Sumitomo Mitsui Trust Asset Management Co., Ltd.

Climate Change Report 2025

June 2025

This report is in line with recommendations
by the Task Force on Climate-related Financial Disclosures (TCFD)

Climate Change Report 2025

C O N T E N T

Editorial Policy of This Report

The purpose of this report is to inform our stakeholders about our initiatives to address climate change issues and contribute to the preservation of natural capital. Forward-looking statements, such as forecasts, goals, and plans, presented in this report are based on our judgment at the time of its preparation. However, they are subject to uncertainties that could cause actual results to differ materially from those described, due to various changing factors. The period covered by the report is from January 2024 to December 2024. The information contained in this report was approved at the management meeting held in May 2025.

David Semaya

David Semaya
Representative Director and Chairperson / Chairperson of the Board of Directors

Forwards

The corporate philosophy of Sumitomo Mitsui Trust Asset Management is to share various ideas with our diverse stakeholders from a global perspective, continue searching for possibilities leading to a better future, and work to create a society that is not just economically wealthy, but truly affluent. With regard to climate change issues, the effects such as extreme heat and heavy rainfall have certainly begun to materialize. In addition, while forests, a key component of natural capital, are gaining attention as a carbon sink (i.e., absorbing CO_2 from the atmosphere and storing it in the soil and ocean floor) in response to climate change, illegal logging and forest fires are becoming serious issues. Natural capital can be considered the foundation of economic activity, as a World Economic Forum report states that “over half of global gross domestic product (GDP) depends on natural capital.

We believe that important issues concerning Environment, Social, and Governance (hereinafter, ESG) will affect the long-term return of assets under management entrusted to us by our clients. In this environment, we believe it is important to evaluate the potential risks and opportunities related to climate change and natural capital in these investee companies. As such, we are reflecting the evaluation in investment decision processes and leveraging it in business management.

Specifically, in February 2019, we endorsed the recommendations of the Task Force on Climate-related Financial Disclosures (TCFD).

We also participated in the preparatory activities for the Taskforce on Nature-related Financial Disclosures (TNFD) Forum, and joined the TNFD upon its launch in 2021. In January 2024, we announced the implementation of early disclosure based on the TNFD Recommendations as an Early Adopter.

The following is an explanation of our initiatives to address climate change and natural capital in accordance with these disclosure frameworks.

Our awareness of climate change issues

Climate change issues are a variety of phenomena caused by the progression of global warming, mainly attributable to human economic activities. Changes in weather patterns due to global warming cause ecosystem changes and damage to food, water, health, and the economy, which can adversely affect sustainable social/economic activities. Under the Paris Agreement that came into force in November 2016, signatory nations globally agreed to “hold the increase in the global average temperature to well below 2ºC above pre-industrial levels and to pursue efforts to limit the temperature increase to 1.5ºC above pre-industrial levels,” in order to ensure global sustainability. We agreed with the purpose of the Paris Agreement, and as a global initiative for helping to achieve its goals, in July 2021, we joined "The Net Zero Asset Managers initiative” (hereinafter, NZAM) by asset management companies who have committed to achieve net zero greenhouse gas (hereinafter, GHG) emissions from investee companies by 2050. In May 2022, we also established and announced our interim targets that should be achieved by 2030.

However, global warming is becoming increasingly serious, as communicated by the June 2024 announcement by the World Meteorological Agency (WMO) that the “global temperature is likely to exceed 1.5°C above pre-industrial level temporarily in next 5 years.” The Intergovernmental Panel on Climate Change (IPCC) stated in its “AR6 Synthesis Report” released in March 2023 that human activity is the root cause of global warming, and that efforts toward GHG emissions reduction in the coming “ten years” are extremely important to limit the rise in global temperature to within 1.5°C by 2100, as a 2°C increase in average global temperature would lead to “a global reduction in crop production,” and a 3°C increase would lead to “the widespread loss of biodiversity,” predicting that even a slight temperature increase would have a significant impact on the global environment.

Amid this environment, the Japanese government released the initial draft of its Seventh Strategic Energy Plan in December 2024. Based on the principle of S+3E (Safety + Energy security + Economic efficiency + Environment) that simultaneously realizes stable supply, economic efficiency, and environmental compatibility, and given the changes in the international environment, the initial draft lays out a basic policy that aims to maximize the introduction of renewable energy as a chief power source while also maximizing the use of energy sources that are highly effective in decarbonization, such as nuclear energy, as part of the integrated execution of the Japanese government’s “GX 2040 Vision.” Moreover, “Japan’s Basic Approach and Direction Toward Net Zero 2050,” announced at the same time, sets GHG emissions reduction targets for 2035 by 60% and 2040 by 73% compared to 2013 levels, based on the initial draft of the Seventh Strategic Energy Plan. While these targets are an extension of the 2030 GHG emissions reduction target of 46%, companies and financial institutions continue to be called on to steadily reduce greenhouse gases.

We believe that climate change has the potential to cause the global environment to deteriorate in an irrecoverable manner in the medium to long term, and have a significant impact on the corporate value of our investee companies over time. Based on this, we understand the importance of working on climate change issues over the long term while also being able to respond flexibly to changes. From this broad perspective, we are bolstering various activities and information disclosure on climate change issues as one of the biggest challenges facing the international community, while fulfilling our fiduciary duty of maximizing the return on medium- to long-term investments and reducing downside risks of the assets entrusted by our clients.

Our approach against climate change issues

Here we introduce the approach against climate change issues at the Sumitomo Mitsui Trust Group and in our corporate and asset management operations.

1. Sumitomo Mitsui Trust Group’s approach against climate change issues

The Sumitomo Mitsui Trust Group, under its common principles (action principles) known as the Action Guidelines for Mitigating Climate Change, appropriately recognizes the risks and opportunities posed by climate change. The Group is committed to minimizing negative impacts and maximizing positive impacts through its diverse trust banking business.

Figure 1: Sumitomo Mitsui Trust Group’s Action Guidelines for Mitigating Climate Change

1. Implementation of Measures and Support to Help Mitigate Climate Change
In addition to actively taking measures to reduce greenhouse gas emissions in our own business operations, we are making efforts, as a corporate citizen, to support activities that mitigate and adapt to climate change.
2. Provision of Products and Services
We are working on developing and providing products and services that help mitigate climate change. We leverage our financial functions to promote renewable energy and the use of carbon offset products.
3. Collaboration with Stakeholders
We engage in dialogue and cooperation with our stakeholders as we work to mitigate climate change.
4. Education and Training
We will ensure that these guidelines are fully implemented at Group companies, and will actively conduct education and training to mitigate climate change.
5. Information Disclosure
We will actively disclose information related to our efforts to mitigate climate change.

Source: Compiled by SuMi TRUST AM based on Sumitomo Mitsui Trust Group’s Action Guidelines for Mitigating Climate Change

2. Our corporate approach against climate change issues

We, SuMi TRUST AM, also consider the impact on the sustainability of investee companies while implementing climate change initiatives internally. We believe that small, incremental efforts are critically important in today’s era, contributing to the sustainability of the entire industry and fulfilling our responsibility to the future of a society as a whole.

Figure 2: Our approach against climate change issues

1. Promoting Climate Change Measures Through Dialogue with Investee Companies
While advancing our internal initiatives, we leverage our influence as an asset management company to encourage investee companies to address sustainability and climate change. We believe that every additional initiative, no matter how small, contributes to a sustainable future for the planet.
2. Enhancing Energy Efficiency in Office Operations
We aim to improve energy efficiency in office operations by introducing energy-saving equipment and transitioning to renewable energy sources. We utilize LED lighting and motion sensor lighting.
3. Promoting Digitization and Paperless Operations
By digitizing internal documents such as reports and meeting materials, as well as external documents like contracts and prospectuses, we reduce paper usage and contribute to forest conservation. We are also transitioning to delivering client reports digitally via email and online portals.
4. Supporting Green Procurement and Greening Projects
We recommend green procurement for office supplies to help curb deforestation. Additionally, we actively participate in and support greening projects to help preserve the environment locally and globally. For more details, please refer to the social contribution activities described on the right side.
5. Raising Awareness Among Employees
Alongside the initiatives above, we properly manage, recycle, and dispose of office waste, including paper waste, to raise employee awareness about the importance of addressing climate change even through the smallest of actions at the Company.
6. Measuring and Reporting Greenhouse Gas Emissions
Regarding greenhouse gases, identified as a primary cause of global warming, we regularly measure emissions from office operations and strive for continuous improvement. The Sumitomo Mitsui Trust Group aims to achieve net-zero CO_2 emissions (Scope 1+2) by 2030. SuMi TRUST AM is also working to reduce greenhouse gas emissions within this framework.

Source: Compiled by SuMi TRUST AM

In light of these environmental changes, we recognizes the need to further strengthen our governance of sustainability, including climate change, more than ever. Accordingly, in October 2023, we redefined and expanded the role of the former Stewardship Committee (see page 7 for details) and reorganized it into the Sustainability Committee to enhance our governance framework. Furthermore, in April 2024, we established the “Sustainability Management Office” within the Corporate Planning Department to strengthen our framework for addressing management issues related to sustainability, including climate change.

3. Our approach to climate change issues in our asset management operations

As the urgency of transitioning to a decarbonized society grows, we, as a responsible investor, strive to contribute to addressing climate change issues. To this end, in addition to promoting effective engagement with companies that have a significant global impact, we have introduced climate-related criteria into our Principles for Exercising Voting Rights, further encouraging our investee companies to take action toward decarbonization.

TCFD

According to the TCFD Recommendations, companies and other organizations are suggested to consider four key elements: (1) governance, (2) strategy, (3) risk management, and (4) metrics and targets when disclosing climate change-related information. The following is an explanation of the measures taken by us on climate change issues in accordance with the recommended information disclosure framework.

