EU-Japan Centre for Industrial Cooperation Webinar
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Mitsubishi Chemical Group, An example of transition Pathway of Japanese Chemical Industry

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Overview of Mitsubishi Chemical Group Corporation

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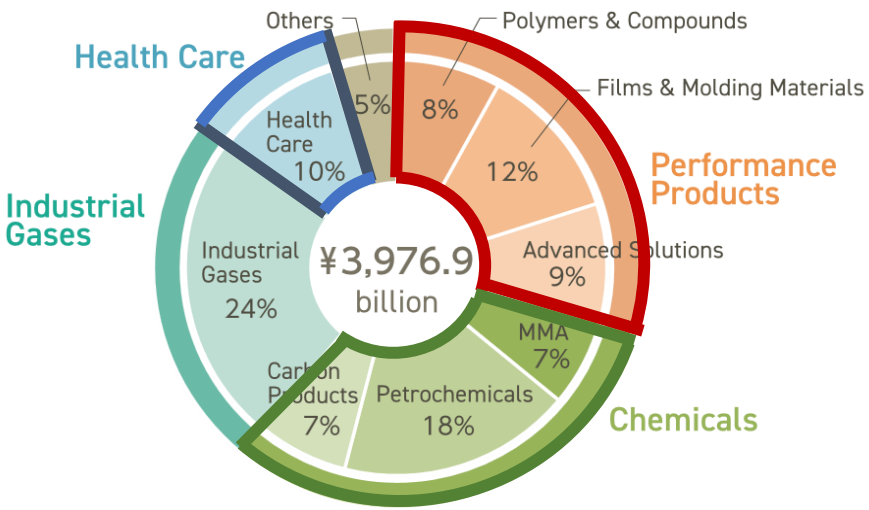
Number of employees (consolidated)

69,784

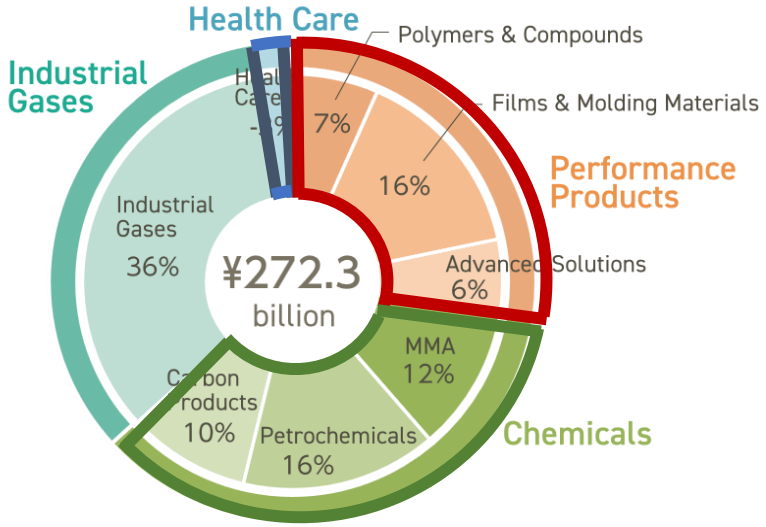
Consolidated sales revenue (IFRS)

¥3,976.9 billion

Sales Revenue



Core Operating Income



*All figures are for the year ended March 2022 (FY2021)

