ENEOS Group
ESG Management

December 2, 2020

Representative Director, President
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Agenda

0. Scenario in 2040

1. Creating New Value

2. Business Foundation for Our Envisioned Goals

3. Creating Business Opportunities

4. Planting Seeds for Future Businesses

Scenario in 2040

Long-term Global Trends (Summary)

General

Low-carbon, recycling-oriented society

- Ever-increasing global warming concerns (extreme weather events and disasters worldwide)
- Rapidly decreasing cost of renewable energy and battery storage
- Natural resource conservation efforts worldwide (minor metals, plastic waste, etc.)

Digital innovation

- Rapid progress of Internet society and blockchain technology
- Dramatic improvement in productivity with AI, IoT, robotics, etc.
- Electrification (shift to EV, autonomous driving, etc.)

Lifestyle changes

- Growing world economy, especially in Asia, and people seeking abundant life
- People active until 100 years old
- Congestion in urban areas and greater need for community development
- Growth of sharing economy, preference for experiences rather than material possessions

Our business area

- Increase of non-fossil energy in global energy demand
- Global chemical demand increases, especially in Asia
- Global copper demand increases in Asian countries like India

Scenario in 2040

Low-carbon, recycling-oriented society

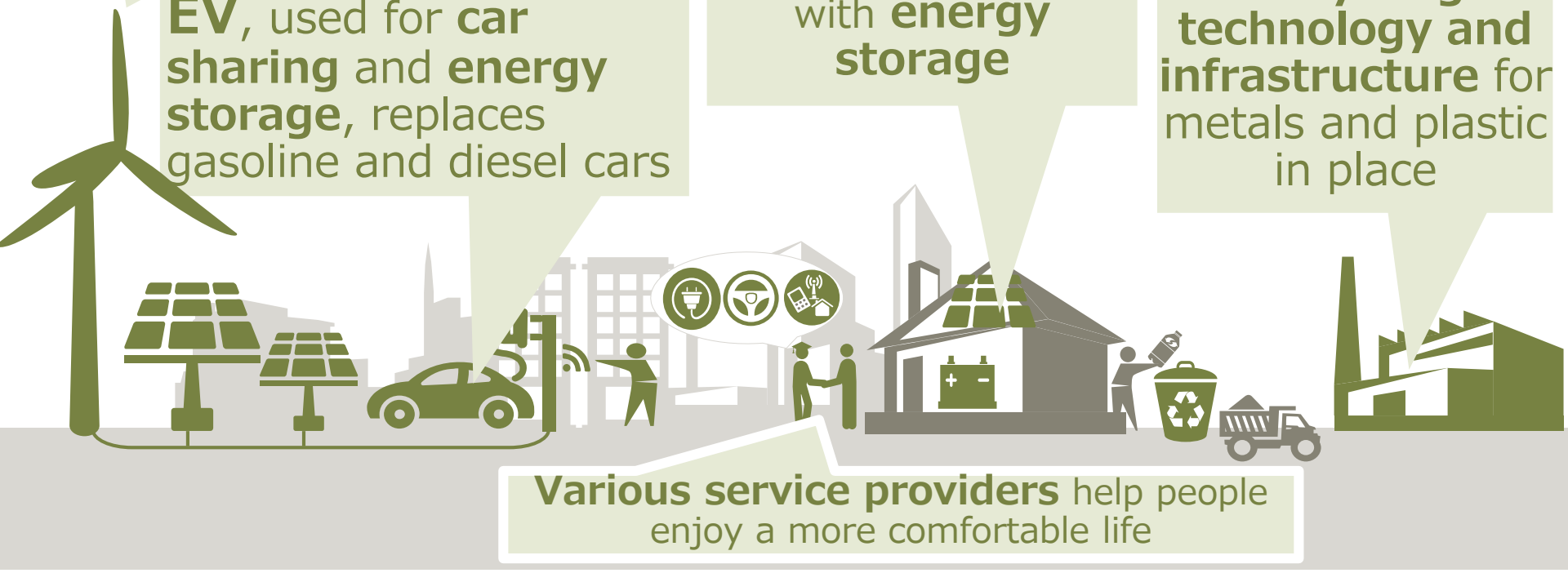
Accelerate transformation to scenario in 2040

Mass introduction of **renewable energy**

EV, used for **car sharing** and **energy storage**, replaces gasoline and diesel cars

Distributed energy resources with **energy storage**

Recycling technology and infrastructure for metals and plastic in place



Various service providers help people enjoy a more comfortable life

Creating New Value

ENEOS Group Philosophy

➢ **Our Mission and Five Core Values will remain unchanged in 2040.**

Mission

Harnessing the Earth's power for the common good and for the day-to-day life of each individual, we will contribute to the development of our communities and help to ensure a vibrant future through creation and innovation in energy, resources, and materials.

Our Five Core Values

As a member of the community

High ethical standards

Based on our core principles of integrity and fairness, we conduct all of our business activities in accordance with our high ethical standards.

Health, safety and environment

We give the highest priority to health, safety and environmental initiatives, which are vital to the well-being of all living things.

Supporting day-to-day life

Focus on customers

We strive to meet the expectations and evolving needs of our valued customers and of society as a whole through the stable provision of products and services while creating new value as only we can.

For a vibrant future

Taking on challenges

Taking changes in stride, we rise to the challenge of creating new value while seeking innovative solutions for today and tomorrow.

Moving forward

Looking to the future, we continue to grow, both as individuals and as a company, through the personal and professional development of each and every employee.

Our Envisioned Goals for 2040

- **Utilize our strengths to realize our envisioned goals**
- **Pursue carbon neutrality in our own CO_2 emissions**

(1) Become one of the most prominent and internationally-competitive energy and materials company groups in Asia

The ENEOS Group, as one of the most prominent and internationally-competitive energy and materials company groups in Asia, will contribute to the development of our communities and help to ensure a vibrant future by optimizing our value chain and efficiently providing a stable supply of products and services.

(2) Create value by transforming our current business structure

The ENEOS Group will create new value by expanding our growing businesses globally, enhancing our technology based business, and establishing innovative businesses, taking opportunities arising from digital transformation and changes in social needs.

(3) Contribute to the development of a low-carbon, recycling-oriented society

The ENEOS Group will contribute to the development of a low-carbon, recycling-oriented society through the enhancement of environmentally conscious businesses and the pursuit of carbon neutral status in its own CO_2 emissions.

(Reference) Our Businesses and Strengths

Strengths

- Diverse, global value chain
- Refining, production and supply networks
- Innovative technology

Power generation
Responding to society's energy needs

Power generation capacity
1.62 million kW

(Renewable energy
Approx. 0.12 million kW)

Service station (SS) operations
Market share of SS in Japan
Approx. 44% (No.1 in Japan)

Electricity retailing
Approx.
690,000
contracts

Community services
Laundromats/Car sharing

Hydrogen stations
Responding to demand for new energy
Market share in Japan
Approx.33% (44 locations)

Oil Exploration
Exploration, development and production in 10 countries Around the world
Equity-entitled crude oil and natural gas production volume
110,000 bbl/day
(Natural gas sales ratio:63%)

Oil transport
Stable and efficient oil transport

Oil refining
Largest oil refining capacity in Japan
Crude oil processing capacity
1.87 million bbl/day

Fuel oil sales
Market share in Japan: Approx. 47% (No.1in Japan)

Petrochemical manufacturing and sales

Paraxylene supply capacity 3.62 million tons/year [direct sales basis] (No. 1 in Asia)

Propylene supply capacity 1.7 million tons/year [direct sales basis] (No. 1 in Asia)

Lubricants manufacturing and sales
Supply to Japan and overseas markets
38 overseas locations

Functional materials manufacturing and sales
Delivering solutions with high-performance materials

Resources development	Transport	Refining and smelting	Manufacturing and sales	Recycling

Copper mine development
Equity-entitled copper mine production
210,000
tons/year

Copper transport
Using copper concentrate and sulfuric acid carriers that reduce environmental impacts

Refined copper production
Refined copper production capacity in Japan

Approx. 450,000 tons/year

Electronic materials manufacturing and sales
Advanced materials underpinning information society

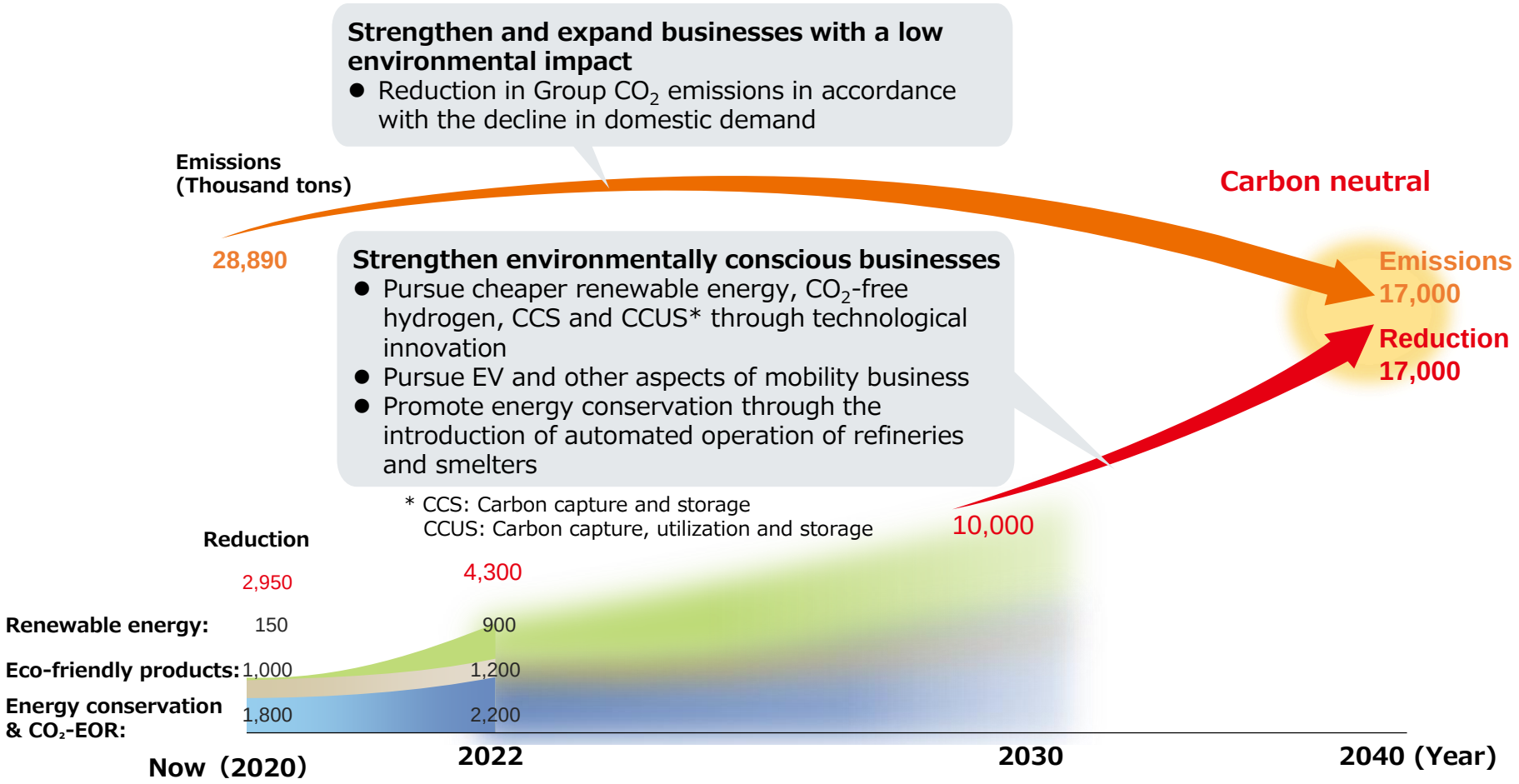
Product lineup with No. 1 market share worldwide

Recycling

Number of recycling collection sites
9 in Japan and overseas

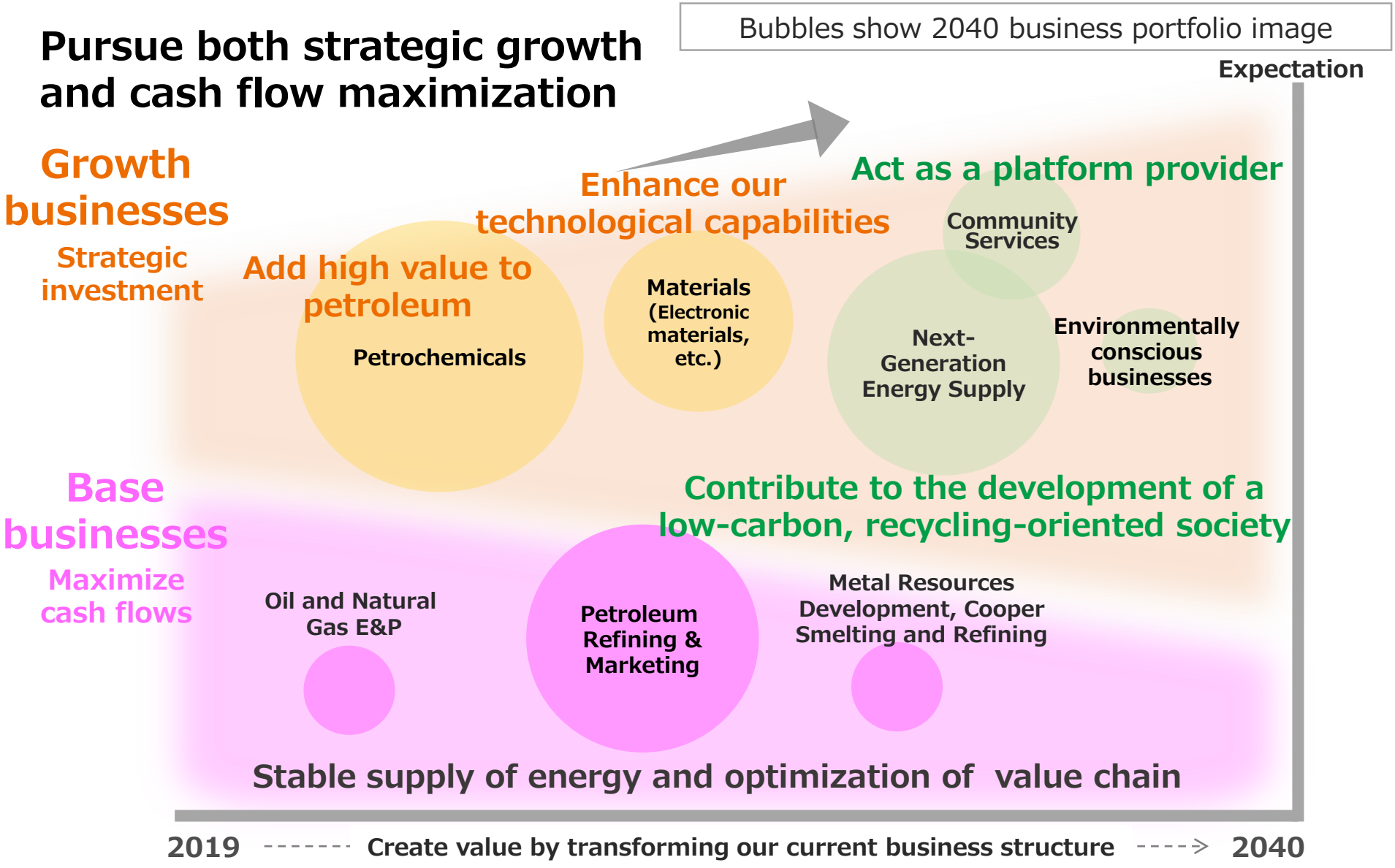
Initiatives for the Achievement of Carbon Neutrality

➢ **In 2040, we aim to offset our own CO_2 emissions through initiatives such as strengthening and expanding businesses that impose a low environmental burden and strengthening environmentally conscious businesses.**



Overview of Our Future Businesses to 2040

Pursue both strategic growth and cash flow maximization



Value Creation Strategy

➢ **We are working toward the realization of our Long-Term Vision through the formulation and execution of the Medium-Term Management Plan, a milestone for attaining our envisioned goals for 2040.**

FY2017–FY2019
First Medium-Term Management Plan

FY2020–2022
Second Medium-Term Management Plan

Pursuing transformation aimed at achieving the Long-Term Vision

Carry out structural reforms
Maximize synergies of business integration, etc.

