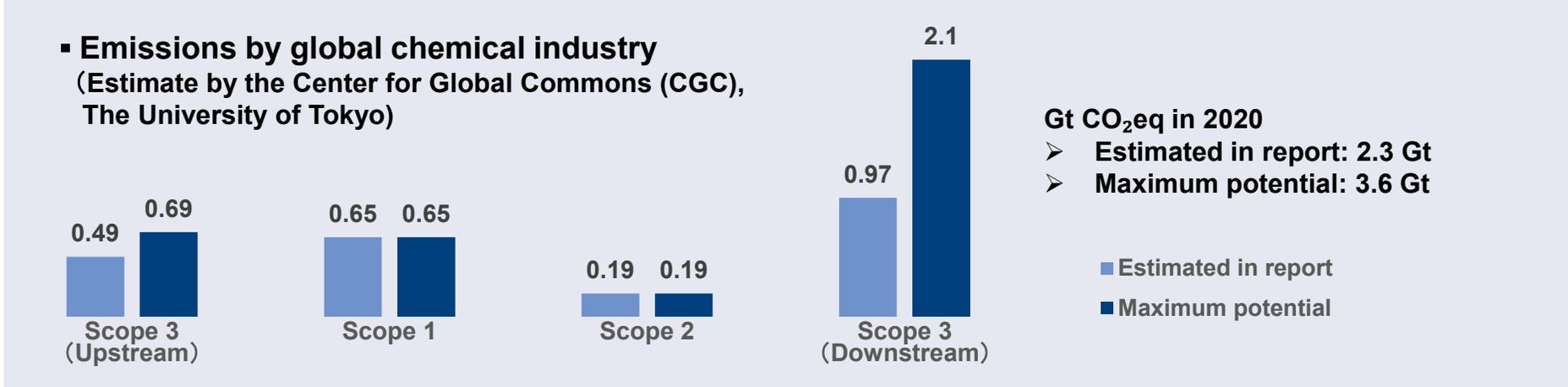
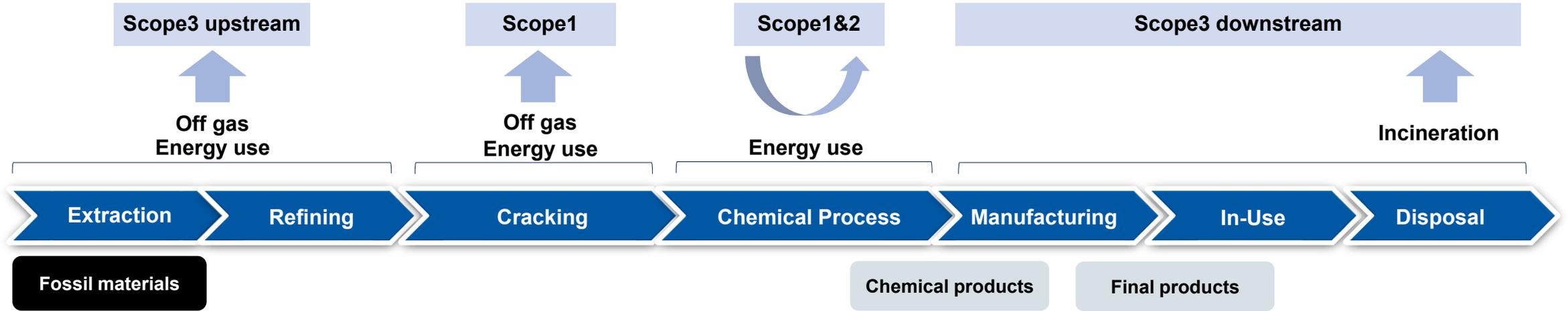
Deliver value through collaborations across supply chains

- **Decarbonation and circularity value across the entire supply chain** delivers business value
- Collaboration between upstream and downstream industries and related industries (in particular, industrial complex clustering)
- Collaboration with all stakeholders across the supply chain

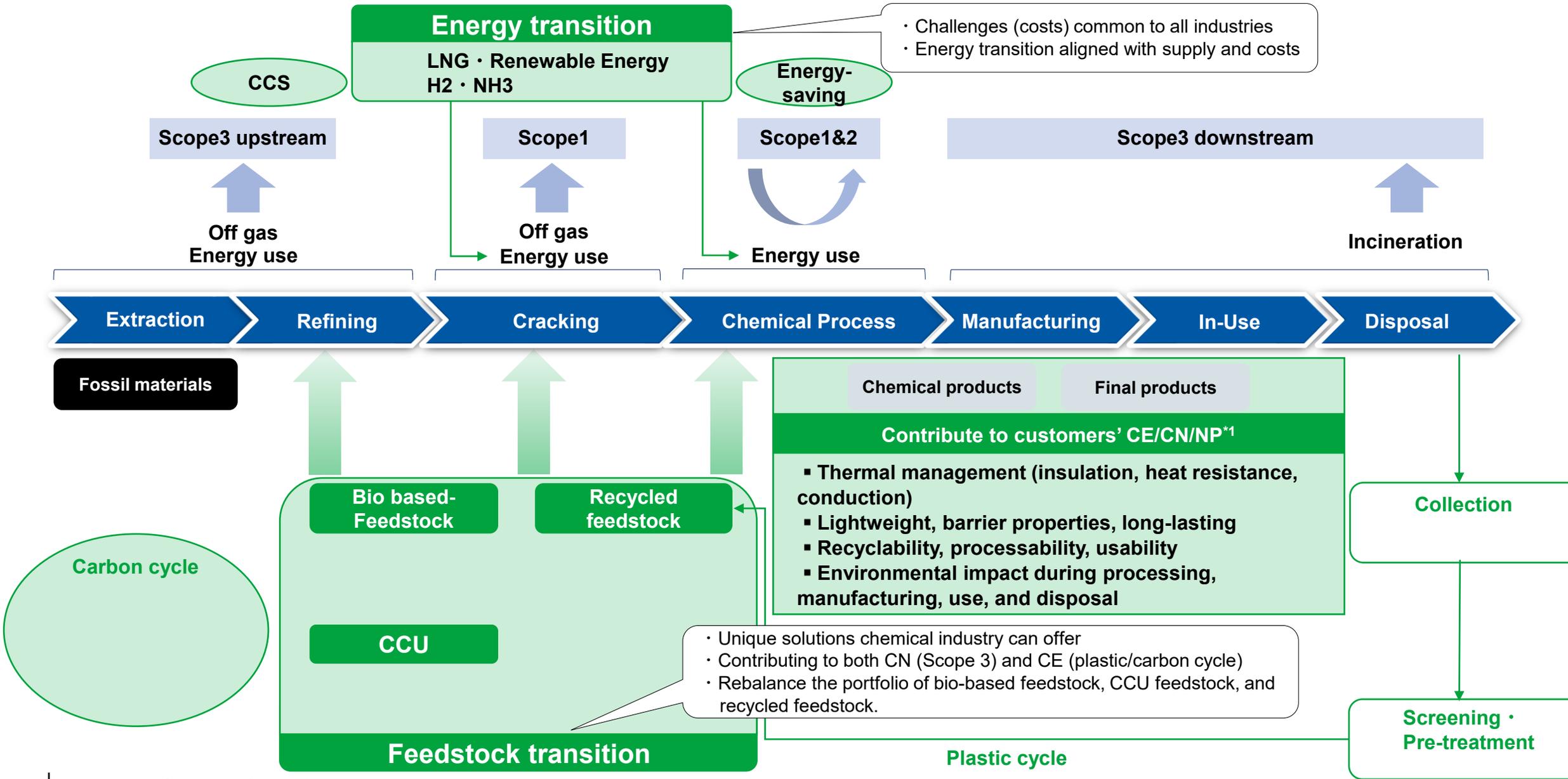
Data management

- **Data monitoring and visualization** to improve internal processes and for external use (present value to stakeholders)
- Data-driven decision making, as with financial data
- Data management across the entire supply chain (**life cycle assessment**), digital product passports, traceability

