Disclosure in Line with the Recommendations of the TCFD

September 2022

Marubeni Corporation

Disclaimer Regarding Forward-Looking Statements and Original Language

This material contains forward-looking statements about the future performance, events or management plans of Marubeni Corporation and its Group companies (the Company) based on the available information, certain assumptions and expectations at the point of disclosure, of which many are beyond the Company's control. These are subject to a number of risks, uncertainties and factors, including, but not limited to, economic and financial conditions, factors that may affect the level of demand and financial performance of the major industries and customers we serve, interest rates and currency fluctuations, availability and cost of funding, fluctuations in commodity and materials prices, political turmoil in certain countries and regions, litigation claims, changes in laws, regulations and tax rules, and other factors. Actual results, performances and achievements may differ materially from those described explicitly or implicitly in the relevant forward-looking statements.

The Company has no responsibility for any possible damages arising from the use of information on this material, nor does the Company have any obligation to update these statements, information, future events or otherwise.

This material is an English language translation of the materials originally written in Japanese. In case of discrepancies, the Japanese version is authoritative and universally valid.

Contents

Disclosure in Line with the Recommendations of the TCFD

The Marubeni Group recognizes climate change as a global and highly urgent social issue, and identifies it as one of its Environmental and Social Materiality issues. Recognizing the growing expectations and needs for the role to be played by the private sector under the Paris Agreement, in which the international community cooperates to abate GHG emissions, we believe that contributing to climate change countermeasures through our business will lead to the sustainable growth of the Marubeni Group.

In February 2019, recognizing the importance of climate-related financial disclosures, the Marubeni Group affirmed the TCFD* recommendations. We are committed to enhancing related disclosures.

* The Task Force on Climate-related Financial Disclosures (TCFD) was established by the Financial Stability Board (FSB).

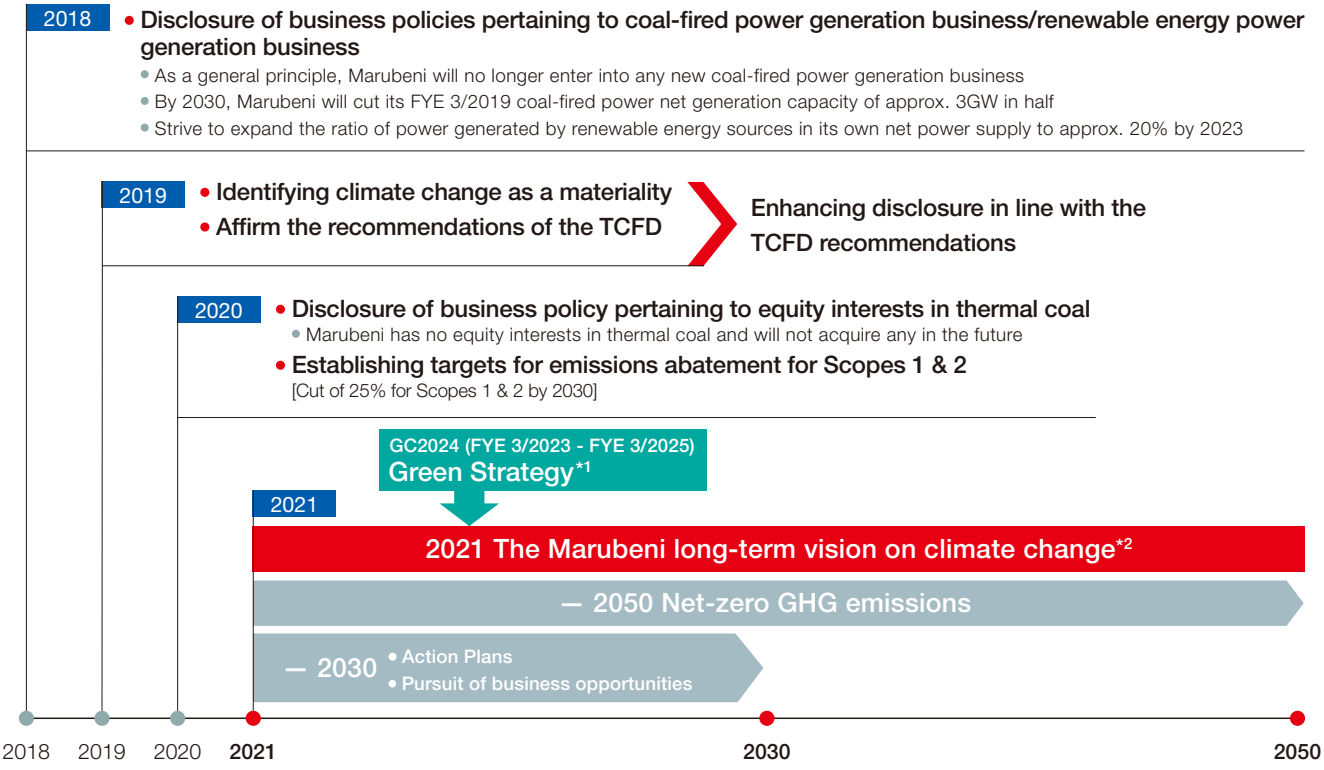
Marubeni Group's Stance on Climate Change and Initiatives

Basic Stance on Climate Change

The Marubeni Group is striving to anticipate shifts in society linked to climate change and to create growth opportunities while mitigating related risks.

1. Reductions in Marubeni Group GHG emissions	The Marubeni Group is targeting net-zero GHG emissions by 2050. We are engaged in various initiatives aimed at reducing the Group's GHG emissions.
2. Contributions through Marubeni Group businesses to support the transition to a low-carbon or decarbonized society	The Marubeni Group views the transition to a low-carbon or decarbonized society as a business opportunity. Through Group businesses and other initiatives relating to energy supply and demand, land use, and other fields, we are contributing to efforts to reduce GHG emissions, both within the Marubeni Group and across society.
3. Dynamic business portfolio flexibility	We will consider alternatives, including exiting a sector, in cases where Marubeni Group businesses are expected to face obsolescence or downward earnings pressure due to climate change. We see appropriately scaled and timed revisions to our business portfolio as supporting the growth in corporate value over time.
4. Increased resilience	The highly diversified nature of the Group's business portfolio provides a high degree of resilience to climate change. While the potential impacts on the Group's finances due to the risks within specific industries or businesses are expected to be limited, we will continue to improve risk management on an ongoing basis.

Contributions to Measures Addressing Climate Change (Marubeni Group's efforts so far and the direction of future initiatives)



* Data in the above chart match those in the original announcement.

*1. For more details, see the Mid-Term Management Strategy GC2024 on our website.

*2. For more details, see the Marubeni Long-Term Vision on Climate Change: Towards Net-Zero GHG Emissions on our website.