Continue and accelerate structural reforms

Stable financial base

Develop & strengthen growth businesses

- Progressive optimization of the supply chain
- Utilization of our relationships with customers to roll out new services
- Continuous creation of new materials

Group strengths
Development of efficient supply chain, SS network, advanced materials, etc.

- **Utilize digital technology** (pursue digital transformation)
- **Alliances with different industries and areas** (open innovation, etc.)

Long-Term Vision to 2040

Envisioned goals

Become one of the most prominent and internationally competitive energy and materials company groups in Asia

Create value by transforming our current business structure

Contribute to the development of a low-carbon, recycling-oriented society

Pursuit of carbon neutrality
(in our own CO_2 emissions)

Social value created

Basic Policy of Second Medium-Term Management Plan

■ Pursue both implementation of business strategy to achieve the Long-Term Vision and management focusing on cash flow

(1) Generate ongoing cash flow by strengthening the competitiveness of base businesses

(2) Pursue selective investment to develop and strengthen growth businesses and optimize the business portfolio

(3) Maintain the soundness of the financial base and allocate cash flow appropriately

Financial Plan	3-year cumulative total	Operating Income (Excl. inventory valuation)	Capital Investment & Financing / Sale of property	Free Cash Flow	Total Return Ratio
		970 billion yen	1,500 billion yen 150 billion yen	150 billion yen	50% or higher
		Net D/E …	0.8× or lower	ROE …	10% or higher

■ Strengthening the business foundation

- Strengthen the effectiveness of governance

  (Develop the management system to enable speedier decision-making and strengthen monitoring by the Board of Directors, etc.)

- Strengthen system platforms

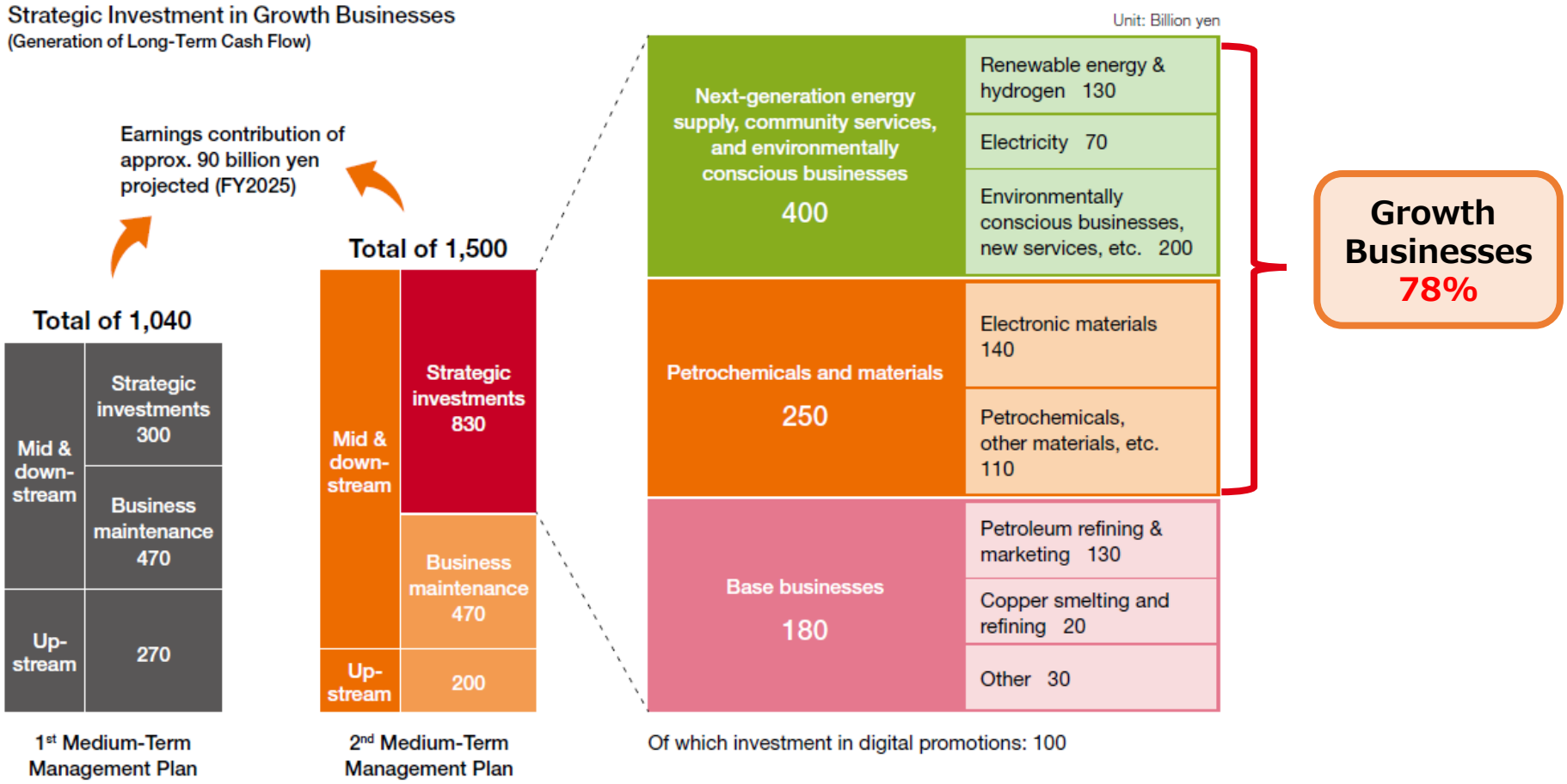
  (Realize the benefits of newly introduced ERP, strengthen security, and support diverse workstyles through the use of IT tools)

- Implement measures to develop and secure human resources

- Pursue constructive dialogue with stakeholders

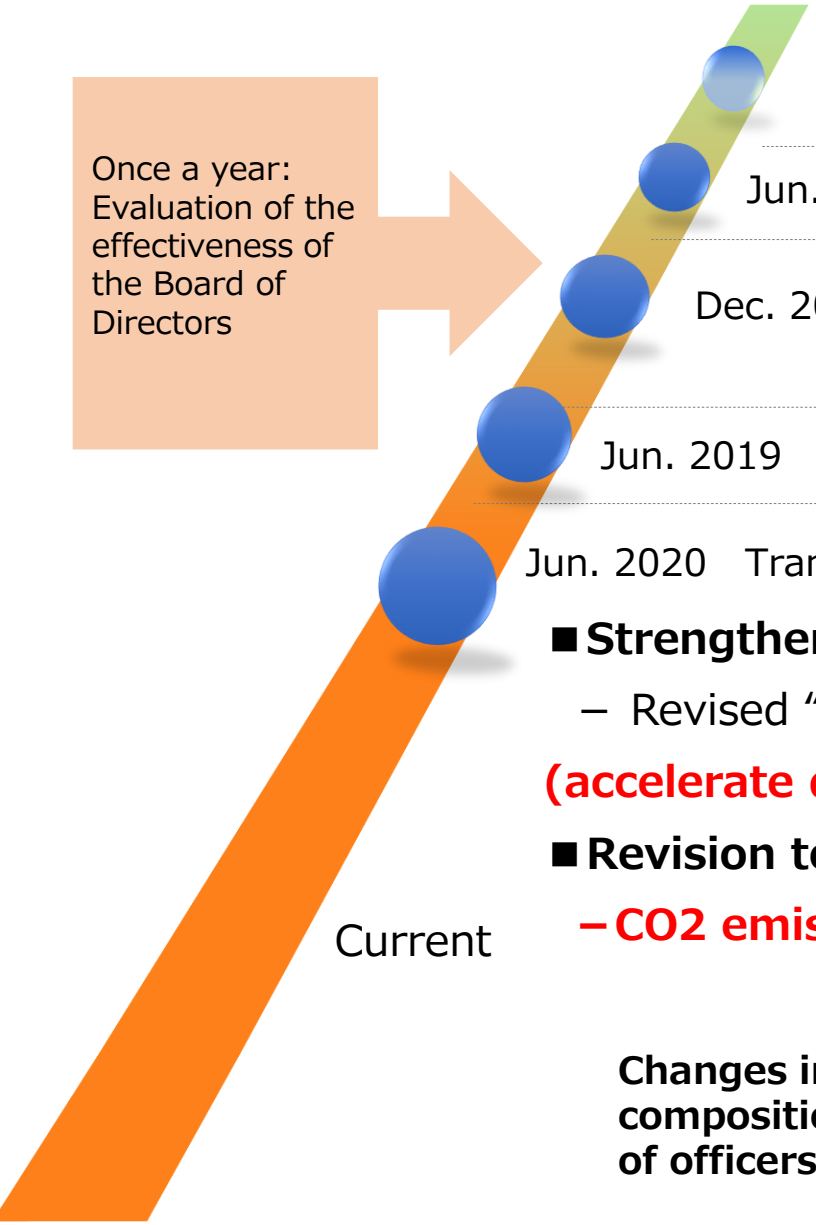
Pursuing Strategic Investment in Growth Businesses

- **FY2020-2022 total capital investment of 1,500 billion yen**
- **Focus on strategic investments (830 billion yen) in growth businesses such as renewable energy**
- **Focus on ROIC management and pursue optimal business portfolio (ROE 10% or higher)**



Business Foundation for Our Envisioned Goals

Initiatives for Strengthening Governance



Once a year: Evaluation of the effectiveness of the Board of Directors

2017 Introduction of stock compensation plan, development and implementation of enterprise risk management (ERM)

Jun. 2018 Transition to a company with an Audit and Supervisory Committee

Dec. 2018 Review of Basic Policy on Corporate Governance
(Cross-shareholding, policy for removal of executives, succession plan, etc.)

Jun. 2019 Elimination of senior executive advisor and advisor system

Jun. 2020 Transition to substantial operation as one holding company

Current

■ **Strengthening of the oversight function**

– Revised "Discussion Criteria of the Board of Directors"

(accelerate decision-making and business execution)

■ **Revision to performance-linked stock compensation plan**

– CO2 emissions reduction included as an indicator

Changes in composition of officers

	June 2017	June 2020
No. of officers	22	**16**
Ratio of outside (independent) officers	31.8%	**37.5%**
Ratio of female officers	13.6%	**18.8%**

Strengthening the ESG Management Structure (Background)

Basic Policy for ESG Management

- **ESG management at the ENEOS Group involves formulating management and business strategies based on risks and business opportunities and creating both economic value (profits) and social value (resolution of social issues) through our business in order to realize the ENEOS Group Philosophy.**
- **The ENEOS Group is a group of companies that strives to earn the trust of stakeholders through the implementation of ESG management in our business operations.**

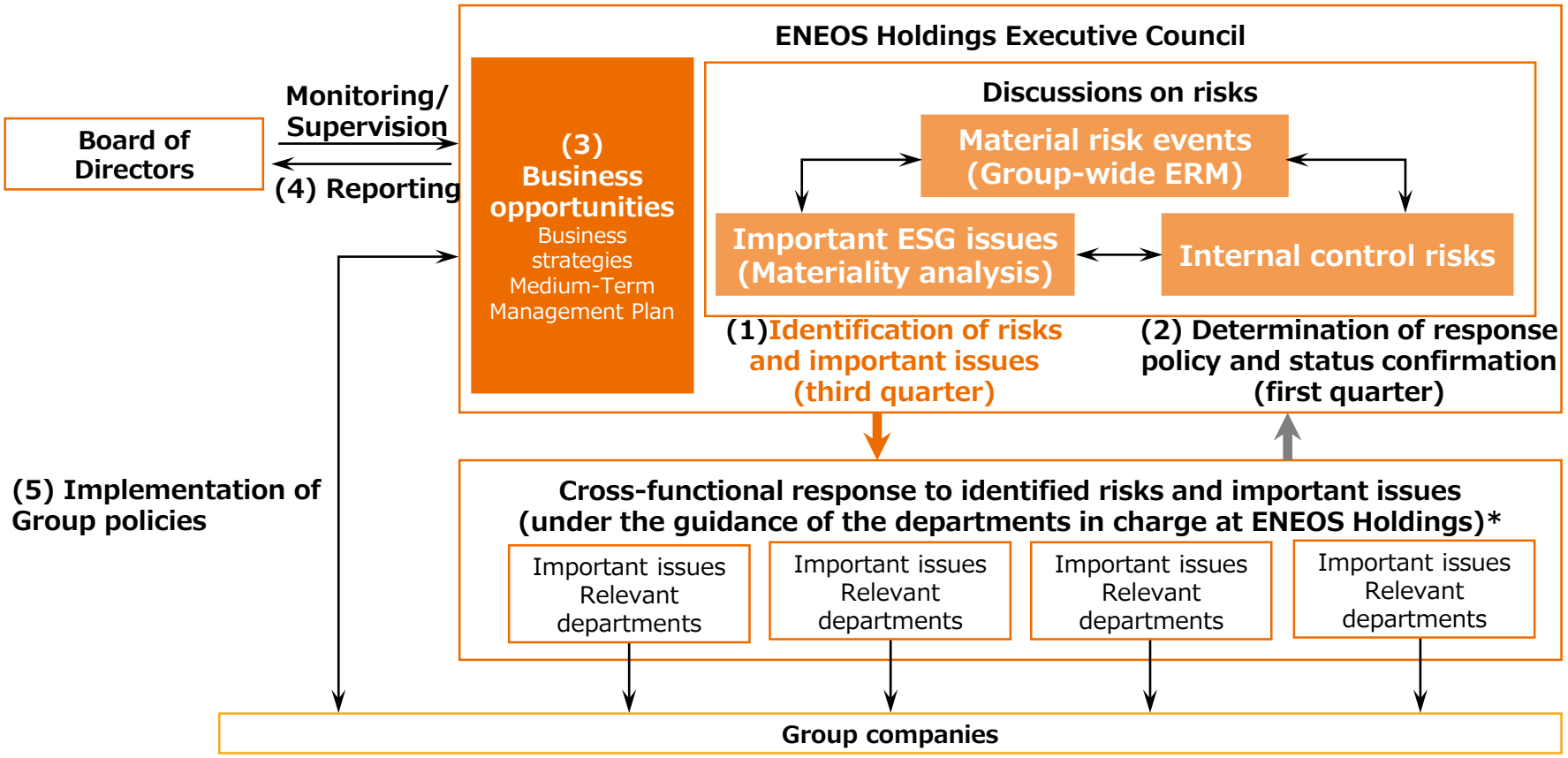
In formulating competitive medium- to long-term management and business strategies, we must identify risks and opportunities that could have significant impacts on future management, while also taking social issues into account.