GHG Emissions Structure in the Chemical Industry



Direction for Decarbonation and Circularity of Chemical Industry



*1. Nature Positive

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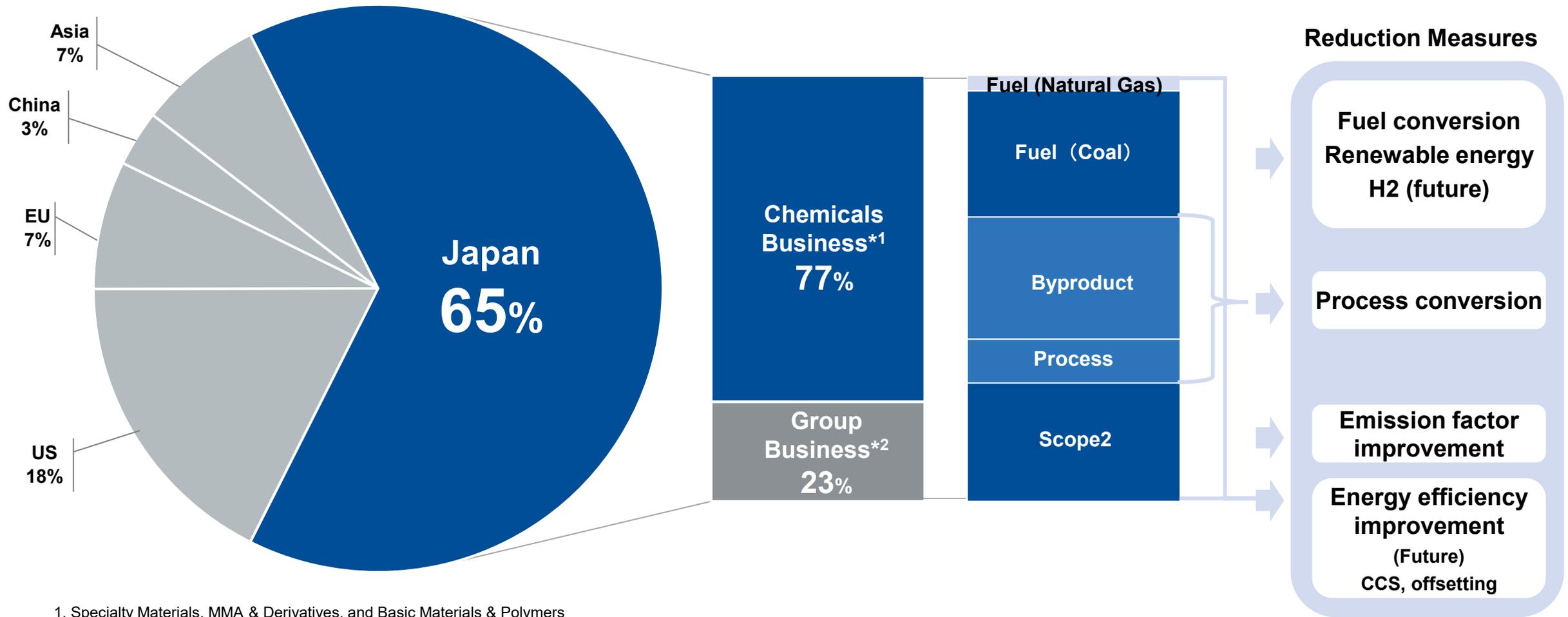
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MCG's GHG Emissions (Scopes 1 & 2)

*Calculated with FY2019 as the base year



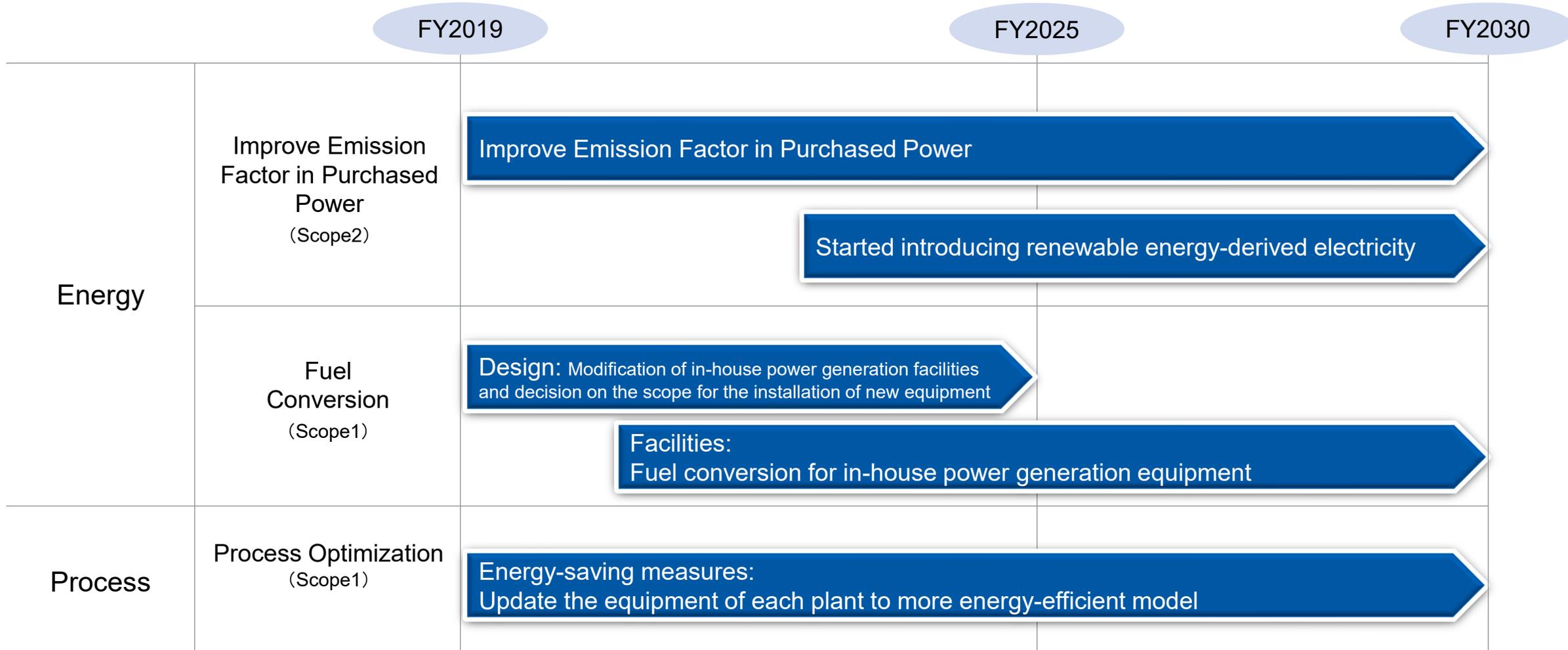
- Most Scope 1 and 2 emissions are in Japan
- Major emission sources: Fuel (coal-fired power), by-product gas from cracking, purchased electricity (Scope 2)



