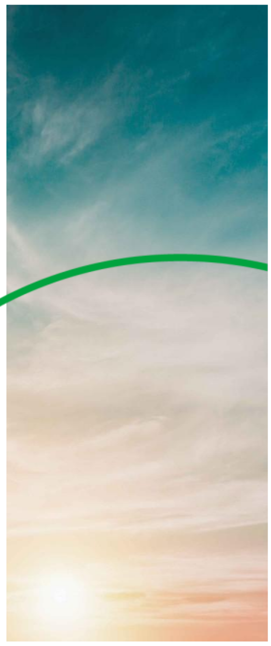
Mitsubishi Chemical Group

Sustainability Briefing 2026



February 25, 2026

Mitsubishi Chemical Group Corporation (MCG)
Executive Officer,Chief Sustainability Officer
Noriyuki Mita

Thank you for the introduction. I am Mita. It is a pleasure to be here today. Thank you very much for joining us for this sustainability briefing session.

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First, I would like to explain MCG's approach to sustainability and green chemicals, starting from the perspective of how sustainability initiatives are evolving globally and how we view these trends as a company.

Global Sustainability Trends

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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)

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Looking at the global trends, some say that sustainability initiatives may stall in the future. We believe it is crucial to establish a fundamental perspective on how we should respond under such circumstances, so I would like to start from there.

As many of you have pointed out, it is true that the situation surrounding sustainability has become increasingly uncertain. Looking at the U.S., for example, there is a view that sustainability initiatives may stall under the Trump administration. However, we believe it is more accurate to view the U.S. as being divided into two societies and two markets. On one side are those who are proactively driving sustainability initiatives, such as people on the East Coast and West Coast. On the other side are those in the Rust Belt who take a different view on these issues. These two groups are roughly the same size. While politics may swing from left to right or vice versa, we believe that both sides continue to advance their respective perspectives and policies.

Therefore, although there may be some policy shifts associated with changes in administration, both sides will continue to move forward. Especially in the U.S., sustainability initiatives are driven more by market forces than by policy, with capital markets, product markets, and labor markets playing the central role. Sustainability initiatives accelerated rapidly under the Biden administration. However, we believe the situation has now returned to the traditional pattern, meaning that progress continues gradually, led by market forces.

Meanwhile, Europe sought to rapidly advance policy-led sustainability initiatives. However, this has in some cases weakened the competitiveness of European industries. As a result, the focus has now shifted toward balancing sustainability with industrial competitiveness. However, this does not mean that Europe has lowered its green ambitions. Their direction remains unchanged. They are simply adjusting timelines and fine-tuning the details. In that sense, while sustainability initiatives in both the U.S. and Europe are likely to progress over the long term, we believe they are currently in an adjustment phase.

In the meantime, China has been actively promoting sustainability initiatives, particularly in the energy sector. In addition to solar panels, batteries, and EVs, renewable energy has been rapidly increasing in recent years. Half of China’s electricity is generated from renewable energy. In the past year alone, China added renewable energy capacity exceeding that of Japan’s total energy capacity. Furthermore, China has recently entered into fields such as methanol fuel. As this is a field closely related to green chemicals, we believe it is only a matter of time before it expands into the field of green chemicals as well.

Against this backdrop, the global landscape is no longer one where all countries move toward the same direction under a unified framework such as COP. Instead, approaches vary by country, creating a patchwork landscape, where short-term prospects remain uncertain but initiatives will progress over the long term. Under these circumstances, we see China advancing at a rapid pace.

In addition, the driving forces behind sustainability initiatives are also changing. To put it simply, we believe we have moved from an era driven by goodwill to an era shaped by security agendas. The concept is that sustainability initiatives can help address shortages of resources and energy, enhance self-reliance, and strengthen supply chain resilience. In a sense, carbon neutrality can serve as a self-reliant energy source, and by circulating resources through a circular economy, sustainability will be enhanced as a security agenda in a different sense. At the same time, the public continues to support sustainability initiatives, as it recognizes the environmental threats.

In summary, we believe that sustainability, decarbonation and circularity initiatives have increasingly been promoted as competitiveness and security agendas.

Long-term Decarbonation and Circularity Strategy

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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	● Supply CN energy ● Contribute to customers' energy conservation and fuel transition efforts ● Supply low carbon-footprint products	● Procure CN energy (fuel transition) ● Energy conservation (process transition) and reducing activity ● Procure low carbon-footprint products
CE	Resource efficiency, securing resources	● Supply components and materials for CE (recycled materials) ● Contribute to customers' CE-based processes ● CE-based business models (establish supply chain)	● Procure components and materials for CE ● Switch to CE-based processes (sharing, reusing waste, etc.)

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Under these circumstances, the question is how we, as the chemical industry, should respond. We believe that social and customer needs will remain a part of the security and energy/resources agenda. It is therefore important for us to respond to these needs appropriately. To remain competitive, we need to capture these needs as one of the sources of our competitive advantage—though not the only source— and address such needs. There are two key points. The first is to consistently meet diverse needs through the functions our products and services provide. The second is to transition away from fossil materials.

Looking at this from a time perspective, at present, we have our technologies, advantages in developed markets, and existing supply chains. Given the rapid and remarkable speed of development in competing countries, it is crucial that we leverage our existing strengths to stay ahead. In particular, from the perspective of security, it is essential to stay ahead of the curve.

At the bottom of the slide, there is a table showing our strategy based on the demand side and the supply side. In the past, the focus of our discussions was on the demand side, such as switching energy sources, reducing GHG emissions by ceasing certain activities in some cases, and increasing the use of recycled materials. However, in order to meet those needs, we must also take action on the supply side. In other words, just as the energy industry supplies carbon-neutral (CN) energy, we must expand our business of supplying recycled materials to contribute to our customers. By doing so, we will address those needs from the supply side while advancing the transition of our raw materials.