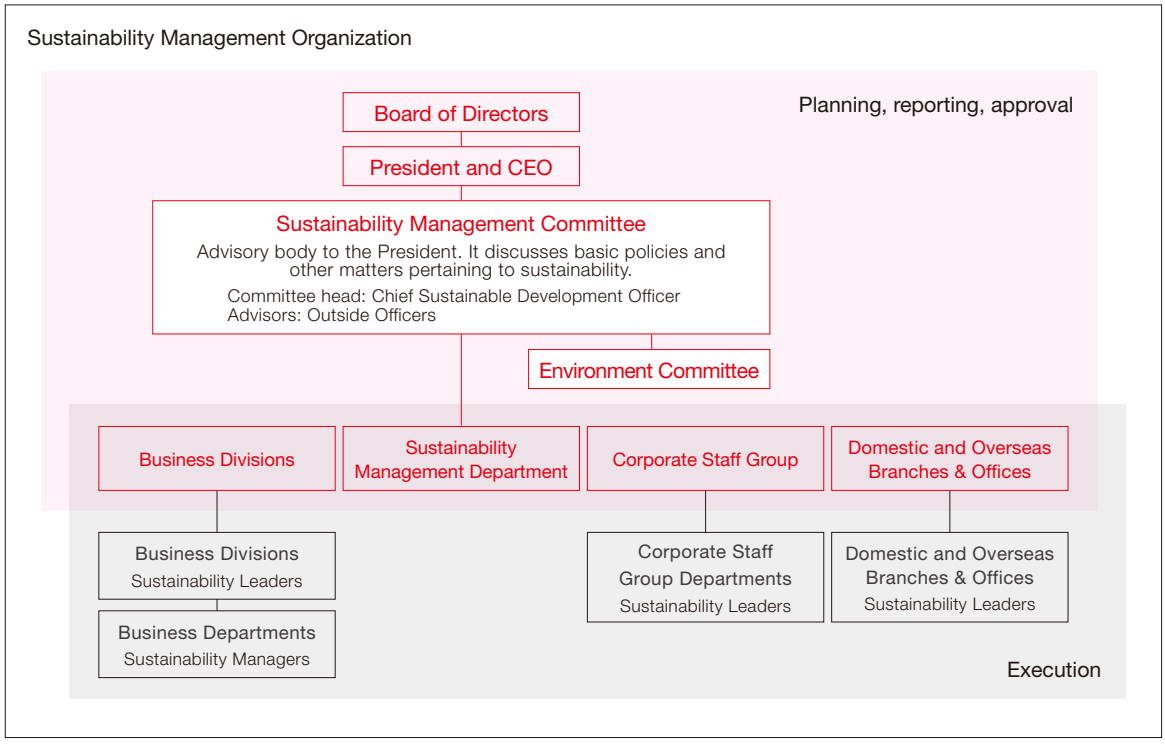
Governance

Our governance structure ensures adequate Board supervision of important climate change-related issues. Important climate change-related issues (policy, targets, action plans, etc.) for the Marubeni Group are deliberated and decided by the Corporate Management Committee and the Board of Directors. Since June 2022, the composition of the Board of the Directors had a majority (60%) of Independent Outside Directors, improving its functions of Board of Directors.

Specifically, the Sustainability Management Committee, an advisory body to the President, leads the process of evaluating opportunities and risks as identified in our TCFD climate-related disclosure; formulating, revising and monitoring strategy, risk management, metrics, and targets; and reviewing progress in climate-related innovation and changes in the external environment.
The committee deliberates and reports regularly (at least once a year) on these matters to the Board of Directors. In the fiscal year ended March 31, 2022, the Sustainability Management Committee was held four times and discussed the GC2024 Mid-Term Management Strategy (and the Green Strategy), progress on frontline initiatives on sustainability, and TCFD disclosures.

Chaired by the CSDO, the Sustainability Management Committee's members are appointed from related business divisions and the Corporate Staff Group. Outside Officers are also members of the committee in an advisory role to support the management and supervision of sustainability-related matters from an independent external perspective.

At the execution, the system is set up to support discussion and promotion of sustainability-related matters. A Sustainability Leader in charge of sustainability management is appointed in each business division, each department within the Corporate Staff Group, and at each domestic or overseas branch and office. A Sustainability Manager is also appointed in each business department.



Strategy and Specific Initiatives (Scenario Analysis)

In line with our Basic Stance on Climate Change, the Marubeni Group is striving to take a strategic approach to climate-related opportunities and risks.

Climate-related risks and opportunities differ significantly across the Marubeni Group's business portfolio because of its broad diversification. We identify businesses that will be relatively more susceptible to the impacts of climate change and relatively high degree of impacts on the Marubeni Group in terms of asset and earnings scale. In line with TCFD disclosure recommendations, we perform scenario analysis to consider related business conditions, risks and opportunities under baseline and transition scenarios using a time horizon to 2030.

To facilitate an objective assessment of new business opportunities and resilience of operations amid significant change in business conditions, we mainly reference the scenarios outlined below. These are taken from the International Energy Agency (IEA) publications "Energy Technology Perspectives 2017/2020," "World Energy Outlook 2020," and "Net Zero by 2050," as well as the Fifth Assessment Report and the 1.5℃ Special Report released by the Intergovernmental Panel on Climate Change (IPCC).

Baseline scenarios	
IEA RTS [Reference Technology Scenario]	Taken from IEA Energy Technology Perspectives 2017, this scenario reflects countries' existing policies and targets (+2.7℃).
IEA STEPS [Stated Policies Scenario]	Taken from the IEA reports Net Zero by 2050 and World Energy Outlook 2020, this scenario reflects countries' existing policies and targets (+2.7℃).
IPCC RCP 8.5/6.0/4.5 [Representative Concentration Pathways]	As detailed in the IPCC Fifth Assessment Report, the RCPs are scenarios describing rises in mean temperature of up to 4℃ or so by 2100 compared to pre-industrial levels (+4.3℃/+2.8℃/+2.4℃).

Transition scenarios	
IEA B2DS [Beyond 2°C Scenario]	Taken from IEA Energy Technology Perspectives 2017, this scenario describes efforts to limit the rise in temperature to well below 2℃ (+1.75℃).
IEA SDS [Sustainable Development Scenario]	As outlined in publications such as the IEA reports World Energy Outlook 2020 and Energy Technology Perspectives 2020, this scenario describes a sustainable growth pathway consistent with the well below 2℃ goal of the Paris Agreement and SDGs. (+1.65℃).
IEA NZE [Net Zero Emissions Scenario]	As outlined in the IEA report Net Zero by 2050, this scenario shows the changes that would be required in energy demand and the energy mix to achieve net-zero global emissions by 2050 and to limit the rise in temperature to 1.5℃ (+1.5℃).
IPCC RCP 2.6/1.9 [Representative Concentration Pathways]	Taken from the IPCC's Fifth Assessment Report and the 1.5℃ Special Report, the scenario describes low-emissions pathways to attain the goal of limiting future rises in temperature to well below 2℃ (+1.6℃/+1.5℃).