Transition to a structure for the further strengthening and promotion of ESG management

Strengthening the ESG Management Structure (Transition to a Structure Centered on the Executive Council)

- **Integrate the Group CSR Council, formerly established under the Executive Council, into the Executive Council**
- **The Executive Council comprehensively discusses and makes decisions on risks and business opportunities.**
- **Identified risks and important issues are addressed in an agile and cross-functional manner by the Group, focused on the relevant departments.**

ESG Management Structure



* Example: Internal Control Department and Legal & Corporate Affairs Department work together to build and operate a comprehensive internal control structure

The Group's Top Priorities (Material Issues)

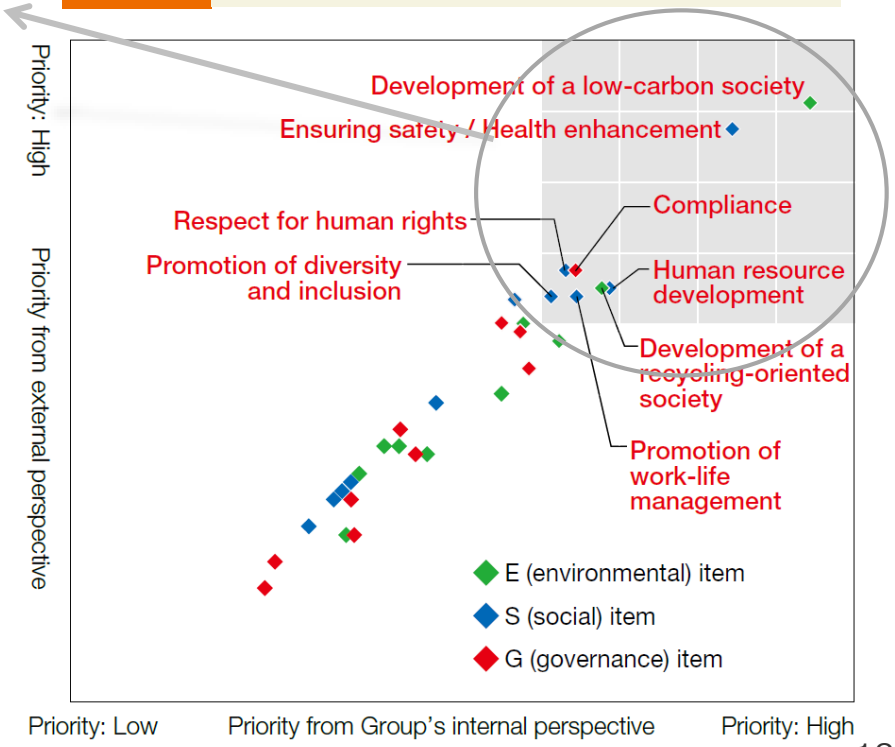
- **Priorities identified from an external perspective and from the Group's internal perspective.**
- **KPIs established and monitoring implemented for each of the nine issues identified in FY2019 and FY2020.**

Category	The Group's top priorities
Environmental	**Development of a low-carbon society**
	Development of a recycling-oriented society
Social	**Ensuring safety**
	Respect for human rights
	Human resource development
	Promotion of diversity and inclusion
	Promotion of work-life management
	Health enhancement
Governance	Compliance

Note: Priorities in orange are described on the following pages.

Steps in the Review Process

STEP 1	Identify social issues to consider
STEP 2	Prioritize from an external perspective
STEP 3	Prioritize from the Group's internal perspective
STEP 4	Identify the Group's top priorities



Environmental Initiatives (CO_2 Emissions Reduction)

Achieved/ Steady progress　Not Achieved

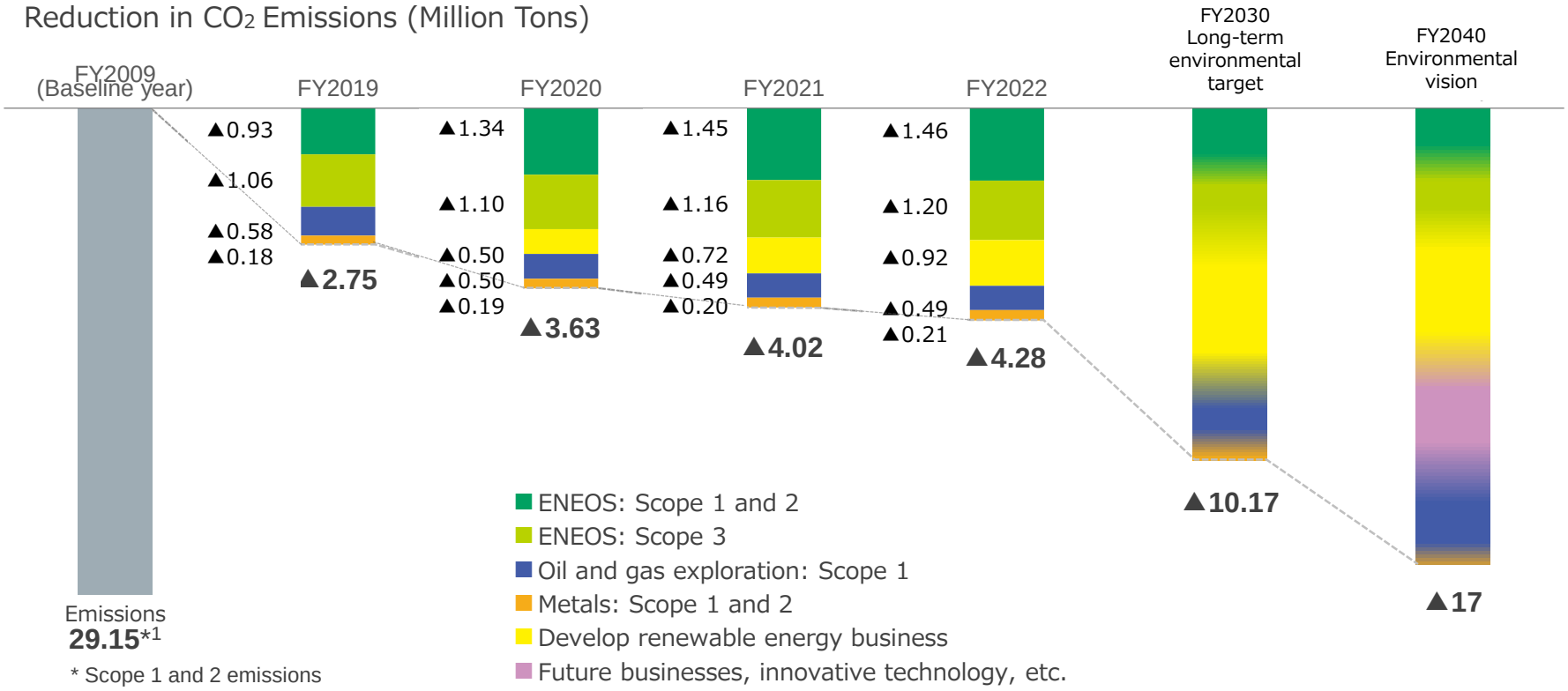
The Group's top priorities	Initiative	Target (KPI)	Fiscal 2019 Results/Progress	Fiscal 2020 Target (KPI)
Development of a low-carbon society	Reduction in CO2 emissions	Reduce by 2.72 million tons*	Reduced by 2.75 million tons*	Reduce by 3.63 million tons*

* compared to 2009

Major Initiatives

- Introduce highly energy efficient facilities at refineries and smelters
- CO_2 separation and capture with CO_2-EOR
- Optimize equipment operations
- Increase sales of environmentally friendly products

Reduction in CO_2 Emissions (Million Tons)



Social Initiatives (Ensuring Safety)

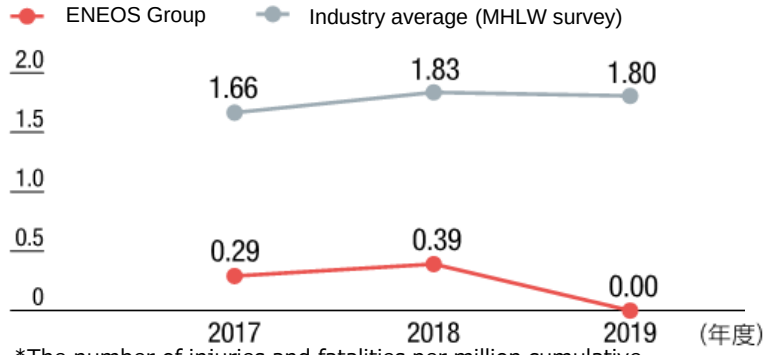
Achieved/ Steady progress　Not Achieved

The Group's top priorities	Initiative	Target (KPI)	Fiscal 2019 Results/Progress	Fiscal 2020 Target (KPI)
Ensuring safety	Reduction in occupational injuries	Zero occupational fatalities	0	Zero occupational fatalities

Major Initiatives

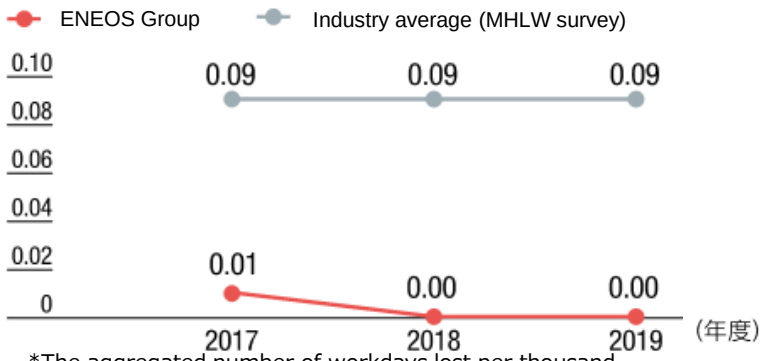
- Adopt Group-wide safety efforts for occupational injuries that occur with greater frequency or are likely to lead to serious occupational injuries
- Establish common initiative guidelines for preventing serious occupational accidents as countermeasures for the three focus safety efforts: separating people and heavy machinery, preventing falls and falling down, and preventing heatstroke

Occupational Injury Frequency Rate*



*The number of injuries and fatalities per million cumulative hours worked indicates the frequency of occurrence of occupational injuries.

Occupational Injury Severity Rate*



*The aggregated number of workdays lost per thousand cumulative hours worked; indicates the severity of occupational injuries.

TRIR* and LTIR**

	FY 2017	FY 2018	FY 2019
TRIR	0.81	1.25	0.97
LTIR	0.20	0.39	0.04

* TRIR(total recordable incident rate): number of non-lost-time occupational injuries, lost-time occupational injuries and fatalities per one million hours
** LTIR(lost time injury rate): number of lost-time occupational injuries and fatalities per one million hours

TOPICS

Three of our refineries have received Super Certification for High-Pressure Gas from the Ministry of Economy, Trade and Industry as business sites that implement advanced safety initiatives for the prevention of serious accidents.

Dec. 2017　Kawasaki Refinery
Feb. 2018　Sakai Refinery
Aug. 2019　Mizushima Refinery

Social Initiatives (Human Resources Development, Comfortable Work Environment)

Achieved/ Steady progress　Not Achieved

The Group's top priorities	Initiative	Target (KPI)	Fiscal 2019 Results/Progress	Fiscal 2020 Target (KPI)
Development of human resources	Development of human resources capable of enhancing corporate value	Implementation of effective training based on human resource development plan	Completed	Implementation of effective training based on human resource development plan
Promotion of diversity and inclusion	Advancement of women in the workplace	Women comprise at least 25% of newly hired graduates	28.5%	Women comprise at least 25% of newly hired graduates
	Advancement of employees with disabilities	Maintain employment rate of people with disabilities at 2.2% or higher	2.37%	Maintain employment rate of people with disabilities at 2.2% or higher
Promotion of work-life management	Promotion of workstyle reforms	Maintain annual paid leave days taken at 80% or higher	92.3%	Maintain annual paid leave days taken at 80% or higher
	Utilization of work-life balance support systems/programs	Maintain 100% rate of return to work after childcare leave	100%	Maintain 100% rate of return to work after childcare leave
Health enhancement	Ensure health of employees	Achieve cancer screening rate of 70% or higher	65%	Achieve cancer screening rate of 70% or higher

Securing and Developing Human Resources

- Securing and developing human resources to carry out our strategies is an important theme for the Company.
- We will carry out human resource measures under the concept "move away from conventional human resource measures and pursue transformation."

