Status of Sustainability-Oriented Business Development

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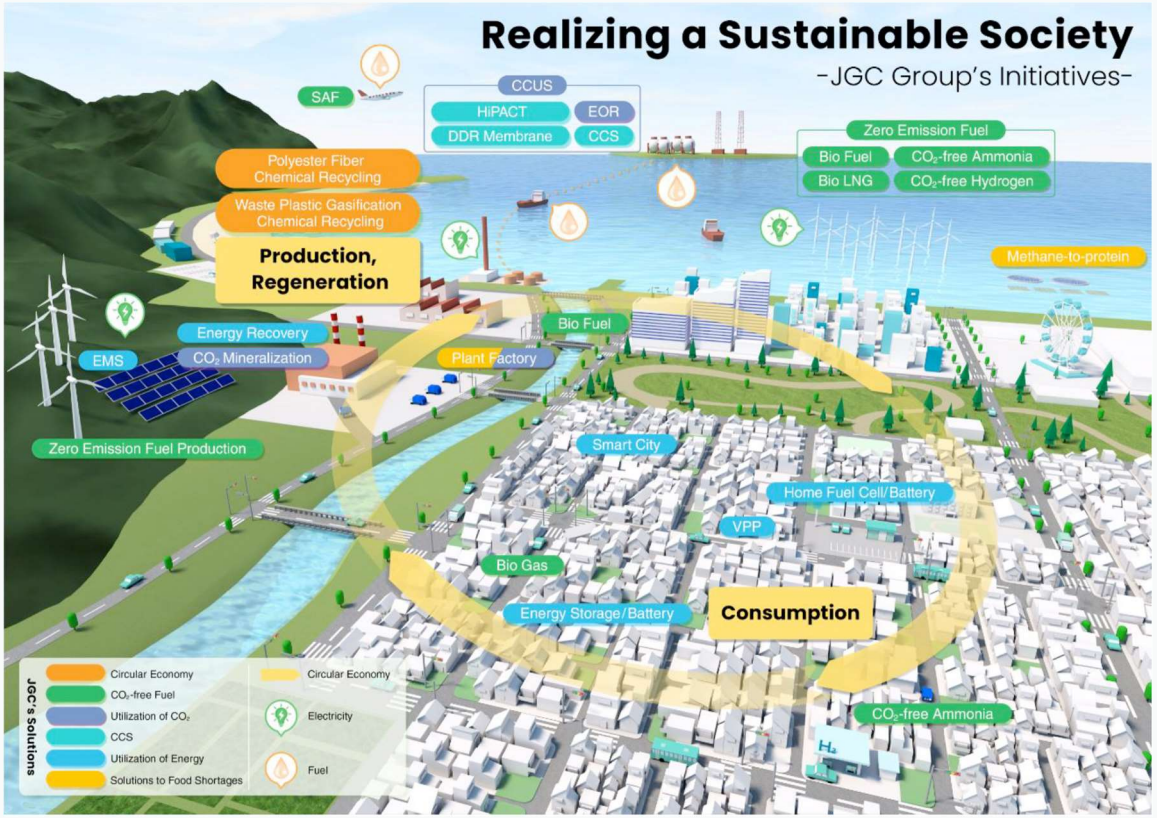
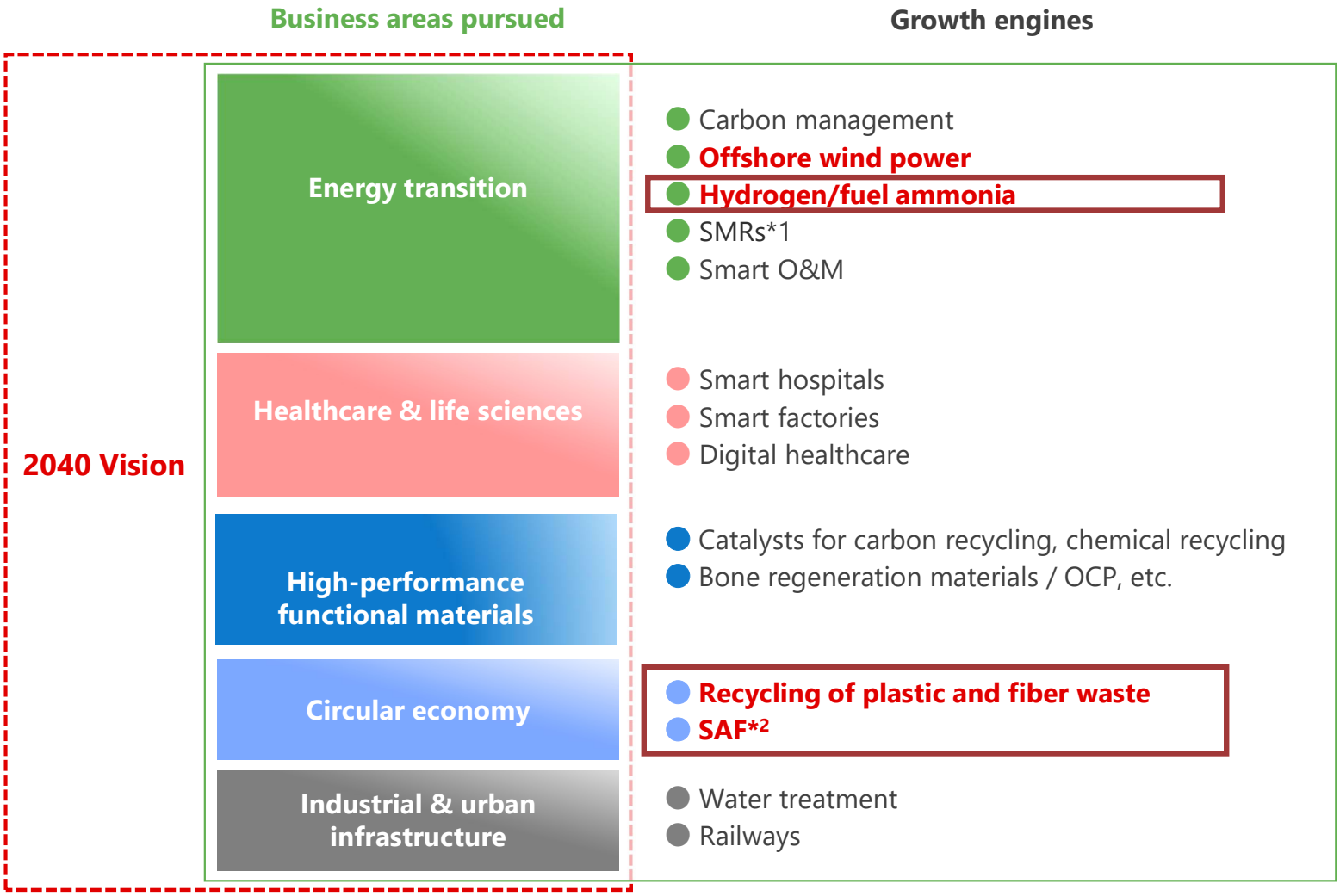