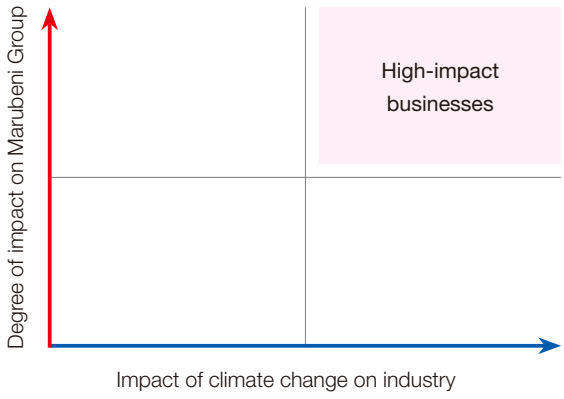
Note: • Figures in parentheses correspond to the projected temperature rise by 2100 under each scenario.
• IEA RTS/STEPS/B2DS/SDS/NZE are referenced mainly for Marubeni Group businesses in power generation, energy resource investment (oil/gas/LNG), alternative energy, coking coal mine investment, iron ore mine and copper mine investment, aircraft leasing, ship, and forestry.
• IPCC RCP is referenced mainly for the Group's grain/agri-input and forestry businesses.

Business selection for scenario analysis:

Businesses in the upper-right quadrant of the matrix shown below are selected for the scenario analysis.

Horizontal axis Business domains with high financial impact due to climate change

Vertical axis Degree of impact on Marubeni Group (scale of assets/earnings, etc.)



Businesses selected for scenario analysis using process outlined on left

- Power generation
- Energy resource investment (oil/gas/LNG)
- Alternative energy
- Coking coal mine investment
- Iron ore mine and copper mine investment
- Aircraft leasing (Aircastle)
- Ship
- Grain (North America)
- Agri-input (North America)
- Forestry

Results of scenario analysis:

The chart below summarizes the results of the scenario analysis for each business selected.

The scenarios and business environment overviews represent the understanding of the Marubeni Group based on major scenarios as developed by the IEA and other international organizations, but do not provide an outlook for the Group.

How to read the charts

Name of selected business

Business environment overview

Baseline scenarios

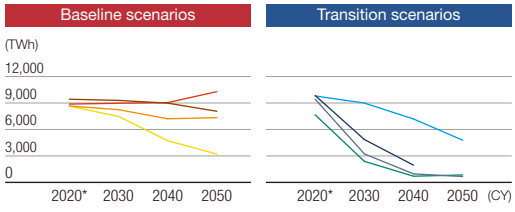
Expected changes in conditions for the selected businesses based on demand projections under baseline scenarios

Transition scenarios

Expected changes in conditions for the selected businesses based on demand projections under transition scenarios

The data show demand projections for the selected business under each scenario as conditions evolve (all data are global, unless otherwise noted).

Example: coal-fired power generation



Baseline scenarios:
- IEA RTS (+2.7°C)
- IEA STEPS (+2.7°C)
- IPCC RCP8.5 (+4.3°C)
- IPCC RCP6.0 (+2.8°C)
- IPCC RCP4.5 (+2.4°C)

Transition scenarios:
- IEA B2DS (+1.75°C)
- IEA SDS (+1.65°C)
- IPCC RCP2.6 (+1.6°C)
- IEA NZE (+1.5°C)
- IPCC RCP1.9 (+1.5°C)

Figures in parentheses correspond to the projected temperature rise by 2100 under each scenario.

Note: Data for IEA RTS referenced from 2014 rather than 2020.
Note: Data for IEA SDS referenced from 2019 rather than 2020.
Note: Data for 2020 are scenario-based projections rather than actual figures.

Responses to future business risks/opportunities

Note: Unless otherwise stated, the analysis target is up to 2030.

This section outlines Group policies and initiatives for the businesses, based on the business environment overview from the scenarios.

Impact on performance up to 2030

The impact on the performance of the selected businesses up to 2030 is summarized graphically in overall terms.

One of seven possible arrows is used to indicate the overall assessment.

Positive	(High) ↑	(Med) ↗	(Low) →
Neutral	→		
Negative	(Low) →	(Med) ↘	(High) ↓

This section explains the assessment in more detail.

Financial information

This section shows the net profit/loss attributable to owners of the parent for the selected businesses of the relevant segment (division) and the financial exposure* or segment assets.

* Exposure includes investments, loans receivable, tangible fixed assets, and guarantees.

Power generation business

Business environment overview

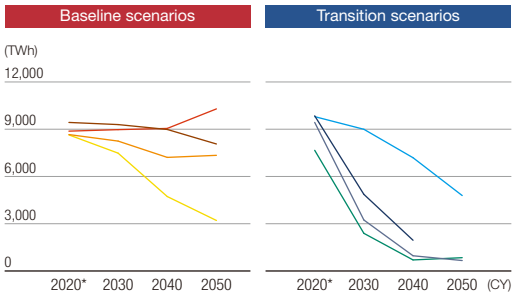
Baseline scenarios

- Global electric power demand is expected to increase.
- Coal-fired power will stay flat or fall if fossil fuel dependence continues, while demand will grow for gas-fired power and renewables.

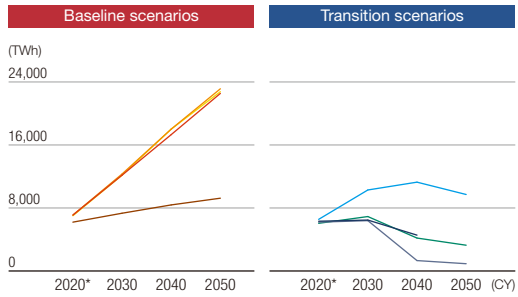
Transition scenarios

- Global electric power demand is expected to increase.
- Coal-fired power will fall significantly if the world progresses toward becoming a low-carbon or decarbonized society. Gas-fired power is expected to stay flat until 2030, before starting to fall. Demand for renewables is expected to grow significantly.
- The costs of using fossil fuels will rise if carbon pricing is introduced or enforced more rigorously.