Long-term Decarbonation and Circularity Strategy

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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 chaindelivers business value
- Collaboration between upstream and downstreamindustries 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

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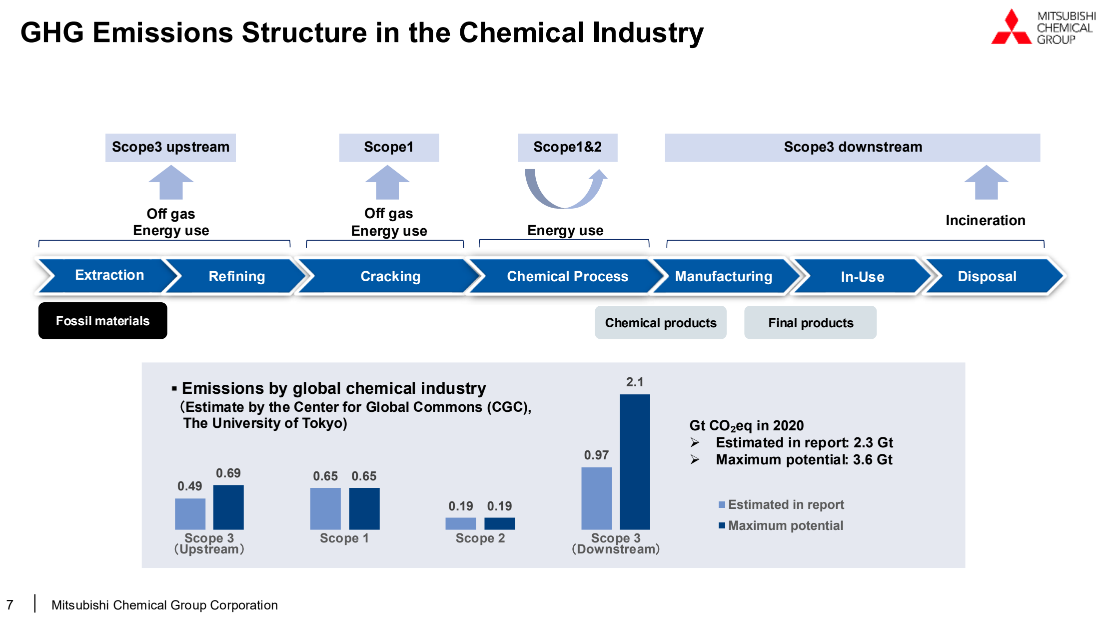
However, as I mentioned earlier, this will take a considerable amount of time. The market has not yet fully matured and is only just beginning to take shape. Therefore, I believe we need to maintain three key principles. First, we must maintain a long-term vision and avoid focusing too much on short-term trends. Second, we need to consider the time axis. It is unrealistic to do everything at once from the start. Third, we must prioritize initiatives that are profitable, in other words, those that offer economic viability and competitive advantage, and start with those initiatives. At the same time, for initiatives that could become a source of our competitive advantage in the long term, we need to take proactive steps early on. In that sense, we are also mindful of maintaining our competitive advantage over other countries.

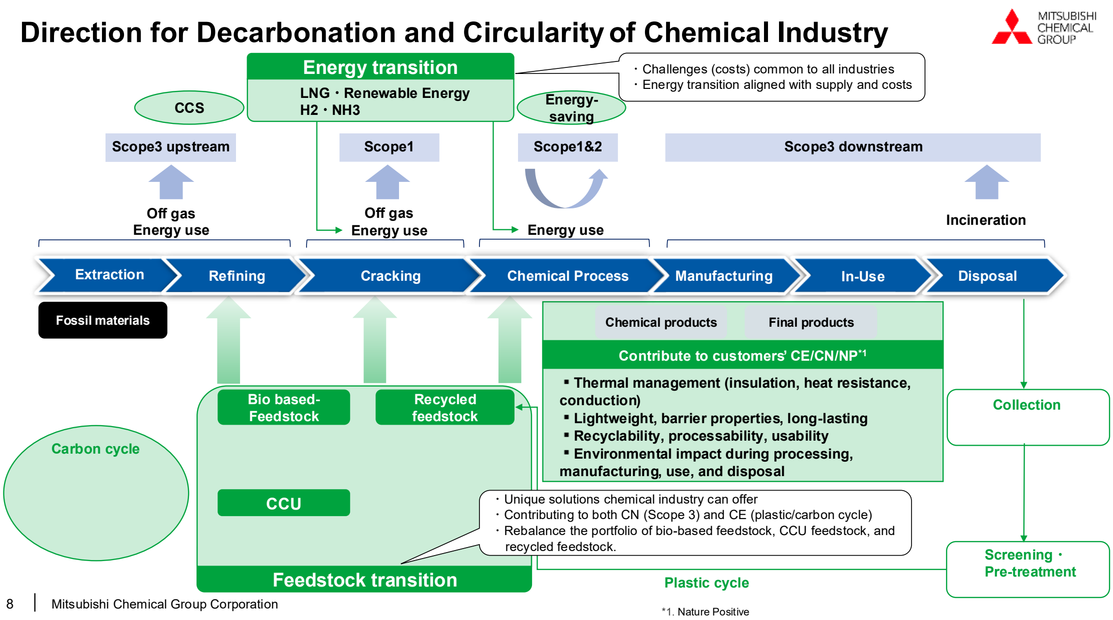
In addition, I believe there are two important points when advancing decarbonation and circularity. The first point is that, in our business, we need to look at the entire supply chain. Traditionally, our business has been to provide materials to our direct customers. However, the value created through decarbonation and circularity is not limited to the value delivered to our immediate downstream customers. For example, value can also be delivered further downstream, to brand owners, distributors, consumers, and ultimately to society as a whole, through the waste value chain. Consequently, we need to shift toward a business model that takes into account the entire supply chain, and work with all stakeholders across that supply chain.

The second point is that, in order to provide value through our supply chain, it is essential to properly monitor data and visualize our performance and value. We can then improve our internal processes and utilize such data externally. With regard to our own data, our plan is to make data-driven decisions, just as we do with our financial data. Furthermore, we must determine how we share and track data across the entire supply chain. I believe this is something we must do as we move forward.



Next, let's look at our GHG emissions structure. If we focus on the emissions within the chemical industry, GHG is emitted directly from energy consumption in crackers and chemical processes. In other words, our GHG emissions are directly associated with energy consumption.

However, if we look at the entire supply chain, there are Scope 3 (upstream) emissions associated with the extraction and refining of the fossil materials we use. Furthermore, as these materials are processed, used, and eventually disposed of, the amount of Scope 3 (downstream) emissions increases, particularly in the combustion stage. An analysis by the University of Tokyo indicates that Scope 3 emissions are significantly higher than Scope 1 and 2 emissions.



Next, I would like to explain our approach to the GHG issue. First, we will work on reducing the GHG emissions we generate. To achieve this, we will steadily advance energy-saving measures while also transitioning our energy sources. Specifically, this means switching to lower-carbon energy sources such as LNG, or decarbonized energy sources such as renewable energy, hydrogen, and ammonia.

We believe this is not an issue unique to the chemical industry, but rather a challenge shared by all industries. Furthermore, the situation surrounding these energy sources changes greatly depending on access to their supply and their prices. In that sense, there are external factors that influence this transition. Therefore, we need to advance the transition while adjusting to those trends.