Figure 3: Recommended core elements for climate-related information disclosure

1. Climate-related governance

(1)Policies related to climate change

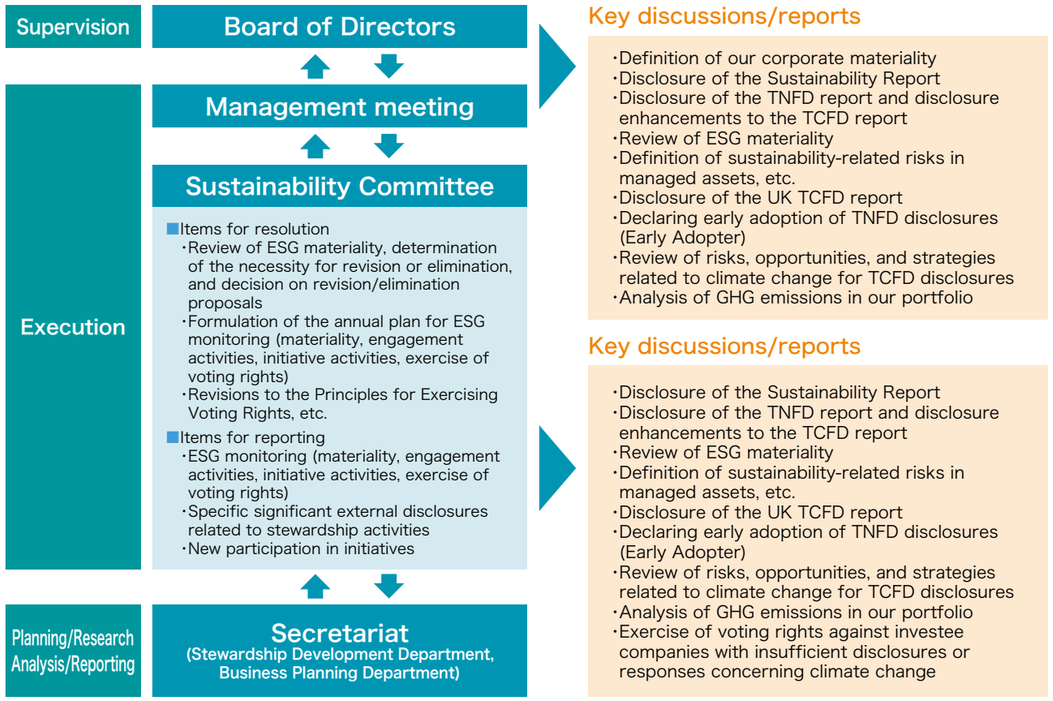
As a member of the Sumitomo Mitsui Trust Group, we have established a basic policy for promoting measures on sustainability, including on climate change issues, and are continuously working to improve the systems based on the “Sustainability Policy” of the Group. In FY2024, we identified “ESG/Sustainable management,” including climate change response and other efforts, as one of our material issues, and have positioned engagement with investee companies as a main initiative. In addition, as to investee companies, in the investment management business rules and related rules, we regulate concepts and processes for engagement, the exercise of voting rights, and ESG investment while taking climate change issues into consideration.

(2)Governance related to climate change

We recognize climate change as risk and opportunity factors that greatly impact us and

investee companies, and our Board of Directors performs its supervisory functions on these issues as well as other important management issues. Since 2020, issues related to climate change have been clarified as matters to report to the Board of Directors in the board of directors regulations so that more direct oversight can be carried out.
During the period covered by this report, the Board of Directors received reports from the management meeting and deliberated on the definition of corporate materiality for us, the disclosure of the TNFD report, disclosure enhancements to the TCFD report, and the disclosure of the UK TCFD report, etc.
The management meeting, an executive body comprising members including the President, is responsible for formulating plans and initiatives related to climate change, setting up operational structures, and managing and promoting these initiatives. During the period covered by the report, the management meeting received reports from the Sustainability Committee and deliberated on matters including review of ESG materiality, review of risks, opportunities, and strategies related to climate change for TCFD disclosures, and analysis of GHG emissions in our portfolio, etc. Under this framework, our entire company is advancing sustainability efforts, including climate change response and other efforts.
In particular, in our asset management operations, the Sustainability Committee is responsible for planning and monitoring all sustainability activities, including climate change. Additionally, the Sustainability Committee reviews matters to be discussed at or reported to the management meeting in advance.

Figure 4: Our governance structure for sustainability and key discussions/reports during the reporting period



(3)Remuneration for executives

Our evaluation methods for remuneration of the CEO and Named Executive Officers have been determined by the Compensation Committee comprised mainly of external directors. One KPI in the evaluation method includes the reduction of GHG emissions in our portfolio. For example, the level of achievement for climate-related KPIs is reflected at a certain rate in the long-term incentive remunerations of CEOs. The methods to evaluate the remunerations of other Named Executive Officers are similar to CEOs

2. Climate change-related strategies

(1)Common climate change risks and opportunities

As average temperatures and sea levels rise, weather-related disasters including large-scale wildfires, floods, droughts, extreme heat, and heavy rains are occurring more often around the world. The increase in temperature affects climate patterns over the medium to long term, and there is concern that this will impact farming production and marine and fishery resources. Since resolving these changes will require a large amount of money, there is an ongoing global debate on how such economic costs will be borne. Thus, climate change issues are increasingly recognized as a serious risk to social and economic activities all over the world. Based on recommendations by the TCFD, transition risks are defined as changes in climate change policies, changes in financial markets and social norms, and rapid transition to a low-carbon society through technical innovations, etc., while physical risks are defined as damage to social infrastructure and nature, etc., as a result of medium- to long-term climate change and abnormal weather. Transition risks include stricter environmental standards, obsolete existing technologies, stranded fossil fuel assets, and risk of boycotts by consumers, while physical risks include flooding risk and drought risk.

Figure 5: Common climate change risks and opportunities

Transition risks	
Regulatory risk	Stricter environmental standards Example: Stricter emission regulations and higher carbon tax
Technological risk	Obsolescence of existing technology Example: Prohibiting sales of gasoline vehicles
Market risk	Shift of fossil fuel assets into stranded assets Example: Oil, coal, and natural gas
Reputational risk	Risk of boycotts by consumers Example: Exclusion from ultimate consumers and supply chain

Physical risks	
Acute risk	Flood risk, etc. Example: Shutdown of equipment and social infrastructure, and increased restoration costs
Chronic risk	Drought risk, etc. Example: Damage to crops and wildfires

Opportunities	
Efficient resources	Energy-saving technologies/products Example: Heat pump technology and inverter technology
Energy shift	Renewable energy Example: Solar power, wind power, hydrogen power, and biomass power generation
Products/ services	Expansion of environmentally-friendly products and services Example: Electric and fuel cell vehicles, zero-emission buildings/houses
Financial market	Carbon credit, etc. Example: J Credits, Non-Fossil Fuel Certificates, and Renewable Energy Certificates
Resilience	Recycled products, etc. Example: Carbon dioxide capture and utilization (CCU) and battery reuse/recycling

These recommendations define things such as the increased demand for energy-saving technology and renewable energy as business opportunities related to climate change, and organize them into five categories ranging from resource efficiency to resilience. In particular, energy-saving technologies and products, renewable energy, environmentally-friendly products and services, carbon credits, recycled products, and the like are expected to increase. Figure 5 shows an overview of this. Moreover, these recommendations request business entities and financial institutions to identify climate change risks and opportunities that will impact their business activities, and to disclose and explain the impact on business and resilience. We understand such climate change risks and opportunities, and utilize these in investment decisions and business management.

(2)Our approach to climate change risks and opportunities

This section will explain climate change risks and opportunities that we have identified as well as their impact on business management.

A. Climate change risks

We recognize how climate change risks impact our business management through three routes, which are damage to the value of investee companies, loss of existing clients and missed opportunities to acquire potential clients, and loss of business continuity, all of which can ultimately worsen our finances and lower our viability as a company. Figure 6 shows a list of the climate change risks that we have identified, their assumed impact on management, and when they are expected to appear according to risk category. Main market risks are expected to be a failure of investee companies to handle transition risks and physical risks, which can greatly damage corporate value and significantly reduce our assets under management. Main reputational risks include existing clients no longer choosing us due to our failure to properly handle climate change risks, and difficulty in acquiring personnel and increasing turnover due to insufficient responses to climate-related risks. Operational risks include an increase in compliance risks due to a delay with system response such as disclosure of climate-related information, damage to servers and lines due to increased wind/water damage, and decreased employee safety. Finally, credit risk is assumed to be a drawdown of overall financial markets resulting in a sudden loss of assets under management when credit risks for companies and markets increase when transition risks and physical risks become manifest. We have positioned these risks according to their impact on our business management. Those that impact finance such as periodic profit and loss are classified as “medium,” and those that may have a major impact on our viability as a company are classified as “major.” As for the time axis of their manifestation, although there are differences with each risk factor, risk factors related to transition risks are expected to appear in approximately 10 years from now (short/medium term), whereas risk factors related to physical risks are expected to appear in around 10 to 30 years (medium/long term).

Figure 6: Climate change risks for us

Risk category	Specific risk factor		Impact※2	Time axis※3
Market risk	Damage to value of investee companies due to insufficient response to transition risks such as policy changes, technological innovations, and market changes associated with the transition to a low-carbon economy	Transition	Major	Short/ medium term
	Damage to value of investee companies through damage to business assets due to insufficient response to physical risks such as climate change, sea level rise, and increased natural disasters	Physical	Major	Medium/ long term
	Lower profitability due to complex and diverse climate-related data and indices, and increased costs	Transition	Medium	Short/ medium term
Reputational risk (Strategic risk)	Loss of existing clients due to our improper response to climate-related risks, including client doubts about our climate change initiatives caused by insufficient information disclosure, failure to effectively reduce GHG emissions through investment strategies or products, inability to introduce products that effectively address climate change issues, or significantly lagging behind competitors in these areas	Transition	Major	Short/ medium term
	Missed opportunities to acquire potential clients due to our improper response to climate-related risk	Transition	Medium	Short/ medium term
	Difficulty in acquiring personnel and increased turnover as a result of our insufficient commitment to climate change initiatives affecting its corporate image and brand value	Transition	Major	Short/ medium term
Operational risk	Compliance risk arising from our failure to adequately comply with regulations due to the expanded scope and complexity of information disclosure※1	Transition	Major	Short/ medium term
	Lack of personnel and resources due to advancement, expanded scope, and complexity of climate-related responses	Transition	Medium	Short/ medium term
	Business deterioration due to increased climate change response costs, and decreased business continuity of business partners and vendors affected by increased and more severe natural disasters	Transition / Physical	Medium	Medium/ long term
	Damage to servers and lines due to increased natural disasters, etc., decreased employee safety, and increased outflow of human resources	Physical	Major	Medium/ long term
Credit risk	Drawdown of financial markets due to increased credit risk for companies and markets as a result of climate change issues	Transition / Physical	Medium	Medium/ long term
	Decreased viability due to lowering of our credit as a result of climate change issues (loss of existing clients and missed opportunities to acquire potential clients)	Transition	Major	Short/ medium term

*1 Includes greenwashing (the act of creating a misleading impression, such as pretending to be environmentally conscious when it is far from the reality).
*2 Major: Impact assumed on our viability, Medium: Impact assumed on our finances.
*3 Short to medium term: Assumed to be 10 years from now, Medium to long term: Assumed to be 10 to 30 years from now.