1. Overview

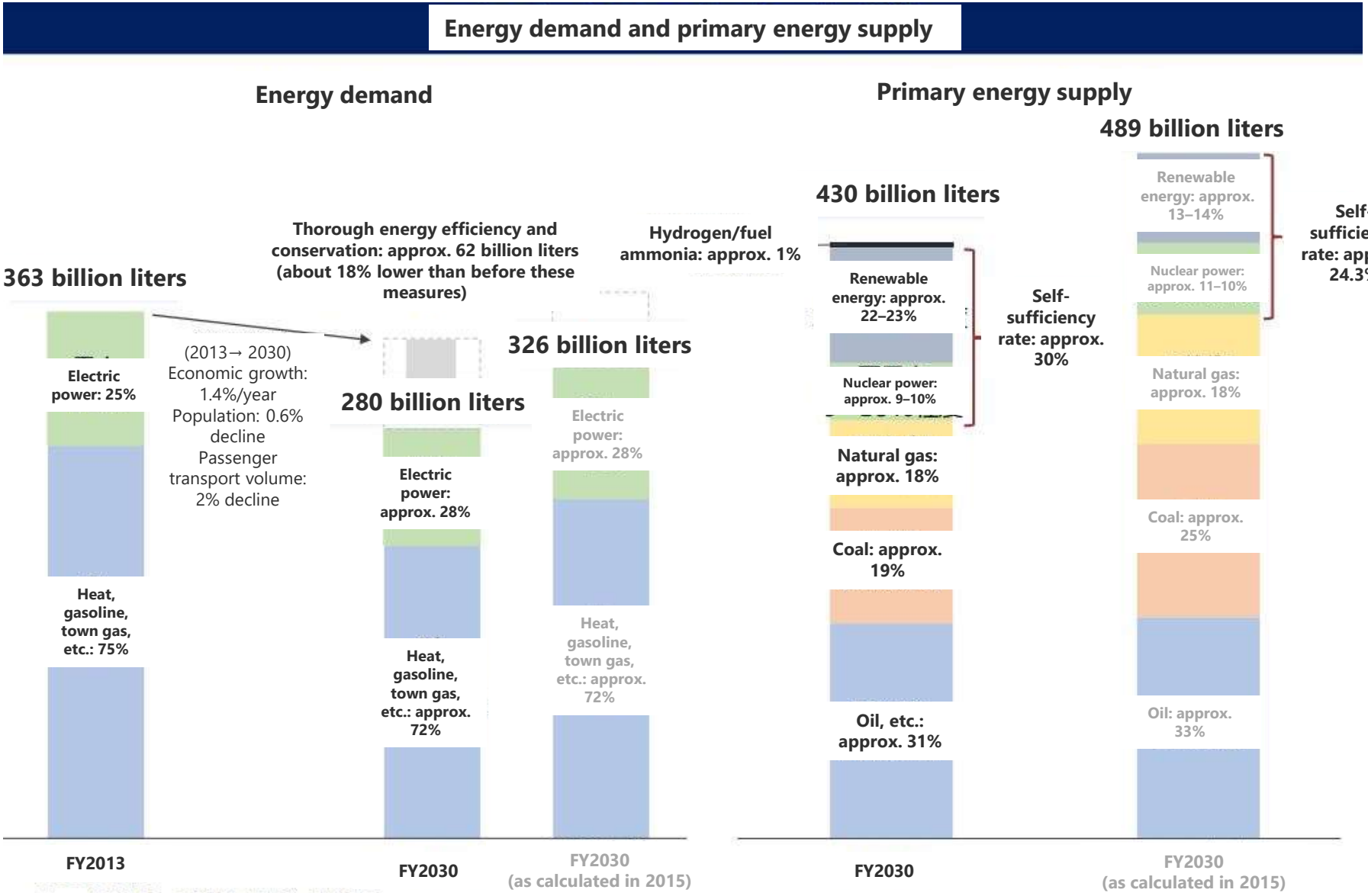
Agenda



1 SMR: Small modular reactors
2 SAF: Sustainable aviation fuel, produced from sustainable sources with low CO_2 emissions

2. Hydrogen/Fuel Ammonia

Roadmap for introducing hydrogen and fuel ammonia



- Renewable energy includes unused energy.
- Energy self-sufficiency rate: approx. 31% based on comprehensive energy statistics, approx. 30% based on IEA data.
- Comprehensive energy statistics have been updated since 2015. Actual figures for FY2013 (which form the basis for FY2030 estimates) are different, which prevents straightforward comparison.

Source: Energy Supply and Demand Outlook for FY2030, Ministry of Economy, Trade and Industry

Hydrogen/Fuel Ammonia

Overview of initiatives

1. Cutting costs in order to bring blue and green ammonia to the market sooner
   - Green chemical plant demonstration project applying a large-scale hydrogen production system with Asahi Kasei Corporation
   - Investigation of scaling up production of blue ammonia and adopting modular technology
2. Construction of local hydrogen supply chains for local needs
   - Hydrogen production from waste plastic, with Iwatani and Toyota Tsusho
3. Development of key infrastructure for introducing hydrogen and ammonia
   - Investigation into establishing ammonia receiving and shipping facilities (hub construction)

Competitive advantages

- Participating in Japan's first efforts aimed at practical adoption of green ammonia
- World's first testing in preparation to transport blue ammonia
- Authorized licensor of the Ebara Ube Process, ideal for local hydrogen supply chains for local needs