2030 GHG reduction target and 2050 CN roadmap

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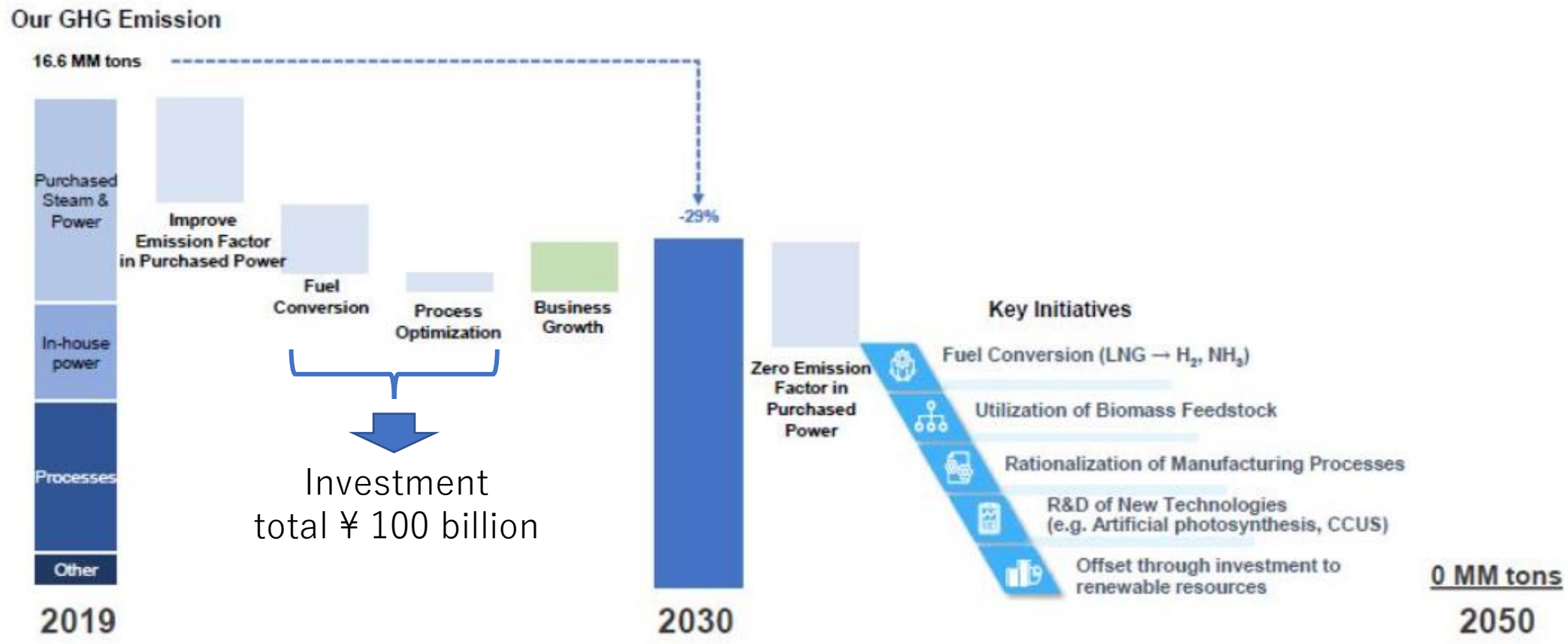
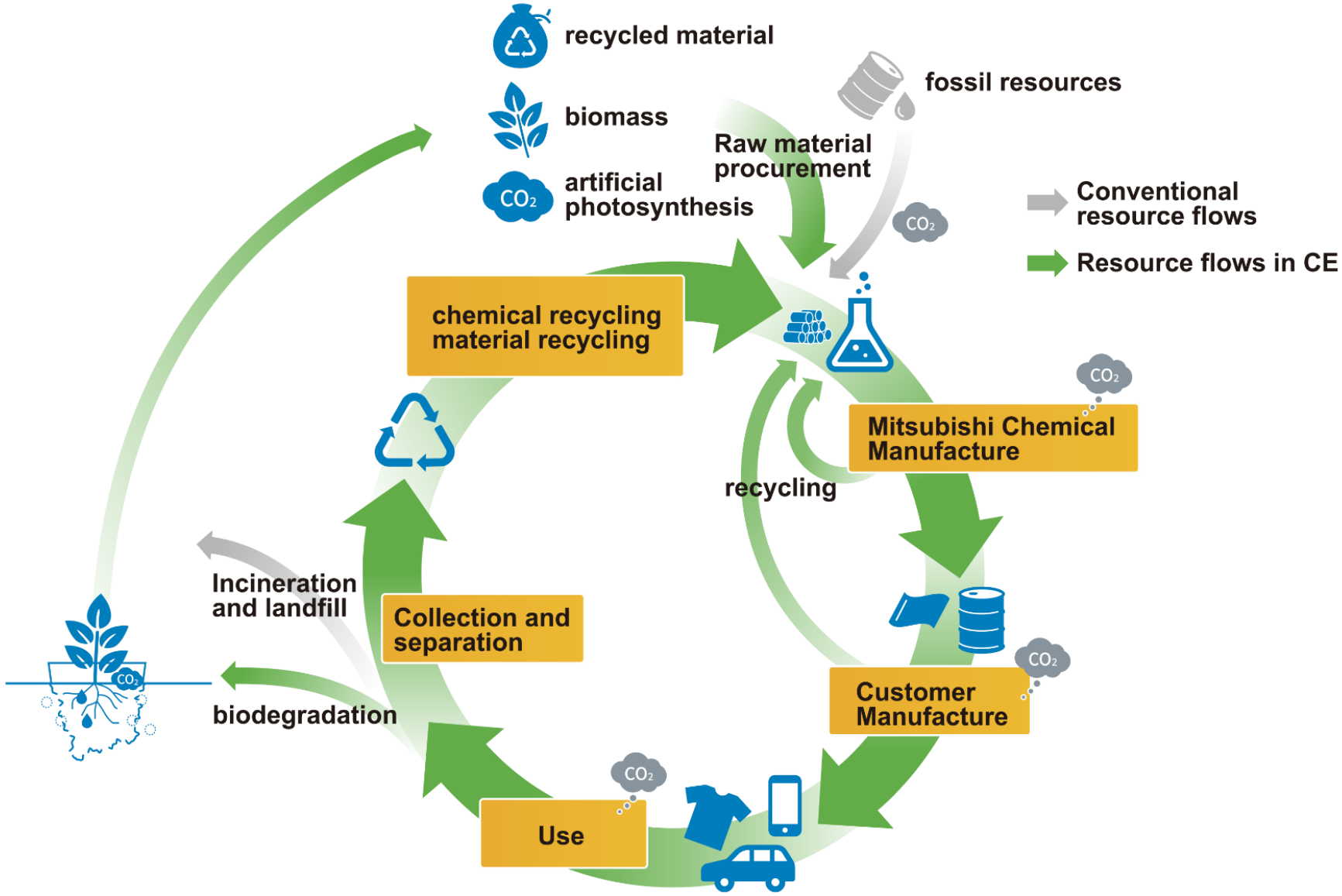
Carbon Neutrality by 2050