On the other hand, from the perspective of the added value of our business, we believe the initiatives shown at the bottom of the slide are even more critical. One of these initiatives is feedstock transition. Currently, we use fossil materials, but we will transition away from them by shifting to natural carbon sources, such as bio-based feedstock and CCU, or by recycling and circulating our products and plastics. Feedstock transition contributes to the reduction of Scope 3 emissions from a carbon neutrality perspective, and at the same time supports the circular economy, or the carbon and plastic cycles. We believe this is a unique solution that the chemical industry can offer.

At this point, we have not narrowed down to just one of these three approaches—bio-based, recycling, or CCU. Instead, the portfolio will evolve over the long term. For example, while the transition to CCU will occur over the long-term toward 2050 or 2060, as a preliminary phase, we anticipate that bio-based and recycled feedstock will gradually increase through the 2030s and 2040s. As the portfolio evolves in this way, we believe it is important for us to secure all of these three routes. This is our approach to feedstock transition.

Another key point is how our products, through their various functions, can contribute to downstream manufacturers and consumers, and ultimately help solve issues seen in a disposal-oriented society. For example, our products have a wide range of characteristics, such as managing heat to contribute to energy saving, reducing product weight, enhancing barrier performance, extending product life, improving recyclability, achieving easier processing, and reducing environmental impact during use. We believe it is important for us to appropriately deliver the value of sustainability to our customers through the functions of our products and services. In the near term, I believe this is the area that will contribute most to our earnings.

Today, I will first explain our efforts to reduce GHG emissions through energy transition, and then move on to discuss these two areas.

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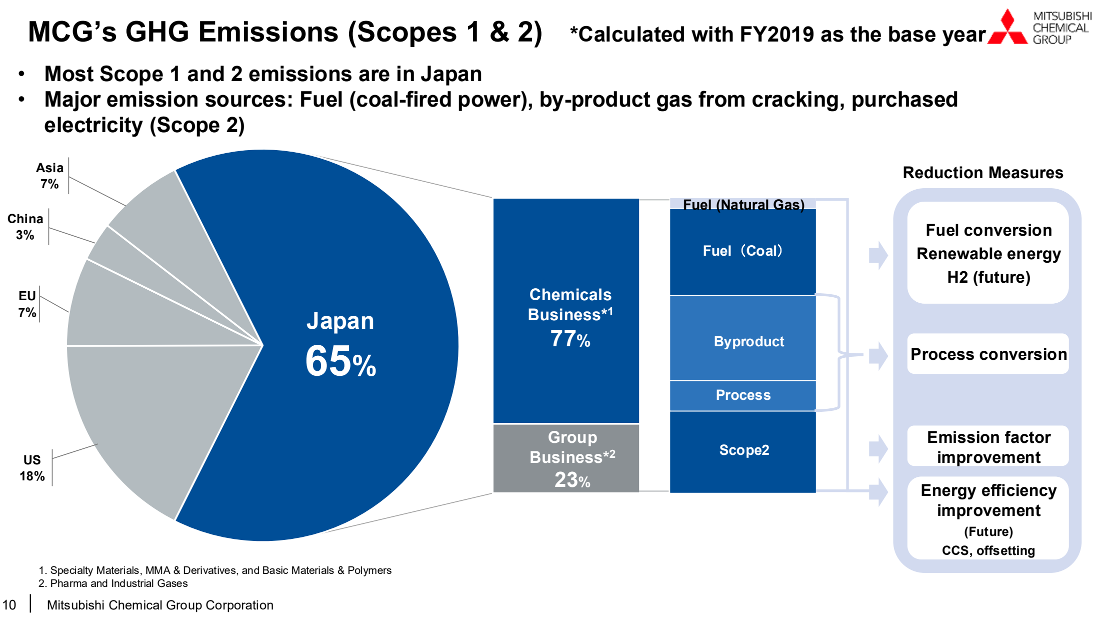
First, I will explain our efforts to reduce GHG emissions.



This slide shows our direct emissions, Scope 1 and 2, rather than Scope 3. These emissions primarily originate from our operations in Japan, mainly associated with our chemicals business.

Looking at the breakdown, emissions mainly consist of fuels used in our operations, by-product gases generated from crackers, various gases emitted from processes, and Scope 2 emissions from the use of electricity.

Accordingly, we need to convert our fuels, change our processes, and improve the emission factor of electricity, in other words, the amount of GHG emitted per unit of power generated. Our GHG emissions will decrease not only through our efforts but also through the adoption of nuclear energy and renewable energy by power companies. In addition, we will continue to promote energy-saving measures. Through these measures, we will reduce our GHG emissions.

GHG Emissions Reduction Process（～FY2030）

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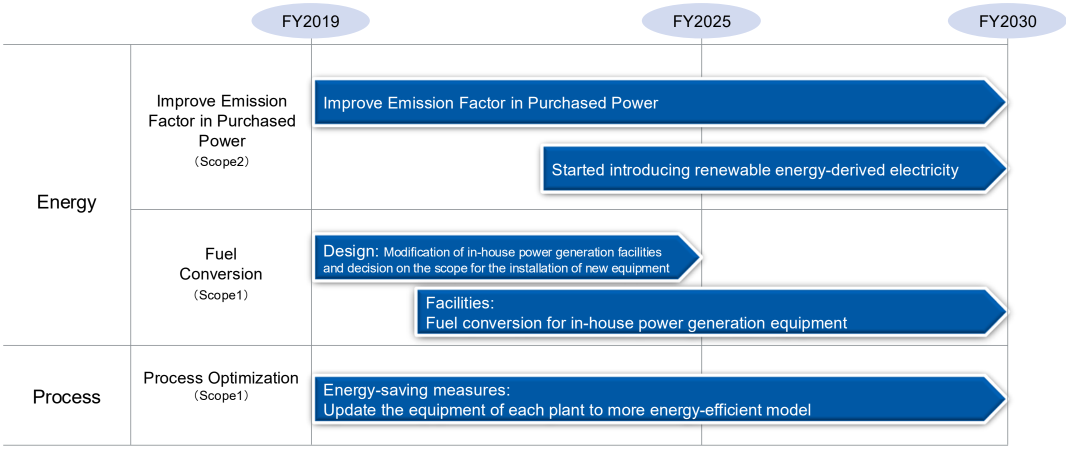
Proceed with the detailed design to convert fuel from coal to LNG by FY2025 and aim to complete coal phase-out by FY2030.