Future policies

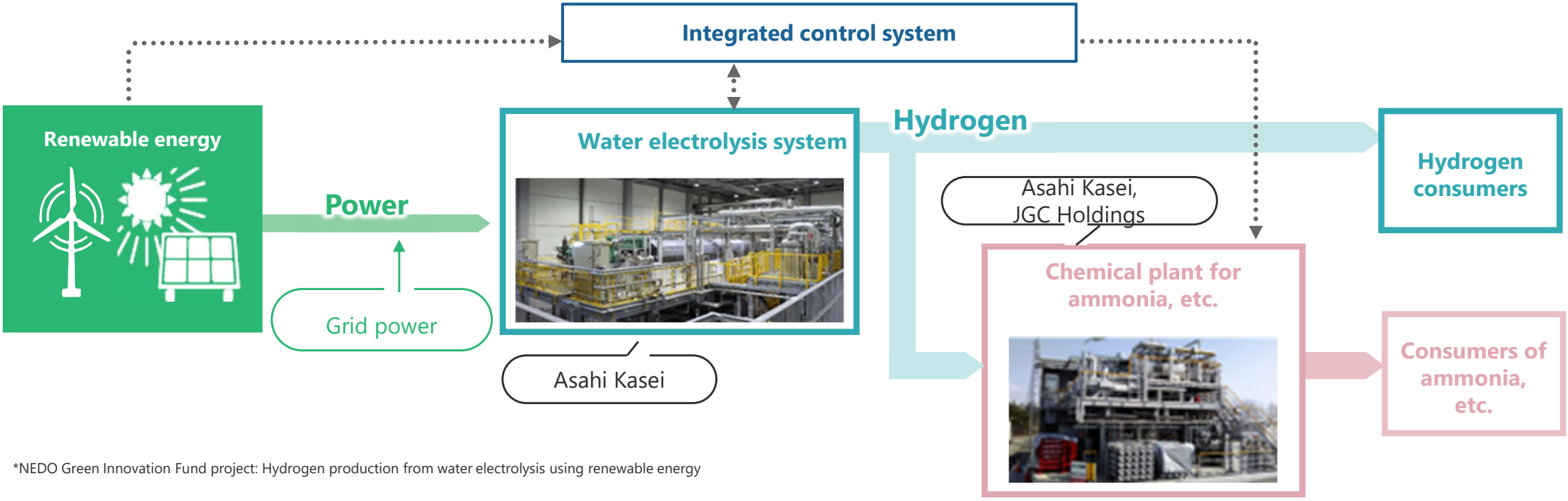
- Pioneer markets and supply chains for these resources; gain knowledge in business participation, licensing, O&M, and other matters. Through these activities, seek diversification beyond EPC business models.

Hydrogen/fuel ammonia initiatives (1)

Production of hydrogen/fuel ammonia with electricity from renewable energy

Key points

- Joint demonstration with Asahi Kasei of a green chemical plant utilizing a large-scale hydrogen production system*
- Aiming for Japan's first demonstration of green ammonia production on a semi-commercial scale in 2024
- Gaining expertise in business and O&M, as the owner of the demonstration plant
- Development of an integrated control system to control fluctuations in renewable energy and optimize operation, addressing challenges in widespread use of green ammonia



*NEDO Green Innovation Fund project: Hydrogen production from water electrolysis using renewable energy

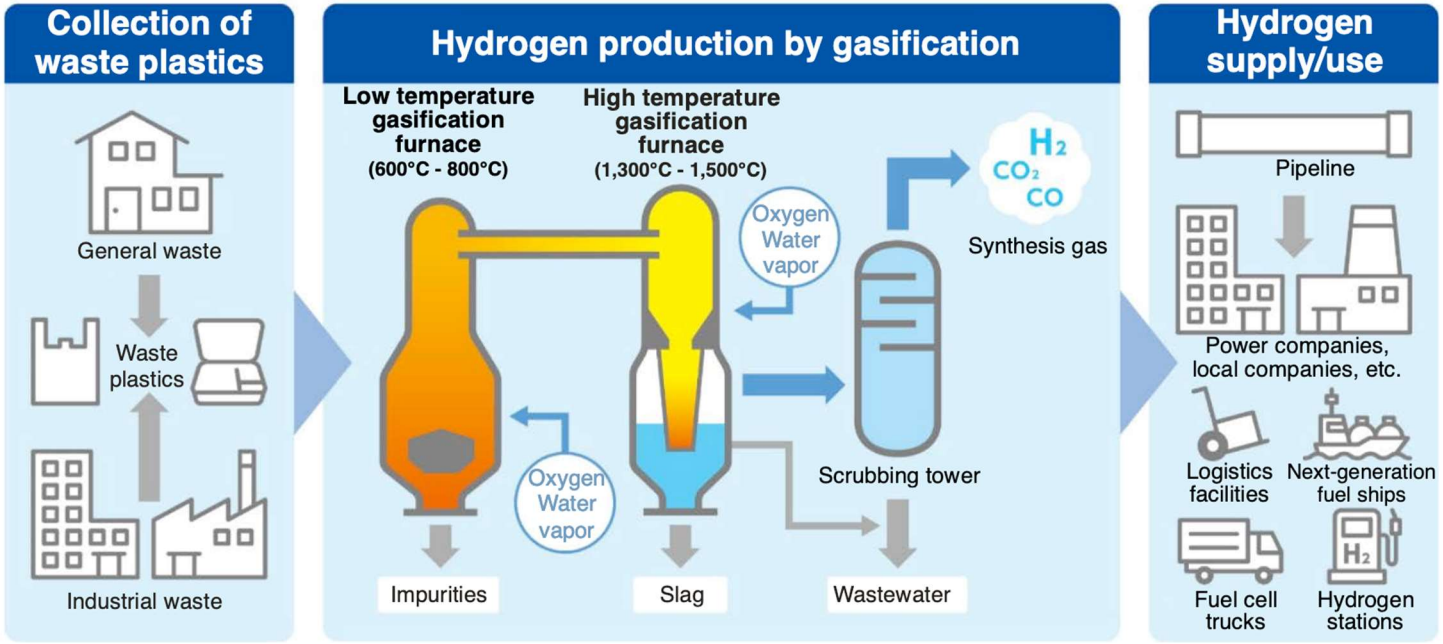
Hydrogen/fuel ammonia initiatives (2)