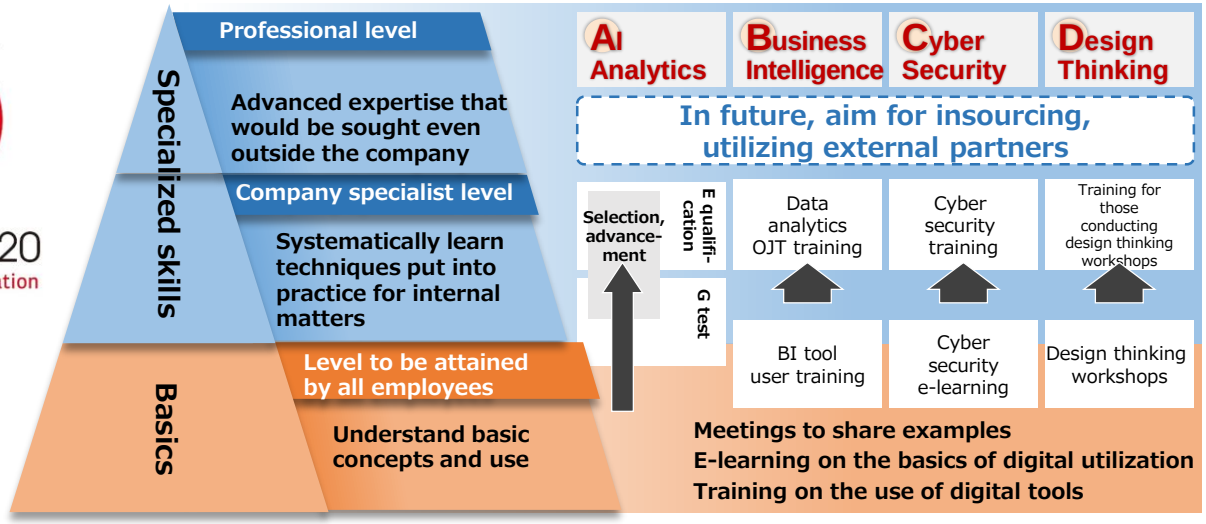
	Transformation & Challenge	Diversity
Securing & Developing Human Resources	• Introduce job-based, year-round recruitment of human resources, including those with digital skills • Support independent career development • Introduce a talent management system	• Utilize human resources with diverse talents and values • Develop human resources who can advance the company's transformation
Evaluation & Benefits	• Introduce a personnel evaluation system driven by competence and performance • Provide benefits that reflect job duties and performance	• Identify and hire talent based on evaluation from various aspects • Actively advance experienced employees
Workstyle Reform	• Promote workstyles that increase productivity and added value • Utilize digital tools • Maintain and improve mental and physical health	• Support balancing work with childcare, family care, and working while receiving medical treatment • Change mindsets and build relationships of trust through dialogue

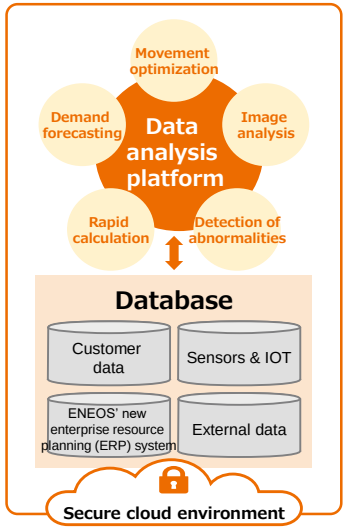
Digital Transformation (DX) Structure and Strengths

➢ **Aiming to improve the efficiency of base businesses and create innovative new products and services**

Structure	●Established the Digital Promotion Committee, chaired by the CDO (Chief Digital Officer, the Executive Vice President responsible for the IT Planning & Development Dept.) ●Accelerate and expand initiatives, centered on the Office of the CDO
Human Resources Development	●Develop "ABCD* human resources" (human resources who can promote DX) ●Raise the level of digital literacy among employees ＊A: AI･Analytics　B: Business Intelligence　C: Cyber Security　D: Design Thinking
Platform	●Build a digital platform centered on a data analysis platform ●Combine with real platform, developed through our businesses, to provide total services (grow into a platform provider)

DX銘柄2020
Digital Transformation





Initiatives to Maintain a Stable Supply (Measures for COVID-19)

➢ **Business continuity and maintaining the health and safety of our employees and those of our contractor companies are our top priorities.**

- Prevent conditions that could impact the stable supply of products
- Ongoing monitoring of the situation throughout the Group in meetings of the HD response headquarters
- Each operating company has established a response headquarters headed by its president.
- Plan to implement BCP in the event of further spread of the virus.

➢ **Workstyle reforms and promotion of DX to help prevent the spread of COVID-19.**

Promote remote working	● Prepare IT environment (PCs, networks, etc.) for working from home ● Ease and expand human resources systems to allow more work flexibility
Use DX to reduce contact	● Maximize use of IoT, AI and robotics technology for increased efficiency and sophistication throughout the value chain

Creating
Business Opportunities

Initiatives for the Achievement of Our Envisioned Goals

Blue: Details on following pages

Growth Businesses

Petrochemicals

- Refinery transformation to produce more chemical products
- **Advance into derivatives business**

Materials (Electronic Materials, etc.)

- **Supply advanced materials for highly advanced and high-value-added products**

Environmentally Conscious Businesses

(Recycling)
- Plastic waste and metal recycling
- **Vehicle LIB recycling**

(CCS/CCUS)
- Expansion to Southeast Asia

Next-Generation Energy Supply and Community Services

Based on SS
- Create mobility services and lifestyle support services in addition to existing services
- Grow into a platform that provides total services for all needs

Next-Generation Energy Supply and Community Services

Centered on Use of Distributed Power Sources
- **Efficient, stable supply of low-carbon energy**

Base Businesses

Petroleum Refining & Marketing

- Transformation of the supply chain

Oil & Gas E&P

- Maximize the value of existing assets and strengthen competitiveness

Metal Resources Development, Copper Smelting & Refining

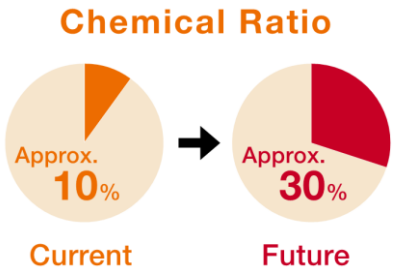
- Continue stable operation of Caserones
- Integrate Smelting and Refining Business and Recycling Business

Active introduction of digital technology

Petrochemicals Business (Measures and Main Initiatives)

Long-Term Trends and Social Issues	Development of a low-carbon, recycling oriented society; economic growth centered on Asia
Long-Term Vision	Increase competitiveness and profitability by transforming refineries to produce more chemical products and entering the high-value-added derivatives business.
Measures in the 2nd Medium-Term Management Plan	➢ Concrete measures aimed at increasing the chemical ratio[1] (Kawasaki, Kashima, Mizushima, Oita industrial complexes) ➢ Expand the scale of technologically superior products[2]

[1] The ratio of the volume of chemical products to the volume of all products produced from crude oil
[2] Product examples: Hydrogenated petroleum resin (used as an adhesive in disposable diapers, ENB (used as a additive in synthetic rubber for vehicle parts), electrical wire insulation material (used for specialty electrical wire such as high-voltage and ultra-high voltage wire)



Some of Our Main Initiatives

● **Strengthen alliances with Mitsubishi Chemical Corporation at the Kashima industrial complex (November 2019)**

Establish LLP with the ultimate goal of zero gasoline production at Kashima

LLP discussion points
- Further efficiencies in raw materials and manufacturing processes
- Use of gasoline base materials for chemicals and optimization of production for petrochemical products (incl. derivatives)
- Chemical recycling technology for reuse of waste plastics

● **Start of discussion for construction of ENB manufacturing facilities in Saudi Arabia (April 2020) – details on following page**

Petrochemicals Business: Future of the ENB Business

ENB

- Necessary component of synthetic rubber (EPDM), used in materials for automotive parts
- Increase in demand expected (3–4% annually) due to increase in automobile production

Consumer needs

Supply stability

Essential for automobile manufacture
(window frames, door frames, radiator hoses, etc.)

ENEOS Strengths

Supply stability backed by the world's largest production capacity

68,000 tons/year, Japan: 22,000 tons; US: 46,000 tons

Global sales network

Pursue discussion for expansion of production sites to capture rising demand

Materials (Electronic Materials, etc.) Business (Measures and Main Initiatives)

Long-Term Trends and Social Issues	➢ Rising demand for high-performance electronic devices to support the digital transformation ➢ Development of a low-carbon, recycling-oriented society
Long-Term Vision	➢ Supply advanced materials for highly advanced and high-value-added products ➢ Develop products in line with global trends
Measures in the 2nd Medium-Term Management Plan	➢ Capture growth in demand due to the proliferation of 5G-capable devices and the rebound in the memory segment ➢ Improve products for advanced functionality and higher added value while establishing production capacity in accordance with growing demand ➢ Cultivate the seeds of new businesses through M&A and open innovation

Some of Our Main Initiatives

Electronic materials

● **Commence sales of high-conductivity, high-strength Corson alloy for high-performance electronic devices (November 2019) – details on following page**

● **XYDAR®*, a liquid crystal polymer for which expanded use is expected for next-generation vehicles**

- XYDAR ®, which features superior heat resistance and dimensional accuracy, is used in connectors for smartphones and other devices, as well as camera modules.
- With growth of 5G and next-generation vehicles, greater use expected in flexible circuit boards and radar circuit boards

＊XYDAR ® is a registered trademark of Solvay Specialty Polymers USA, LLC.

● **Pursue collaboration for the development of next-generation advanced materials**

- Gallium oxide crystals (applications in materials for power devices): Novel Crystal Technology, Inc.
- Lotus metals (applications in coolers for high-performance CPUs and EV batteries): Lotus Thermal Solution, Inc.

Environmentally friendly products

● **Release of the new ENEOS X PRIME and ENEOS X, geared to the latest specifications (July 2020)**

- ENEOS X PRIME is a new premium motor oil, developed with attention to ride comfort.
- This new series of products offers up to 3% higher fuel efficiency than the older series.

● **Development of ENEOS EV FLUID, specialized fluids for EV/hybrid vehicles (June 2020) – details on following pages**

Materials (Electronic Materials, etc.) Business : Advantages of High-Conductivity, High-Strength Corson Alloys

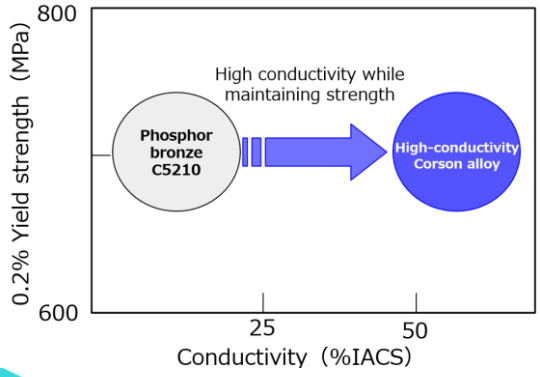
Corson Alloys

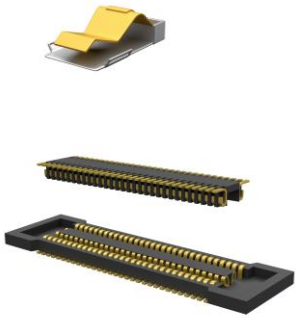
- Copper alloys used in connectors and other electronic parts
- Increased functionality required for higher-performance, smaller and thinner electronic devices.

Contradictory properties

Consumer needs

Higher strength
Higher conductivity





JX Nippon Mining & Metals Strengths

Advanced technological capability,
enabling improvement in both strength and conductivity

Based on our metal processing technology, successfully developed new products with greater conductivity while maintaining their strength

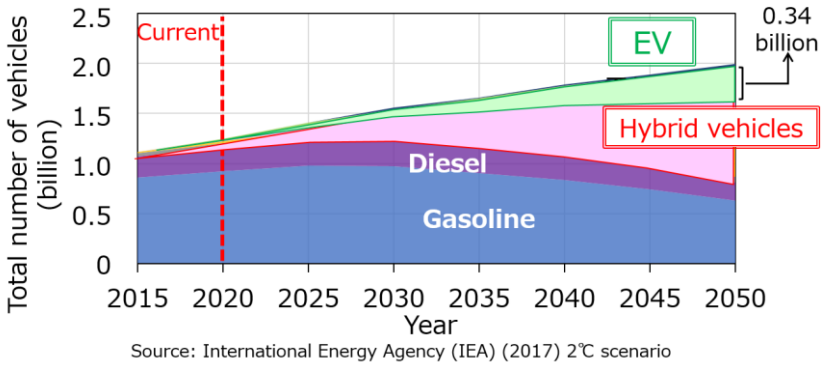
We are strengthening initiatives for Corson alloys and other advanced product lines, in light of the further advancement of IoT and AI in society.

Materials (Electronic Materials, etc.) Business : Specialized Lubricants for EVs and Hybrid Vehicles

Projected Demand for EVs and Hybrid Vehicles

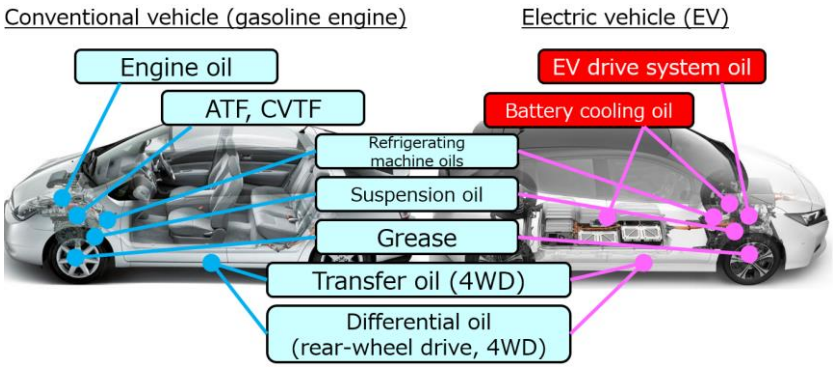
- EVs and hybrid vehicles will increase, accelerating the electrification of vehicles.
- A diverse range of lubricants will be needed to maintain the drive systems of electric vehicles.

Projected vehicle ownership worldwide



Source: International Energy Agency (IEA) (2017) 2℃ scenario

Types of automotive lubricants



Consumer needs

Specialized lubricants (electrical insulation, cooling properties, etc.)