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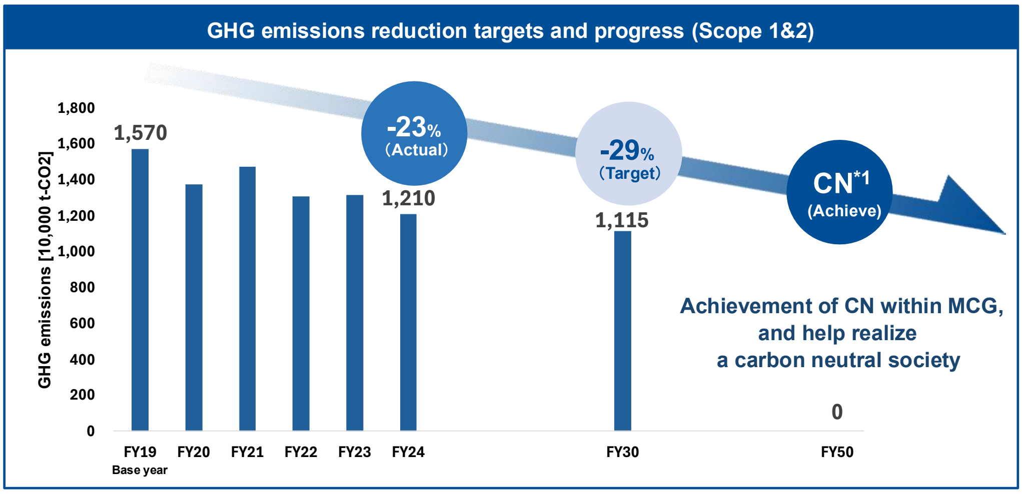
Next, let me explain our current initiatives. One of the initiatives is related to our energy sources, which is to improve the emission factor of our purchased electricity. As I mentioned earlier, while improvements made by power companies through the use of renewable energy, nuclear power, and LNG will partially contribute to improvements, we will also work to improve the emission factor of electricity by adopting renewable energy and installing solar panels.

In terms of fuel conversion, we will proceed by switching from coal-fired power to LNG and by expanding the use of electricity, in conjunction with our energy-saving measures. In addition to these initiatives, we believe that our emission levels may also fluctuate depending on factors such as business growth and business withdrawals.

GHG Emissions Reduction Target for FY2030



*1. Carbon Neutrality

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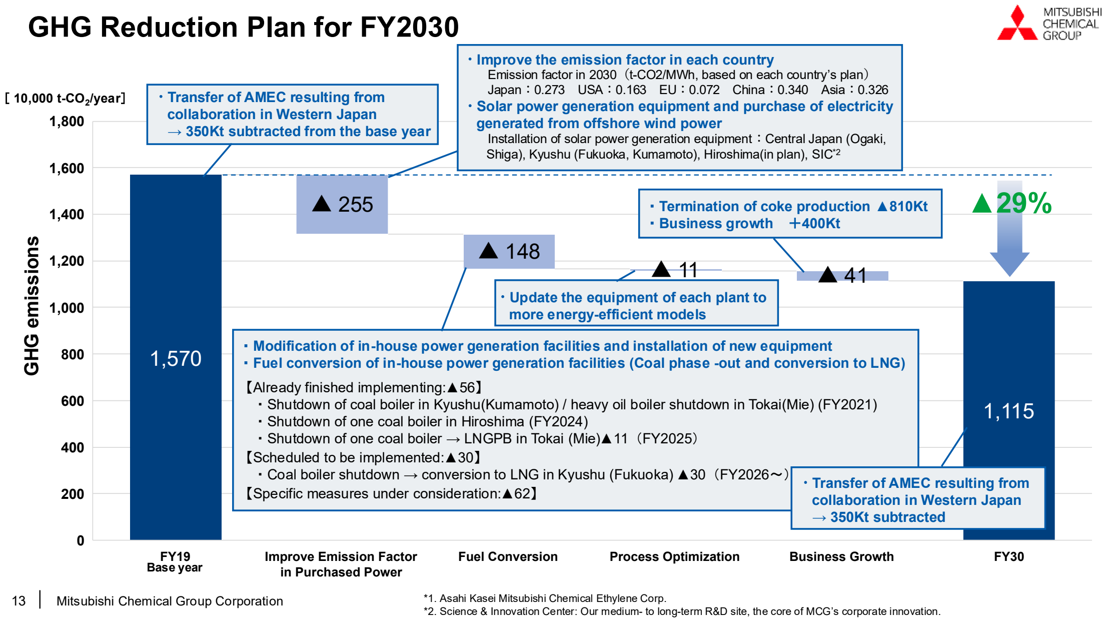
We have reassessed our 2030 projections to reflect the growth of new businesses, business withdrawals, and acquisitions and divestitures over the past two years. As a result, we are currently on track to achieve the target of a 29% reduction by 2030.

Our 2024 data shows that we have already achieved a 23% reduction, and we intend to maintain this steady pace to achieve our target.



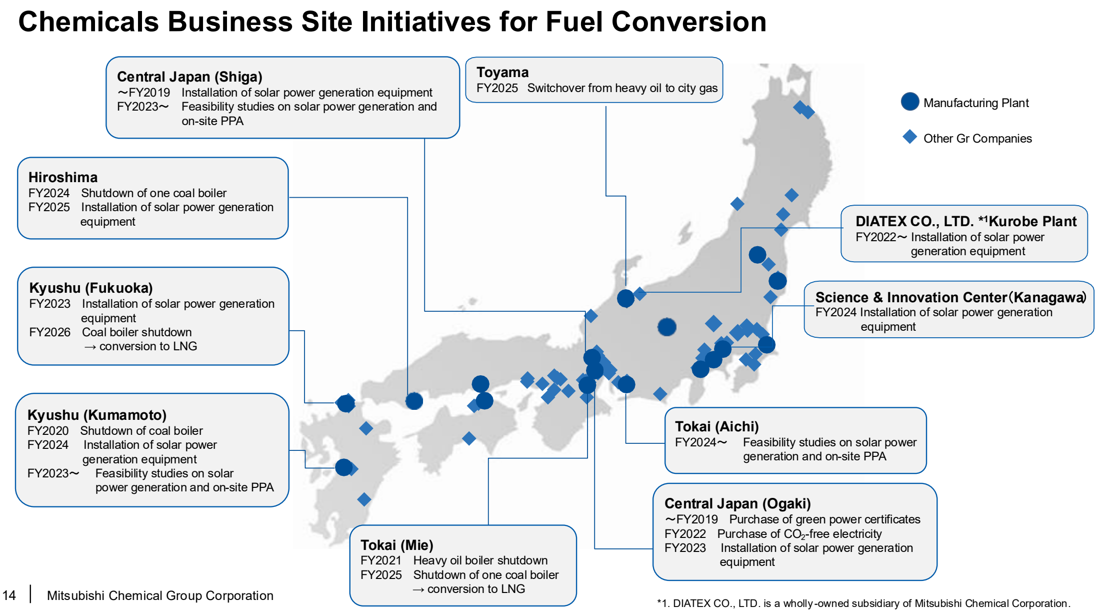
Let me explain the details in a little more depth. We often receive questions about how much emissions will be reduced through the recently announced restructuring of the ethylene production facility in Western Japan. So I would like to start with that topic. In fact, emissions from the ethylene facility subject to consolidation in Western Japan are subtracted from both the base year and the 2030 projection. This is due to the calculation rules. For example, if we acquire a business, we do not simply add emissions from the business. Instead, the emissions are treated as if the base-year emissions were acquired and consistently reflected, meaning that the emissions remain the same regardless of who owns the business. Therefore, when we acquire a business, emissions are added to both the base year and the future projection, and when we divest a business, emissions are deducted from both.