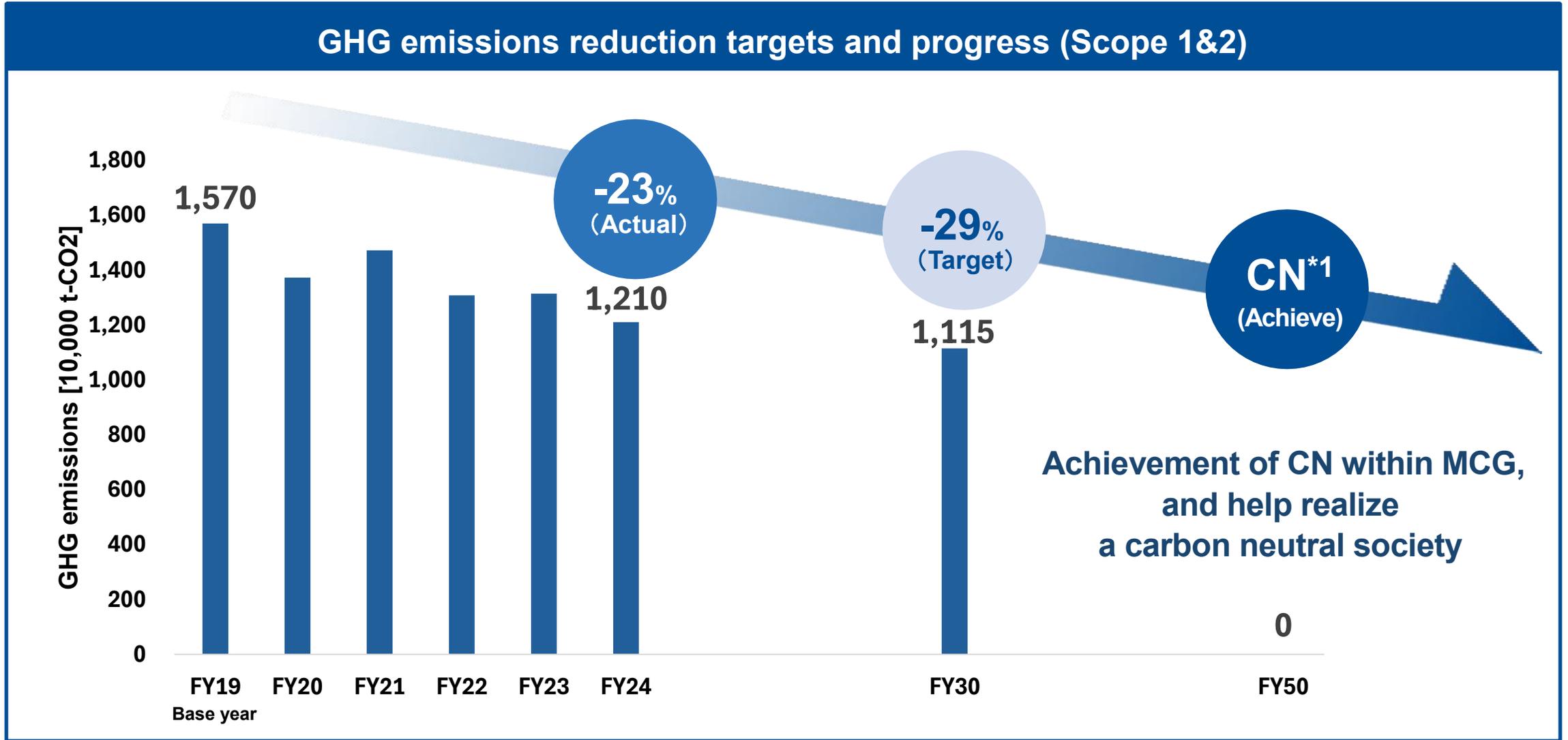
1. Specialty Materials, MMA & Derivatives, and Basic Materials & Polymers
 2. Pharma and Industrial Gases

GHG Emissions Reduction Process (~FY2030)

Proceed with the detailed design to convert fuel from coal to LNG by FY2025 and aim to complete coal phase-out by FY2030.