ENEOS Strengths

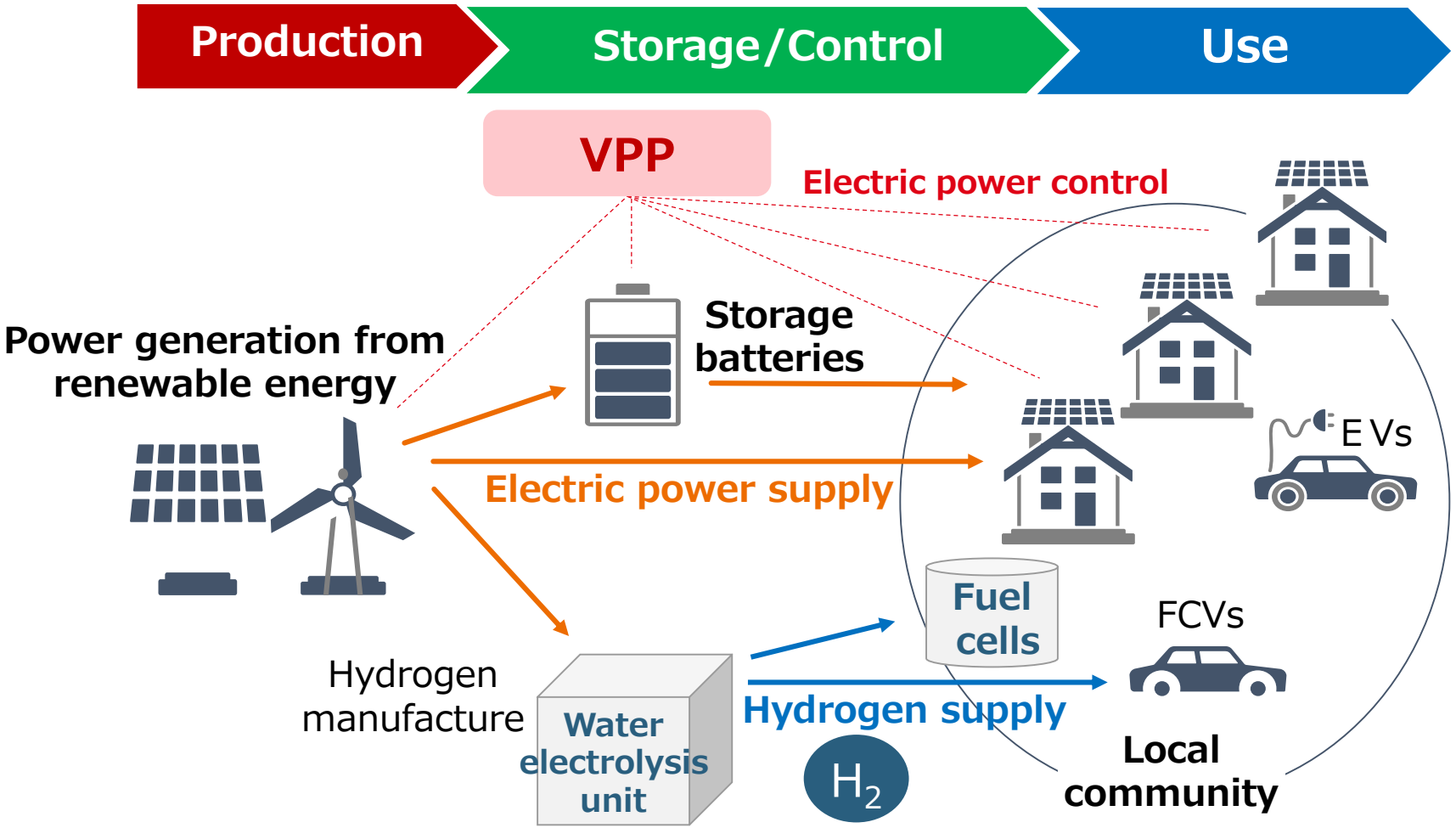
Lubricant technology developed over many years

Development of specialized lubricants for EVs and hybrid vehicles

Steadily capture new demand by accelerating approach to principal EV manufacturers, etc.

Our Envisioned Energy Supply Platform

Based on locally produced, locally consumed renewable energy
Hydrogen plays a major role in the effective use of renewable energy



Environmentally Conscious Businesses (Measures and Main Initiatives)

Long-Term Trends and Social Issues	Development of a low-carbon, recycling-oriented society, lifestyle changes 
Long-Term Vision	Stable, efficient supply of low-carbon energy
Measures in the 2nd Medium-Term Management Plan	➢ Expand customer base and build optimal portfolio of power generation sources ➢ Create energy services that make full use of in-house resources ➢ Conduct verification trial aimed at building an overseas hydrogen supply chain

Some of Our Main Initiatives

Production (power generation from renewable energy) – details on following pages

- Collaboration with Renewable Japan Co., Ltd. for joint development of renewable energy (Dec. 2019)
- Commencement of operations at the Muroran biomass power plant, the largest biomass power plant in Japan (May 2020)
- Participation in wind power project offshore of Akita Prefecture (September 2020)

Storage and control (VPP) – details on following pages

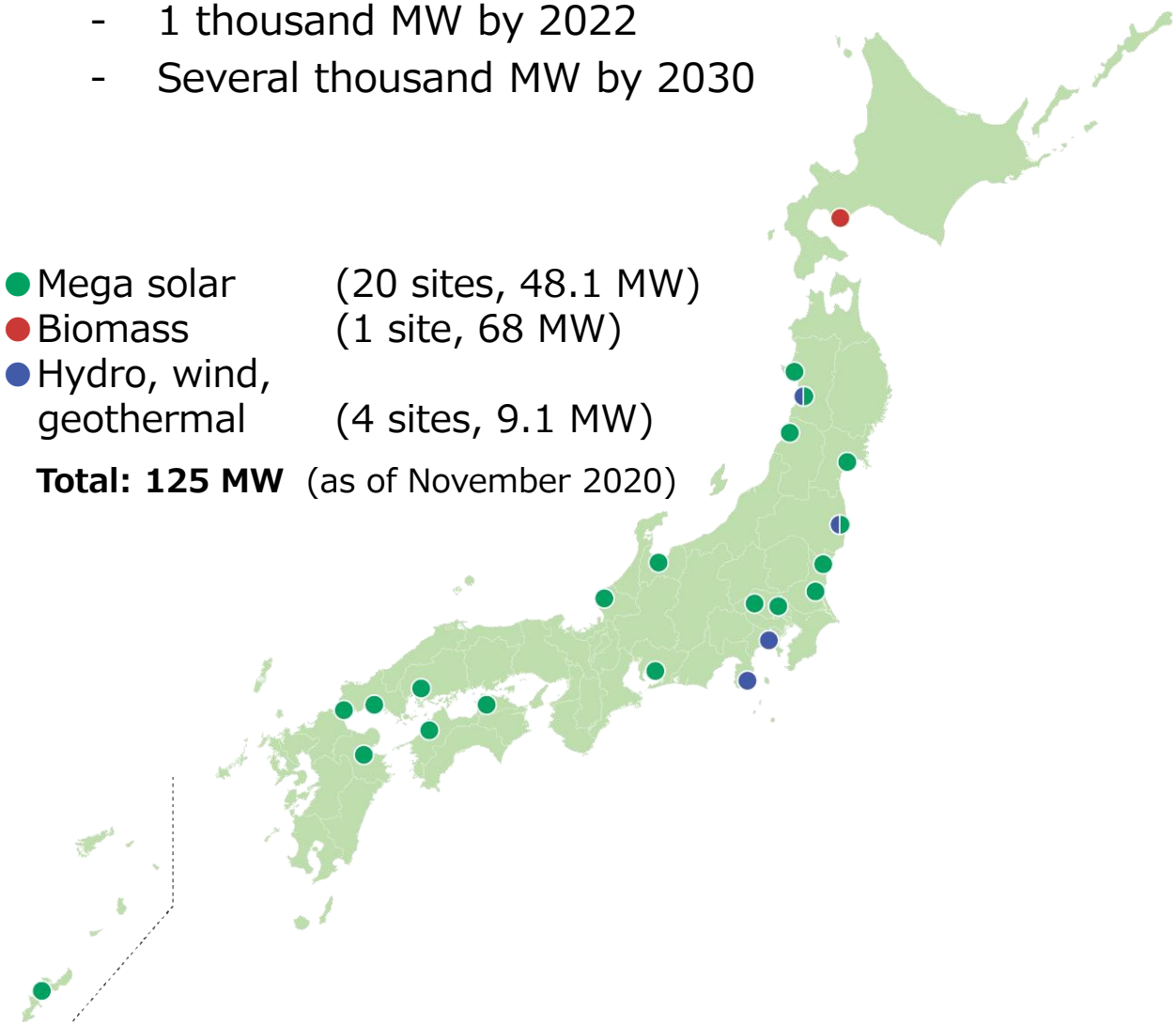
- Start of first VPP verification trial in Japan in four categories, including SS (July 2020)

Use (hydrogen supply, collaboration with local communities) – details on following pages

- Opening of Tokyo Harumi hydrogen station as a future designated area supply site for hydrogen (October 2020)
- Pursue collaboration with local communities
  - Higashi Murayama City
  - Shimizu-ku, Shizuoka City
  - Shintomi-cho, Miyazaki Prefecture
  - Tokyo Zero-emission Innovation Bay

Next-Generation Energy Supply and Community Services Business: Production (Power Generation from Renewable Energy)

- **Aiming for expansion of renewable energy power generation capacity in Japan and overseas**
  - 1 thousand MW by 2022
  - Several thousand MW by 2030



- Mega solar (20 sites, 48.1 MW)
- Biomass (1 site, 68 MW)
- Hydro, wind, geothermal (4 sites, 9.1 MW)

Total: 125 MW (as of November 2020)

Muroran Biomass Power Plant

Shimoda Onsen Binary Power Plant

Kudamatsu Mega Solar Power Plant

Next-Generation Energy Supply and Community Services Business: Storage and Control (VPP)

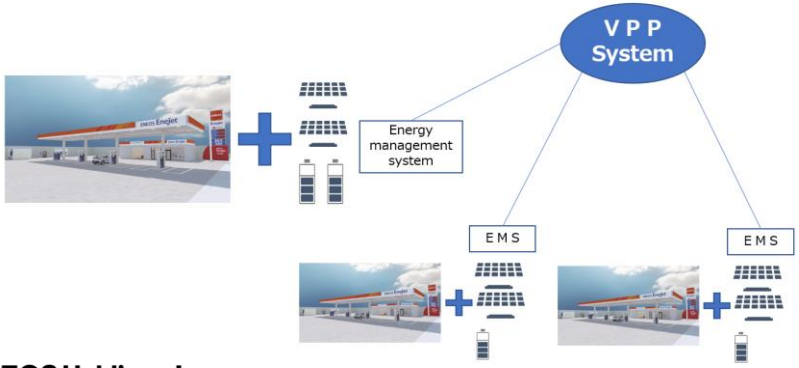
- **VPP are virtual power plants that run multiple small-scale renewable energy power plants and systems.**
- **Supply/demand adjustment and control capability, which enable supply leveling, are needed for the effective use of renewable energy.**
  - Electricity storage and flexible control of supply in accordance with demand are key issues.
- **Through four verification trials, we will gain technological expertise and experience.**

Example 1: Verification Trial at SS

Installation of storage batteries and solar panels at three SS

Verification points

- Charge/discharge of storage batteries for effective use of power
- Accuracy of storage battery response to power system fluctuations
- Control to optimize use of storage batteries



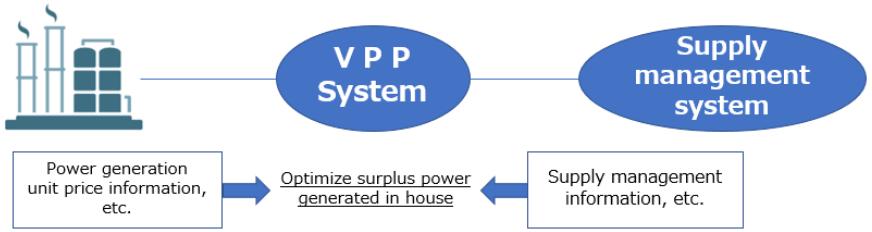
Example 2: Verification Trial at Refineries and Plants

Coordination at 13 refineries and plants in Japan

- **Demand response using power consumption**
- **Power generation capacity of own power generation facilities**
- **Supply/demand management system in electricity business**

Verification point

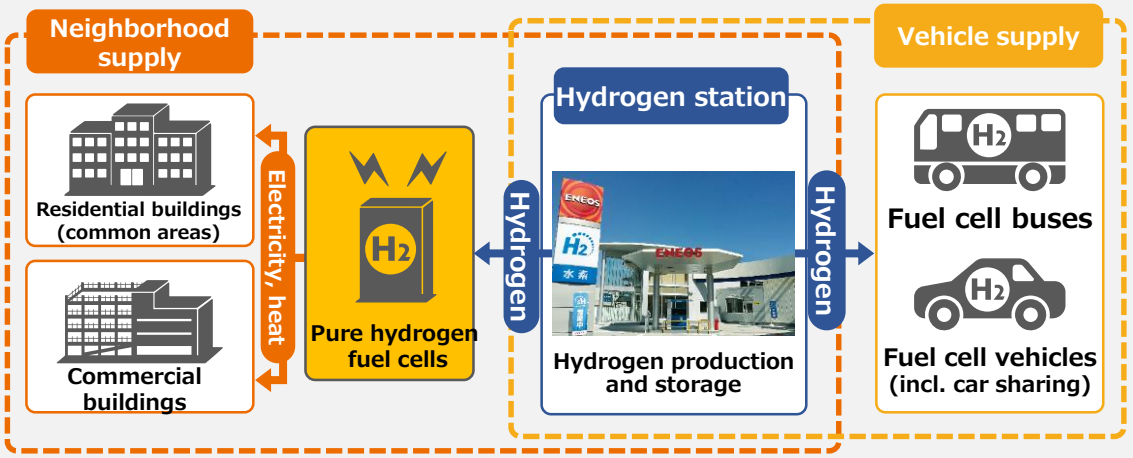
- Optimization of surplus of own power generation (supply/demand balance adjustment in electricity business)



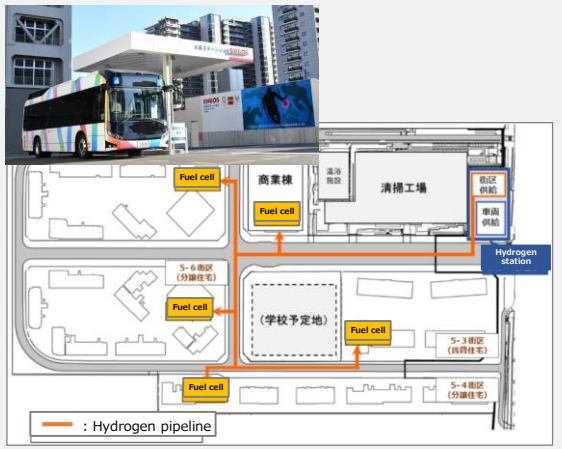
Next-Generation Energy Supply and Community Services Business: Use (Hydrogen Supply, Collaboration with Local Communities)

- **Pursue two roles for hydrogen stations**
  - **Hydrogen refueling sites (for FCVs)** and **designated area supply sites (for households)**
- **Hydrogen refueling sites (for FCVs)**
  - Tokyo Harumi Hydrogen Station (supply site for vehicles used in Olympics/Paralympics) opened in Oct. 2020
  - We operate 44 sites nationwide (approx. 33% share, No. 1 in Japan) (as of Oct. 2020)
- **Designated area supply sites (for households)**
  - Plan to relocate Tokyo Harumi Hydrogen Station to urban redevelopment area in 2022 or later. In addition to supply for vehicles, electricity and heat will be supplied to designated areas via pure hydrogen fuel cells.
  - Accelerate collaboration with local communities for the implementation of energy supply platforms in designated areas
    - Higashi Murayama City; Shimizu-ku, Shizuoka City; Shintomi-cho, Miyazaki

Roles of Hydrogen Stations (illustration)



Tokyo Harumi Hydrogen Station



Environmentally Conscious Businesses (Recycling) (Measures and Main Initiatives)

Long-Term Trends and Social Issues	Development of a low-carbon, recycling-oriented society, advancement of digital transformation
Long-Term Vision	Pursue plastic waste and metal recycling using Company assets, and vehicle LIB* recycling
Measures in the 2nd Medium-Term Management Plan	➢ Conduct a verification trial for use of refineries to recycle petrochemicals ➢ Work to build a model for battery storage recycling for EV buses in collaboration with BYD ➢ Explore commercialization of recycling LIB for vehicles in 2025 or later

*LIB: lithium ion battery

Some of Our Main Initiatives

● **Start of discussions with Mitsubishi Chemical Corporation for chemical recycling technology for plastic waste (November 2019)**

● **Collaboration with BYD (December 2019)**

Start of verification test for construction of a ”lease-reuse-recycle” model for EV bus storage batteries

”Lease-reuse-recycle” model

- Lease (primary use): Lease storage batteries for EV buses to bus companies
- Reuse (secondary use): Recover used storage batteries and reuse as stationary storage batteries
- Recycle (tertiary use): Dismantle the batteries and recycle the materials into new materials

● **Start of operation of bench-scale equipment for recycling automotive lithium ion batteries (February 2020) – details on following slide**

Environmentally Conscious Businesses: Recycling Automotive LIB

Expected Demand and Key Issue for Automotive LIB Recycling

- With the growth of EVs and hybrid vehicles, increased demand for lithium, cobalt, nickel and other rare metals used in automotive LIB is expected, along with a sharp rise in the volume of used LIB.
- The establishment of recycling technology and processes for the efficient use and stable supply of rare metals, which are scarce resources, is a key issue.