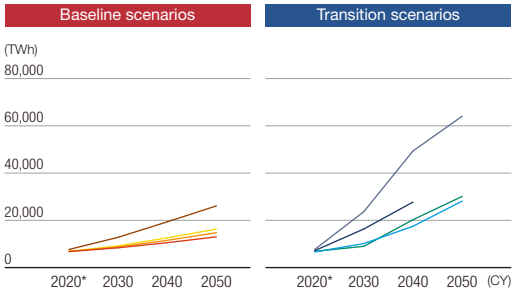
Coal-fired power generation



Gas-fired power generation



Renewable energy power generation



* Refer to chart legend below.

Responses to future business risks/ opportunities

Note: Unless otherwise stated, the analysis target is up to 2030.

- We will respond to rising global electric power demand by expanding the Group's power generation business, focusing especially on the renewables sector.
- We will expand the renewable power generation businesses and increase the ratio of renewable energy sources of net generation capacity to approx. 20% by 2023 (as of March 2021, the ratio is approx.15%). We will promote greater use of renewable energy in the power wholesale and retail business and in the decentralized power generation business to help contribute to a low-carbon society.
- We will promote energy management businesses including decentralized power generation, battery storage, and power supply-demand adjustments, and expand decarbonization solutions through smart city/community-based multi-utility service businesses.
- Marubeni will no longer enter into any new coal-fired power generation business. By 2025, we also aim to cut our FYE 3/2019 coal-fired power net generation capacity of approx. 3GW in half, with further abatement to approx.1.3GW by 2030, and aim for zero by 2050.
- We will continue to develop gas-fired power generation businesses in response to the needs of society transitioning to a low-carbon society. We will also seek to mitigate CO_2 emissions from thermal power generation utilizing new technologies based on the co-combustion of hydrogen and ammonia.
- The analysis identifies the risk of higher costs of CO_2 emissions due to the adoption of carbon taxes or emissions trading schemes. The risk of regulatory change is already hedged in the long-term power purchase agreements that govern most of our power generation business.

Impact on performance up to 2030

Coal-fired power	→ Negative (Low)	The impact of lower demand on existing businesses is limited by the long-term power purchase agreements governing most of our power generation business. However, earnings from coal-fired power generating businesses will diminish as assets are retired.
Gas-fired power	↗ Positive (Low)	New project development should have a positive impact on earnings since electric power demand is projected to increase under the baseline scenarios and some new demand is projected over the short and medium term under the transition scenarios.
Renewable energy	↑ Positive (High)	New project development should have a significantly positive impact on earnings since power demand is projected to rise under the baseline scenarios and expand rapidly under the transition scenarios.

Financial information

Power Business Division*1

- Relevant segment net profit/loss (FYE 3/2022): net loss of approx. ¥26.9 billion (power IPP business reported a net profit*2 of approx. ¥34.2 billion)
- Relevant segment assets (as of March 31, 2022): approx. ¥1,122.4 billion

*1. From FYE 3/2023, the former operating segment of "Power Business Division" has been renamed as "Power Division."
*2. Total net profits of consolidated subsidiaries and share of associates and joint ventures of our IPP business.
Reference: Capacity of power generation assets was approx. 2.6GW for coal-fired power generation, approx. 1.8GW for renewable energy power generation, and approx. 7.6GW for gas-fired power generation, and others (as of March 31, 2022)

Baseline scenarios:	IEA RTS (+2.7℃)	IEA STEPS (+2.7℃)	IPCC RCP8.5 (+4.3℃)	Figures in parentheses correspond to the projected temperature rise by 2100 under each scenario.
	IPCC RCP6.0 (+2.8℃)	IPCC RCP4.5 (+2.4℃)		Note: Data for IEA RTS referenced from 2014 rather than 2020.
Transition scenarios (below 2℃):	IEA B2DS (+1.75℃)	IEA SDS (+1.65℃)	IPCC RCP2.6 (+1.6℃)	Note: Data for IEA SDS referenced from 2019 rather than 2020.
(1.5℃):	IEA NZE (+1.5℃)	IPCC RCP1.9 (+1.5℃)		Note: Data for 2020 are scenario-based projections rather than actual figures.

Energy resource investment business (oil/gas/LNG) and alternative energy business

Business environment overview

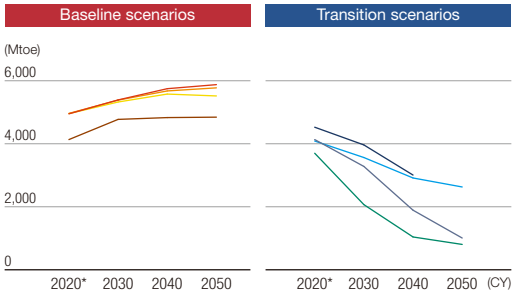
Baseline scenarios

- The share of oil and natural gas in total primary energy is expected to be on the rise.
- **Oil** demand and production are expected to increase until 2030, then flatten out, with demand and supply in equilibrium.
- **Gas** demand and production are expected to increase until 2040, with supplies of gas generally tightening over time.
- Demand for **alternative energy** will remain on a gradual uptrend.

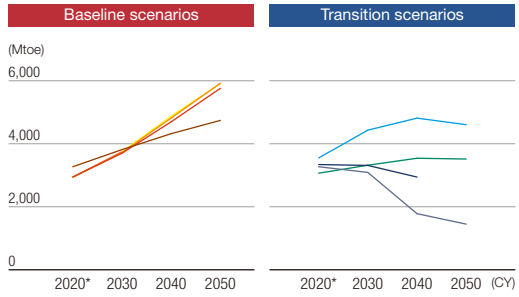
Transition scenarios

- The share of oil and natural gas in total primary energy is expected to be on a declining trend.
- **Oil** demand and production are expected to decrease slightly until 2030 and then decline. The supply and demand balance will see a slight shift to oversupply.
- Demand for **gas** will remain almost flat until 2030 and then decline. Production of gas will decrease. Supply and demand will be in equilibrium or shift slightly to undersupply.
- Demand for **alternative energy** will gradually increase until 2030, and then rise steadily after 2030.

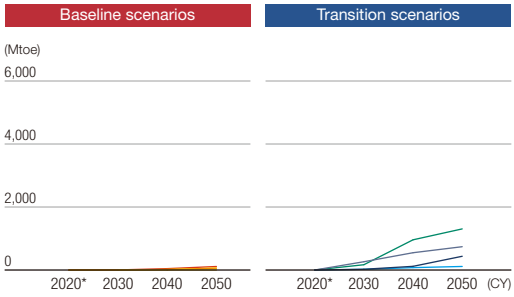
Oil demand



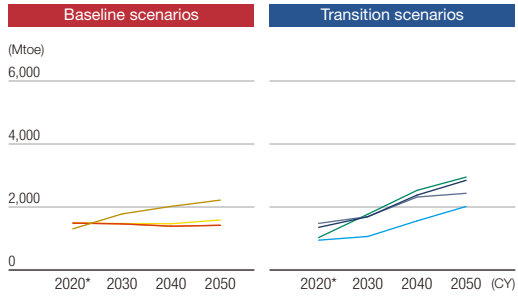
Natural gas demand



Hydrogen demand



Bioenergy demand



* Refer to chart legend below.