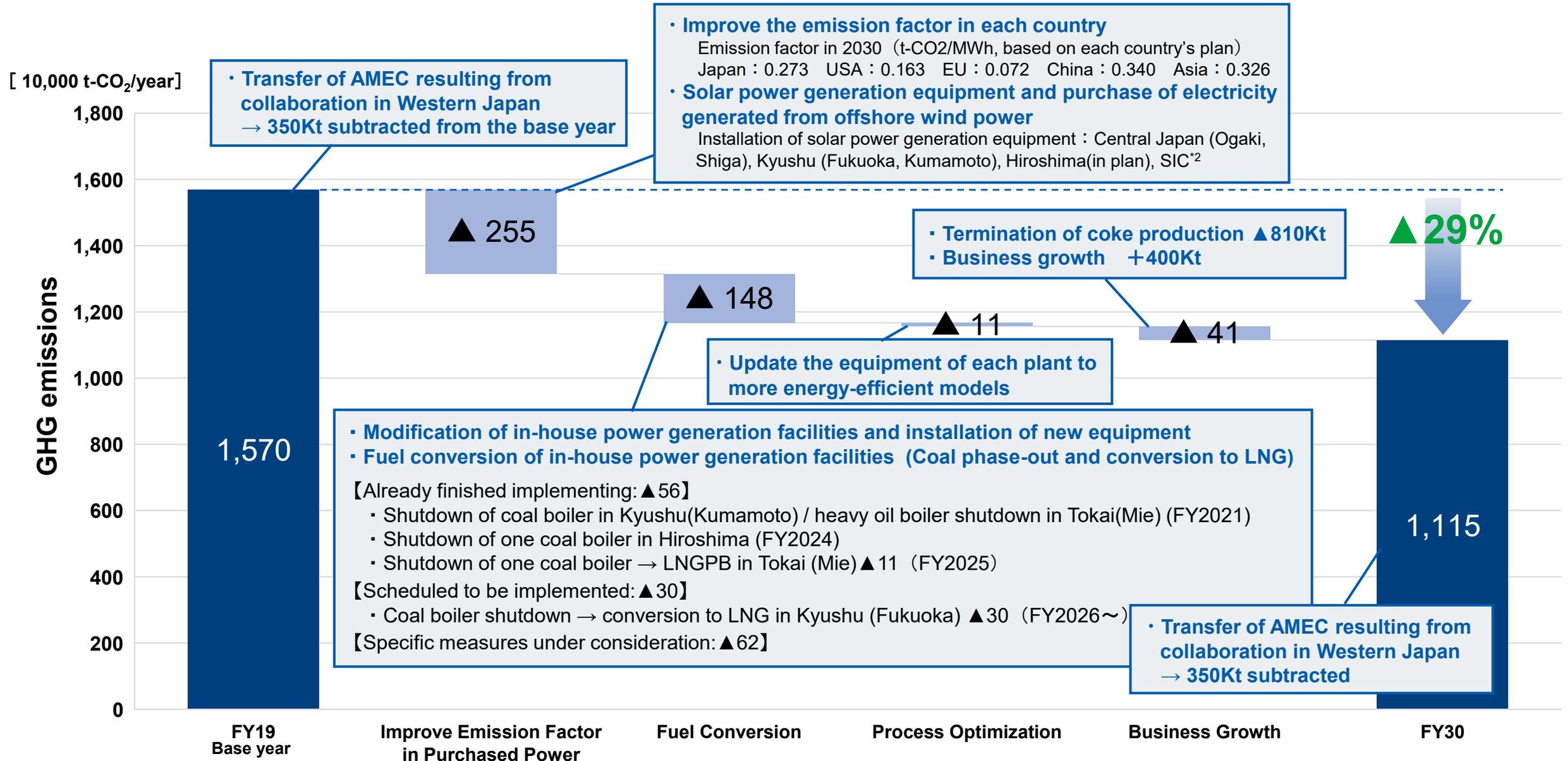


GHG Emissions Reduction Target for FY2030



*1. Carbon Neutrality

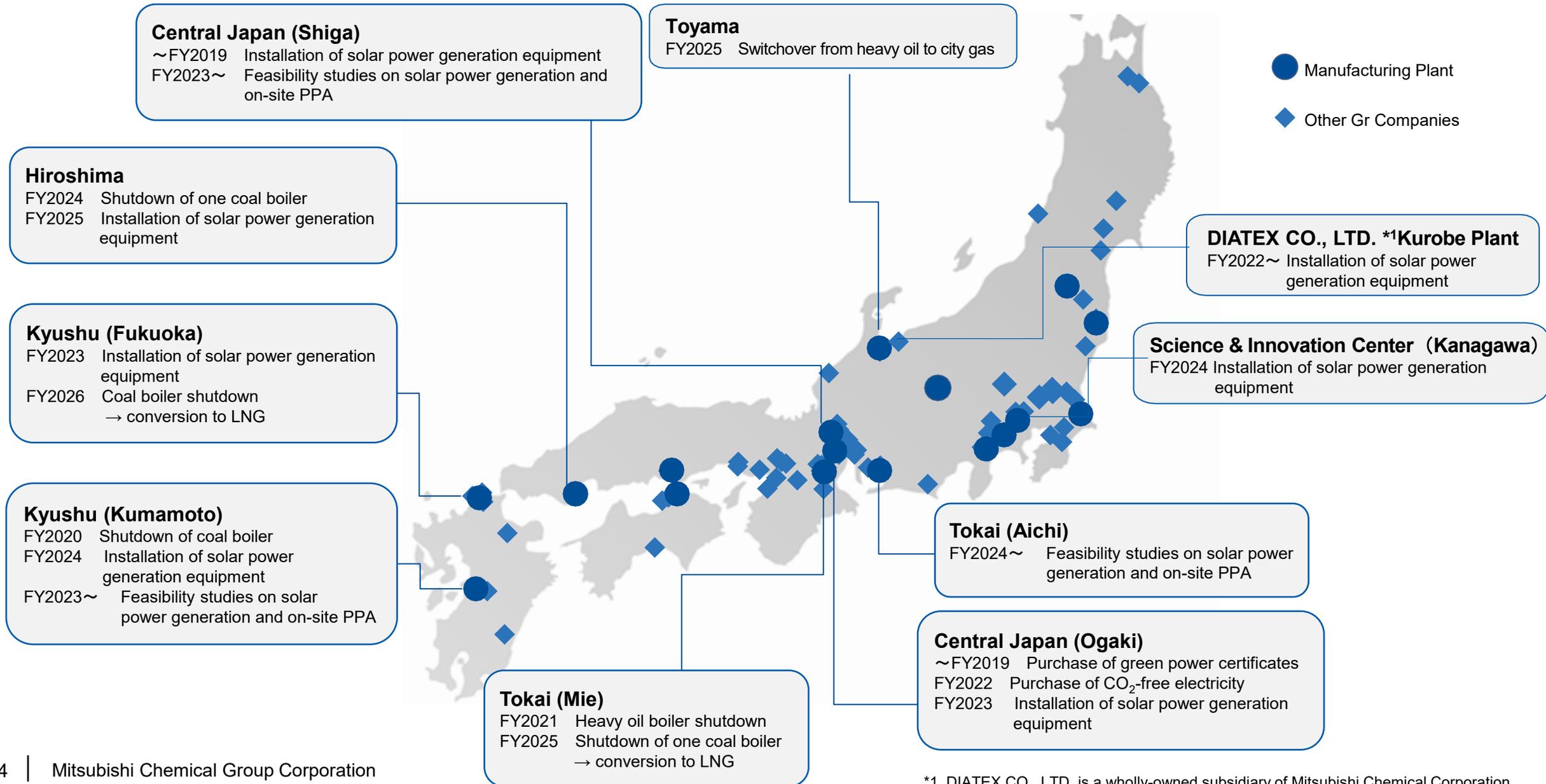
GHG Reduction Plan for FY2030



*1. Asahi Kasei Mitsubishi Chemical Ethylene Corp.

*2. Science & Innovation Center: Our medium- to long-term R&D site, the core of MCG's corporate innovation.

Chemicals Business Site Initiatives for Fuel Conversion



*1. DIATEX CO., LTD. is a wholly-owned subsidiary of Mitsubishi Chemical Corporation.

Global Energy Transition Initiatives

Transition to renewable energy (solar panels, renewable electricity) is underway mainly in Europe and the United states.

- Switching is completed or in progress at the sites shown below.

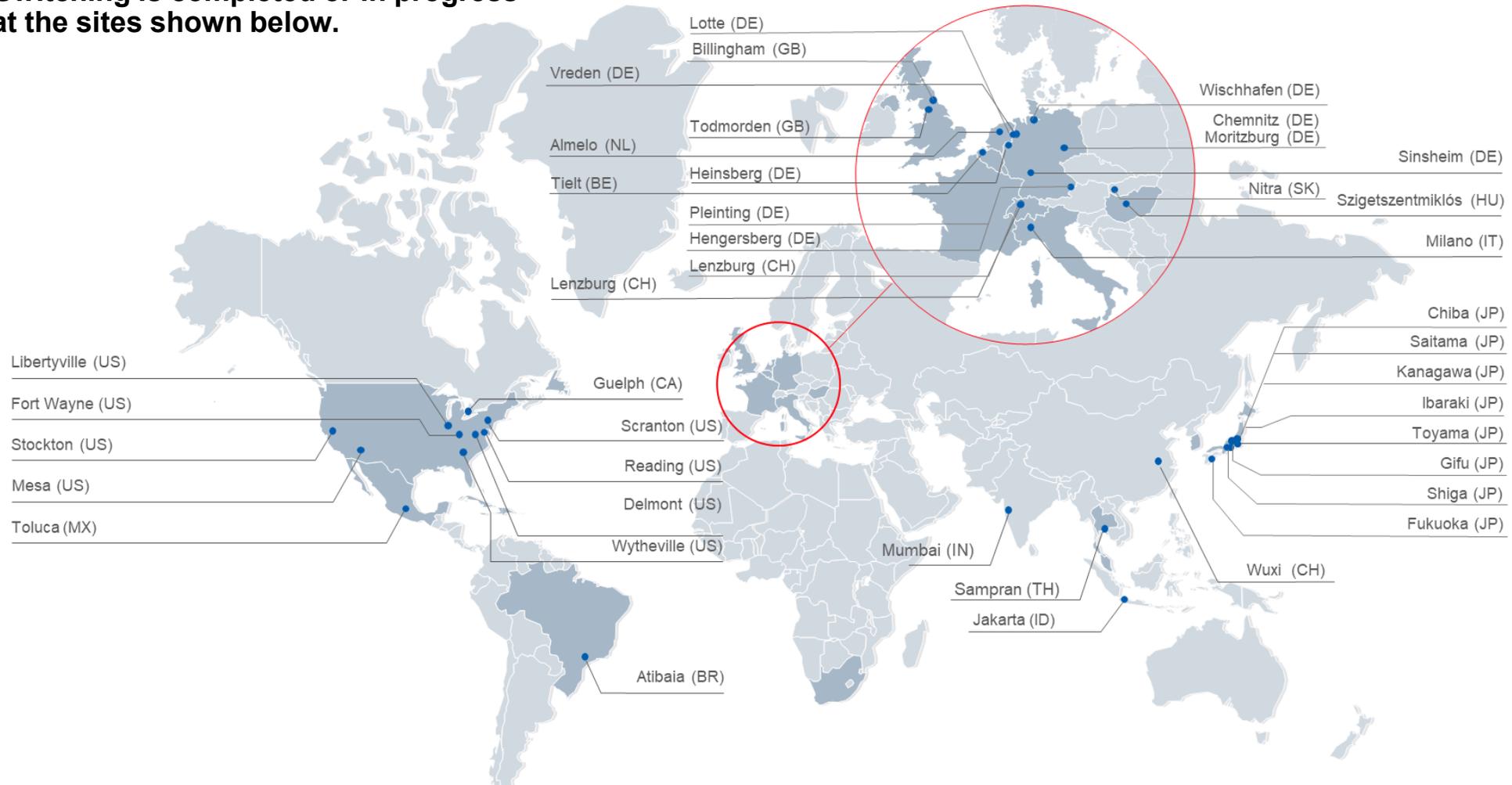
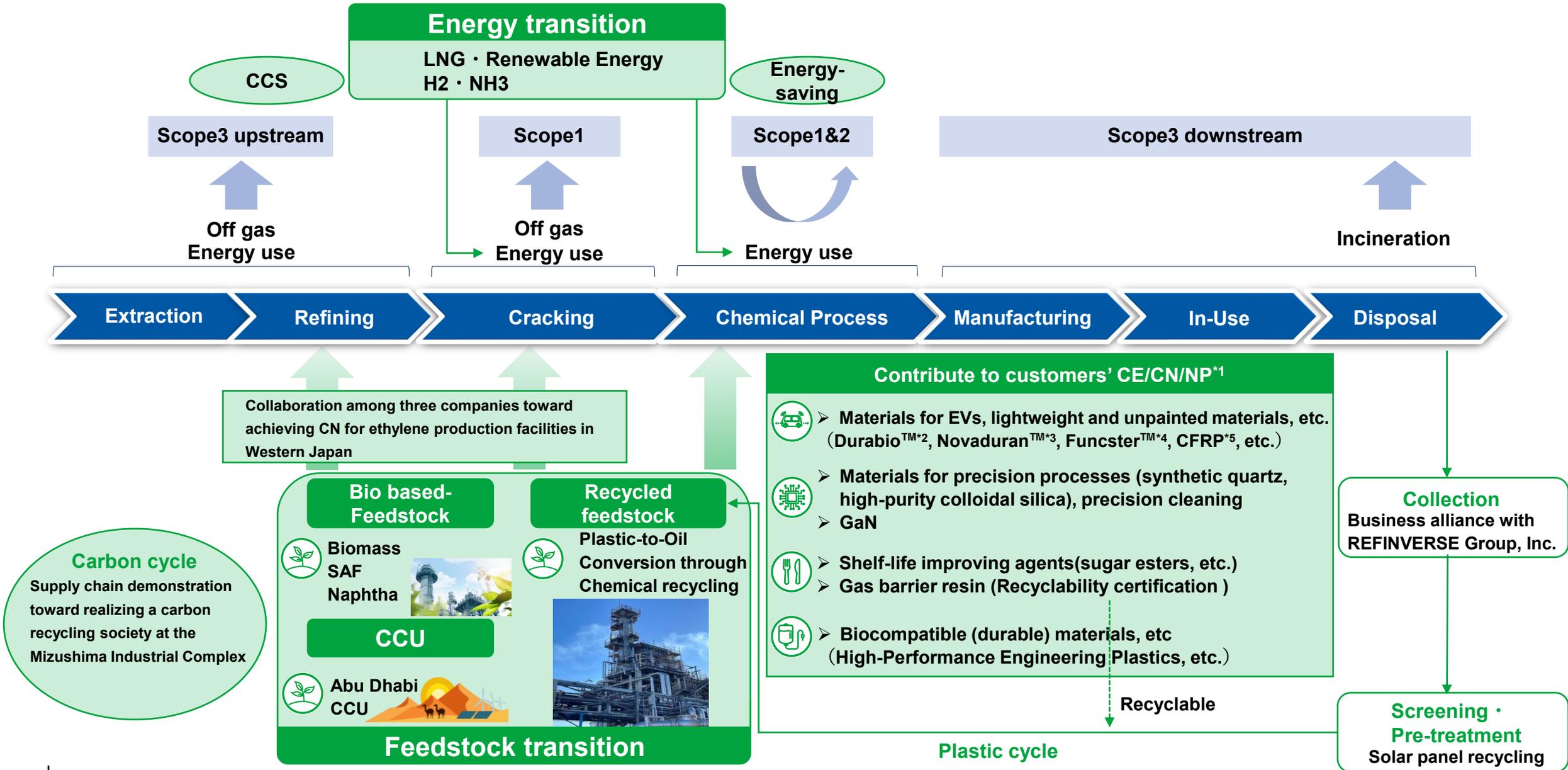