Affordable Path towards Carbon Neutrality while achieving Sustainable Growth

Our approach, vision



Our actions

Plastic recycling

- Study on commercialization of pyrolysis oil in cooperation with ENEOS
- Chemical Recycling Study of PET in cooperation with Kirin
- Chemical Recycling of Acrylic Resin in cooperation with Honda
- Investment in the domestic and international recycling industry

Use of bioplastics

Carbon cycle through the use of biobased raw materials and biodegradation

DURABIO™ BENEBIOL™ エコロージュ BIOPBS™ Forzeas™ by mcpp GOHSENOL™

Utilizing carbon and hydrogen

- **Artificial photosynthesis**
  1. Development of photocatalysts etc.
  2. Development of hydrogen separation methods
  3. Development of low grade olefin synthesis

- **Microalgae utilization**
- **Hydrogen applications**
  1. Chubu Hydrogen Utilization Council
  2. Hydrogen Value Chain Promotion Council
  3. Hydrogen and Fuel Cell Strategy Council

Use of LCA

Strengthen products and services that contribute to reducing environmental impact throughout the value chain.

Open innovation, collaboration with stakeholders

AEPW, CE100, WBCSD, ICCA, Alliance for the Blue, WEF-LCET, GCNJ, CGC, CLOMA, JaiME, Carbon Recycling Fund Institute, SIP, Moonshot and others