Responses to future business risks/ opportunities

Note: Unless otherwise stated, the analysis target is up to 2030.

- We will consider an appropriate and timely review of our oil upstream portfolio by comprehensively taking into account a variety of factors, including future supply and demand trends and progress in climate change countermeasures.
- With natural gas and LNG interests, we will assess trends in transition needs, particularly in Asia, and seek to increase customers' value by increasing value throughout the value chain.
- With new energy, we will actively develop, secure, produce, and handle new energy resources, such as hydrogen and ammonia, which will be needed in large quantities in the future, aiming at improving profitability and taking steps to play an appropriate role in society.
- In addition, we will actively consider and promote the production and sales of other alternative energies, such as biofuels and bio-methane and synthetic fuels, along with the development of the CCUS* business.

* Carbon dioxide Capture, Utilization and Storage

Impact on performance to 2030

Oil	→ Neutral	The impact of decreasing demand on the Group's performance is expected to be limited until 2030, even under the transition scenarios.
Natural gas/LNG	↗ Positive (Low)	As demand is expected to remain almost unchanged or even slightly increase until 2030, the impact on our business affected by the external environment will be neutral or slightly positive.
Alternative energy	↗ Positive (Med)	We plan to engage more deeply in this sector in anticipation of the expansion of the market over the medium and long term. The impact on earnings is expected to be fairly positive, depending on technological progress.

Financial information

- Relevant segment net profit including energy resource investment business (oil/gas/LNG) (FYE 3/2022): approx. ¥37.7 billion for Energy Division (including net profits of approx. ¥8.5 billion for LNG projects and approx. ¥11.6 billion for oil/gas exploration and production business)
- Exposure of energy resource investment business (oil/gas/LNG) (as of March 31, 2022): approx. ¥100 billion for oil/gas interests and approx. ¥40 billion for LNG interests
- Our alternative energy businesses are operated by multiple segments, including Energy Division, Infrastructure Project Division, Power Division, Forest Products Division, and Chemicals Division.

Baseline scenarios:	IEA RTS (+2.7℃)	IEA STEPS (+2.7℃)	IPCC RCP8.5 (+4.3℃)	Figures in parentheses correspond to the projected temperature rise by 2100 under each scenario.
	IPCC RCP6.0 (+2.8℃)	IPCC RCP4.5 (+2.4℃)		Note: Data for IEA RTS referenced from 2014 rather than 2020.
Transition scenarios (below 2℃):	IEA B2DS (+1.75℃)	IEA SDS (+1.65℃)	IPCC RCP2.6 (+1.6℃)	Note: Data for IEA SDS referenced from 2019 rather than 2020.
(1.5℃):	IEA NZE (+1.5℃)	IPCC RCP1.9 (+1.5℃)		Note: Data for 2020 are scenario-based projections rather than actual figures.

Coking coal mine investment business

Business environment overview

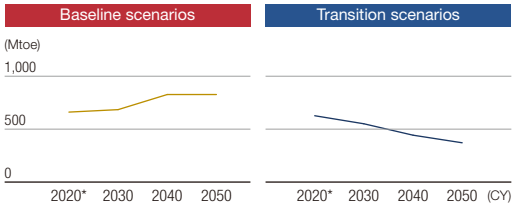
Baseline scenarios

- Steel production is expected to increase as populations and economies grow.
- Demand for coking coal will increase slightly to 2030, before growing further.

Transition scenarios

- Steel production is expected to increase more slowly than in the baseline scenario, due to efforts such as extending the life of buildings and reducing the weight of vehicles.
- Demand for coking coal will decline slightly to 2030, before falling faster.

Coal demand in steel industry



* Refer to chart legend below.

Responses to future business risks/opportunities

Note: Unless otherwise stated, the analysis target is up to 2030.

- We plan to maintain and continue existing businesses as we head towards 2030, based on projected growth in steel demand and progress in new technological development. In the long term, we will flexibly consider our portfolio, based on progress on decarbonization by the steel industry.

Impact on performance up to 2030

→ Neutral

The impact of decreasing demand on the Group's performance is expected to be limited until 2030, even under the transition scenarios.

Financial information

Metals & Mineral Resources Division

- Relevant segment net profit (FYE 3/2022): approx. ¥190.7 billion (including net profit of approx. ¥55.3 billion by Marubeni Resources Development*)
- Exposure (as of March 31, 2022): approx. ¥90 billion for coking coal mine investment business

* Australia-based Group company managing investments in coking coal mining business.

Iron ore mine and copper mine investment business

Business environment overview

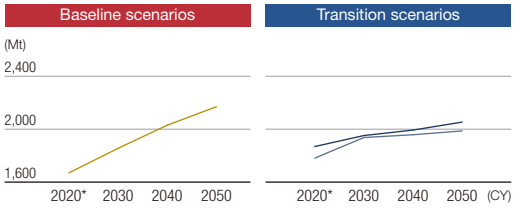
Baseline scenarios

- Demand for **steel** is expected to be firm as populations and economies grow.
- Demand for **copper** is expected to increase due to population and economic growth, as well as boosts from progress on decarbonization and electrification.

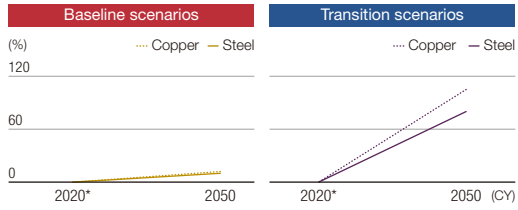
Transition scenarios

- Demand for **steel** is expected to be firm as populations and economies grow.
- Demand for **copper** is expected to increase significantly due to population and economic growth, as well as boosts from progress on decarbonization and electrification.

Steel production



Steel/copper demand related to energy technologies such as power infrastructure (rate of change)



* Refer to chart legend below.

Responses to future business risks/opportunities

Note: Unless otherwise stated, the analysis target is up to 2030.

- We plan to contribute to stable supplies of iron ore and copper to cater to growing demand through our iron ore mining business in Australia and copper mining business in Chile.
- We are involved in initiatives to reduce the environmental impact of our mining operations such as switching to renewable power sources and using processed seawater for operational use in Chile.
- We will pursue the possibility of the replenishment and future expansion of ore reserves to respond to the increase in demand over the medium to long term and to strengthen cost competitiveness.