In the case of AMEC, the business itself will be transferred to a joint venture. Therefore, emissions will be subtracted from both years in accordance with these rules. On the other hand, the withdrawal from coke production will be completed within our company, the reduction resulting from the termination of production will be counted entirely as a decrease associated with business growth.

The figures shown here reflect a comprehensive examination of all these factors. First, with regard to emission factors, the reductions include those calculated using the electricity emission factors of each country, as well as additional reductions expected by 2030 through our own introduction of various types of renewable energy.

In terms of fuel conversion, we have already shut down several coal-fired units and replaced them with alternative fuel boilers, and we will continue to make such conversions. Furthermore, with several other shutdowns currently under consideration, we expect a reduction of 1.48 million tons. Regarding process optimization and business growth, while there will be reductions due to the termination of coke production, we must continue to grow. Including our business growth, the net reduction from business growth is 0.41 million tons. As a result, we are currently on track to achieve the target of a 29% reduction.

At the same time, since emission factors and the external environment may also change, we will continue to monitor the situation closely and assess whether additional measures are required as we move ahead.



These are our fuel conversion initiatives. At each site, we are proceeding with measures such as shutting down existing coal-fired boilers and introducing solar power generation.

Global Energy Transition Initiatives

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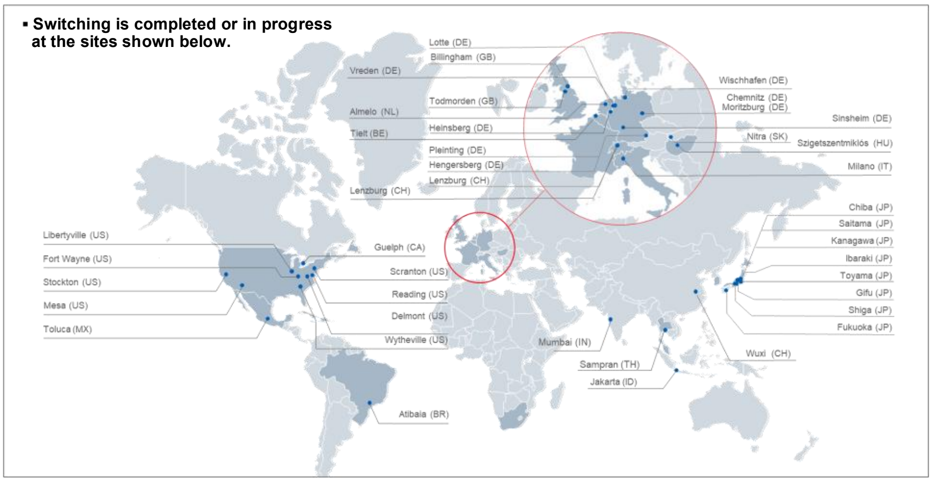
Transition to renewable energy (solar panels, renewable electricity) is underway mainly in Europe and the United states.



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We are also advancing the transition to renewable energy at our overseas sites. In Europe and the U.S., renewable electricity has become available at reasonably competitive prices, and many of our sites are therefore shifting to renewable electricity.

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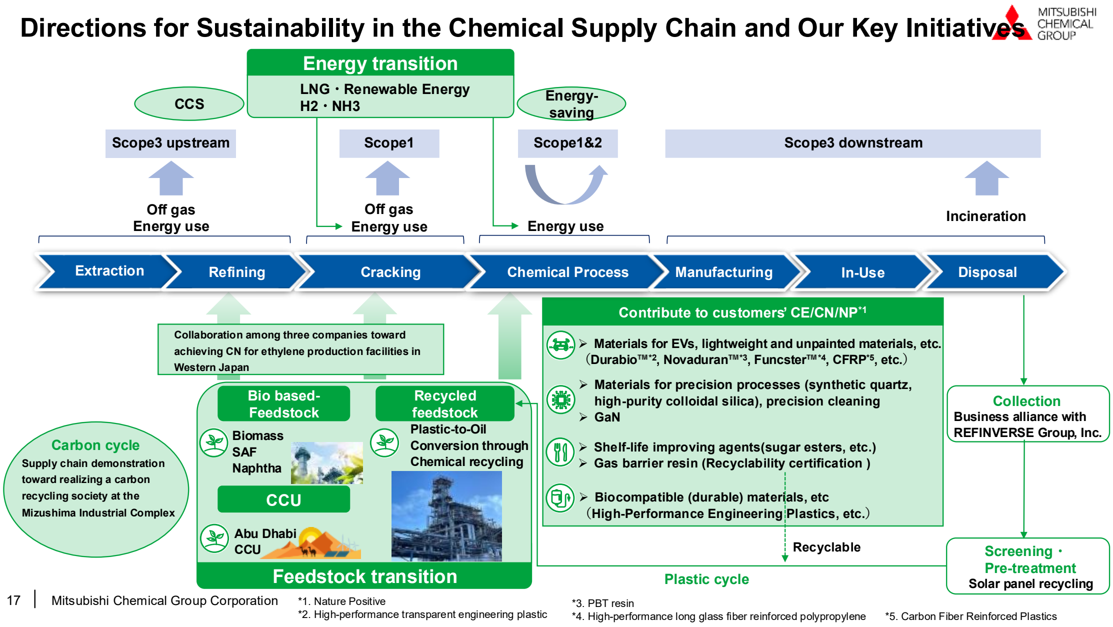
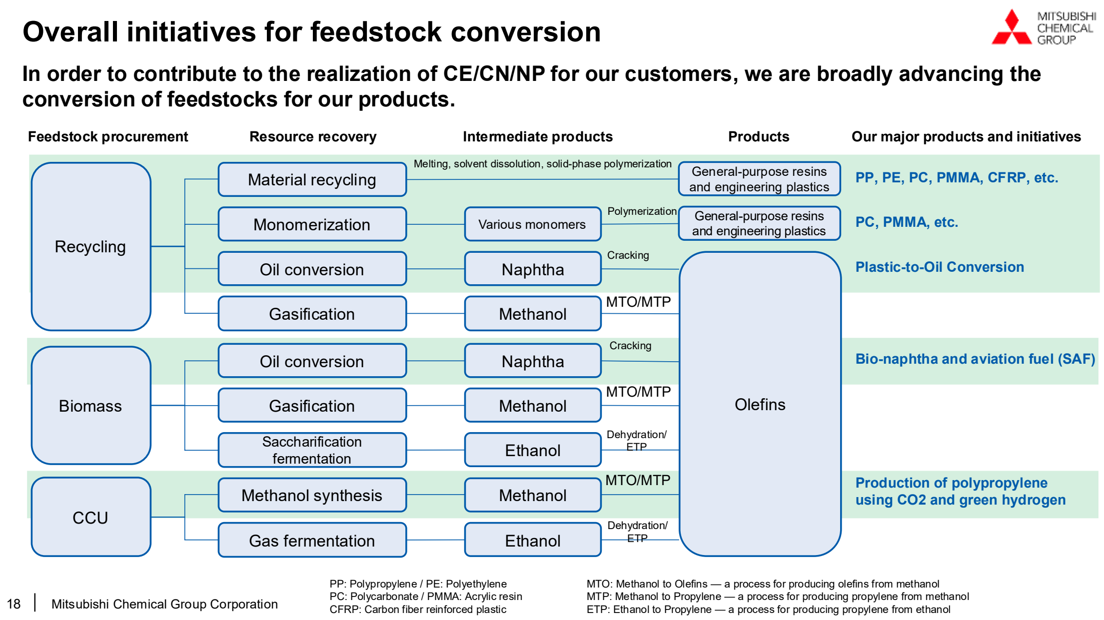
Next, I will explain how we aim to achieve business growth in the sustainability domain.