Production of hydrogen from waste plastics

Key points

- Joint study with Iwatani and Toyota Tsusho on establishing a model for hydrogen production in urban areas using waste plastic
- A supply of hydrogen produced in Fukuoka and Aichi from waste plastic (sourced from factories and households) is used at power plants, in mobility services, and at port facilities
- Prospects for JGC include EPC as well as business participation

<Supply chain model>



3. Sustainable Aviation Fuel (SAF)

Sustainable Aviation Fuel (SAF)

Overview of initiatives

- Establishing a supply chain model for domestic production of SAF from used cooking oil in a joint project with Cosmo Oil and Revo International, toward the start of the first domestic supply of SAF in 2025
- As potential SAF consumers, several leading domestic airlines have expressed interest; supply arrangements now under discussion
- A mechanism is being studied to help popularize domestic SAF by bringing together stakeholders, encouraging better practices in this regard, and proposing suggestions for system design

Competitive advantages

- Participating in Japan's first domestic SAF supply initiative
- With lower LCA-based CO_2 emissions than other feedstocks, SAF from used cooking oil is seen as a viable contributor to decarbonization of aviation fuel

Future policies

- Establish Japan's first domestic SAF supply and gaining expertise in business participation, licensing, O&M, and other matters besides EPC. From this, pursue a first-mover advantage through a range of business models not limited to EPC.

SAF initiatives

Establishing a supply chain for production of aviation fuel from used cooking oil

Key points

- Joint establishment with Cosmo Oil and Revo International of a supply chain model
- Targeting first domestic supply of SAF in 2025
- Gaining expertise in business operations and O&M through operations at SAF production facilities and experience in aviation fuel production
- Introducing digital technologies with Odakyu Electric Railway to streamline collection of used cooking oil and ensure traceability