Impact on performance up to 2030

Iron ore	↗ Positive (Low)	Led by the iron ore mining business in Australia, we expect a positive impact on earnings due to rising demand.
Copper	↗ Positive (Med)	Led by the copper mining business in Chile, we expect a positive impact on earnings due to rising demand. Further boosts to earnings are anticipated under the transition scenarios due to increased demand for copper from electrification trends.

Financial information

Metals & Mineral Resources Division

- Relevant segment net profit (FYE 3/2022): approx. ¥190.7 billion (including net profits of approx. ¥49.2 billion by the Roy Hill Iron Ore Project*1 and approx. ¥43.5 billion by Marubeni LP Holding*2)
- Exposure (as of March 31, 2022): approx. ¥180 billion for iron ore mine investment business and approx. ¥260 billion for copper mine investment business

*1. Iron ore mining business in Australia. *2. Chile-based Group company managing investments in copper mining business.

Baseline scenarios:	IEA RTS (+2.7℃)	IEA STEPS (+2.7℃)	IPCC RCP8.5 (+4.3℃)	Figures in parentheses correspond to the projected temperature rise by 2100 under each scenario.
	IPCC RCP6.0 (+2.8℃)	IPCC RCP4.5 (+2.4℃)		Note: Data for IEA RTS referenced from 2014 rather than 2020.
Transition scenarios (below 2℃):	IEA B2DS (+1.75℃)	IEA SDS (+1.65℃)	IPCC RCP2.6 (+1.6℃)	Note: Data for IEA SDS referenced from 2019 rather than 2020.
(1.5℃):	IEA NZE (+1.5℃)	IPCC RCP1.9 (+1.5℃)		Note: Data for 2020 are scenario-based projections rather than actual figures.

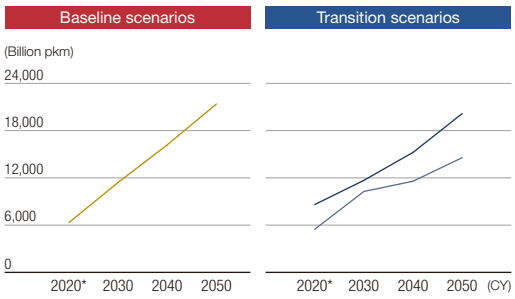
Aircraft leasing business (Aircastle)

Business environment overview

Baseline scenarios

- Further growth in demand for air transportation is expected, led by Asia-Pacific and North America.

Distance transported by air



* Refer to chart legend below.

Transition scenarios

- Further growth in demand for air transportation is expected, led by Asia-Pacific and North America.
- Reduced use of air transportation is expected due to changes in people's behavior.
- Use of biofuels and synthetic fuels is expected to increase within the aviation sector.

Responses to future business risks/ opportunities

Note: Unless otherwise stated, the analysis target is up to 2030.

- Based on projected growth in passenger air travel in the medium and long term, our business management policy focuses on the use of narrow-body aircraft, which have a lower environmental impact, in the countries and regions where demand is expected to recover post-pandemic.
- Our aircraft leasing business could see a fall in profitability due to lower demand for leased aircraft, if airlines as our customers are negatively affected under any of the transition scenarios.
- Since the airline industry is susceptible to the impact of carbon pricing, we will monitor related trends closely.

Impact on performance up to 2030

↗ Positive (Med)

With demand expected to grow even under the transition scenarios, we expect a positive impact on earnings as we seek to mitigate environmental impact.

Financial information

Finance & Leasing Business Division*

- Relevant segment net profit/loss (FYE 3/2022): net loss of approx. ¥1.8 billion (including net loss of approx. ¥22.2 billion by Aircastle)
- Exposure (as of March 31, 2022): approx. ¥131 billion for Aircastle (carrying amount of interests)

* From FYE 3/2023, the former operating segment of "Finance & Leasing Business Division" has been renamed as "Finance, Leasing & Real Estate Business Division."

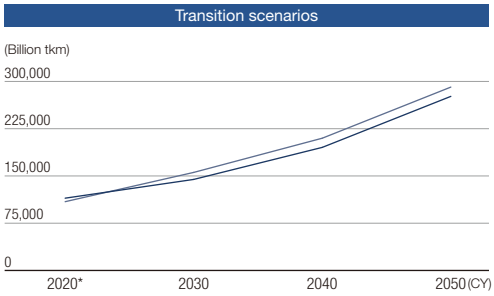
Ship business

Business environment overview

Baseline scenarios

- Demand for freight (ton-km) is expected to increase.
- Demand for bulk carriers is projected to grow slightly. Demand for LNG carriers will peak in 2040 and fall gradually thereafter.

Distance transported by sea



* Refer to chart legend below.

Transition scenarios

- Demand for freight (ton-km) is expected to increase.
- Demand for bulk carriers is projected to be flat. Demand for LNG carriers will tend to decline.
- Carbon pricing will push up the costs of using fossil fuels.
- Conversion to alternative fuels such as ammonia, biofuels, and hydrogen will be gradually implemented and these are expected to become the main fuels in the longer term.

Responses to future business risks/ opportunities

Note: Unless otherwise stated, the analysis target is up to 2030.

- We will target higher earnings in this field, with growth in freight (ton-km).
- In accordance with the IMO (International Maritime Organization) GHG emission reduction target and the strategy with regard to fuel efficiency performance regulations, we will improve fuel efficiency by implementing high-efficiency vessels, improving the efficiency of ship allocation, and introducing energy-saving technology for existing vessels.
- We will support ongoing programs to develop and introduce next-generation vessels powered by carbon-recycled, bio-methane, hydrogen or ammonia fuels.
- Besides monitoring carbon pricing trends closely, we aim to create new businesses in the ship sector relating to green technologies, based on collaboration within the Group.

Impact on performance up to 2030

↗ Positive (Med)

With demand expected to grow even under the transition scenarios, we expect a positive impact on earnings as we seek to mitigate environmental impact.

Financial information

Aerospace & Ship Division

- Relevant segment net profit (FYE 3/2022): approx. ¥26.6 billion
- Relevant segment assets (as of March 31, 2022): approx. ¥296 billion

Baseline scenarios:	IEA RTS (+2.7℃)	IEA STEPS (+2.7℃)	IPCC RCP8.5 (+4.3℃)	Figures in parentheses correspond to the projected temperature rise by 2100 under each scenario.
	IPCC RCP6.0 (+2.8℃)	IPCC RCP4.5 (+2.4℃)		Note: Data for IEA RTS referenced from 2014 rather than 2020.
Transition scenarios (below 2℃):	IEA B2DS (+1.75℃)	IEA SDS (+1.65℃)	IPCC RCP2.6 (+1.6℃)	Note: Data for IEA SDS referenced from 2019 rather than 2020.
(1.5℃):	IEA NZE (+1.5℃)	IPCC RCP1.9 (+1.5℃)		Note: Data for 2020 are scenario-based projections rather than actual figures.