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Directions for Sustainability in the Chemical Supply Chain and Our Key Initiatives



*1. Nature Positive

*2. High-performance transparent engineering plastic

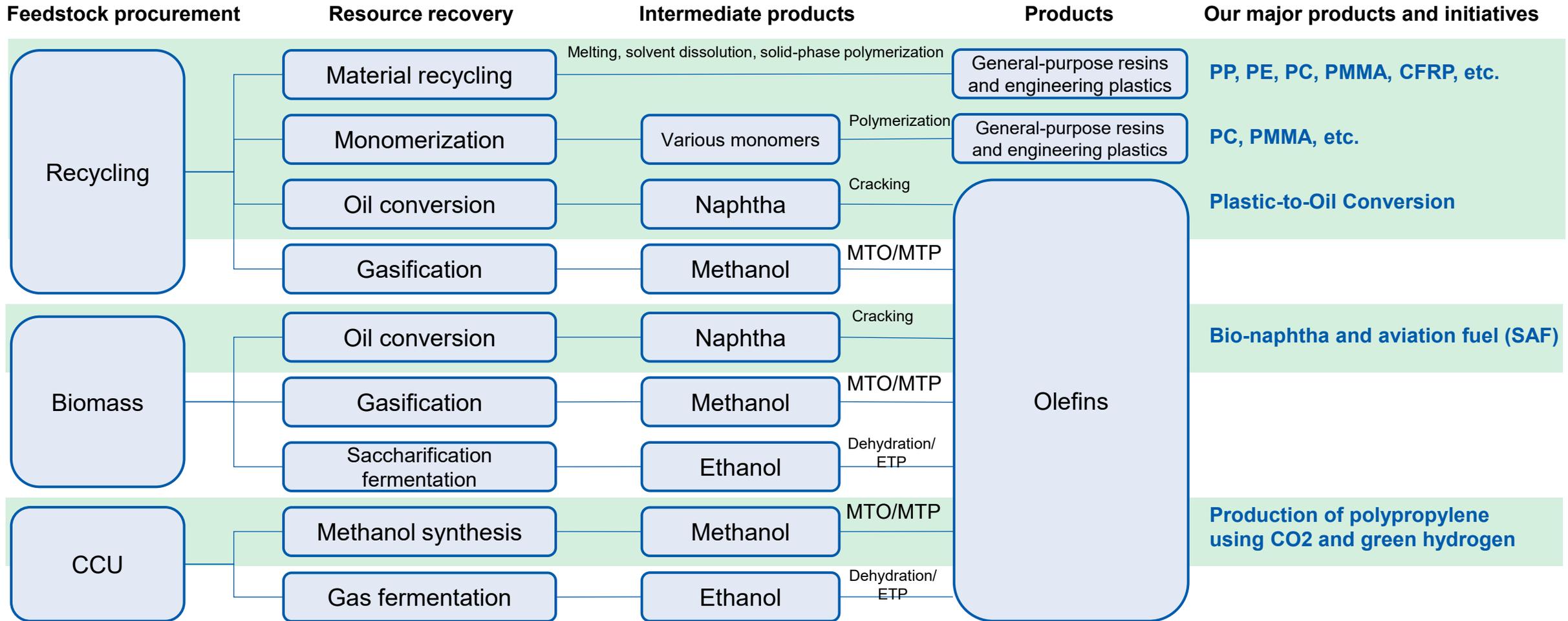
*3. PBT resin

*4. High-performance long glass fiber reinforced polypropylene

*5. Carbon Fiber Reinforced Plastics

Overall initiatives for feedstock conversion

In order to contribute to the realization of CE/CN/NP for our customers, we are broadly advancing the conversion of feedstocks for our products.



PP: Polypropylene / PE: Polyethylene
 PC: Polycarbonate / PMMA: Acrylic resin
 CFRP: Carbon fiber reinforced plastic

MTO: Methanol to Olefins — a process for producing olefins from methanol
 MTP: Methanol to Propylene — a process for producing propylene from methanol
 ETP: Ethanol to Propylene — a process for producing propylene from ethanol

Green Chemicals: Representative Initiatives for Energy transition

Collaborating with partners in each field, we are working to develop and commercialize three routes: recycling, biomass, and CO2 utilization



Recycle



Demonstrative operation to begin in FY2025

Plastic-to-Oil Conversion through chemical recycling using supercritical water



Biomass



Commercialization around 2030

Production of plant-derived ethylene and propylene from bioethanol



CCU



Commercialization around 2030

Production of polypropylene from CO2 and green hydrogen



Plastic-to-Oil Conversion through Chemical Recycling: Update on Plant Operation

Plant profile

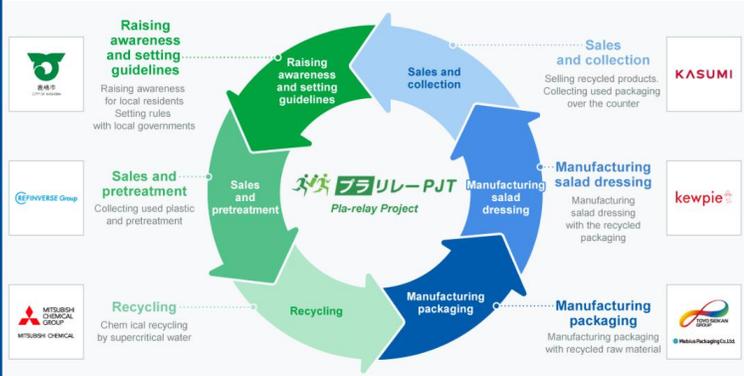
- Co-owner : ENEOS Corporation
- Location : Within our company's Ibaraki Plant (Kamisu-shi, Ibaraki Prefecture)
- Technology : Hydro-PRT ® technology of Mura Technology Limited. based in the U.K.
- Waste plastic processing capacity : 20,000 tons/year
- Operation status : Completed in July 2025; commercial operation scheduled to commence by the end of FY2025



Plastic-to-Oil Conversion through Chemical Recycling : Projects with Customers

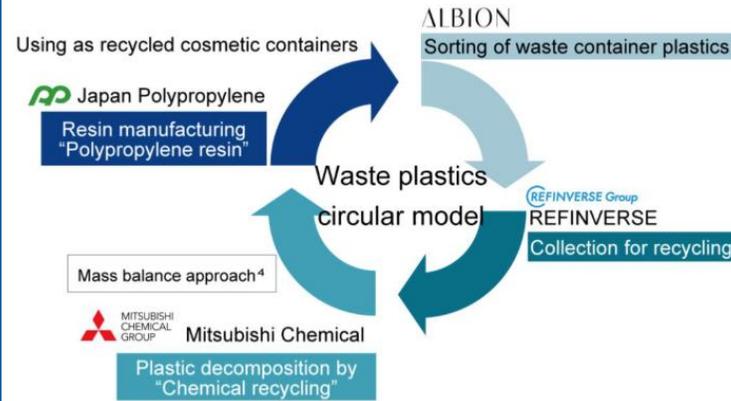
Pla-relay Project

Used plastic collected from stores and municipalities is converted into oil and resin, which is then molded by a container manufacturer and used by a brand owner to distribute and sell its products.