B. Climate change opportunities

We view climate change opportunities as opportunities to fulfill our fiduciary duty, and that taking advantage of these to implement strategies can help to expand our assets under management, and improve business continuity and viability.
We have identified six items related to improving our response to climate change as “opportunities” to convert climate change risks to business growth, which are engagement, exercise of voting rights, enhancement of investment decisions and investment strategies, enhancement of product lineups, and strengthening of information dissemination. For example, regarding engagement, in addition to engagement with investee companies, we engage in dialogue with diverse stakeholders, including governmental agencies, industry groups, NGOs, and universities, referred to as multi-engagement. As for exercise of voting rights, there is a measure to strengthen guidelines related to climate change issues in our Principles for Exercising Voting Rights. In this way, we encourage companies to change their behavior toward decarbonization in order to maintain and

increase assets under management while reducing climate change risks. Through enhancement of investment decisions and investment strategies, and enhancement of product lineups, we will reflect climate change factors based on the style of individual funds, and provide new investment opportunities related to climate change for meeting the investment needs in the climate change field for existing and potential clients. We expect that we will be able to maintain/increase the balance under management while minimizing loss of opportunities. We also believe that strengthening information dissemination can help raise awareness of climate change issues for existing and potential clients, and that improving our evaluations will help expand our client base.
There are two items we view as “opportunities” from a broad perspective that are essential for acquiring such growth opportunities. One is enhancement of our climate-related organizational structure, and another is strengthening engagement with the value chain. As specific actions to strengthen our climate-related organizational structure, we have been making efforts to establish a system that can appropriately respond to standards and regulations on climate-related information disclosure such as those of the TCFD and SFDR, and to advance our human capital management by recruiting and developing the necessary personnel, while improving our ability to execute business. As specific actions to strengthen engagement with the value chain, we have begun engaging in dialogue with data vendors and index vendors that handle ESG data in order to maintain and improve the quality of climate-related data. Figure 7 gives an overview of these opportunities.

Figure 7: Climate change opportunities for us

Opportunity	Strategy (Action)	Example (Action)
Engagement	Reducing climate change risk in investee companies by promoting their decarbonization efforts through engagement with investee companies, while also encouraging their initiatives to leverage climate-related opportunities to enhance corporate value and investment opportunities	・Focus on companies with high GHG emissions ・Sharing best practices ・Increasing the frequency of adoption as an agenda
Engagement	Engagement with government agencies, industry groups, NGOs, academia, etc. to promote the adoption of systems and mechanisms that facilitate decarbonization and create business opportunities for companies, leading to increased value for investee companies and investment opportunities	・Indirectly promoting behavioral changes in (investee) companies ・Improving our value by acquiring and using the latest information
Exercise of voting rights	Strengthening guidelines related to climate change issues in our Principle on Exercising Voting Rights to reduce climate change risk for investee companies and to maintain and increase assets under management	・Reflecting global trends and knowledge ・Revising our Principle for Exercising Voting Rights to allow votes against director election proposals for investees which are high-emission companies with insufficient climate-related disclosures
Enhancement of investment decisions and investment strategies	Reducing climate change risk of investee companies and maintaining and increasing assets under management by reflecting climate change factors according to individual fund styles, and taking climate change factors into account in investment decisions on individual securities	・ESG monitoring (fund governance) ・Expansion of target assets
Product lineup enhancement	Developing and offering investment strategies and products that address climate change issues to meet the investment needs of climate-conscious clients and grow assets under management	・Developing indices that contribute to climate change issues ・Developing investment products that contribute to climate change issues
Strengthening information dissemination	Enhancing client awareness of climate change issues and engaging potential clients to increase client trust and strengthen market competitiveness	・Public outreach and discovering potential clients

The following are considered to be essential items for acquiring a growth base and opportunities; as a broad definition, “opportunities”		
Enhancement of our organizational structure for responding to climate change	Maintaining and improving our viability with proper actions to address climate-related regulations, and enhancement of human resource development and resources for climate-related responses (strengthening retention, increasing recruitment, and maintaining creditworthiness)	・Compliance with international frameworks such as SFDR, SSC (UK), TCFD (UK), etc. ・Investment in employees (human capital)
Engagement	Engagement with the value chain to enhance the viability of companies in the chain and the sustainability of our business, as well as to enhance our investment decisions and strategies through the maintenance and improvement of data quality	・Engaging in dialogue for maintaining and improving data vendor and index vendor viability and quality, and for improving response to climate change issues

(3)Strategy

We have demonstrated our specific strategies as shown above according to “Approach to climate change risks and opportunities for us.” These are sorted into six items, which are “Engagement,” “Exercise of voting rights” “Investment considerations,” “Providing clients with investment opportunities,” “Engagement with clients,” and “Enhancing our response to climate change.”The targets of “engagement” are A. Investee companies, B. Government agencies and other stakeholders, and C. the Value chain.
Among these, for A. Investee companies, we encourage investee companies to change their behavior by promoting top-down engagement and the horizontal implementation of best practices, especially for companies with high GHG emissions (hereinafter, high-emission companies), and by proactively using this approach as an agenda for bottom-up engagement. As for “exercise of voting rights”, in order to enhance connectivity, especially if the guidelines in our Principles for Exercising Voting Rights are not being met and there is no legitimate reason, we would principally vote against proposals for electing directors for high-emission companies. Moreover, we will not simply withdraw from investment (divestment) to exclude high-emission companies from the investment universe. Rather, through engagement and the proper exercise of voting rights, our aim is to encourage investee companies to promote realistic solutions for addressing climate change including transition, and to achieve sustainable growth and sustainability for companies and society as a whole. As for B. Engagement with stakeholders, targets include government agencies, industry groups, NGOs, and academic institutions, and our aim is to be a bridge with investee companies while indirectly encouraging them to change their behavior. Also, regarding C. Engagement with the value chain, targets include data vendors and index vendors, and our aim is to enhance the sustainability of collaborative relationships with them and enhance responses to climate change issues through collaboration.
Regarding “investment considerations”, climate change factors are reflected in accordance with the individual fund style, and climate change factors are considered when making investment decisions for individual securities. Recently, we have enhanced fund governance by ESG monitoring including climate change issues, and have promoted expansion of target assets with climate change factors considered.
Providing clients with investment opportunities” is for providing investment products, while “Engagement with clients” is for providing diverse information to clients. Providing investment opportunities means setting an investment strategy in consideration of climate change issues, and having the clients use related investment products for contributing to reduction of GHG emissions. Engagement means having future or potential investors deepen their knowledge of climate change issues through information dissemination by means of online articles, and helping them see that they can help resolve such issues through investment.

Figure 8: Our strategy on climate change issues based on risks and opportunities

Strategy	Target	Actions
Engagement with investee companies	Investee companies	・Promote top-down approach engagement for companies with high GHG emissions ・Share best practices with investee companies ・Actively utilize agenda items in bottom-up engagement approaches
Engagement with various stakeholders, including government agencies	Government agencies, industry groups, NGOs, academia, etc.	・Engage in dialogues on topics such as climate-related disclosures with the Ministry of Economy, Trade and Industry, Financial Services Agency, and Ministry of the Environment ・Exchange views with the Central Research Institute of Electric Power Industry and the Institute of Energy Economics, Japan ・Contribute to statements by the Japan Chapter of GFANZ ・Participate in discussions on phasing-out of GHG emissions by high-emission companies in Asia through AIGCC's AUEP ・Engage in discussions on Asia's transition at ADB-hosted meetings (ABMF)
Strengthening guidelines related to climate change issues in our Principles for Exercising Voting Rights	Investee companies	・Introduced climate change-related criteria into our Principle on Exercising Voting Rights ・Conducted assessments on the climate change response of high-emission companies and started voting against the director appointment proposals for companies with low scores and supporting shareholder proposals related to climate change
Reflecting climate change factors according to individual fund styles, and taking climate change factors into account in investment decisions on individual securities	Our company (Clients)	・Quarterly report the ESG monitoring results of each fund to internal committees
Supporting actions to address climate change issues by providing investment opportunities	Clients	・Set S&P/JPX Carbon Efficient Index-tracked type strategy (Japanese equity) ・Set Bloomberg MSCI Global Aggregate Sustainability A+ Strategy (Global bonds)
Enhancing client awareness of climate change issues, engaging potential clients	Clients (Including potential clients)	・Publish online articles ・Promote onsite financial lectures ・President Yoshio Hishida gave a presentation at PRI Tokyo ・Chairperson David Semaya participated as a panelist at a COP28 side event (World Climate Summit)
The following are considered to be essential items for acquiring a growth base and opportunities; as a broad definition, "strategies"		
Appropriate response to climate-related regulations	Our company (Clients)	・Conduct climate-related risk disclosures in line with SFDR disclosure regulations ・Enhance TCFD disclosures
Improving personnel development and resources for climate-related response	Our company (Clients)	・Employees take classes at the PRI Academy ・Provide in-house e-learning ・Hold in-house workshops on TCFD disclosures
Engagement with the value chain	Data vendors, index vendors, and others	・Engaged in discussions with Sustainalytics regarding research services on breaches of international norms ・Held dialogues with ISS on clarifying our principles for exercising voting rights and recommendations for climate-related issues, and enhancing the climate change-related database ・Held dialogues with MSCI on changes to the ESG score calculation process ・Provided input to the GFANZ Index Investing Workstream

Finally, "Enhancing our response to climate change" is the foundation of our growth, and we believe it to be an important "Strategy" for obtaining a foundation for growth. In recent years, we have disclosed information on climate-related risks in accordance with SFDR disclosure regulations, and prior to that, we were already performing TCFD information disclosure. We believe that it is very important for us to be recognized as an asset management company and to be sustainable. At the same time, improving personnel development and resources for climate-related response is essential for the continued existence of our company, and we have been providing various types of in-house education and workshops.

3. Risk management

(1)Our climate change risk management process

Climate change risk management policy

The board of directors of Sumitomo Mitsui Trust Group, our parent company, formulates "the Action Guidelines for Mitigating Climate Change" as a fundamental policy of the group relating to climate change. We also formulated the sustainability risk management policy, including climate change risks in the "risk management policy" stipulated by the board of directors' resolution. We articulated the basic policy of sustainability risk management, the definition of each sustainability risk, the meaning of sustainability-related risk management, the role, responsibility, and organizational structure of the board of directors/management meeting, and the three lines defense system.
In addition, regarding sustainability-related risks associated with assets under management, we stipulate the proper management of such risks from the perspective of fiduciary duty and other considerations, as outlined in the investment management business rules and related rules that are separately defined. In this way, we have established a comprehensive risk management framework, including sustainability-related risks, for both our corporate risks and risks associated with assets under management.