Overview of plastic pyrolysis

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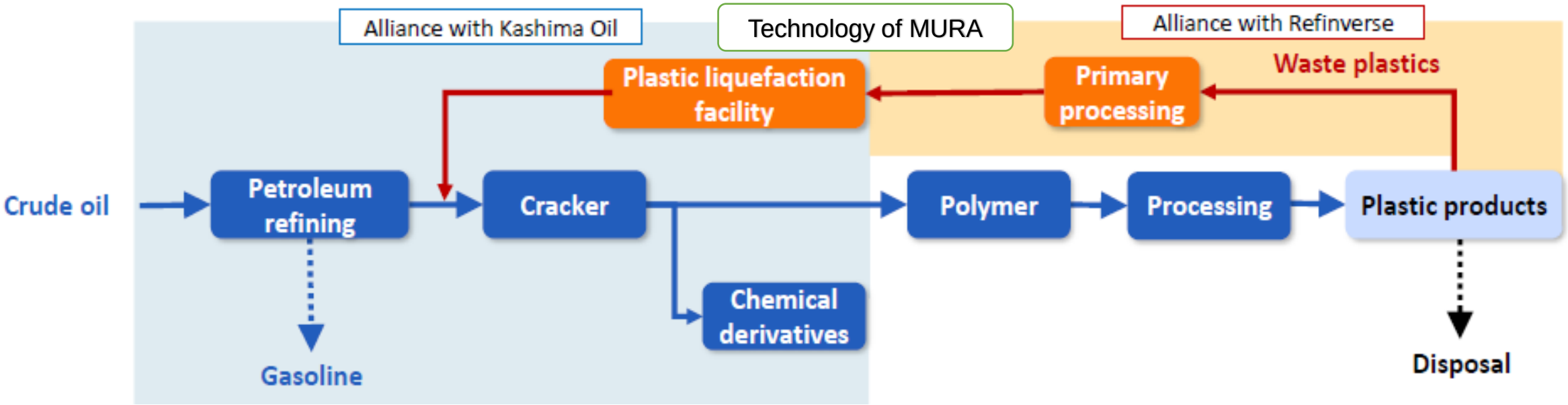
for petrochemical operation;
Optimization of operations by integration

- Conversion of fuel into petrochemicals, e.g., butane cracking
- Optimization of naphtha quality and mutual exchange of utilities and infrastructure

for plastic recycling;
Chemical recycling of waste plastics