As I said earlier, our strategy is built on two pillars: feedstock transition and contributions to our customers. With regard to feedstock transition, we are advancing initiatives in three areas: bio-based feedstock, CCU (Carbon Capture and Utilization), and recycled feedstock.



I will show you a more detailed overview. For example, there are various approaches to recycling. At our company, we are already advancing initiatives for material recycling*, in other words, physically processing plastic waste to convert it into new raw materials or products without altering the chemical structure of the materials. We are also working on monomerization.

At the same time, we are currently proceeding with a project in Kashima to convert plastics back into basic chemicals through converting the waste plastic into oil. As you can see, we are combining multiple approaches. Material recycling* does not require a large amount of energy, but the resulting quality is not so high. With oil conversion, the quality of the resulting materials is almost equivalent to that of virgin materials, but it is more costly. Therefore, we combine these methods depending on the needs.

For using biomass as a raw material, there are also various technological approaches. Currently, we are promoting a project to convert biomass into naphtha, which has the highest compatibility with our existing processes, and turn it into SAF. For CCU, we are proceeding with methanol synthesis, for which we possess the necessary technology, and through this approach, we are promoting a project to produce polypropylene.

*The term “material recycling” is used here to mean “mechanical recycling”.

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

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With regard to chemical recycling, the construction of our chemical recycling plant has been completed, and its operation is scheduled to commence by the end of this fiscal year.

Also, we are looking into other biomass and CCU projects. For CCU, we are considering a project in Abu Dhabi to produce polypropylene using synthetic methanol produced from CO_2 and hydrogen (green hydrogen) generated using renewable energy-derived electricity. Along with these initiatives, at the Okayama Plant in Japan, we are conducting a demonstration project together with JFE Steel Corporation and Mitsubishi Gas Chemical Company, Inc. to convert gas generated during steel production into methanol, and then produce polypropylene and basic chemicals.

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

The construction of our chemical recycling plant was completed in July last year. Currently, it is probably one of the largest chemical recycling oil conversion plants in the world. However, compared with the production capacity of crackers, it is still very small. Therefore, we aim to gradually expand its capacity over time. First, we want to ensure stable operation of the plant at a small scale and establish it as a business.

During the construction of the plant, we acquired a wide range of technical know-how through various construction and engineering activities. Going forward, while operating the plant, we also intend to accumulate know-how, particularly on how to adjust the quality of naphtha and oil produced through recycling. Furthermore, it is essential to secure a stable supply of waste materials. As recycling progresses, competition for securing waste materials has become increasingly intense. For this reason, in launching this business, we secured stable procurement routes by collaborating with companies that handle waste materials in advance. Looking back, we now recognize how important it was to make such preparations in advance because securing waste materials remains a challenge.

Another issue is finding customers who are willing to accept products that are more costly than conventional virgin materials, and establishing a brand for such products. In this respect, customers who understand the value of these products are in many cases companies with consumer product brands and distribution companies, so by working together with these partners, we aim to establish the business successfully on a small scale first and then gradually expand it.

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

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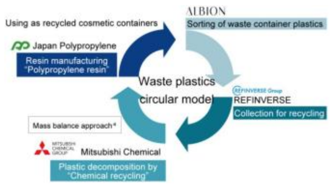
Pla-relay Project