Grain/agri-input businesses (North America)

Business environment overview

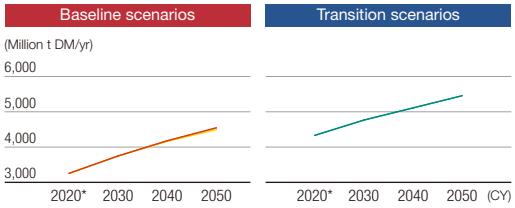
Baseline scenarios

- Global grain demand is expected to rise.
- In line with rising grain demand, cultivation area is also expected to expand by deforestation.
- In North America, it is expected that the cultivable period will be extended mainly in the western and southern regions due to the rise in temperature.
- Overall, there are many regions with precipitation increases, and this tendency is more remarkable in the baseline scenarios.
- The water stress across North America is expected to be high in the western region, but relatively low in the eastern region.

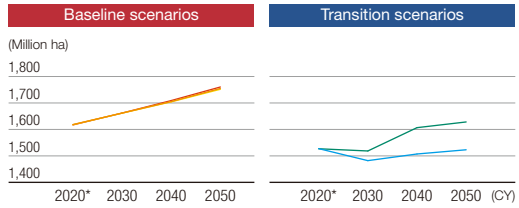
Transition scenarios

- Global grain demand is expected to rise.
- In line with rising grain demand, cultivation area is also expected to expand by converting land from other applications.
- In North America, it is expected that the cultivable period will be extended mainly in the western and southern regions due to the rise in temperature.
- Overall, there are many regions with precipitation increases, but it will tend to decline in the southwestern and central regions.
- The water stress across North America is expected to be high in the western region, but relatively low in the eastern region. However, its impact will be smaller than the one in baseline scenarios.

Grain demand



Cultivation area



* Refer to chart legend below.

Responses to future business risks/opportunities

Note: Unless otherwise stated, the analysis target is up to 2030.

- We will continue to grow earnings by capturing the increase of grain and food demand. The extension of the cultivable period caused by global warming is also expected to contribute to our earnings increase.
- We will increase our competitiveness and expand our business by providing goods and services that support higher crop yields and lower environmental impact.
- We will work on reducing physical risks by diversifying and expanding our procurement and sales networks for logistical impacts caused by the increase and intensification of natural disasters, and by expanding our networks in the regions that are relatively less affected by water stress.

Impact on performance up to 2030

Positive (Low)

We expect a positive impact on our earnings due to rising grain demand. In baseline scenarios, the impact of physical risks could potentially slow the growth of our grain business. In the transition scenarios, the need for higher crop yields could bring fast growth to our agri-input business.

Financial information

Agri Business Division*1

- Relevant segment net profit (FYE 3/2022): approx. ¥70.8 billion (including net profits of approx. ¥45 billion by Gavilon Agriculture Investment*2, approx. ¥2.2 billion by Columbia Grain International*3, and approx. ¥35.1 billion by Helena Agri-Enterprises *4)
- Relevant segment assets (as of March 31, 2022): approx. ¥1,957 billion

*1. From FYE 3/2023, Grain business (North America) has been incorporated into "Food Division-Ⅱ." *2. Holding company of Gavilon Group.
*3. Group company engaged in handling, storage, export and domestic sales of grain produced in North America.
*4. Group company engaged in sales of agri-input materials and supply of various agri-related services in the U.S.

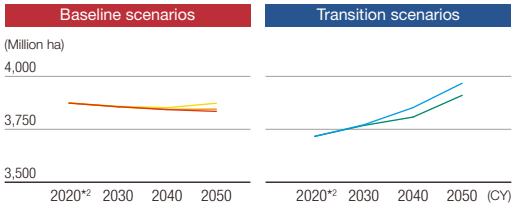
Forestry business

Business environment overview

Baseline scenarios

- Paper/pulp-related production is expected to rise gradually.
- Forest area is expected to decrease.

Forest area



Transition scenarios

- Paper/pulp-related production is expected to rise gradually.
- Supplies of wood-derived biomass fuels are expected to increase.
- Forests and cultivated areas for bioenergy are expected to grow.
- Introduction and stricter enforcement of carbon pricing regimes from 2030 will boost the importance of forests for absorption and sequestration of CO_2. This will focus attention on approaches that use plantation forests and bioenergy technologies such as BECCS*1.

*1. Bioenergy with Carbon Capture Storage.
*2. Refer to chart legend below.

Responses to future business risks/opportunities

Note: Unless otherwise stated, the analysis target is up to 2030.

- We will improve the sustainability of our forest plantation businesses and seek to increase the value of long-term stable supplies of forestry resources.
- By raising the carbon sequestration of our plantation and managed forests and utilizing the plantation forests for multiple purposes, we will boost carbon sequestration volumes, increase environmental value, and lead to the building of asset value.

Impact on performance up to 2030

Positive (Med)

Under the transition scenario, climate change measures will improve forest value, and the expansion of forest area will increase opportunities for business expansion, which will have a positive impact on earnings.

Financial information

Forest Products Division

- Relevant segment net profit (FYE 3/2022): approx. ¥7.6 billion (including net profits of approx.¥2.2 billion by Musi Pulp Project*1 and approx. ¥1.4 billion by WA Plantation Resources*2)
- Relevant segment assets (as of March 31, 2022): approx. ¥315.5 billion

*1. Indonesia-based Group company engaged in forestry (hardwood plantation) and manufacture/sales of pulp.
*2. Australia-based Group company engaged in plantation forest management and manufacture/sales of wood chips for use in production of paper and biomass fuels.

Baseline scenarios:	IEA RTS (+2.7℃)	IEA STEPS (+2.7℃)	IPCC RCP8.5 (+4.3℃)	Figures in parentheses correspond to the projected temperature rise by 2100 under each scenario.
	IPCC RCP6.0 (+2.8℃)	IPCC RCP4.5 (+2.4℃)		Note: Data for IEA RTS referenced from 2014 rather than 2020.
Transition scenarios (below 2℃):	IEA B2DS (+1.75℃)	IEA SDS (+1.65℃)	IPCC RCP2.6 (+1.6℃)	Note: Data for IEA SDS referenced from 2019 rather than 2020.
(1.5℃):	IEA NZE (+1.5℃)	IPCC RCP1.9 (+1.5℃)		Note: Data for 2020 are scenario-based projections rather than actual figures.

Physical risks

The Marubeni Group conducts business activities globally and in a wide range of sectors. Our performance and financial position may be adversely affected due to the emergence of physical risks associated with climate change, such as increases in the intensity of natural disasters, extreme weather, shifting rainfall and weather patterns, rising average temperatures, and rising sea levels.