Collaboration with ALBION Co., Ltd.

A closed recycling loop is established, in which waste plastic is collected from plants, converted into oil and resin, molded by converters, and manufactured into final products by the brand owner.



Joint project with Mitsui & Co., Ltd. and SEVEN-ELEVEN JAPAN CO., LTD.

Waste plastic discharged at convenience stores at Expo 2025 Osaka, Kansai, Japan was sorted by an industrial waste management company, and then converted into oil to produce various plastic products.



Waste collection box

Polypropylene products derived from waste plastics

- **Started manufacturing and marketing polyolefin derived from chemical recycling and material recycling in 2025**
- **Also started marketing polypropylene and polyethylene derived from biomass. Furthermore, examined the commercialization of polypropylene produced using CO₂ and green hydrogen as raw materials. Currently working to expand our product lineup.**



■ Adopted by ALBION Co., Ltd. for its FLARUNÉ line cosmetics containers

- Established a closed-loop system that used waste plastic from ALBION plants as a raw material
- Due to its quality comparable to virgin PP, the recycled PP enabled ALBION to meet the high aesthetic and safety standards required for cosmetics containers.



■ Adopted for the interior components of mibot®, a small mobility robot developed by KG Motors Inc.

- Contains 25% post-consumer recycled (PCR) PP
- Achieved quality comparable to virgin PP by leveraging material design technology



REFINVERSE Group, Inc.

Mitsubishi Chemical Corporation

Japan Polypropylene Corporation

Yoshino Kogyosho Co., Ltd.



Examples of waste materials at Albion's Kumagaya Plant



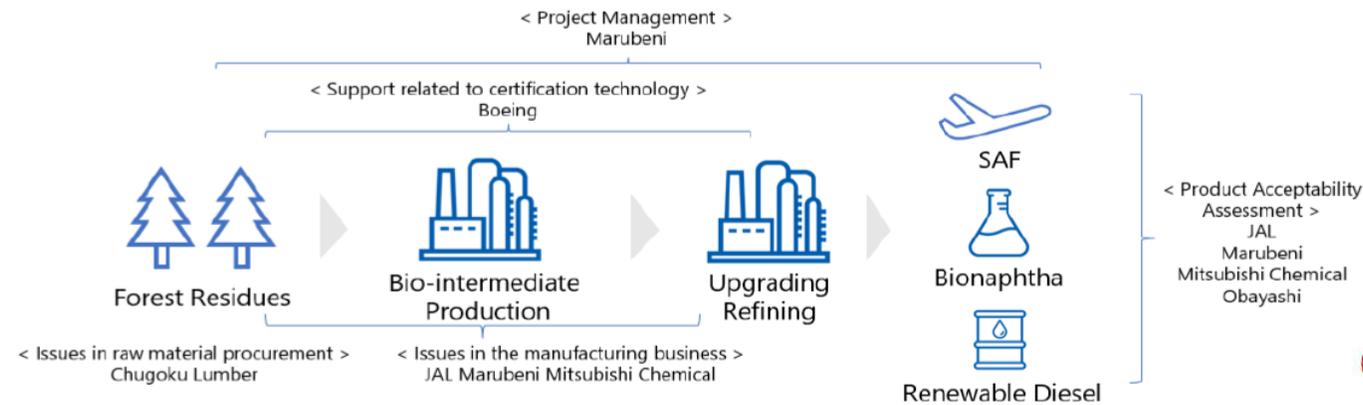
ALBION



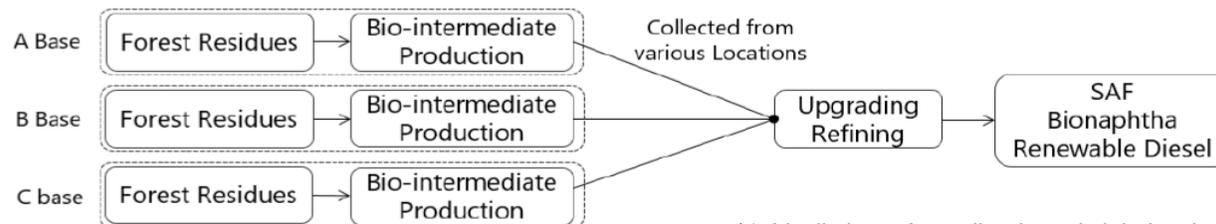
Creating Bio-Naphtha Business by Using Domestic Forest Resources

- Six companies, including MCG, signed a memorandum of understanding on a preliminary business feasibility study for the manufacture and sale of sustainable aviation fuel (SAF), bio-naphtha, and renewable diesel from domestic forest residues
- Envisions the potential use of the advanced technology developed by Licella*1 (Australia) to produce bio-intermediate from domestic wood residues, which will then be used for making products such as SAF, bio-naphtha, and renewable diesel towards the building of a domestic supply chain based on a model in which locally produced products are locally consumed.
- With the aim of commercializing the product by around 2030, the feasibility study is underway, involving assessing the economic viability of the business; considering the raw material supply and processing system, as well as the manufacturing process; and evaluating product logistics and effectiveness in reducing CO₂ emissions.
- The six companies will combine their expertise to produce sustainable products in Japan; create new industries that utilize forest resources; and promote regional revitalization. In addition, by enhancing the circulation of forest resources, they aim to help resolve Japan's forestry challenges.

< Projected design for the Pre-Feasibility Study >



< Future Vision > Aiming to utilize forest residues in various regions of Japan through a hub-and-spoke approach



*1. Licella is an Australian-based global technology pioneer delivering the next generation of low carbon solutions. Its patented Cat-HTR™ platform is the world's leading hydrothermal liquefaction (HTL) technology, using water to sustainably transform abundant waste feedstocks into an advanced bio-intermediate, upgraded to advanced biofuels, biomaterials and circular plastic through advanced recycling.

Contribution to the Realization of Customer Sustainability (CE/CN/NP) | Mobility

Market trends

- **Expansion of next-generation mobility (EVs, FCEVs, etc.)**
 - Increasing demand for **vehicle weight reduction**: Approx. 23% increase in weight due to installation of large-capacity batteries, etc.
 - Trend toward **stricter fuel efficiency standards**:
Japan's FY2030 average fuel efficiency target is 25.4 km/L (passenger vehicles), with EVs and PHEVs newly included*1
- **Expansion of advanced driver assistance and autonomous driving systems**
 - Expansion of global market size (based on number of new vehicles equipped in 2030):
Level 2/2+ → 52.79 million, Level 3 → 3.37 million, Level 4 → 0.8 million*2
 - Advancement of collision avoidance technologies: **Expanding application areas for plastic materials**

Product overview

▪ Product lineup contributing to process reduction through paint-free solutions and the associated reduction in energy consumption, as well as VOC reduction

- **FUNCSTER™: High-performance long glass fiber reinforced thermoplastic resin**
 - A lightweight, high-rigidity material with high strength, high flowability, and excellent appearance
 - Strength is approximately three times that of steel, enabling **20-40% weight reduction of components**
- **DURABIO™: Plant-derived transparent engineering plastic**
 - In addition to excellent impact resistance, it achieves a glossy design appearance



BMW Kidney Grille Surround (© Image Credit: BMW Group)

▪ Growth strategy of polymer compounds for the mobility sector

- Integrate development, sales, and marketing by quickly approaching markets with high-potential needs Strengthen customer engagement
- Expand the sales of PP compounds overseas (increase production lines in North America and India)
- Expand sales by enhancing technical development foundations (establishment of a China Development & Marketing Center)
- Increase market share among non-Japanese automakers, including Chinese automakers