Definition of climate change risks

We define climate change risks as risks which give adverse effects on Sumitomo Mitsui Trust Group, clients, markets, financial infrastructure, and society by realizing physical and transition risks, and further define sustainability-related risks, including climate-related risks as a possibility in which each factor of medium- and long-term issues in environment, society, economy and governance becomes a risk driver and gives our company adverse effects by influencing existing risk categories cross-sectionally or in which the adverse impact on our company influences existing risk categories cross-sectionally, which affects our company's stakeholders negatively.
Also, we define Sustainability-related risks in assets under management, as the possibilities that have a cross-sectional impact on asset management risks and may negatively affect the assets under management, or have a cross-sectional impact on asset management risks by affecting the assets under management and may negatively impact our shareholders, with each medium- to long-term factors in issus related to environmental, social, and governance becoming a risk driver.

Specifically, our approach to climate change is set forth in our ESG investment policy as follows: "Climate change: Global warming, caused by the accumulation of GHG such as carbon dioxide, and the resulting extreme weather are not a threat in the future, but rather a reality in front of us. We consider climate change as the most important issue affecting society and economic

activities as a whole, and reflect measures for mitigating and adapting to it in ESG investment decisions by considering matters such as international frameworks."

Classification of climate change risks

We regularly review risks which our group companies face, and identify the risks that should be monitored based on the scale and trait of these risks under the framework of enterprise risk management with our parent company, Sumitomo Mitsui Trust Group. Among critical risks, we identify particularly significant risks as "significant risks" and classify them by risk driver, risk category, etc., and by doing so, we manage significant risk inventory. Regarding significant risk management, we assess significant risk inventory one by one under monitoring in terms of importance for the corporate management and decide whether they are applicable for top risks (risks which management needs to take care of because they will have significant influence within one year) or emerging risks (risks which will not give substantial influence within one year but will give considerable influence over one year or in medium and long term), etc. Besides, "climate change risks" have been reclassified since 2021 from "emerging risks" to "top risks."

Organizational process for identifying and managing climate change risks

To manage climate change risks, our board of directors has developed a risk management policies and risk management plans for sustainability-related risks, including climate change risks (hereinafter, sustainability-related risks), based on risk management rules. The management meeting develops and reviews the organization to exhibit checking functions of sustainability-related risks, formulates appetite framework relating to sustainability-related risks, and creates GHG emissions reduction targets. Executive officers fully recognize belittling the risk management relating to sustainability-related risks, will significantly affect our company to achieve the strategic targets and, therefore, need to consider sustainability-related risks at risk management.

Our sustainability-related risk management is conducted by the three lines defense system.

The first line of defense is defined as departments that are responsible for each business operation directly in our company. These departments understand sustainability-related risks that our stakeholders, such as clients and employees, etc., face and think together about how to cope with such sustainability-related risks in cooperation with stakeholders (engagement) and endeavor product development and expansion of client base by identifying sustainability-related opportunities. Also, the first line of defense departments plays a significant role in risk identification, risk assessment, and control based on our risk appetite relating to climate change and risk-taking policy. They correctly report the ongoing operation of risk management and risk itself to departments of the second line of defense.

Our second line of defense that has formulated management policy for sustainability-related risks, develops risk management plans, which are resolved at the Management meeting and the board of directors. Maintaining an independent position from the first line of defense, the second line of defense monitors and checks the first line of defense's identification, assessment, and controlling of sustainability-related risks and instructs and supports the first line of defense's risk-controlling activity.

Our third line of defense conducts internal audits to assess the efficacy of climate change risk management, maintaining an independent position of risk management functions by the first and second line of defense.

Moreover, for sustainability-related risks in our asset management, the investment risk management performed at our Investment Departments acts as the first line of defense, while the investment risk management performed at our middle offices acts as the second line of defense. Additionally, discussion and monitoring are conducted at the Sustainability Committee for overall stewardship activities.

The Sustainability Committee conducts quarterly monitoring of considerating ESG factors, including climate change risks, for investment. The TCFD report is also discussed by the Sustainability Committee, and the disclosure contents of climate-related financial information is effectively governed by it.

The Sustainability Committee is composed of not only market front departments and the Stewardship Development Department, but also the Investment Risk Management Department, an independent and specialized department for monitoring. Discussion at the Sustainability Committee is reported as necessary to the Management meeting, composed of executive officers, with the president at the top as needed. By doing so, we develop and operate a corporate-wide, multitiered, and multifaceted risk management system. Utilizing these organizations, the role, and the process, we enhance the effectiveness of climate change risk management.

Contribution to risk management through engagement activities, exercising voting rights and investment decision-making in portfolio companies, taking into account climate change factors.

(Identification of climate change risks as ESG materiality)

We define climate change as an ESG materiality on our ESG investment policy. ESG materiality refers to ESG issues that we view as important for improving the value of the investee company and promoting sustainable growth. We consider this ESG materiality when performing ESG investment including ESG evaluation of investee companies, engagement activities, and decisions for exercise of voting rights. The Sustainability Committee annually reviews ESG materiality based on information collected through ESG regulations by financial authorities, participations in various initiatives, dialogues with multiple stakeholders, etc., and if the committee decides to amend or abolish them, the amendment and abolishment are to be resolved at the Management meeting.In conclusion, ESG materiality which we stipulate are considered through our engagement, exercise of voting right and investment activities, so that identification and response to climate change risks become possible.

(Engagement)

We view engagement activities as opportunities to seek best practices from companies, and we communicate our views so as to contribute to the enhancement of corporate value over the medium to long term. Gaining a proper understanding of a company's state of management and business situation is crucial to engagement. The ESG experts in our Stewardship Development Department work together with industrial corporate analysis professionals in the Research Investment Department to conduct in-depth engagement from both an ESG and business perspective, utilizing our proprietary MBIS® non-financial information assessments. We use our networks in Tokyo, New York and London to have our own engagement with investee companies. We also conduct various activities and engage with stakeholders outside our investee companies through a wide variety of initiatives.

While engagement is something we can do on our own, it is also done in collaboration with other investors who share the same beliefs. Engagement also includes activities that expand the investor base. Certain social issues such as climate change are global. Collaborative engagement is an approach to such issues across barriers in collaboration with other investors who share the same beliefs. In addition, our top management proactively communicate our opinions at international conferences and other events.

Column 1 Case studies of engagement with individual companies

Case1 Company A (Japan, public utility organization)

Opinions from us

As all of the thermal power plants owned by the company are coal-fueled and thus at risk of becoming stranded assets, the reduction plans to meet the 2030 targets for GHG emissions reduction need to be clarified. Although various measures such as introducing renewable energy, zero-emission of existing plants, and operating new plants have been proposed, they lack prioritization and a funding plan, making it difficult to assess the likelihood of executing the plans.

Company response and action

The 2030 reduction target was raised from 40% to 46%; however, the breakdown was not initially disclosed. Subsequently, at the financial results briefing in May 2024, they disclosed specific plans, such as suspending inefficient plants, converting them to standby plants, and increasing the efficiency of existing facilities. In addition, the company disclosed an ambitious plan, stating that approximately 40% of the strategic investment amount through 2030 will be allocated to renewable energy and related areas during the medium-term management plan period (up to FY2026).

Evaluation by us and future policy

The newly presented transition plan with specific reduction targets has clarified the company's initiatives. Moving forward, we will monitor whether reductions proceed according to the 2030 transition plan. We will also request further disclosures on the effectiveness of the initiatives, such as the acceleration and expansion of introducing renewable energy in response to changing customer demands and the need for additional measures to secure funding.

Column 1 Case studies of engagement with individual companies

Case2 Company B (Switzerland, cement)

Opinions from us

Although the company took the lead by promptly setting net zero targets in the cement industry, an industry in which decarbonization is considered difficult, it needs to further enhance the effectiveness of ambitious targets. Further promotion of developing low-carbon cement, utilizing GHG capture technology, and expanding renewable energy use may be necessary. This includes engaging the supply chain in these measures and improving the clarity and scope of information disclosure regarding these initiatives.

Company response and action

In March 2023, they raised their targets for Scope 1 and 2 by 2030 and expanded the target scope to cover all 15 categories of Scope 3. The scientific approach, such as receiving SBT certification under the 1.5°C scenario, was highly evaluated, and the company was selected as one of the 17 pilot companies worldwide for SBTs for Nature in May 2023. In July 2023, the EU Innovation Fund also selected their Carbon Capture, Utilization, and Storage (CCUS) project for funding.

Evaluation by us and future policy

Since 2019, we have engaged in continuous dialogue with the company, one of our target 100 companies, to address climate change issues using emails, online meetings, and in-person interactions. In December 2023, at COP28, their CCUS project in Germany was recognized as an Outstanding project, which increased the credibility of their net-zero plans and improved information disclosure. Moving forward, we plan to continue dialogues on implementing and disclosing specific measures to achieve net-zero targets for 2030-2050, encouraging active efforts to maintain industry leadership.

Column 2 Case studies of collaborative engagement

Climate Action 100+ activities

Climate Action 100+ is an initiative to promote collaborative engagement among approximately 170 global companies that produce significant GHG emissions. We were appointed to Co-Chair of the Asia Advisory Group in the Asia-Pacific region and are contributing to the operations of the initiative. We carry out collaborative engagement as a lead manager for Japanese companies and as a collaboration manager for companies in Asian countries such as Indonesia, South Korea, and Thailand, etc.

Activities at Net Zero Asset Managers initiative (NZAM)

NZAM is an international group of asset management companies with the goal of achieving net zero GHG emissions from assets under management by 2050 in harmony with global initiatives to limit global warming to 1.5℃. We are as a member of the Advisory Group for the NZAM and participated as a representative for the Asia region at the APAC Bi-annual meeting, where we conducted awareness-raising activities by presenting our Net Zero Roadmap as a case study.

AUEP's activities in the Asian Investor Group on Climate Change (AIGCC)

AUEP, an acronym for Asian Utilities Engagement Program, is one of the collaborative engagement programs run by the AIGCC. AUEP's objective is to encourage decarbonization among Asia's main power sector companies to supplement the activities of Climate Action 100+. AUEP is currently conducting continuous collaborative engagement activities among the main power companies in the Asian region. We play the role of lead manager for one of those companies, and with other institutional investors, promotes dialogue related to concrete strategies and actions plans to accelerate decarbonization.

Column 3 Case studies of top management engagement

We engage with a wide range of stakeholders beyond our investee companies. By actively engaging with a wide range of institutions, including governments, government agencies, and international initiatives, we aim to improve the external environment surrounding companies and increase the likelihood of achieving sustainable growth for our investee companies. Under this approach, we are also working to improve the effectiveness of our engagement activities by participating in relevant international conferences to bring cutting-edge knowledge back to Japan. In addition, our top management, including the Chairperson and President, participate in these activities and proactively communicate our opinions to the public, exerting our influence on a global scale as one of the largest asset management companies in Asia.