Consumer needs

High quality
Reasonable cost
Stable supply

JX Nippon Mining & Metals Strengths

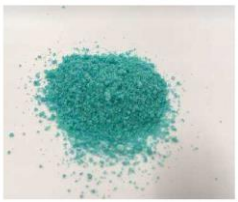
Proprietary technology for recovery of high-quality rare metals

Stable recovery and reuse made possible by closed-loop recycling technology

Through verification testing with bench-scale equipment at Hitachi Works, we aim to establish production processes at reasonable cost.

Lithium carbonate

Cobalt sulfate



Nickel sulfate

Bench-scale equipment in operation

Environmentally Conscious Businesses (CCS/CCUS) (Measures and Main Initiatives)

Long-Term Trends and Social Issues	Development of a low-carbon, recycling-oriented society
Long-Term Vision	Roll out CCS[1]/CCUS[2] primarily to the Southeast Asia region, about which we are knowledgeable
Measures in the 2nd Medium-Term Management Plan	➢ Utilize CCS/CCUS and other technologies developed through the U.S. CO_2EOR[3] business ➢ Collaborate with strategic partners in evaluating business potential

1 CCS : Carbon dioxide capture and storage
2 CCUS : Carbon dioxide capture, utilization and storage
3 EOR : Enhanced oil recovery

Some of Our Main Initiatives

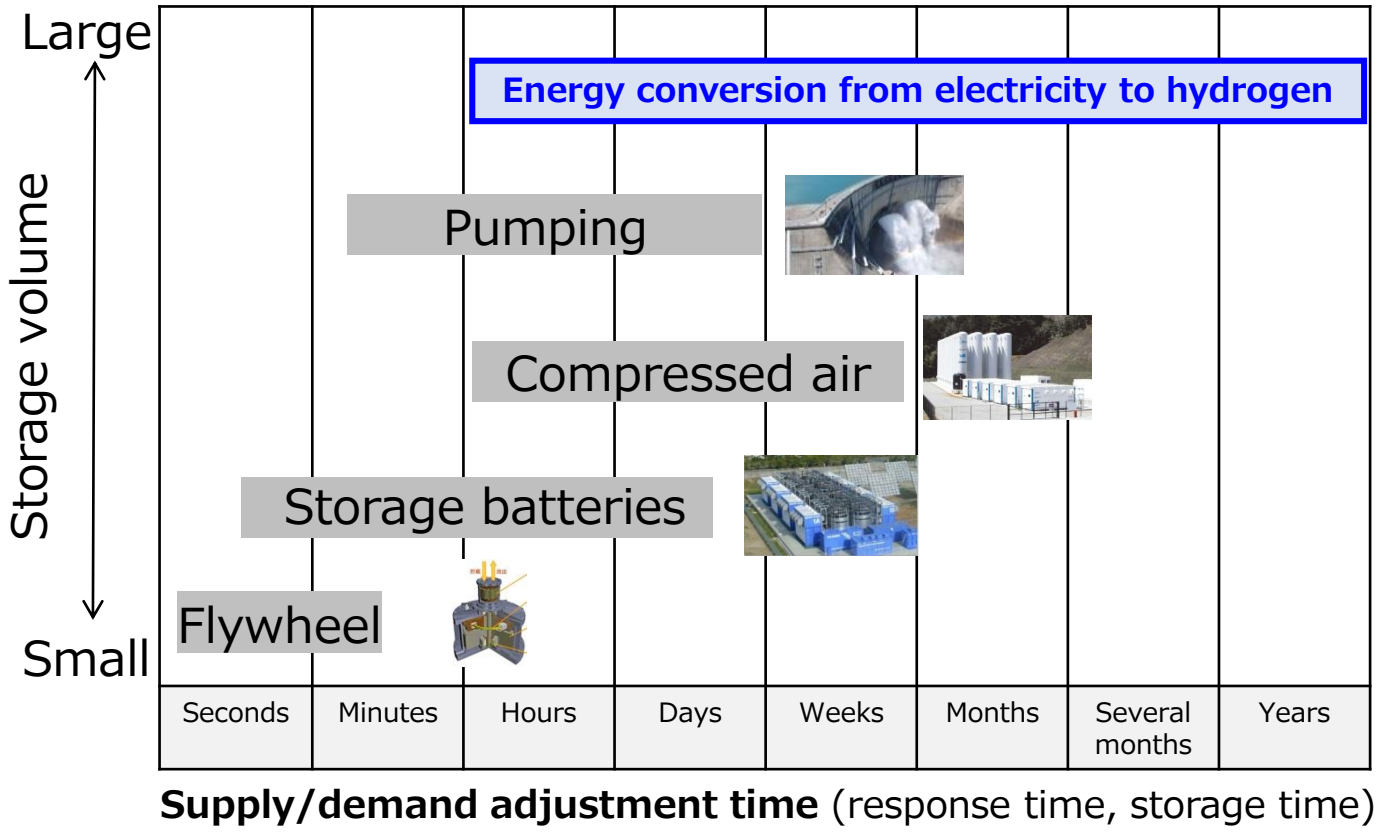
- **Business collaboration based on JX Nippon Oil & Gas Exploration's CO_2EOR knowledge**
  - Start discussion on joint study and project, including for CO_2EOR, with Indonesia state oil company Pertamina
  - Start joint study for gas field development using CCS technology with Malaysia state oil company Petronas

- **Industrial-academic collaboration**
  - Commission research on EOR using chemicals (surfactants) to the University of Texas at Austin
  - Collaboration with Waseda University on development of technology for manufacturing fuel and chemicals from CO_2

Planting Seeds for Future Businesses

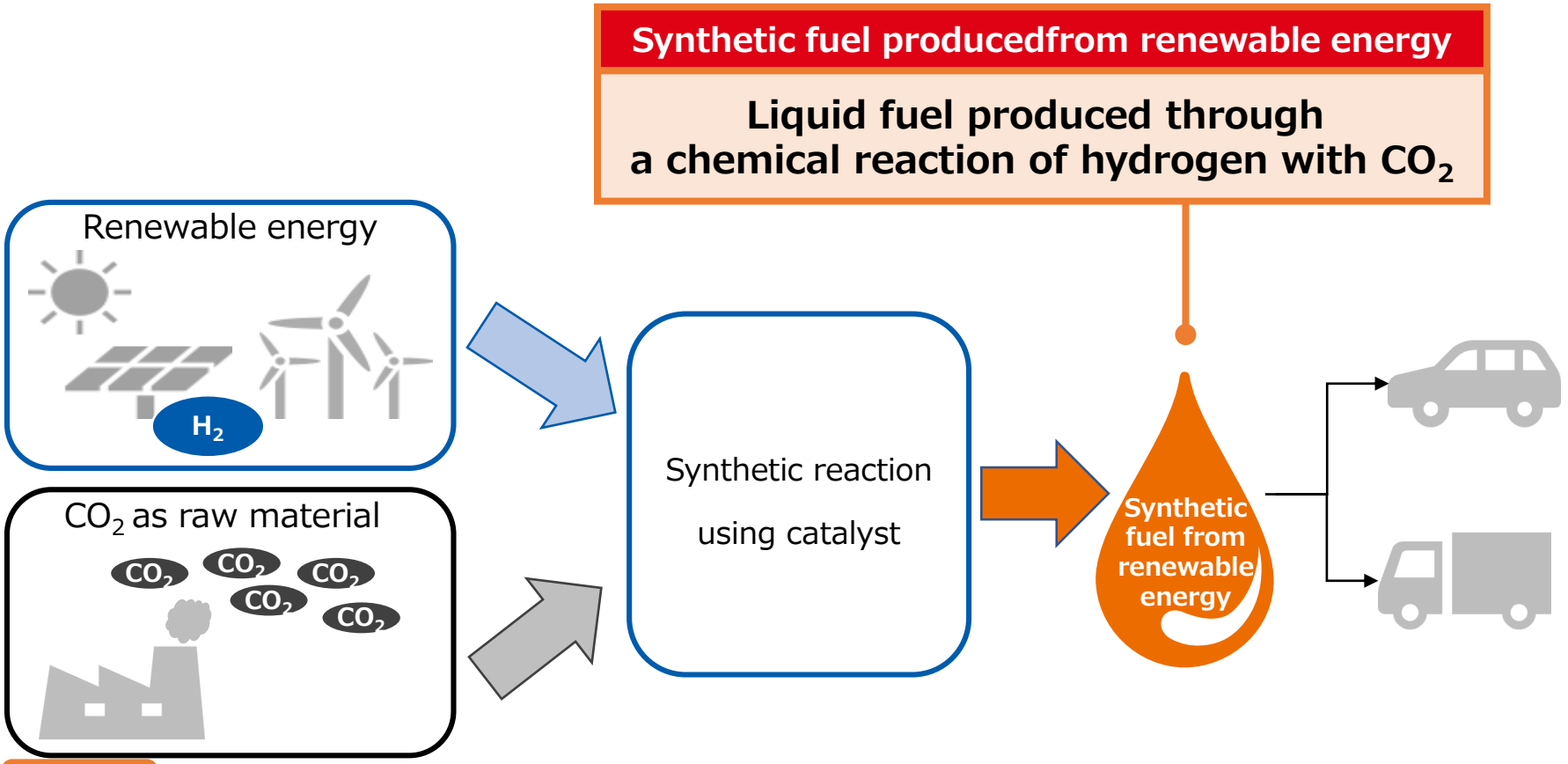
Energy Conversion Method for Electricity – Hydrogen is the Best Choice

- **Storage is required for supply leveling of renewable energy.**
  - Electricity is stored and supply volume is flexibly controlled in accordance with demand.
- **Hydrogen enables long-term storage of electricity generated from renewable energy.**



Development of Technology for Producing Synthetic Fuel from Renewable Energy

- **Two uses for hydrogen: as hydrogen and in processing through a chemical reaction with CO_2**



Points

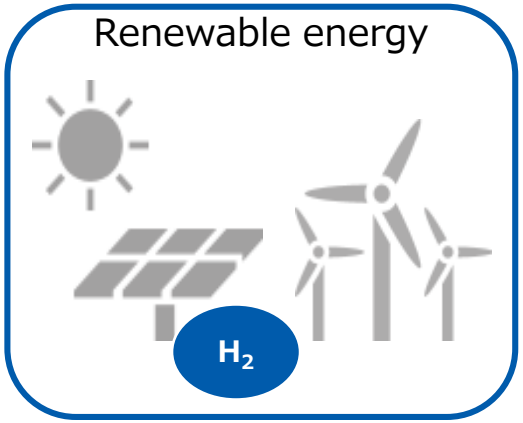
- **Can be produced using existing infrastructure, so no new infrastructure is needed.**
- **Achievement of net carbon zero through use of CO_2-free hydrogen**

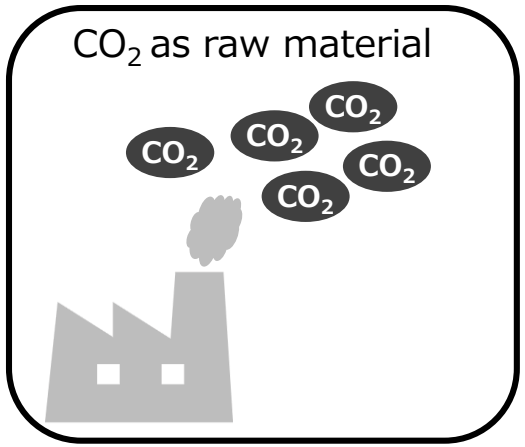
Challenges in the Commercialization of Synthetic Fuel Produced from Renewable Energy

- **Large-volume procurement of hydrogen and improvement of the recovery rate of synthetic fuel produced from renewable energy are the keys to cost reduction.**