*1. Sources: Japan Automobile Manufacturers Association https://www.jama.or.jp/operation/ecology/fuel_efficiency/index.html

*2. Sources: Yano Research Institute https://www.yano.co.jp/press-release/show/press_id/3693

Contribution to the Realization of Customer Sustainability (CE/CN/NP) | Advancement of Data Processing and Communications

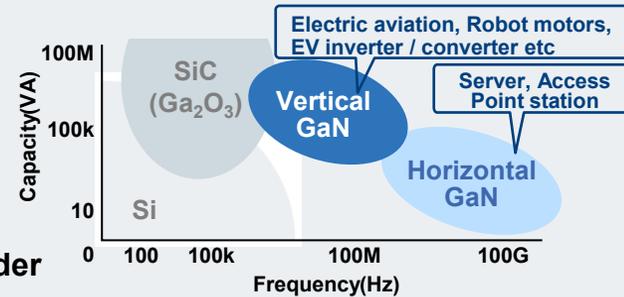
Market trends

- **Dramatic increase in digital data usage (data centers)**
 - Expansion of the GaN power semiconductor market size: JPY 7.4 billion in 2023 → Forecast JPY 267.4 billion in 2035 (36 times compared to 2023)*¹
 - Increasing demand for high efficiency and energy saving: Substitution from silicon to GaN (significant reduction in power consumption), etc.
- **Energy and resource savings across the entire semiconductor manufacturing process**
 - Growing demand for energy saving in the production of ultrapure water and chemicals, and for cleaning that removes impurities with high precision and high efficiency

Product overview

➤ GaN substrates: Substrates for power semiconductors and light-emitting devices

- Achieving lower costs and larger diameters through high-quality GaN single-crystal substrate manufacturing technology
- Under development for GaN-on-GaN^{*2} devices compatible with both vertical and lateral types
- Expanding into high-output, high-value-added applications that leverage the characteristics of vertical types



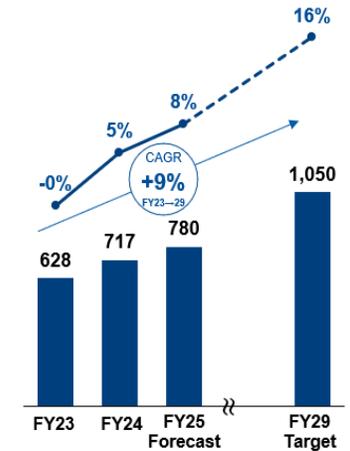
➤ Mitsubishi Synthetic Quartz™: Ultra-high-purity synthetic quartz powder

- An essential material for semiconductor manufacturing with increasing integration, produced through an integrated process from raw materials
- Expanding production capacity to meet growing demand (Fukuoka, FY2028)
- Global market share 100%*³ (for 300 mm wafer production applications)

➤ Precision cleaning services: Certified precision cleaning services for cutting-edge devices

- Providing cleaning services tailored to regional and customer characteristics under a global framework
- Constructing new plants and expanding capacity to meet increasing demand (Fukushima and Iwate, FY2026)
- Global market share No.1*³ in Japan/Asia and Europe

Sales revenue (Oku yen) and COI %



■ Semiconductors sales
 — Semiconductors core operating income margin
 (Breakdown figures of segment are approximation for reference purpose only.)



*1. Fuji Keizai Group Report 2024

*2. Competitors' substrates (GaN-on-SiC, GaN-on-Si) are not applicable to vertical configuration.

*3. Estimated by our company for FY24

Contribution to the Realization of Customer Sustainability (CE/CN/NP) | Maintaining Food Quality

Market trends

- **Addressing the global food supply-demand gap**
 - Demand for processed foods is increasing against the backdrop of global population growth and economic development
 - Approx. 1 billion tons of food are wasted annually worldwide*1. Meanwhile, about 9% of the world's population suffers from hunger*2
- **Growing demand for freshness preservation due to urbanization and the expansion of e-commerce and home delivery markets**
 - Increasing demand for quality preservation solutions and antioxidant materials that enable longer food storage periods while resolving the trade-off with quality*3

Product overview

- **Emulsifier Ryoto™ Sugar Ester: Plant-derived emulsifier**
 - Stably disperses water and oil to stabilize food quality, appearance, and texture
 - Contributes to both food deliciousness and safety as well as extended shelf life
 - Global market share approx. 70%*4, U.S. Processed food market CAGR (CY25-29) +4%*4
- **Soarnol™: EVOH resin with high gas barrier properties**
 - Used in food packaging to contribute to longer food life (approx. 40,000 times the gas barrier performance of PP)
 - Global market share approx. 35%*4, EVOH market CAGR(FY24-29) +6%*4
- **DIAMIRON™: Unstretched multilayer film used for food packaging and other applications**
 - Enables flexible combination of functions such as gas barrier properties, easy-open features, and high heat resistance in a single film
 - Promoting development of resealable applications to further contribute to food waste reduction

- DIAMIRON™, featuring resealable functionality, is used in the packaging material for Loin Prosciutto by Prima Meat Packers, Ltd.



Source: Prima Meat Packers, Ltd Web site

*1. Source: UNEP Food Waste Index Report 2024

*2. Source: WFP <https://www.wfp.org/ending-hunger>

*3. Source: FAO https://www.fao.org/japan/resources/fao-publications/pub-289149/jp?utm_source=chatgpt.com

*4. Estimated by our company for FY24

*5. Source: Prima Meat Packers, Ltd Web site <https://www.primaham.co.jp/products/detail/0009.html>

Contribution to the Realization of Customer Sustainability (CE/CN/NP) | Technologies and Equipment Required for New Treatments

Market trends

- **Extension of healthy life expectancy / advancement of medical technology**
 - **Total knee replacement surgeries in Japan**
Approx. 90,000 cases, an increase of about 29% from 2020 to 2023*1, with a projected annual increase of 3–5% toward 2030
 - Growing demand for materials with **enhanced durability that suppress wear and deterioration**
- **Future initiatives toward resource circulation**
 - A large amount of plastic is used in the manufacturing and distribution processes of medical devices and pharmaceuticals, and expectations for chemical recycling technologies are also increasing.

Product overview

- **Provision of high-performance plastic components for artificial joints and other applications (leading supplier with approx. 50% share*2)**
- **Ultra-high molecular weight polyethylene materials (Product names: Chirulen™, Extrulen™)**
 - Used mainly in artificial hip and knee joints
- **Polyether ether ketone (PEEK) materials (Product name: Zenvia®)**
 - Used in spinal fixation cages, suture anchors, etc.
- **Supporting the shortening of development periods for medical device manufacturers by providing regulatory compliance and safety data at the material stage.**
 - Quality control and biological safety evaluation in compliance with international standards



Zenvia®
Material for machining



Chirulen™
Processing examples
Artificial knee joint liner

*1. Japanese Society for Replacement Arthroplasty Registry

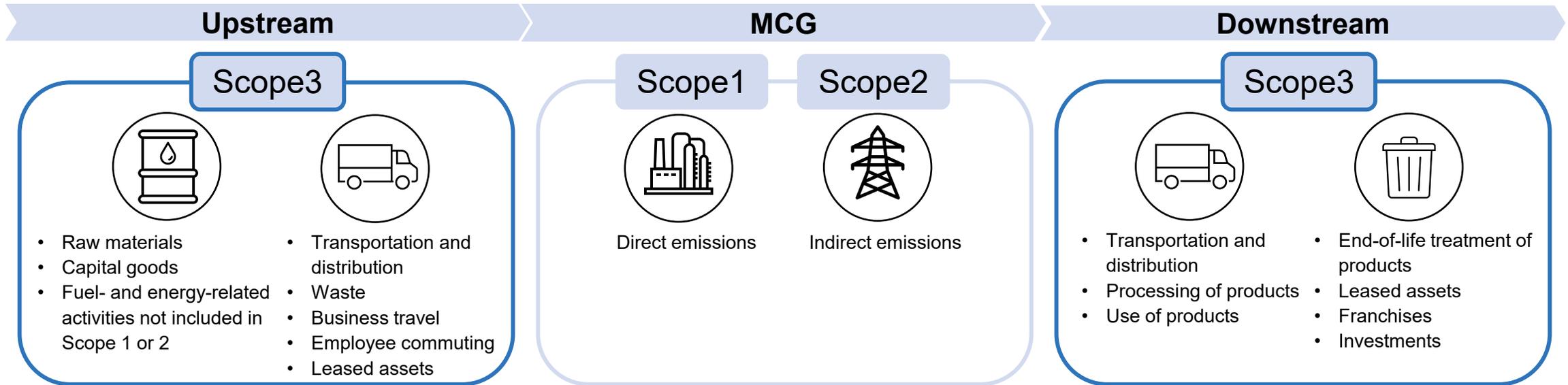
*2. Estimated by our company for FY24 (resin materials for spinal fixation cages and artificial hip/knee joint replacement implants)