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

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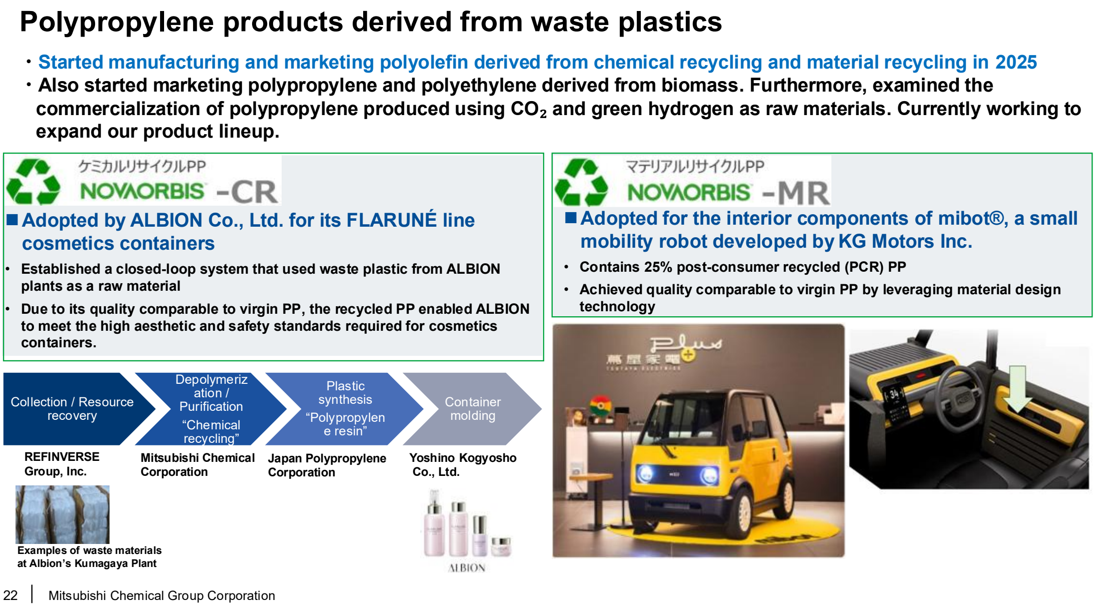
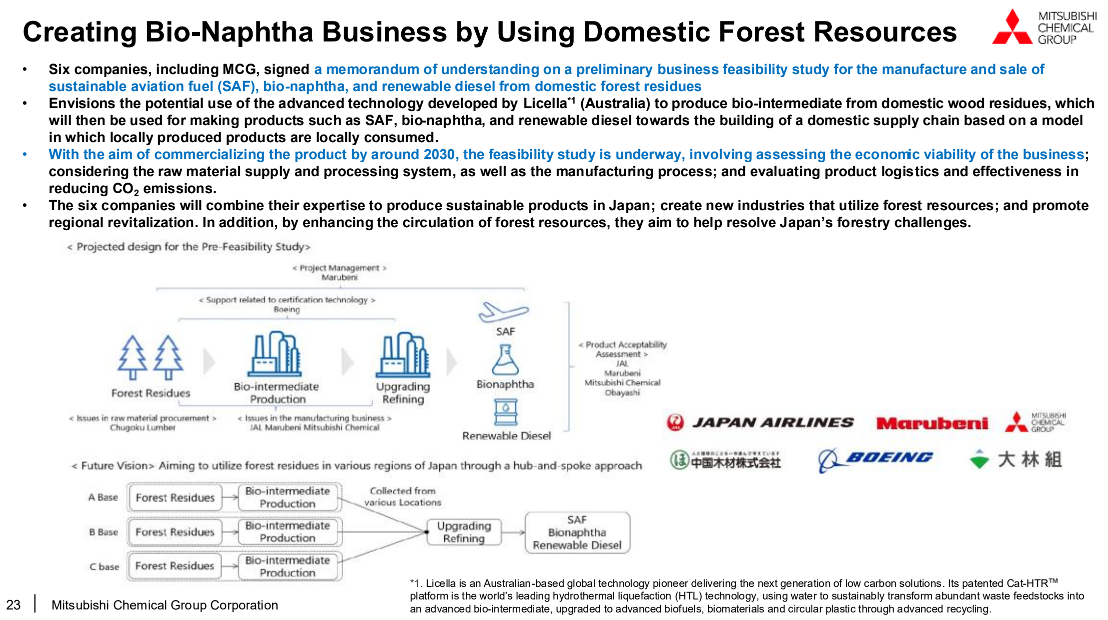
From this perspective, we are promoting various initiatives with our customers under what we call a “closed-loop” approach. This involves not only the customers who purchase our products, but also downstream stakeholders, especially consumers who use the final products, the businesses that distribute them, and those involved in waste collection. Together with these partners, we aim to build a system through which products, after being used and discarded, are returned for recycling.

Based on this concept, for example, the “Pla-relay Project” is underway in Ibaraki in collaboration with Kewpie Corporation and Kasumi Co., Ltd. We also collaborate with Albion Co., Ltd. in an initiative to utilize and circulate plastics generated as scrap from industrial products. Furthermore, we have also conducted a demonstration to reuse plastics that were used at the Expo 2025, Osaka, Kansai, Japan. By properly establishing a closed-loop and expanding the circle of customers who recognize and accept the value of these products, we aim to ensure that such products are gradually and steadily accepted.



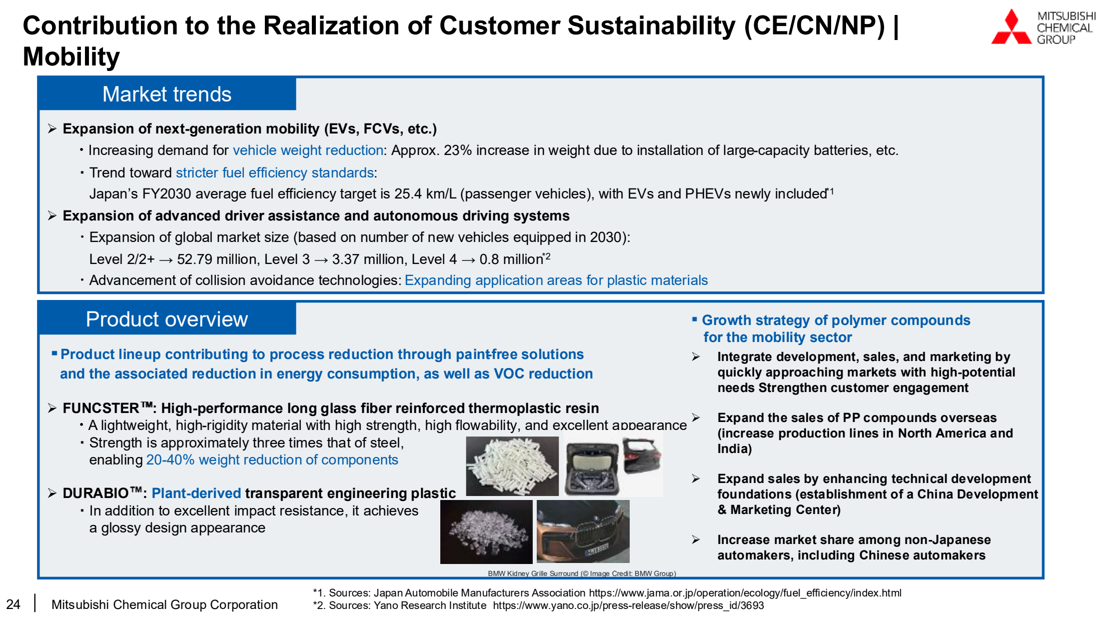
With regard to the recycling of waste plastics, we are pursuing feedstock conversion not only through chemical recycling, but also by combining material recycling* and bio-based feedstock. Under this initiative, we have launched and started selling a new polypropylene product line under the brand name NOVAORBIS™.

*The term “material recycling” is used here to mean “mechanical recycling”.