- Installation of an pyrolysis facility for waste plastic
- Investment in REFINVERSE to secure waste plastic as raw material



Source: From MCHC business presentation materials, February 2021

Chemical recycling of PET

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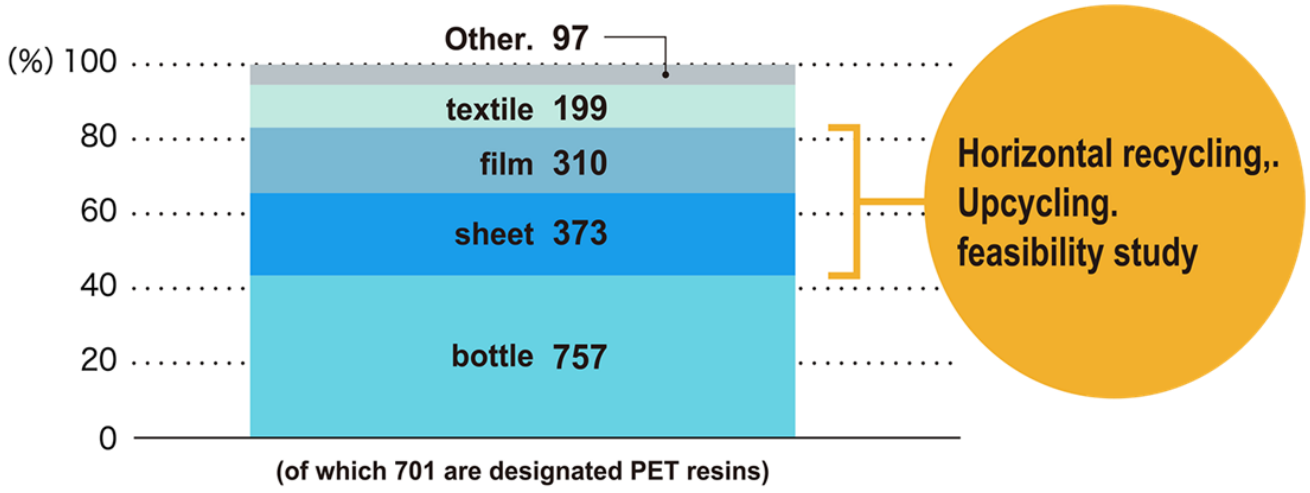
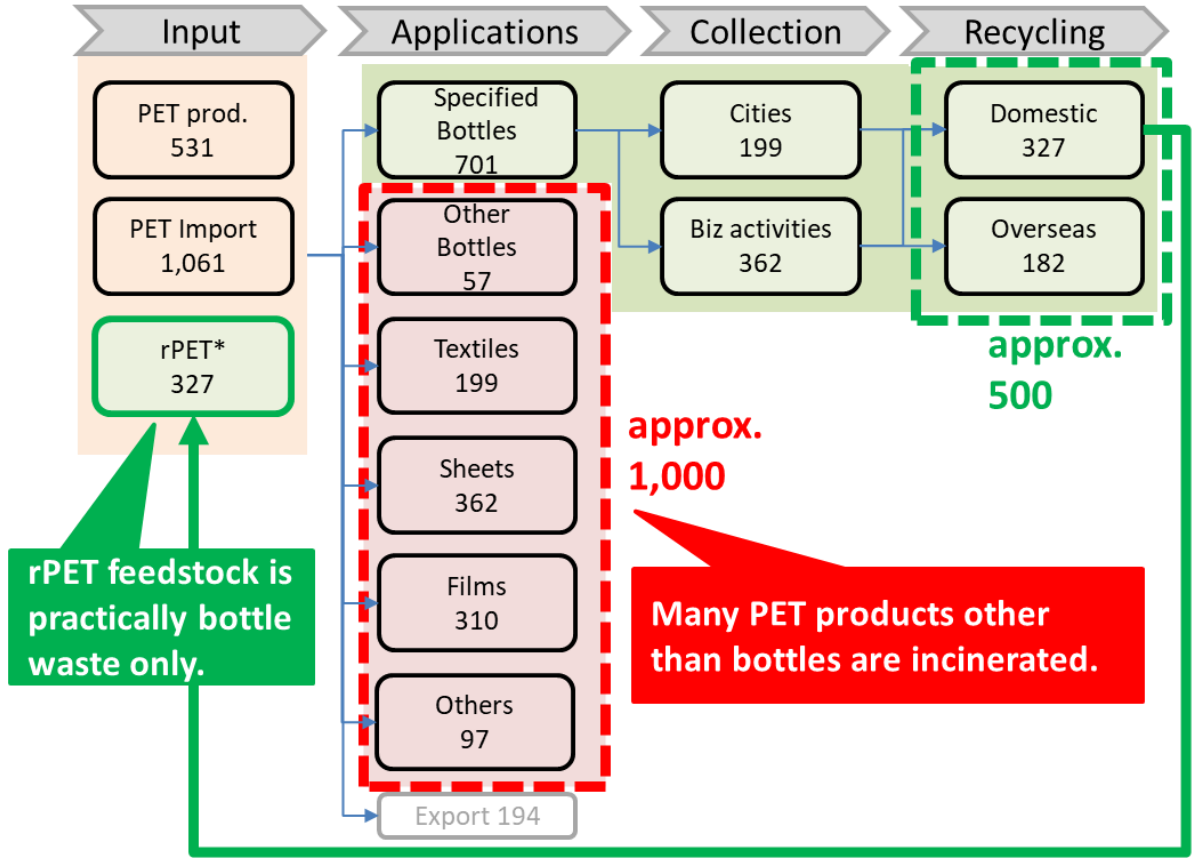
Towards a sustainable recycling of PET, we started joint technical and feasibility study with Kirin Holdings.