Appendix

About Scope3

- Scope3 supply chain emissions are divided into 15 “upstream” and “downstream” categories stipulated by the GHG Protocol
- Scope3 emissions accounted for 40962 ktCO₂e. Categories 1, 11, and 12 accounted for 86% of total Scope3 emissions (FY2024 results)



Scope3: 40,962 ktCO₂e (FY2024)

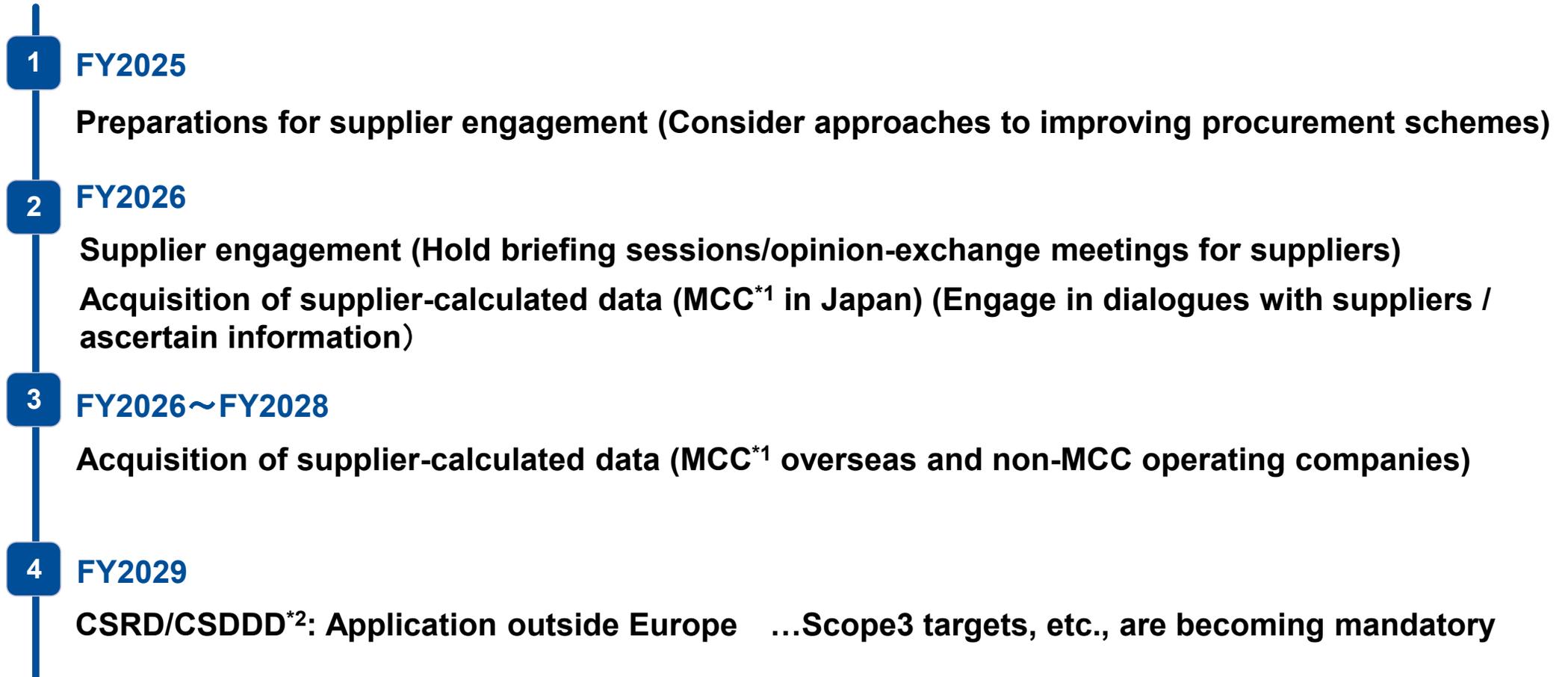


Scope3: 29,651 ktCO₂e (Estimate for post-discontinuation of production at AMEC*1 and coke production)



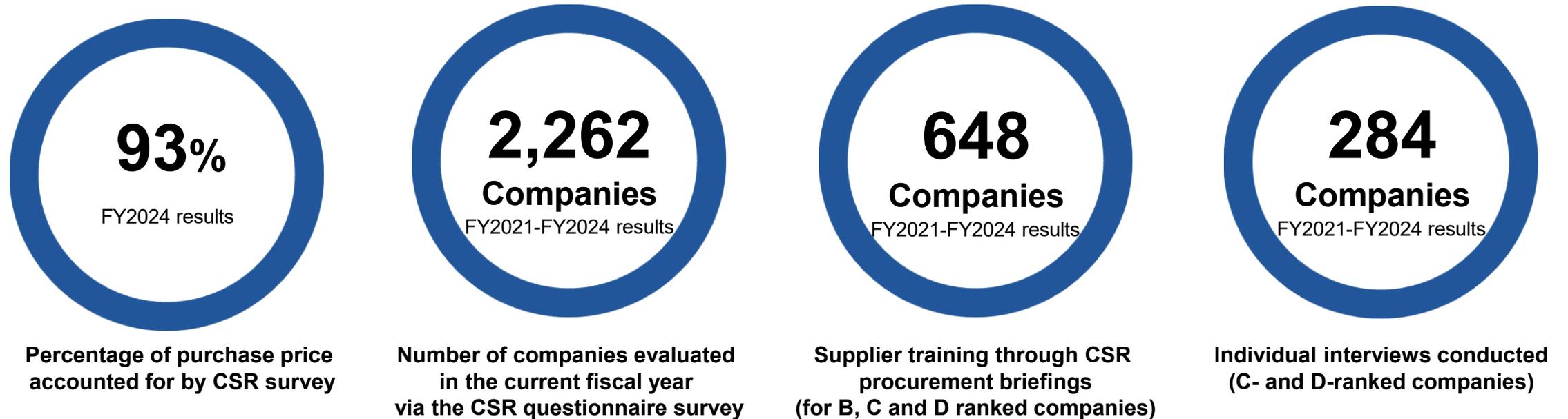
Action Plan for Scope3 Category1 Reduction and Sustainable Procurement

- To reduce Category 1 emissions, supplier-calculated data rather than the current secondary data needs to be used when measuring emissions intensity.
- We aim to reduce GHG emissions throughout the supply chain by sharing and supporting suppliers' efforts to further reduce GHG emissions.



Sustainability Procurement Activities

We conducted a CSR questionnaire survey of our major business partners, analyzed the results, and classified the companies into four ranks (A to D) in accordance with their initiatives on ESG-related issues.



*CSR questionnaire survey ranks and definitions

- A: Suppliers who have made sufficient efforts and are considered unlikely to commit acts adversely affecting human rights
- B: Suppliers who have made certain efforts but needs further continuous improvements
- C: Suppliers who have made effort, but are considered to have some concerns
- D: Suppliers considered whose efforts are not enough and whose status we would like to check

Disclaimer

The forward-looking statements*¹ are based largely on company expectations and information available as of the date hereof, and are subject to risks and uncertainties, which may be beyond company control.

The Group is engaged in a very diverse range of businesses, including various functional products, MMA, petrochemicals, carbon products, and industrial gases, and its performance may be affected by domestic and international demand, exchange rates, prices and procurement volumes of raw materials and fuels such as naphtha and crude oil, product market trends, speed of technological innovation, product liability, litigation, legal regulations, etc. The Company's business performance may be affected by such factors. However, factors that may affect our business performance are not limited to these factors.

All figures in this material have been rounded and all forecasts are approximate.

*1. For the purpose of this notice, "statements" means this document, any oral presentation, any question and answer session and any written or oral material discussed or distributed by Mitsubishi Chemical Group.