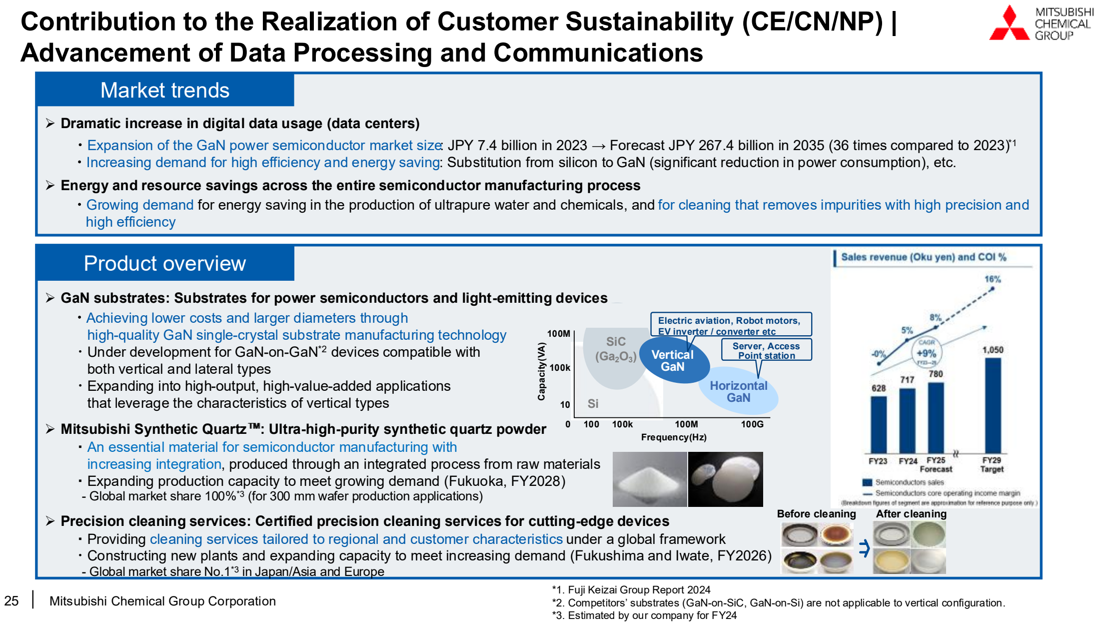
There are various options for procuring and utilizing bio-based feedstocks. For example, one option is to purchase bioethanol from Brazil. At the same time, based on the idea that bio-based resources are "resources of that region," we are also advancing initiatives to utilize domestic forest resources in Japan. Of course, using bio-based resources of overseas origin is a possible option, and my understanding is that we will basically adopt a combination of multiple approaches.

In this initiative, we place particular emphasis on effectively circulating domestic resources. At this point, there are a variety of potential applications for bio-based feedstock. However, for the foreseeable future, demand for Sustainable Aviation Fuel (SAF) is expected to be largest. Accordingly, while positioning SAF as the core application, we will need to adjust the product mix (product portfolio) of the business, considering combinations with SAF or renewable biodiesel, as necessary.



Finally, I would like to explain how we contribute to the sustainability of our customers. For example, it is widely recognized that insulation products can contribute to energy savings during its use phase. As a company that provides materials with such functions, we contribute to our customers, for example, by helping them reduce their GHG emissions, and this contribution turns into a business. In the course of formulating KAITEKI Vision 35 (KV35), we examined what we can do with our technologies and capabilities to address social issues and customer challenges, and we identified four focus areas in addition to Green Chemicals. KV35 provides the overall framework for how we respond to customers' sustainability needs through our business in these four focus areas. I believe our current challenge is identifying specific ways to move these initiatives forward.

The first area is next-generation mobility and EVs. The assumption is that these vehicles will become lighter and more fuel-efficient overall, and the use of plastics in autonomous vehicles will increase. Based on this assumption, we need to demonstrate how our materials can contribute to weight reduction, deliver superior strength and functionality, and provide additional value. FUNCSTER™ and DURABIO™, shown on this slide, provide a range of added value including process reduction and associated reduction in energy consumption, and VOC reduction during processing, as well as the incorporation of bio-based materials, and lighter weight. In the mobility sector in particular, we are examining how we can compete with lightweight plastics that are likely to emerge in the future.



The second area is data processing and communications. You can basically think of them as the semiconductor field. Demand for data centers will obviously increase with the growth of AI. In that sense, a growing amount of energy—including not only carbon-neutral energy but also nuclear power and fossil fuels—is required worldwide to support AI. While carbon-neutral energy is important, what may be even more important is how to use limited energy resources more efficiently and ensure that GHG emissions do not increase. From this perspective, we are pursuing two approaches. One is to explore how we can contribute to areas such as more efficient data processing and the utilization of heat generated in data centers. The other is to reduce the environmental impact of the semiconductor manufacturing process itself and the huge amount of energy used in that process.

The first approach is to improve the efficiency of the devices themselves. With a particular focus on power semiconductors, we are developing substrates mainly for vertical GaN for higher-efficiency devices. In addition to the laser field, we plan to expand their use to the power device field in the future.

At the same time, there are also initiatives that contribute to the manufacturing process for high-precision semiconductors. Synthetic quartz is used in crucibles for melting semiconductor materials and pulling out crystals. If the quality of the crucible is high, higher-purity semiconductors can be produced. As a result, higher-purity and higher-precision semiconductors can be produced, which contributes to energy saving. We believe our market share in this product is by far the largest in the world. We are currently expanding the production capacity at our Fukuoka Plant. So there are two ways to improve the quality of devices: one through materials and the other through the manufacturing process.

Another approach is to make manufacturing processes more sustainable. One example is our precision cleaning services. To reduce energy consumption during manufacturing, it is essential to thoroughly clean manufacturing equipment. At the same time, because the cleaning process requires a large amount of water, it is also important to reduce water usage, thereby lowering environmental impact. To meet the needs of semiconductor manufacturers, we recently completed the construction of new service facilities in Fukushima and Iwate, and we intend to further expand advanced precision cleaning services in response to their needs in the future.

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

MITSUBISHI CHEMICAL GROUP

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

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The third focus area is food. –The key to maintaining food quality is to reduce food waste by extending shelf life and to ensure that food reaches many people in the supply chain.

One approach is through products such as sugar esters, which help extend shelf life while maintaining good taste. Another approach is through packaging. For example, Soarnol™ has excellent gas barrier properties and therefore contributes to longer product shelf life. In addition, it enables recyclability under certain conditions, as shown by independent tests conducted by CyclosHTP and RecyClass.

Another example is DIAMIRON™, which is used in food containers and packaging. The example shown here is for ham packaging, which can be resealed after opening, enabling longer storage. We are implementing various initiatives such as food loss reduction through these approaches.

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

MITSUBISHI CHEMICAL GROUP

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)

The last area of focus is healthcare. One of our key challenges is how we can provide safer and more durable materials for artificial joints. As new treatments continue to evolve, not only materials but also processes play an important role in adapting to new safety regulations. With emphasis on this, we will provide robust process management.

In summary, our approach goes beyond simply improving energy efficiency or promoting circularity. Through initiatives that leverage our unique strengths, we aim to further grow these business areas so that they can respond to sustainability needs while generating solid profits. We believe that expanding the areas where we can clearly explain the rationale is also part of our growth strategy.

This concludes my presentation. Thank you.