As an example, when former Japanese Prime Minister Kishida visited New York and exchanged views with Japanese and US asset management companies on Japan's efforts as a leading asset management center supporting a positive economic cycle from a financial perspective, our President Hishida also joined in those discussions.

Furthermore, after sponsoring PRI in Person 2023 held in Tokyo, we also sponsored PRI in Person 2024 held in Toronto, Canada. Established with the support of the United Nations, the Principles for Responsible Investment (PRI) encourage institutional investors to incorporate environmental, social and governance (ESG) factors into their investment decision-making processes. We signed the PRI at the time of their launch in 2006. Participating as a sponsor in the PRI in Person events demonstrates our commitment to the responsible investment principles. Through this sponsorship, we are contributing to encouraging responsible investment in both Japan and the world and working to aid in finding solutions to social issues such as climate change while simultaneously maintaining and increasing medium- to long-term investment returns for our customers.

(Our booth at PRI in Person 2024 in Toronto)

(Exercise of voting rights)

As to our engagement, we view the exercise of voting rights as an opportunity to call for a minimum standard of governance and consider it to be one method of governance-related engagement. We emphasize three key points when exercising voting rights: (1) high-quality governance that respects shareholders' equity; (2) efficient utilization of shareholders' capital for sustainable growth; and (3) appropriate action in the event an incident occurs that damages corporate value. We disclose our Principles for Exercising Voting Rights based on these criteria. We also actively pursue engagement with companies regarding the exercise of voting rights. Regarding our response to climate change, we are opposed in principle to companies with relatively high levels of GHG emissions that fall into any of the following categories and do not provide a rational explanation for their actions:

①Cases where there has been inadequate disclosure in accordance with the Task Force on Climate-related Financial Disclosures (TCFD) or equivalent framework;

②When there has been a failure to set medium- and long-term goals in line with the Paris Agreement or to disclose specific measures to achieve them;

③When there has been no evidence of progress in reducing GHG emissions.

With regard to equities, we evaluated our investee companies' initiatives through engagement and other methods from the standpoints of information disclosure in line with the TCFD, medium- to long-term goal setting in line with the Paris Agreement, and relevant specific measures, according to the criteria set in the Principles for Exercising Voting Rights, at general meetings of shareholders held in 2024. Of about 100 global companies that have a large impact on reducing total GHG emissions on a global level, we opposed proposals for the election of directors at a total of 11 companies, including three Japanese companies and eight overseas companies.

(Consideration on ESG in investment decision making)

As a signatory asset manager on the Principles for Responsible Investment (PRI), we conduct investment activities focusing on medium- to long-term environmental, social, and governance on the basis of the values presented in the United Nations Global Compact and SDGs (hereinafter, ESG investment). We believe that fulfilling the role as an investment manager in an investment chain through ESG investment will make contributions in value improvement and sustainable growth in investee companies, maximizing the investment return of clients (beneficiaries) over a medium to long term, reducing downside risks, and achieving a sustainable society.

Including climate change risks, we conduct non-financial evaluations using our in-house ESG score calculation based on "ESG materialities" and MBIS®, which is a proprietary system, and reflect these into our investment decision-making process according to portfolio characteristics in order to maximize investment return.

In principle, we assign an in-house ESG score to every asset in our investment universe and an MBIS® score to stocks covered by analysts. Regarding in-house ESG scores, quarterly reports are made to the Sustainability Committee on the status of score assignment, examples of score assignment based on ESG materiality, and our evaluation of the validity of the scores. Furthermore, we have established a system that enables the calculation of in-house ESG scores in terms of our portfolio; in particular, we not only chronologically monitor the in-house ESG score of the portfolio for our main products and funds we certify as ESG products in comparison with reference indices and similar strategies but also review the integration of ESG-related information.

Climate change risks of investee companies and portfolio

As to climate change risks of investee companies, we capture and analyze not only carbon-related indices of the corporation itself but also recognition and contributed emissions, etc., of the life cycle and entire supply chain of investee companies' products and services through the utilization of our in-house corporate research and ESG scores and engagement. By doing so, we utilize them for our investment decision-making.

As to climate change risks of a portfolio, we capture and analyze them through ISS※4's analysis function and our own due diligence on foreign investment trust companies, which we have chosen and placed into our FoFs, etc. The Sustainability Committee monitors the risks and reports to the Management meeting and the board of directors as needed.

By doing so, we identify and assess climate-related risks to establish the management process, and integrate this process into the comprehensive risk management process for monitoring.

※4 Institutional Shareholder Services

(2)Climate change risk assessment of our portfolio

In 2021, we joined NZAM and, toward achieving net-zero GHG emissions from our portfolio by 2050, set an interim target for 2030: to halve emissions compared to 2019 levels for our self-managed assets, which equate to approximately 43 trillion yen, excluding sovereign bonds, out of a total of approximately 85 trillion yen in assets under management as of the end of June 2021. We evaluate risks for portfolios related to this mid-term target by asset class, and then integrate asset classes to evaluate held assets. Our assessment method involves using (1) fixed point analysis based on the disclosed information of companies that make up our portfolio, along with their performance figures, (2) transition pathway analysis based on future climate change-related scenarios, and (3) portfolio resilience analysis related to climate change. The following is a summarized disclosure of analysis results related to domestic and foreign stocks as well as domestic and foreign bonds managed by us. The analysis was carried out using the data and analysis methods of ISS. The analysis was conducted using ISS data and analysis methods (based on the portfolio as of March 31, 2024, and analyzed with ISS data as of August 9, 2024)

The analysis results on financed emissions from sovereign bonds in our portfolio are shown on pages 32 to 38. It is disclosed separately because the calculation method differs from that used for the financed emissions from equity and bond portfolios.

A. Fixed point analysis (GHG emissions, etc.)

This is an attempt to ascertain the status of GHG emissions exposure and other conditions at a fixed point in time, based on investee company disclosure data and other information. For example, when looking at the GHG emissions by asset class (targets are Japanese equity, Japanese bonds, foreign equity, and foreign bonds), we see that the total GHG emissions※5 based on Scope 1+2 of each asset are below the reference index. In addition, compared to the previous year※6, GHG emissions from foreign equity decreased, resulting in a reduction of emissions for the overall portfolio to 20.5 million tCO_2e (20.9 million tCO_2e the previous year).

On the other hand, while GHG emissions were below the reference index for all asset classes for Scope 3※7, when compared to the previous year, emissions from the overall portfolio increased significantly to 255.5 million tCO_2e (196.1 million tCO_2e the previous year). The largest contributor to this increase was an increase in emissions from Japanese equity. The increase is assumed to be partly due to a temporary rise in Scope 3 emissions resulting from changes in the measurement scope, as in the previous year, such as the expanded measurement scope of Scope 3 at certain investee companies (Figure 9). Emissions by industry showed the same tendencies as the previous year where the utilities sector and materials sector made up the largest amount for all asset classes (Figure 10).

Figure 9: GHG emissions by asset class※8※10※11

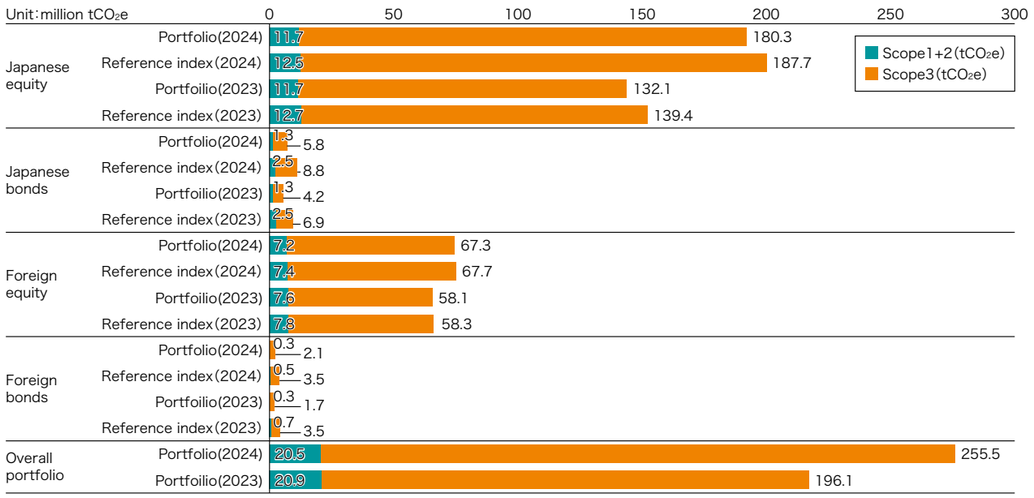
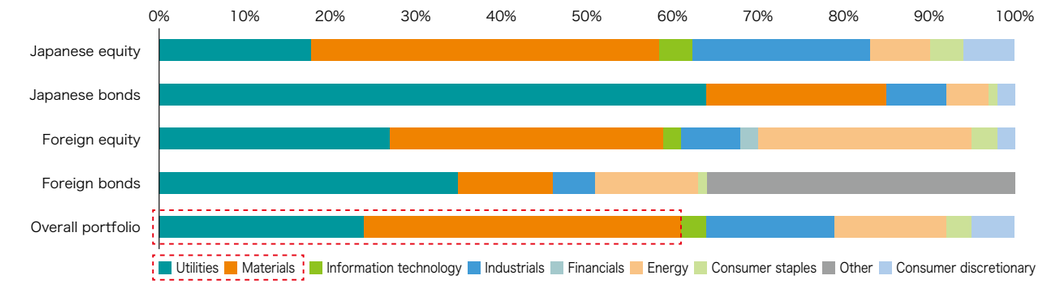
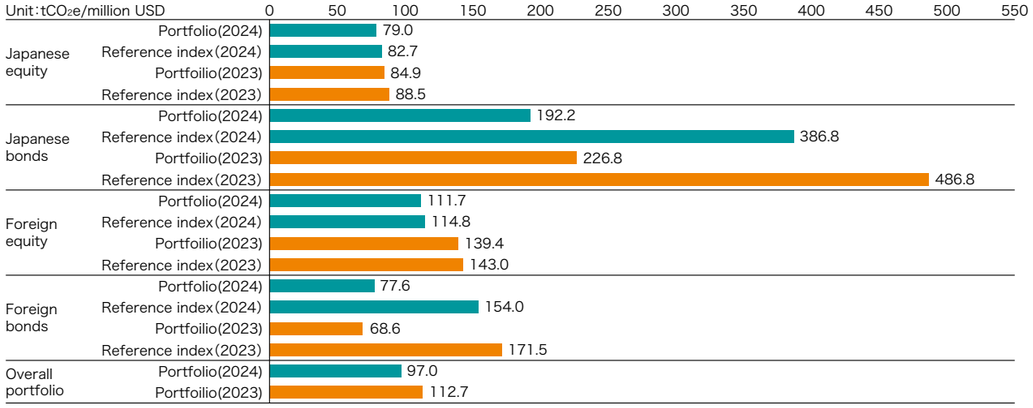