We anticipate impacts on every business, including on the infrastructure for power generation and resource projects, in our logistics businesses, and across supply chains. We are taking varied measures to mitigate risks, including the formulation of business continuity plans and disaster countermeasures, and the use of various types of insurance. Specific measures are outlined below for two sectors where we expect great impact: (1) our North American grain and agri-input business, and (2) our forestry business.

Grain/agri-input business (North America)

Anticipated business impacts	• Poor harvests due to the change of climate patterns in North America, our main areas, could have significant impact on earnings of our grain handling and agri-input business. • Paralysis of logistics functions due to extreme weather conditions could affect our business.
Risk mitigation responses	• Expansion of agricultural support business through sales of agri-input materials and providing services that contribute to improving productivity. • We will comprehensively manage risks by geographically diversifying and expanding the procurement and sales network, and diversifying production areas and crops.

Forestry business

Anticipated business impacts	• Wildfires across areas of Southeast Asia and Western Australia due to the drier and stormier conditions associated with climate change and global warming could have a significant impact on the earnings from our plantation forestry and wood-derived resources businesses.
Risk mitigation responses	• To address the threat from wildfires, we are installing fire-fighting equipment, investing in systems for fire prevention and monitoring, and conducting activities to raise awareness in local communities. • We are installing meters-wide firebreaks (gaps where trees are not planted) to help create separate blocks of plantation forest to better prevent fire from spreading.

Besides the above, we are also evaluating whether individual measures are optimal and are considering building a system to respond to any crisis.

Risk Management

The Marubeni Group manages and monitors climate change-related and other opportunities and risks that are highly important from the perspective of sustainability by the Sustainability Management Committee.

Besides climate change, the Marubeni Group is assessing potential risks in business from a sustainability perspective as well. We have developed an assessment framework to support the multifaceted analysis of 27 items across the three risk categories of environmental, health and safety, and social. We define the risk evaluation criteria based on relevant laws and regulations, international standards, and historical case studies drawn from similar sectors. In addition, we assess the importance and impact of potential risks in line with the specifics of the business, its sector, and the country or region where it is operating.

Risk assessment items by category (27 items across 3 categories)

Environmental	Climate change / environmental pollution / bio-diversity / resource management / mitigation measures and administrative procedures (environmental)
Health and Safety	Machine safety / fires and explosions / toxic substance exposure / infection / hazardous operations / mitigation measures and administrative procedures (health and safety)
Social	Forced labor and human trafficking / child labor / working hours / wages and employment contracts / discrimination / harassment at work and disciplinary measures / respect for diversity / freedom of association and the right to collective bargaining / land issues / negative social impact on local communities / indigenous peoples and cultural heritage / conflict minerals / privacy / animal welfare / responsible marketing / mitigation measures and administrative procedures (social)

We use this risk assessment approach in sustainability survey methods. It is also part of the process used to make any investment and financing decisions. Besides monitoring existing businesses, we use this approach to gauge the value of Group businesses on an ongoing basis from a sustainability perspective. Whenever necessary, our business domains identified high-risk are deliberated by the Investment and Credit Committee, the Corporate Management Committee, and the Board of Directors.

While monitoring sustainability-related trends in Japan and overseas as driven by international institutions, governments, business sectors and industry groups, we review our risk assessment approach periodically based on information from stakeholders, including investors, financial institutions, and NGOs.

We are continually reviewing efforts to develop our systems for managing risks from sustainability and other varied perspectives. For these risk management systems, we review basic internal control policy every year and report the status of operation in the previous fiscal year to the Board of Directors, evaluating their effectiveness.

In April 2022, Marubeni Group updated the Business Continuity Plan (BCP), which was the scenario-based approach, and implemented an All-Hazards BCP, impact-based approach preparing for natural disasters and other calamities. We have newly founded a dedicated organization within the General Affairs Department of the Head Office to make the BCP function effectively and implement a Business Continuity Management (BCM) system for responding quickly in the event of a disaster damaging employees, systems, offices (buildings), payment functions, or other critical resources related to the management of Group companies.

Metrics and Targets

Climate Change-Related Metrics and Targets

The Marubeni Group has formulated the following metrics and targets as part of our response to the opportunities and risks associated with climate change.

Metrics and targets	Progress and status
1. Cut Group's coal-fired power net generation capacity from FYE 3/2019 value of approx. 3GW in half by 2025, with further abatement to approx. 1.3GW by 2030, and aim for zero capacity by 2050	Approx. 2.6GW (as of March 31, 2022)
2. Expand the ratio of power generated by renewable energy source in Group's own net power supply to approx. 20% by 2023	Approx. 15% (as of March 31, 2022)
3. Expand "Green Revenue" to around ¥1,300 billion by FYE 3/2024	Approx. ¥1,080 billion (FYE 3/2022)
4. Achieve net-zero GHG emissions*1 by 2050 By 2030: (1) Reduction of 50% in Scope 1 & 2 CO_2 emissions from FYE 3/2020 level (about 1 million t-CO_2) (2) Reduction of 20% in Scope 3 CO_2 emissions (Category 15: Investment) from FYE 3/2020 level (estimated CO_2 emissions about 36 million t-CO_2*2) *1. Includes Scope 1, Scope 2, and Scope 3 (Category 15: Investment) emissions *2. This emissions volume comprises the FYE 3/2020 performance of existing investees plus the estimated emissions from projects already contracted as of March 2021 (as for power generation projects, projects for which associate investees of the Marubeni Group have entered into power purchase agreements but have not yet achieved commercial operations)	(1) Scope 1 & 2 CO_2 emissions: approx. 1.12 million t-CO_2 (FYE 3/2022) (2) Scope 3 CO_2 emissions (Category 15: Investment) *3: approx. 25 million t-CO_2 Breakdown Power generation approx. 21 million t-CO_2 Resource projects approx. 2 million t-CO_2 Other businesses approx. 1 million t-CO_2 (FYE 3/2022) *3. The sum of breakdowns may not match totals due to rounding.

Other (issuance of green bonds, etc.)

In September 2021, Marubeni issued a total of US$500 million in senior unsecured bonds denominated in U.S. dollars due 2026. These bonds are green bonds, where the funds raised have been allocated to businesses to help solve environmental problems. The bonds were issued*4 to raise funds for advancing efforts toward low-carbon and decarbonization through our business activities.

On considering the potential impact from a carbon tax on its businesses and carbon prices in the trading of emissions credits, the Marubeni Group is quantifying and visualizing the impact of GHG in the future based on estimates of GHG emissions and the price of emissions credits (EU ETS*5, etc.) in each business when investment and financing projects are submitted for approval.

*4. For more details, see the "Green Bond" section of our website.
*5. EU Emissions Trading System.

Marubeni

https://www.marubeni.com/en/