Challenge 1

Low-priced, large-volume procurement of CO_2-free hydrogen





Synthetic reaction using catalyst

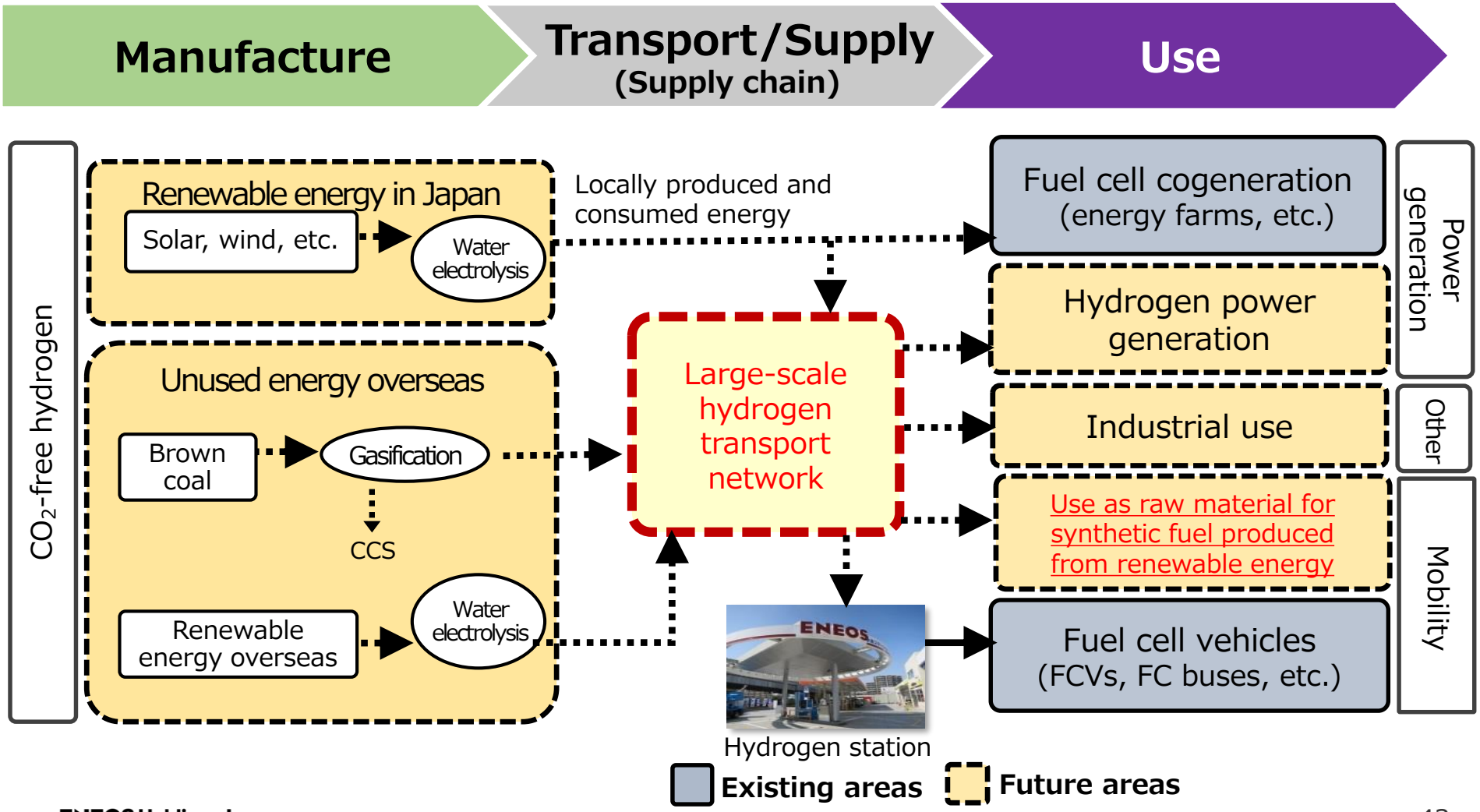
Synthetic fuel from renewable energy

Challenge 2

Improvement of the recovery rate of synthetic fuel produced from renewable energy, produced through a synthetic reaction
(ratio of amount produced to raw materials)

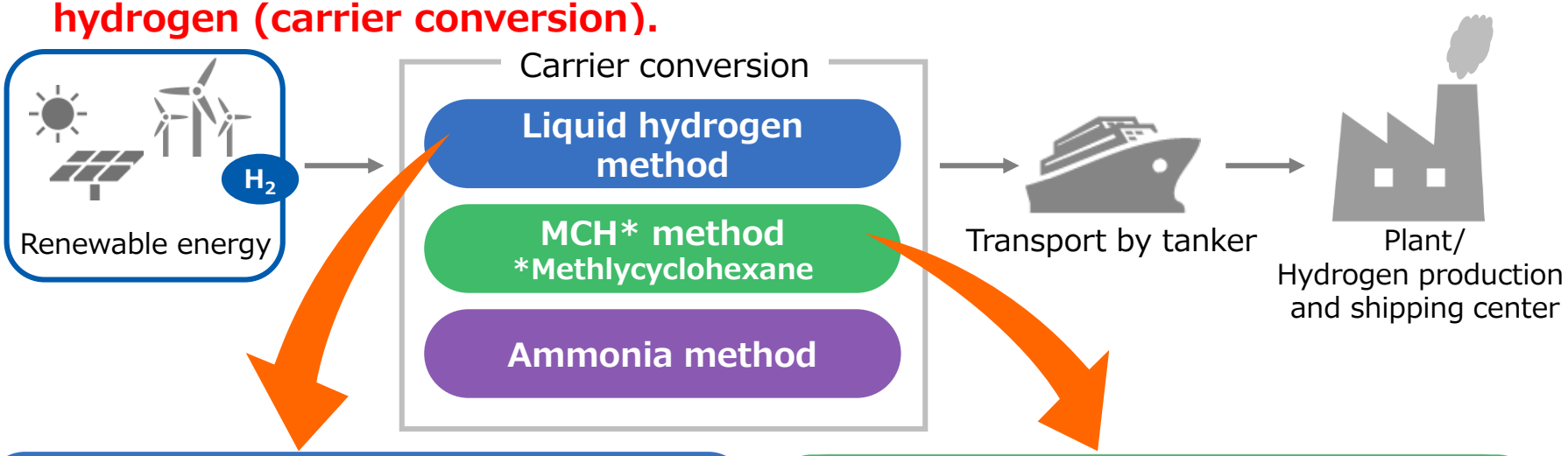
Resolution of Challenges in the Commercialization of Synthetic Fuel Produced from Renewable Energy (CO_2-free Hydrogen Procurement)

- **Relatively inexpensive procurement of unused energy possible overseas.**
- **Establishment and practical useability of a supply chain, including a large-scale hydrogen transport network, is key.**



Initiatives for the Establishment of a CO_2-free Supply Chain

➢ **Research underway on two methods for large-scale marine transport of hydrogen (carrier conversion).**

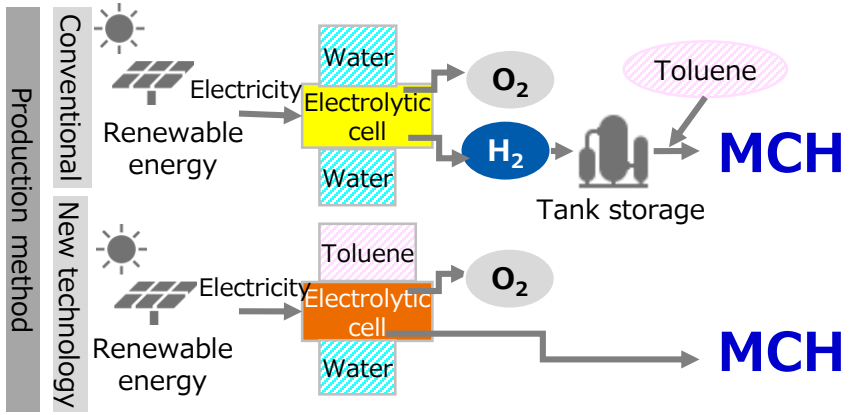


Liquid hydrogen method

- We are a participant in the CO_2- free Hydrogen Energy Supply-chain Technology Research Association **(HySTRA)**, where we are exploring commercialization as a corporate member.
  - Development of technology for and verification testing of liquification and long-distance, large-scale transport of CO2-free hydrogen produced from unused brown coal in Australia

Brown coal in Australia

MCH method

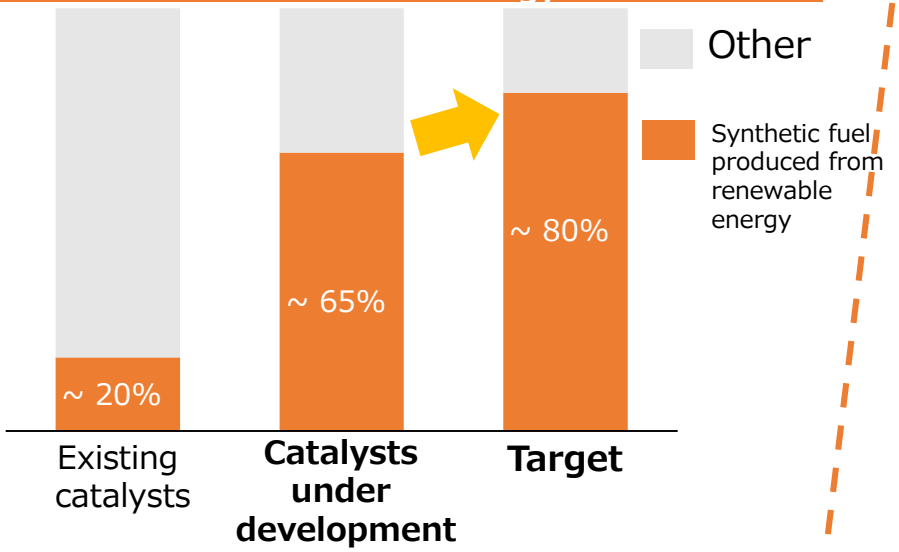


With the new electrolysis cells we developed, we succeeded in simplifying the production process for MCH, producing it directly from toluene and water.

Resolution of Challenges in the Commercialization of Synthetic Fuel Produced from Renewable Energy (Improvement of Recovery Rate)

- Main resolution measures are the **development of high-efficiency catalysts** and **improvement of production processes**
- For catalyst development, we are combining the technologies we have cultivated and MI technology.

Development of new catalysts for high recovery rate of synthetic fuel produced from renewable energy



Aiming to develop catalysts with **four times** the recovery rate compared to usage times of existing catalysts.

Accelerate development using MI technology

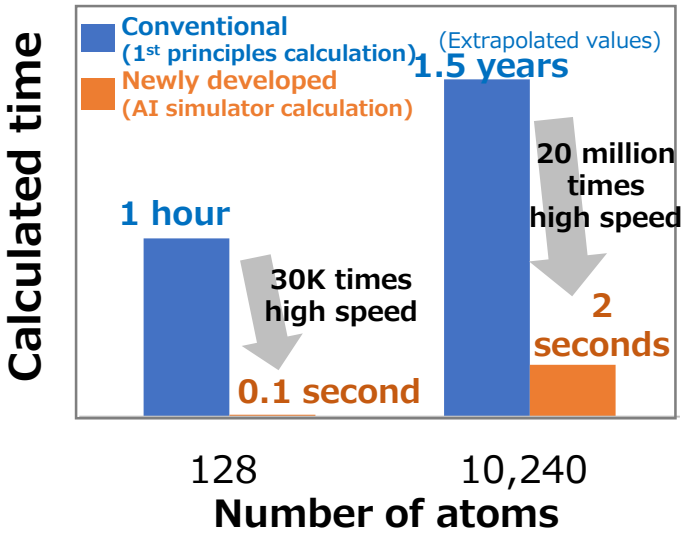
Technology that supports catalyst development: MI*

*Materials informatics

MI development through collaboration with Preferred Networks

ENEOS × Preferred Networks

Successfully developed high-speed AI molecule simulator



Roadmap for Commercialization of Synthetic Fuel Produced from Renewable Energy

➢ **Pursuing verification and other initiatives with a view to commercialization and certification around 2030**

	2022~	2025~	2030~
Scale	~1 BPD	~100 BPD	~10,000 BPD
H_2 Hydrogen sources	Electricity produced from renewable energy in Japan + water electrolysis	Electricity produced from renewable energy in Japan + water electrolysis + large-scale transport	
CO_2 CO_2 sources	Refineries (cylinders)	Refineries (exhaust gas)	
Facilities (illustration)			
Goals	● Reactor configuration ● Confirm characteristics of synthetic fuel produced from renewable energy	● Process optimization ● Review suitability of scale	● Commercialization ● Certification

Thank you

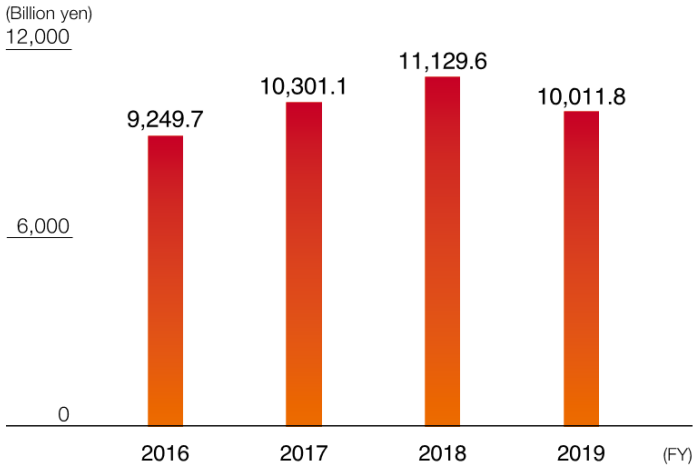
Selection for inclusion in ESG-related indexes (as of December 2020)

- FTSE4Good Index Series
- FTSE Blossom Japan Index
- MSCI Japan ESG Select Leaders Index
- MSCI Japan Empowering Women Index (WIN)
- S&P/JPX Carbon Efficient Index
- SOMPO Sustainability Index
- 2020 Health and Productivity Management
- Digital Transformation Stock Selection (DX Stock) 2020

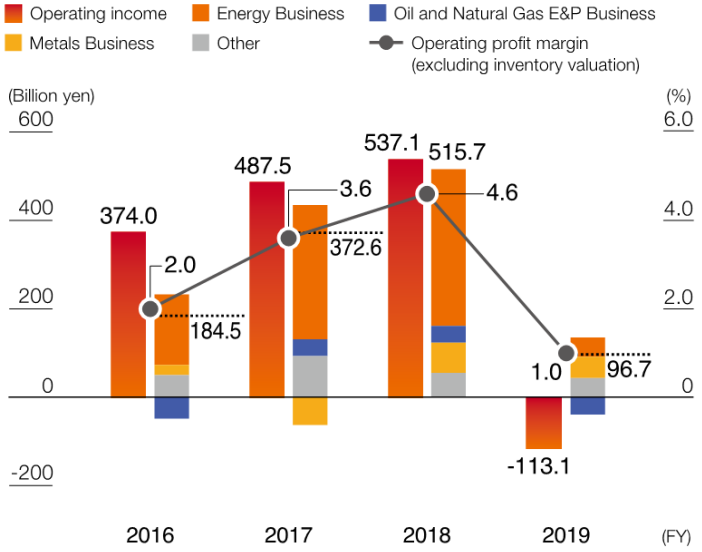
Reference

Financial Highlights (1)