Figure 10: Industry breakdown of GHG emissions※9※11



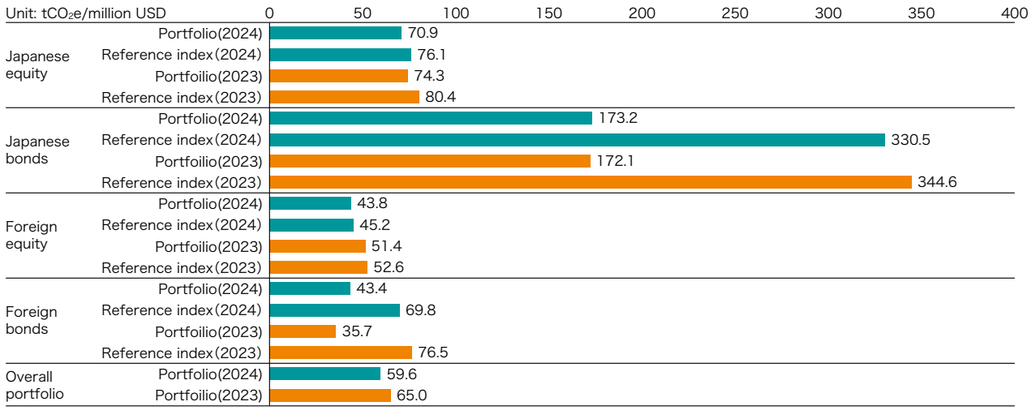
Next, we will explain the trend in weighted average carbon intensity (WACI, emission per sales unit). As in the previous year, the WACI remains below the reference index for all asset classes. In addition, compared to the previous year[*6], the WACI for foreign bonds worsened, while the WACI for the remaining three asset classes improved. As a result, the overall portfolio improved to 97.0 tCO_2e/million USD (112.7 tCO_2e/million USD the previous year). WACI is calculated by multiplying each investee company's emissions per sales by its investment weight in the portfolio and then summing the values across all companies in the portfolio. Since a high proportion of our entrusted assets are managed through a passive investment strategy, the investment weights of individual companies rarely fluctuate significantly. Therefore, the significant improvement in WACI is considered to be due to overall improvements in carbon efficiency among investee companies, indicating progress in corporate decarbonization. The reason why the value of Japanese bonds is higher than other asset classes is the high proportion of the utilities sector, including power companies, which have higher emissions per sales. In addition, the value of foreign equity is also higher than other asset classes, and we assume that the shareholding ratio of equities issued by companies in the utilities and materials sectors, which have higher emissions per sales, is relatively high compared to other asset classes (Figure 11).

Figure 11: Weighted average carbon intensity (WACI, emission per sales unit) by asset class※9※10※11



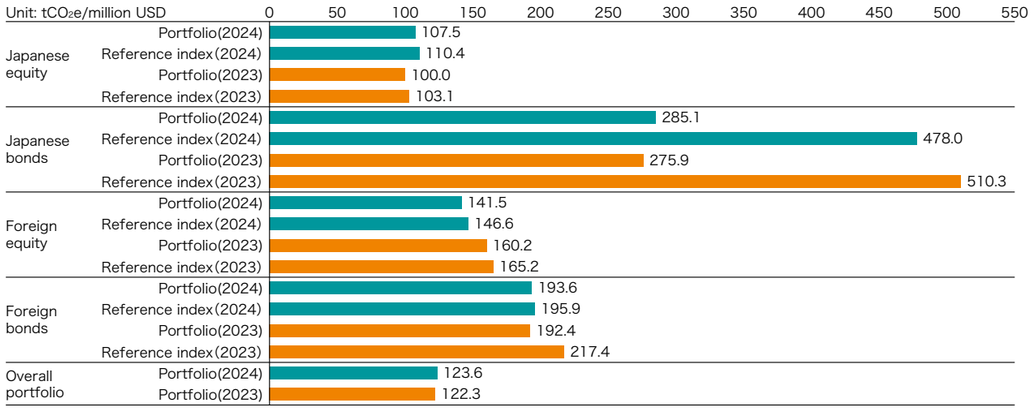
Regarding carbon footprint, all asset classes are below the reference index. In terms of year-on-year comparison[*6], with a significant contribution from the reduction in Japanese and foreign equities, the carbon footprint of the overall portfolio improved to 59.6 tCO_2e/million USD (65.0 tCO_2e/million USD the previous year) (Figure 12).

Figure 12: Carbon footprint by asset class※9※10※11



With respect to carbon intensity, all asset classes are below the reference index. When compared to the previous year[*6], the decrease in foreign equity was offset by increases in the remaining three asset classes, resulting in a slight increase in the overall portfolio to 123.6 tCO_2e/million USD (122.3 tCO_2e/million USD the previous year) (Figure 13).

Figure 13: Carbon intensity by asset class※9※10※11



B. Transition pathway analysis

(a) Climate change scenarios and transition path analysis of GHG emissions regarding our portfolio

Here, a method called transition pathway analysis is used to assess how the portfolio's climate change risks will change in the face of different scenarios for future climate change. Specifically, future estimated values for GHG emissions from the portfolio are compared to the carbon budgets of the climate change scenarios, and the portfolio's consistency with these scenarios is assessed. The scenarios used are the three scenarios of the International Energy Agency (IEA), which are the "SDS: Sustainable Development Scenario," "APS: Announced Pledges Scenario," and "STEPS: Stated Policy Scenario."

Figure 14: Scenarios used for analysis

SDS Sustainable Development Scenario	APS Announced Pledges Scenario	STEPS Stated Policy Scenario
Normative scenario in harmony with "initiatives to keep the temperature below +2ºC and +1.5ºC" as stipulated in the Paris Agreement.	Exploratory scenario where ambitious targets (NDC) set by each government are met (end of this century +2.1ºC).	Exploratory scenario for achieving the goals stated by governments (end of this century +2.6ºC).

Source: World Energy Outlook 2021

(Climate change scenarios)

IEA uses a forecast model called the global energy climate (GEC) model, and forecasts future CO_2 emissions using various carbon prices, which are supposed by scenario, country or region, and decade. Based on a carbon price (Figure15) as one of the significant inputs of this forecast model and CO_2 emissions (Figure16) as an output of this model, the characteristics of the three scenarios mentioned above are explained (This is based on the World Energy Outlook 2021, published in October 2021).

SDS Scenario

Under the circumstances all advanced countries and many emerging and developing countries are supposed to introduce carbon prices, which will be raised step by step, it is assumed that the high-level carbon prices are set in 2050 at 200 USD/tCO_2 in advanced countries declaring net-zero and at 160 USD/tCO_2 in other advanced countries which do not declare net-zero and emerging countries declaring net-zero. With this assumption, CO_2 emission is supposed to significantly reduce from 34.2 billion tCO_2 in 2020 to 8.2 billion tCO_2 in 2050, and therefore, it is forecasted that the temperature rise by 2100 will be able to be lower than 2˚C.

APS Scenario

It is assumed that about 50 countries including countries/regions and China that have declared net zero, would introduce carbon prices, and the prices are same level as the SDS scenario according to APS scenario. Since it is assumed that countries other than those mentioned above would not introduce carbon prices, CO_2 emissions in 2050 are forecasted to be 20.7 billions tCO_2. The emissions reduction remains half of the current emission level according to APS scenario. Therefore, the temperature rise is forecast to be 2.1˚C, higher than the SDS scenario.

STEPS Scenario

According to STEPS scenario, the carbon prices are assumed, and future CO_2 emissions are estimated based on the price plans of countries/regions that have introduced or decided to introduce carbon prices. The carbon price in the EU, which will introduce the highest level, is supposed to remain at 90 USD/tCO_2 in 2050. Therefore, global CO_2 emissions are estimated to be 33.9 billion tCO_2 in 2050, which remains at as same as the current level. Therefore, the temperature rise will be 2.6˚C in 2100.

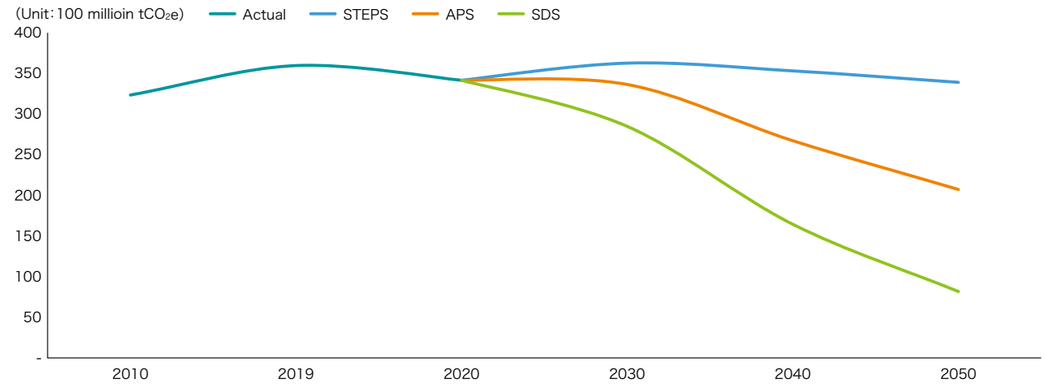
In conclusion, IEA's scenario analysis shows that a wide range of introductions of high-level carbon prices enables to reduce the emissions significantly and that it is inevitable to globally introduce high level carbon price to attain net-zero by 2050. We think that it is necessary to realize net zero society by accelerating investments and allocating more such investment capital for innovative use for decarbonization rather than bearing such high costs.