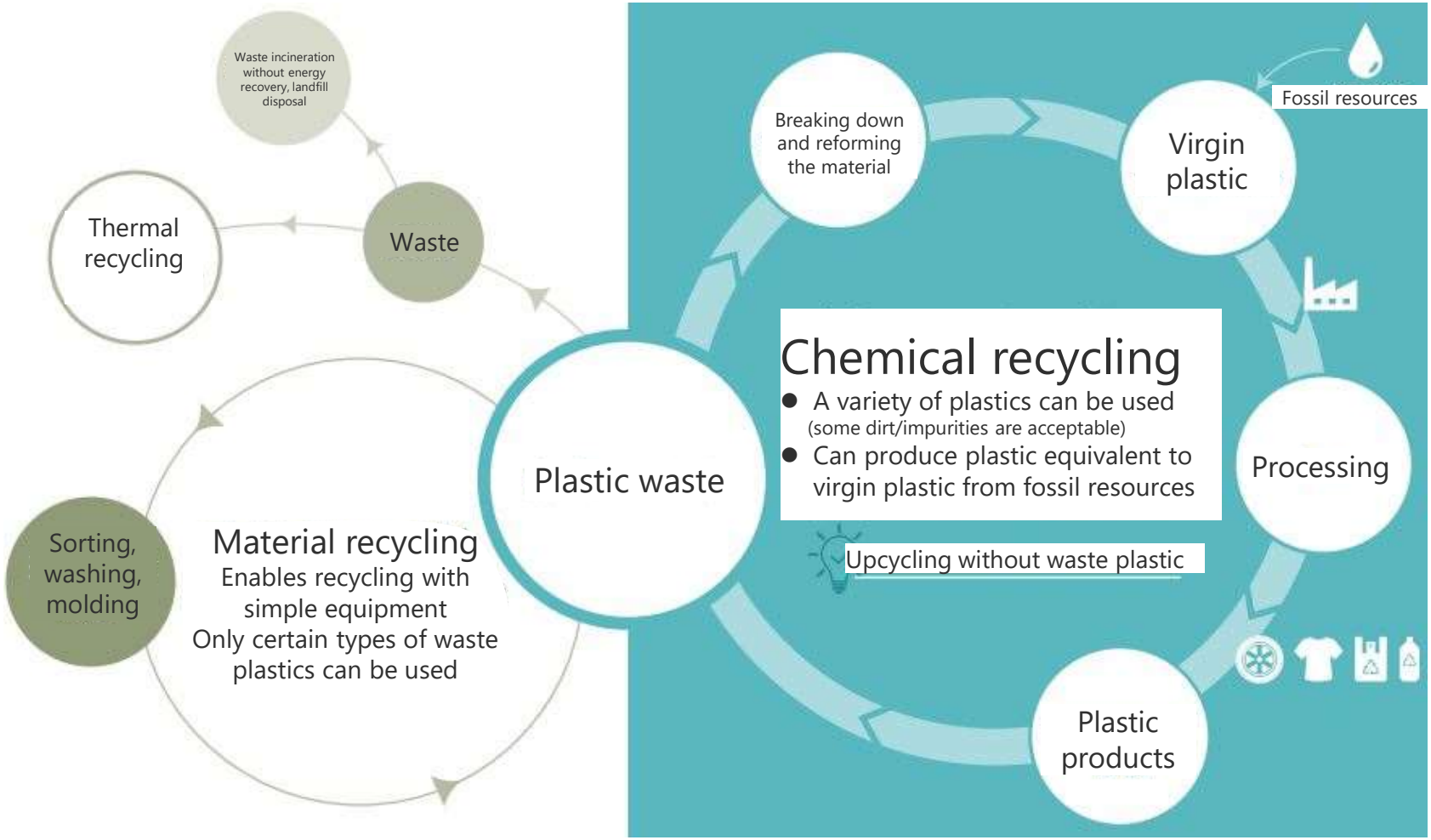
Sakai Refinery, Cosmo Oil (construction site)

4. Plastic and Fiber Waste Recycling

Enhancing planetary health

Promotion of chemical recycling

Expected to expand demand and improve recycling rates, chemical recycling can also be used for plastic containing dirt or impurities



Plastic and Fiber Waste Recycling

Overview of initiatives

1. Chemical recycling of waste plastic: gasification
   - Licensing and facility construction applying the Ebara Ube Process (EUP)
2. Chemical recycling of waste plastic: oilification (pyrolysis)
   - Development of licensed applications of a JGC process with a proven commercial track record in Japan
3. Chemical recycling of fiber waste
   - Joint licensing business with Teijin and Itochu applying a Teijin process with a proven track record
   - Establishment of an industry-academia working group to submit government proposals on legislation and other matters

Competitive advantages

- Using licenses with a proven record in commercial gasification, pyrolysis, and polymer recycling operations
- Founding member in an association of companies and groups that make up a textile industry supply chain

Future policies

- Develop licensing for technologies with a proven record in commercial operations; become known as a technology licensor and business operator in this area, working toward sales of ¥50 billion in fiscal 2030

Pyrolytic recycling of plastic waste, chemical recycling of fiber waste

Pyrolytic recycling of waste plastic

Key points

- Aiming to start licensing a JGC process in 2022 that applies commercially proven pyrolysis, as used by a former recycling specialist (SPR)
- Relatively higher recycling efficiency; enables maximum use of existing facilities at refineries and petrochemical plants
- Has the technical advantage of also recycling PVC in plastic waste; other processes require removal in advance

Chemical recycling of fiber waste

Key points

- Development of licensing with Teijin, which has experience in chemically recycling discarded textiles to make polyester fiber, and Itochu, which has excelled in global development of recycled polyester materials
- Establishment of an industry-academia working group of stakeholders in the supply chain to submit government proposals on legislation and other matters

Cautionary Statement

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•changes in government regulations or tax laws in jurisdictions where we conduct business

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