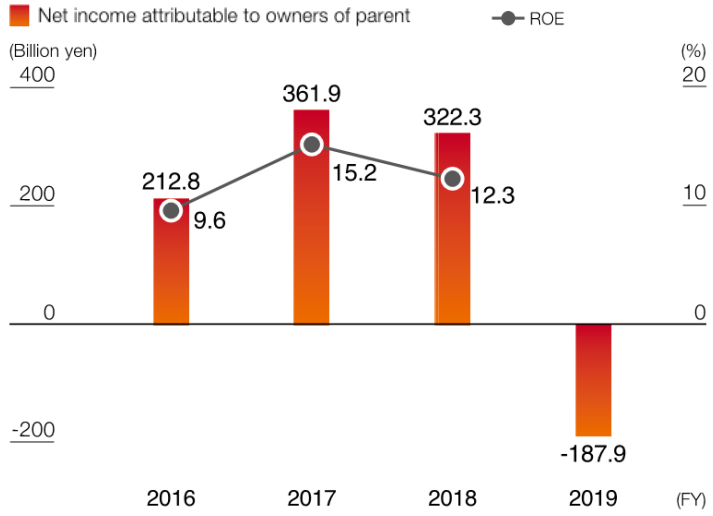
Net Sales



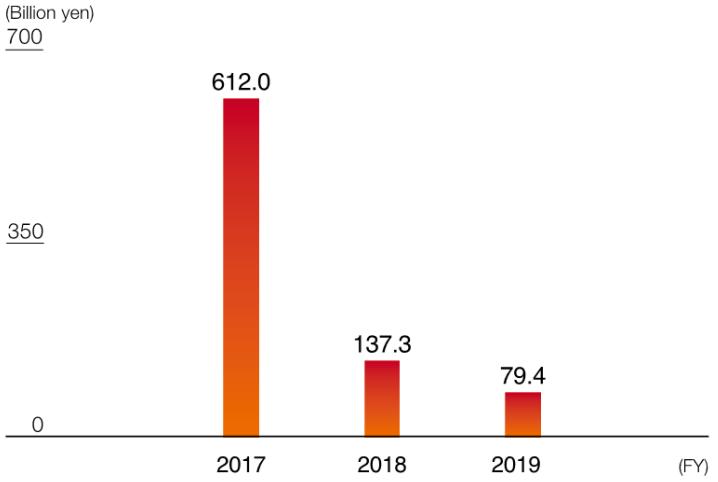
Operating Income, Operating Income Excluding Inventory Valuation and Operating Profit Margin (Excluding Inventory Valuation)



Net Income and ROE

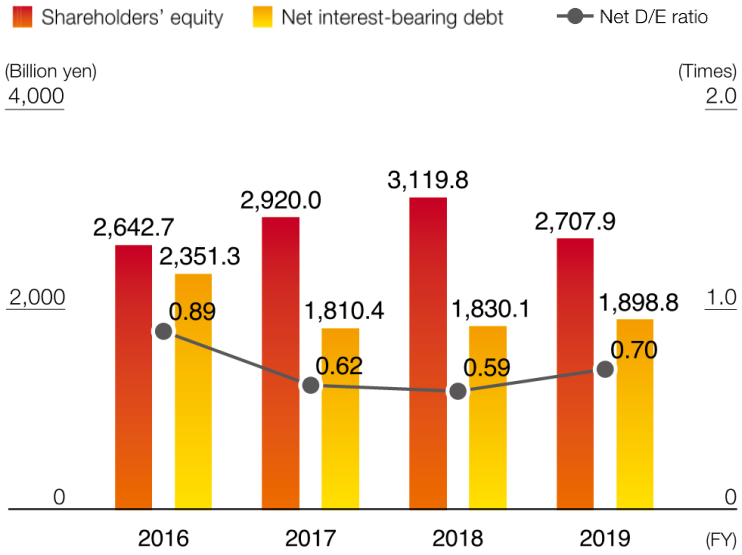


Free Cash Flow

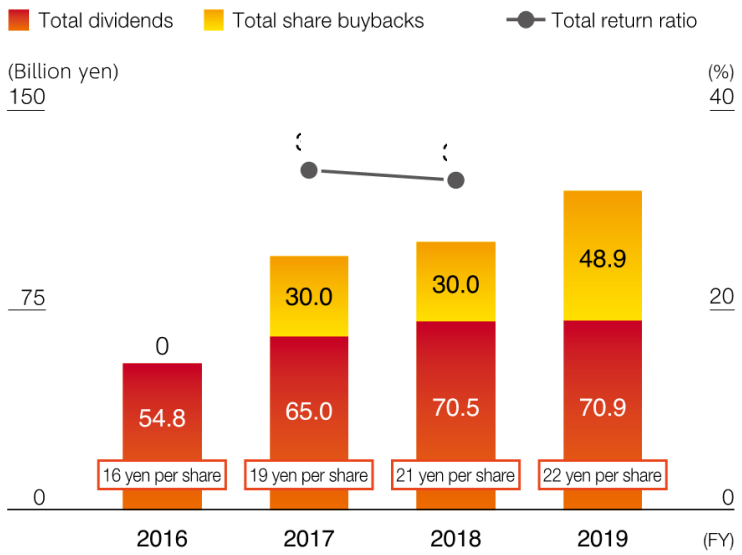


Financial Highlights (2)

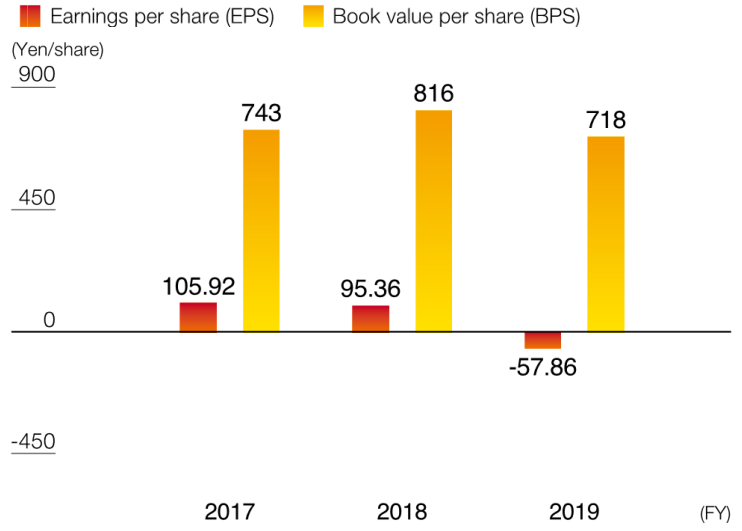
Shareholders' Equity, Net Interest-Bearing Debt, and Net D/E Ratio



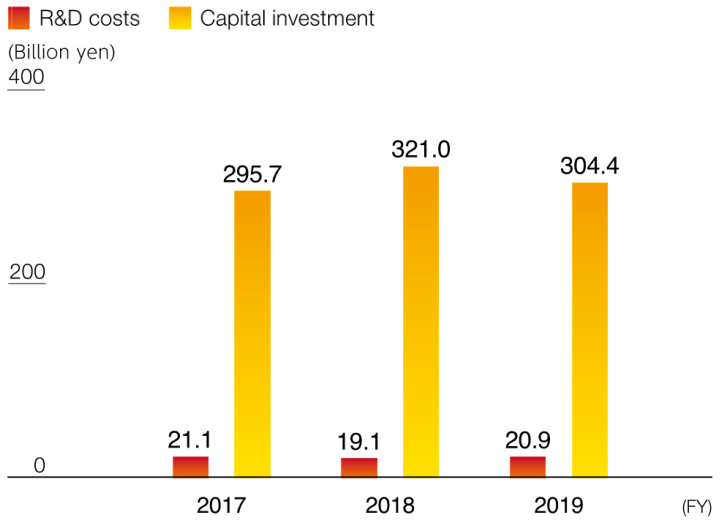
Total Dividends, Total Share Buybacks and Total Return Ratio



Earnings per Share (EPS) and Book Value per Share (BPS)

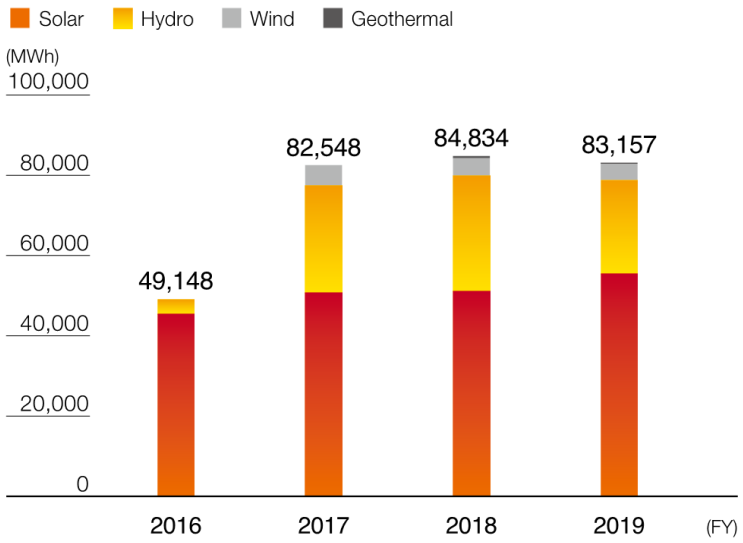


R&D Costs and Capital Investment

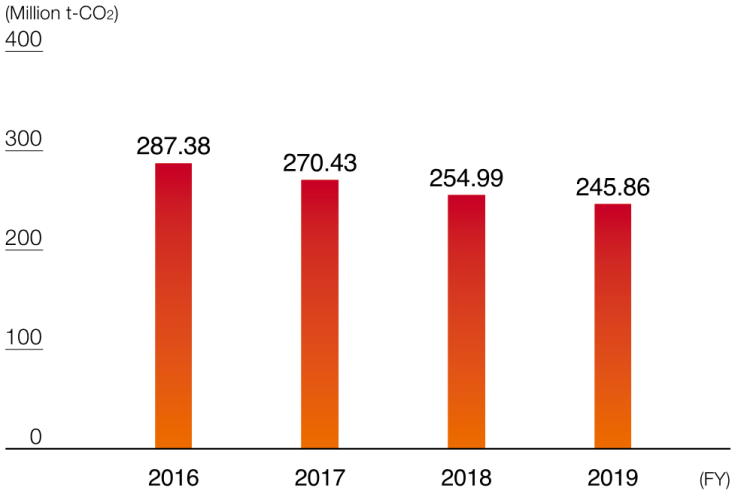


Non-Financial Highlights (1)

Power Generation from Renewable Energy

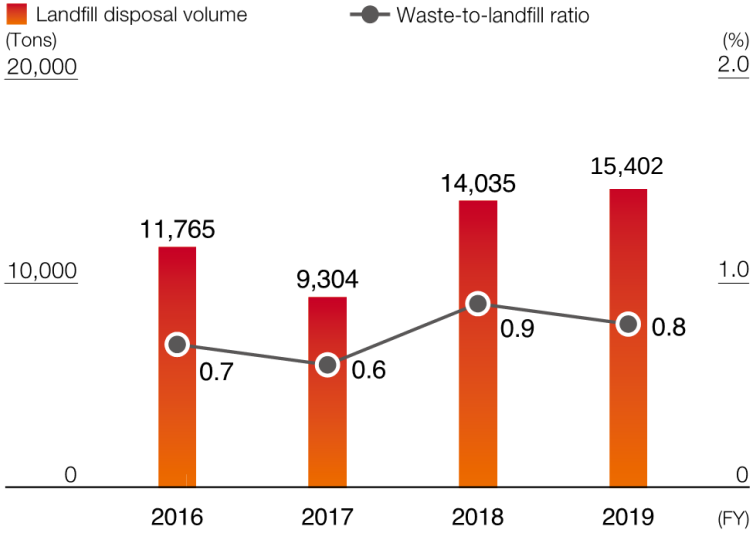


CO_2 Emissions*

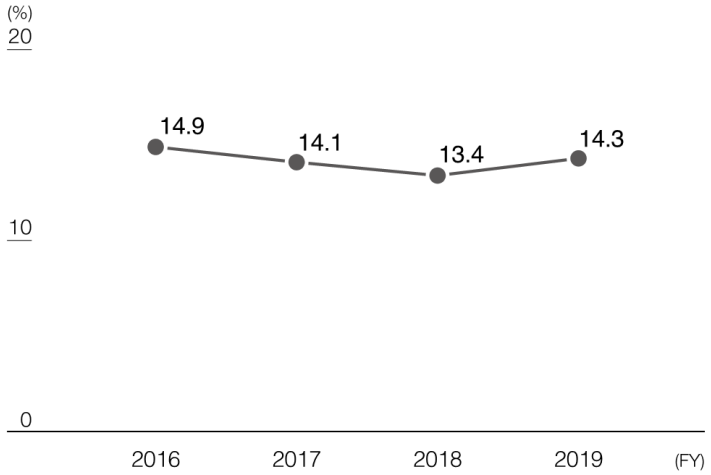


*Total of Scope 1, Scope 2 and Scope 3
(direct emissions from corporate activities, indirect emissions from energy use, and indirect emissions from customer consumption)

Landfill Disposal Volume and Waste-to-Landfill Ratio



Percentage of Women Among New Hires*



*Scope of data: ENEOS Holdings and principal operating companies

Non-Financial Highlights (2)

Employee Data[1]

		March 31, 2018	March 31, 2019	March 31, 2020
Number of employees	Male	9,987	9,930	10,060
	Female	1,226	1,221	1,321
	Total	11,213	11,151	11,381
Turnover rate (%) [2]		1.8	3.1	2.2
Average years of employment		19.2	19.1	19.0
Number of re-hired employees (after mandatory retirement)		710	589	799
Ratio of female managers (%)		2.5	2.7	3.2
Ratio of employees with disabilities (%)		2.3	2.4	2.4
Paid leave	Number of days of paid leave granted	22.3	22.0	22.2
	Number of days of paid leave taken	18.8	19.8	20.5
	Paid leave usage rate (%)	84.0	90.0	92.3
Childcare leave	Total number of employees taking childcare leave	164	220	330
	Number of male employees taking childcare leave	107	171	277
	Rate of employees returning to work (%)	100	100	100
Number of employees taking family care leave		3	5	6
Labor union [3]	Number of members	8,141	9,328	9,484
	Membership rate (%)	99.7	99.5	99.9

[1] Scope of data: ENEOS Holdings, ENEOS, JX Nippon Oil & Gas Exploration, JX Nippon Mining & Metals
[2] Percentage of regular employees as of March each year
[3] ENEOS Holdings and JX Nippon Oil & Gas Exploration do not have labor unions.
Employees of ENEOS Holdings are seconded from principal operating companies and belong to labor unions at their companies of origin.

Cautionary Statement Regarding Forward-Looking Statements

These materials contain certain forward-looking statements, however, actual results may differ materially from those reflected in any forward-looking statement, due to various factors, including but not limited to, the following.

1. Macroeconomic conditions and changes in the competitive environment in the energy, resources and materials industries
2. Changes in laws and regulations
3. Risks related to litigation and other legal proceedings