Figure 15: IEA's Carbon price assumption by scenario

Scenarios	Country/Region	Carbon price (USD/tCO_2)		
		2030	2040	2050
SDS	Developed countries declaring net-zero	120	170	200
	Developed countries other than those above	100	140	160
	Emerging and developing countries declaring net-zero including China	40	110	160
	Emerging and developing countries other than those above exluding some African and Asian countries	-	35	95
	African, Middle-east and Asian countries	-	-	-
APS	Developed countries declaring net-zero	120	170	200
	Emerging and developing countries declaring net-zero	40	110	160
	China	30	95	160
	Countries other than above	-	-	-
STEPS	EU	65	75	90
	Canada	55	60	75
	South Korea	40	65	90
	Chile, Columbia	15	20	30
	China	30	45	55
	Countries which do not either plan or implement carbon price	–	–	–

Source: added some comments by SuMi Trust AM based on Table B.2 of World Energy Outlook 2021 (p.329)

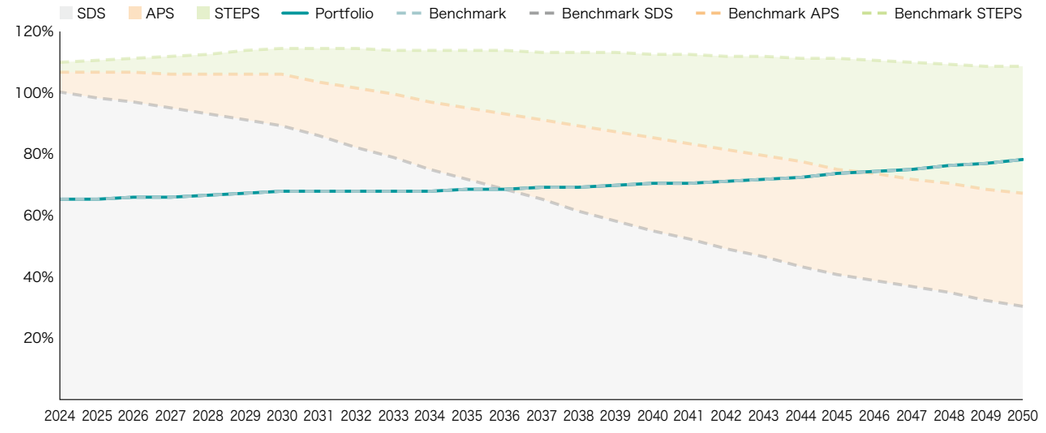
Figure 16: IEA's Global carbon emission estimation by scenario



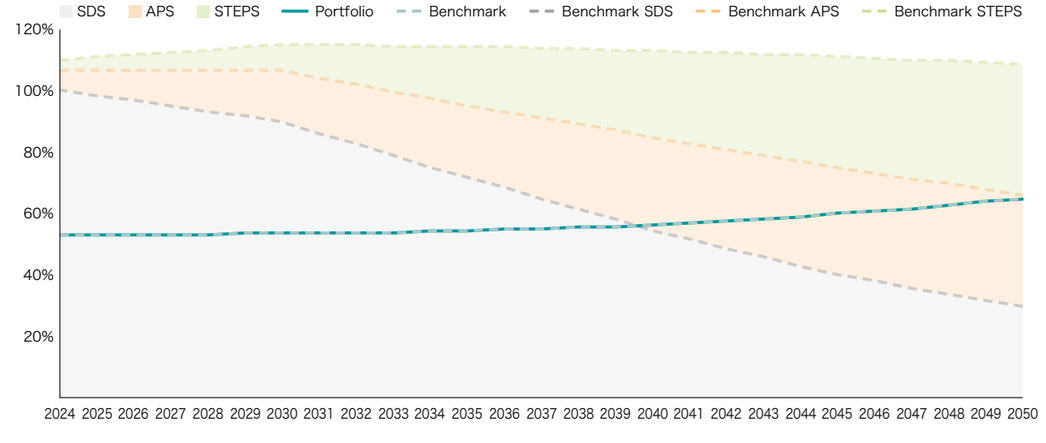
Source: Made by Sumi Trust AM from World Energy Outlook 2021 (Transition path analysis of GHG emissions regarding our portfolio)

Figure 17: Expected transition pathway for each strategy※11※12

■Passive Investment Strategy



■Active Investment Strategy



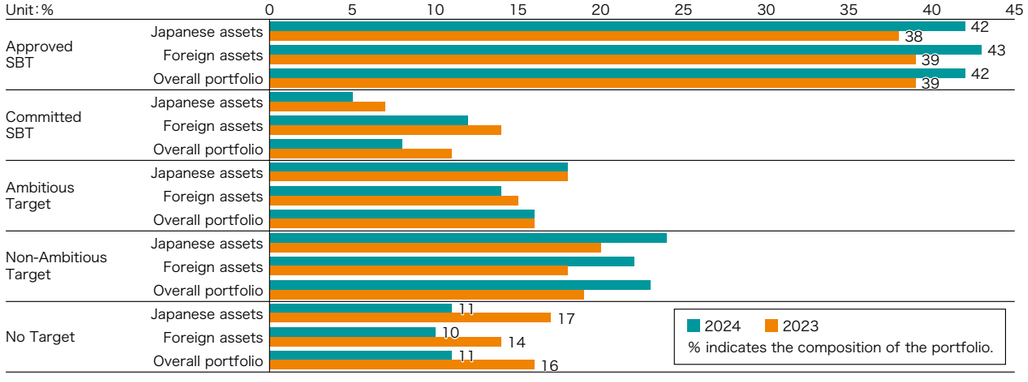
It was confirmed that our portfolio emissions would likely reach the upper limit of the SDS scenario by 2036 with the Passive Investment Strategy and by 2040 with the Active Investment Strategy. However, compared to the previous year[*6], the time to reach the upper limit has been moved forward by about two years for the Passive Investment Strategy (2038 the previous year) and also by about two years for the Active Investment Strategy (2042 the previous year). One reason for the relatively late arrival of the timing of allowance overruns for Active Investment Strategy relative to Passive Investment Strategy may be the low percentage of holdings in the energy sector, which is expected to significantly exceed its carbon budget. On the other hand, despite the absolute amount of our carbon emissions decreasing, the reason that our timing for reaching the upper limit of emissions allowed under the SDS scenario has moved forward may be because the emission reductions in our portfolio have not yet reached the levels required by the SDS scenario (Figure 17).

(b)Survey on climate-related targets

We have confirmed that there are a certain number of investee companies in our portfolio that are not aggressively addressing climate change issues. We consider increasing the number of investee companies that set ambitious goals, commit to SBT, and obtain certification[*13] to be an important measure, and we will actively work with investee companies to do so. When looking at the composition ratio of companies with “SBT certification” by asset class compared to the previous year[*6], we see that Japanese assets increased to 42% (38% the previous year) and foreign assets increased to 43% (39% the previous year). On the other hand, the composition ratio of “No Target” decreased to 11% (17% the previous year) for Japanese assets, and to 10% (14% the previous year) for foreign assets.

This can be attributed not only to the overall increase in the number of SBT-certified companies, but also to the rise in their market capitalization, driven by growth in corporate value and improved market capitalization. As these efforts to engage with investee companies have yielded considerable results, we will keep our efforts to ensure that this trend continues in the future (Figure 18).

Figure 18: Survey results on climate-related targets by asset class※11

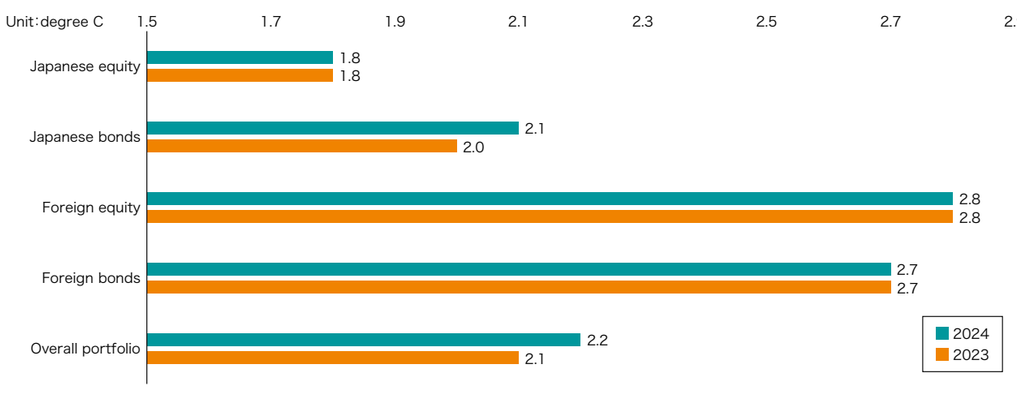


(c)Temperature score analysis

The temperature score index expresses how consistent the future estimated value of the portfolio GHG emissions is in line with the carbon budget for achieving the SDS scenario by converting it to a rise in temperature. For example, with a portfolio consistent with the SDS scenario in 2050, it will be 1.5ºC. Looking at the temperature score by asset class, Japanese equity was 1.8ºC (1.8ºC the previous year), and Japanese bonds were 2.1ºC (2.0ºC the previous year), foreign equity was 2.8ºC (2.8ºC the previous year), and foreign bonds were 2.7ºC (2.7ºC the previous year), and the overall portfolio was 2.2ºC (2.1ºC the previous year). When compared to the previous year[※6], while the temperature scores for each asset remained almost unchanged, the temperature score for the overall portfolio increased by 0.1ºC. This is likely due to the higher proportion of assets with relatively higher temperature scores within the portfolio. It is also analyzed that the increase appears larger than it actually is due to the effect of significant digits.

As mentioned in the transition analysis, we assume that a possible reason for the lack of improvement in the temperature score, despite the reduction in emissions in our portfolio may be that the GHG emission reductions in our portfolio are slightly lower than those required by the 1.5ºC scenario. While the score itself has not significantly worsened, there is still a gap compared to the SDS scenario (Figure 19).

Figure 19: Temperature score by asset class[※11][※12]



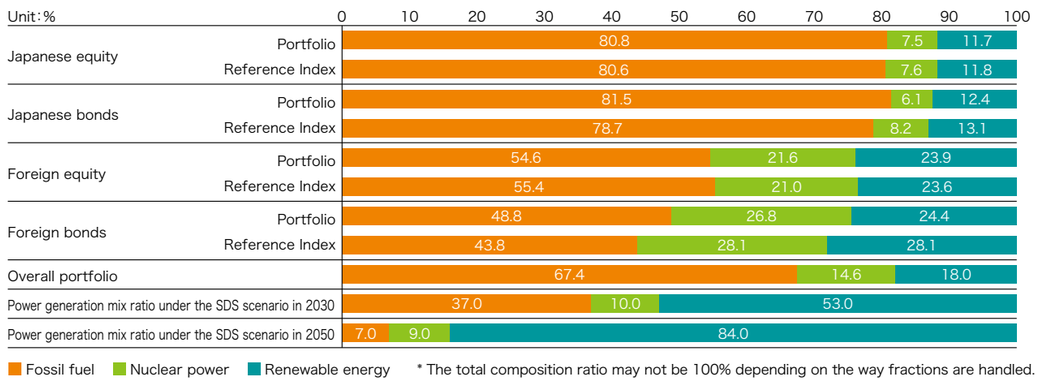
C. Portfolio resilience analysis related to climate change

(a)Transition risk analysis

❶Portfolio power generation mix analysis

One index for evaluating portfolio transition risk is the power generation mix ratio of the portfolio based on the amount of power generation. Here, the power generation mix ratio is compared for each asset class and reference index. Additionally, the power generation mix ratio was estimated for the overall portfolio for 2030 and 2050 under the SDS scenario. Figure 20 shows an overview of these values. Based on this, the power generation mix ratio for each asset class is nearly the same as the reference index. Additionally, as of now, about 67.4% of the overall portfolio is based on fossil fuels, which shows the need to reduce the fossil fuel composition ratio to about 37.0% in 2030, and to reduce it to 7.0% for 2050.