Domestic PET resin use by application (1,736,000 tonnes)



PET resin material flow in JPN '19 Unit: kt/y



Data Source :The Council for PET Bottle Recycling (JPN)

Olefin production from plant-derived raw materials

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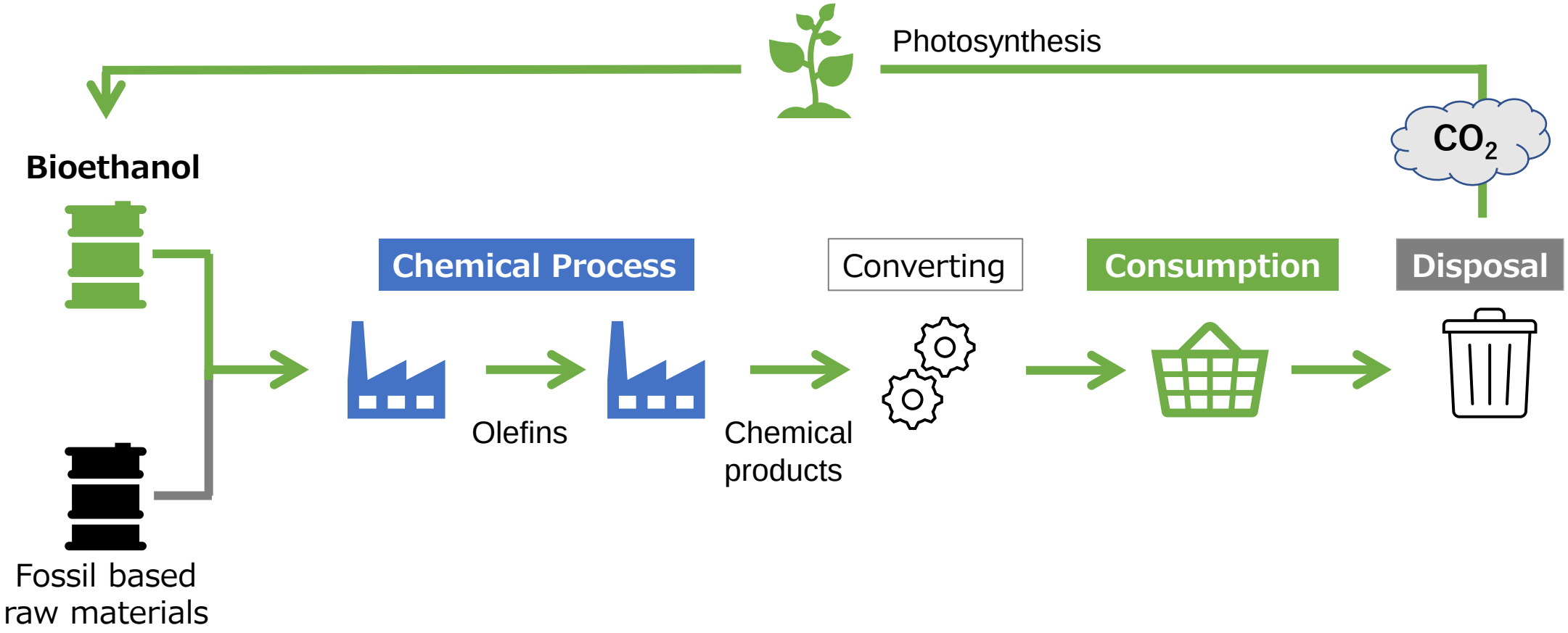
Together with Toyota Tsusho, MCC started the assessment for the commercialization of Olefin production from plant-derived raw materials



Innovative technologies R & D

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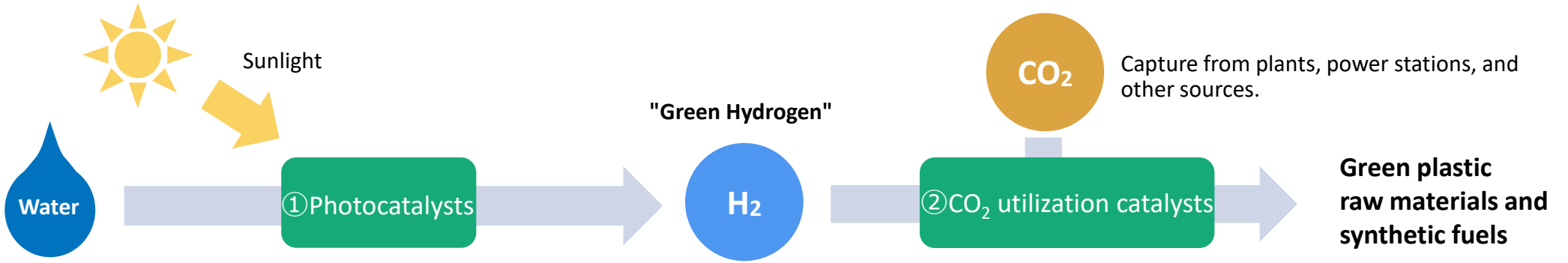
■ “Artificial photosynthesis" technology that contributes to CO_2 utilization



①Photocatalysts

- Successful 100m^2 class verification test
  (Nature 598, 304–307 (2021))
- Further improving the efficiency of photocatalysts and developing safe hydrogen separation technology
- Schedule
  ha-class outdoor test in 2029-2030
  Social implementation in the 2030s

100m^2 class water splitting panel

- Installed at Kakioka Research Facility, University of Tokyo
- Each photocatalyst sheet: 25 x 25cm square

②CO2 utilization catalysts

- Developing energy efficiency for practical application
  (improvement of catalyst efficiency, device design considering heat capture, etc.)
- Pilot testing a new methanol synthesis technology with ceramic membranes used as reaction membranes
- Schedule
  MTO pilot test by 2028
  social implementation by 2035

Membrane reactor of methanol synthesis (pilot test)