Figure 20: Power generation mix ratio by asset class[※10][※11]



* The total composition ratio may not be 100% depending on the way fractions are handled.

❷Portfolio transition VaR analysis

Another transition risk evaluation indicator is called transition value at risk (hereinafter, VaR). Transition VaR is an indicator that converts the impact on investee companies to portfolio value based on the Net Zero Emission (NZE) Scenario announced by the International Energy Agency (IEA). When comparing each asset class and reference index using this indicator, as shown in Figure 21, the amount of transition risk for us with each asset class is equivalent to the reference index or lower. Japanese bonds and foreign bonds in particular have a very narrow risk range. Additionally, the level of transition risk for the overall portfolio is 7% (8% the previous year), showing a slight decrease from the previous year.

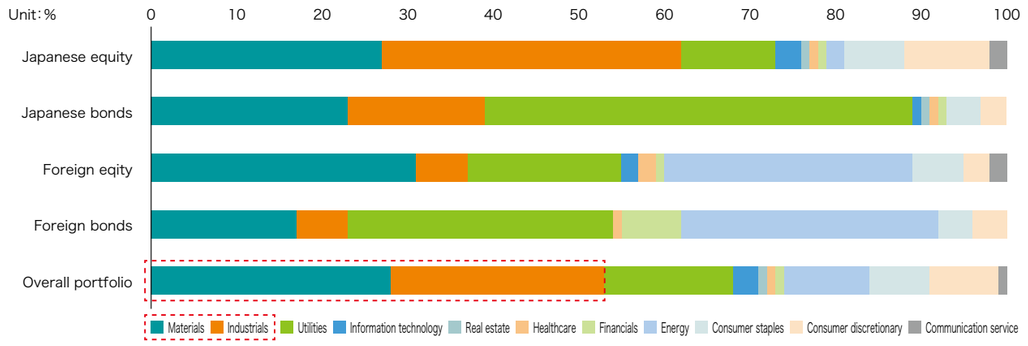
Figure 21: Transition VaR by asset class[※10][※11]

(Unit : %)

	Japanese equity	Japanese bonds	Foreign equity	Foreign bonds	Overall portfolio
Portfolio (A)	10	17	5	3	7
Reference Index (B)	10	32	5	6	-
Difference (A-B)	0	-15	0	-3	-

Figure 22 shows the composition ratio of overall portfolio transition VaR by sector, and as can be seen, over half is comprised of the Materials and Industrials sectors. Since a high carbon price is introduced with the NZE Scenario, companies that have high emissions face a heavy burden, and this is believed to impact the corporate value of investee companies. As for transition risk, it can be seen that our portfolio is designed in such a way that it is strongly impacted by these two sectors.

Figure 22: Sectoral composition ratio of transition VaR by asset class※11



(b)Physical risk analysis (Portfolio physical VaR analysis)

There is also a physical risk evaluation indicator called physical value at risk (hereinafter, VaR). This is an indicator that converts the physical risk impact on investee companies to portfolio value based on the assumed scenario (a 2ºC rise in temperature) prepared by the Intergovernmental Panel on Climate Change (IPCC). Figure 23 shows a comparison between the reference index and the physical risk by asset class based on this indicator. As can be seen, our physical risks by asset class are the same as the reference index or below. Additionally, the proportion of physical risk in the overall portfolio is 1% (1% the previous year), which is much lower than the transition risk of 7%, showing that there has been no significant change compared to the previous year※6.

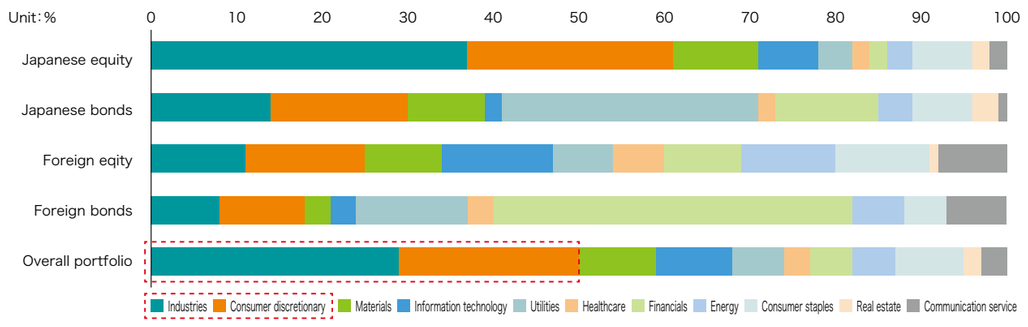
Figure 23: Physical VaR by asset class※10※11

(Unit : %)

	Japanese equity	Japanese bonds	Foreign equity	Foreign bonds	Overall portfolio
Portfolio (A)	1.4	1.9	0.6	0.4	1.0
Reference Index (B)	1.5	2.6	0.6	0.6	-
Difference (A-B)	-0.1	-0.7	0.0	-0.2	-

Figure 24 shows the composition ratio of overall portfolio physical VaR by sector, and as can be seen, about half is comprised of the industrials and consumer discretionary sectors, which are exposed to risks such as wind and flood damage due to their global supply chains.

Figure 24: Sectoral composition ration of Physical VaR by asset class※11



Looking at the overall analysis results, to effectively reduce GHG emissions for our portfolio, Japanese equity and foreign equity are important as asset classes, and utilities and materials are important as sectors, and the approach to the industrials sector is important from the perspective of reducing transition risk. In addition, while GHG emissions from our portfolio are trending downward in absolute terms, it has been indicated that efforts are needed to improve consistency with the 1.5˚C scenario. We will further encourage investee companies in prioritized target assets and sectors to enhance their initiatives related to climate change issues through our engagement and exercise of voting rights.

※5 Scope 1 refers to GHG emissions from fuel combustion by companies, while Scope 2 refers to GHG emissions from electricity usage by companies. These are defined by the GHG Protocol, an international standard for calculating and reporting GHG emissions for corporations.
※6 Since the values for the previous year (end of June 2023) were calculated (remeasured) using updated data such as carbon emissions, these do not match with the values in the SS report 2023/2024.
※7 Scope 3 refers to GHG emissions from purchased goods and services by companies, capital goods, upstream and downstream transportation and distribution, waste, employee travel and daily commutes, and product usage. This is a category of GHG emissions defined by the GHG Protocol.
※8 Based on Scope 1+2+3
※9 Based on Scope 1+2
※10 The following are reference indices used:
Japanese equity: Tokyo Stock Price Index (TOPIX)
Japanese bonds: NOMURA-BPI Overall (Corporate bonds only)
Foreign equity: MSCI-ACWI (ex Japan)
Foreign bonds: Bloomberg Global Overall (excluding Japan) (Corporate bonds only)
※11 Calculated based on our holdings for the adjusted corporate value of each asset.
※12 All industries except the fossil fuel production industry: Scope 1+2, Fossil fuel production industry: Scope 3, Electric power: Scope 1
※13 SBT (Science Based Targets). Targets for reducing GHG emissions set by companies with a target year of 5 to 15 years in the future in harmony with the standards stipulated in the Paris Agreement. Numerical values must be aligned with the latest indicators from meteorological science. These are implemented as WMB (We Mean Business) initiatives, and are established and carried out by WMB constituent organizations such as the World Resources Institute (WRI) and CDP. SBT certification indicates that goals are certified based on the above. Even after being certified, it is necessary to disclose emission amounts, the progress of measures every year, and to regularly confirm the validity of targets. Also, SBT commitment refers to the declaration that SBTs will be set within 2 years.

D. Analysis of GHG emissions (Financed Emissions) of our sovereign bond portfolio

Partnership for Carbon Accounting Financials (PCAF) proposed a calculation methodology and a format of information disclosure of GHG emissions from sovereign bond investment, etc., (hereinafter, Sovereign GHG emissions) in "The Global GHG Accounting and Reporting Standard Part A: Financed Emissions. Second Edition" in December 2022.

(a)Sovereign GHG emissions

PCAF stipulates sovereign GHG emissions as "GHG emissions from production activities within a country's boundary" and sets it as "Scope 1." This scope 1 emission is also called the "production emissions," and PCAF set it as a mandate for disclosure. Regarding the production emissions, PCAF recommends disclosing both numbers: GHG emissions with LULUCF (Land Use, Land Use Change, and Forestry, hereinafter, "Forest absorption") and without it. In addition, these production emissions include GHG emissions from the companies because the production emissions are caused by the production facilities in that country. Though it is named "sovereign," it is worth noting that the emission does not mean the GHG emissions from only the public sector.

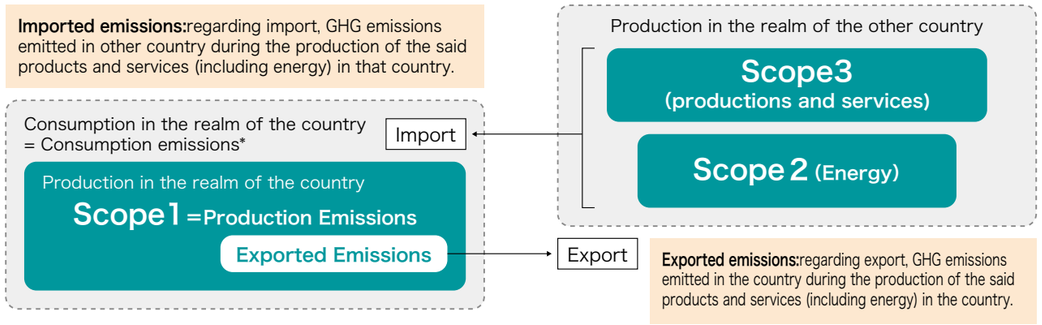
Figure 25: Definition of each scope relating to GHG emissions from sovereign bonds

Category	Disclosure Recommendation Level	Definition
Scope1※14 (Production Emissions)	Mandatory (shall)	● GHG emissions from the production activities in the realm of the country are called production emissions, and it is recommended to disclose GHG emissions considering forest absorption (LULUCF), etc.
Scope2※15	Recommended (should)	● GHG emissions that are emitted when energy imported and consumed in that country was produced outside of that country.
Scope3※15	Recommended (should)	● GHG emissions that are emitted when products and services (excluding energy) produced overseas and consumed in that country were produced outside of that country.
Exported Emissions※16	–	● Regarding export, GHG emissions emitted in the country during the production of the said products and services (including energy) in the country.
Imported Emissions※16	–	● Regarding import, GHG emissions emitted in other country during the production of the said products and services (including energy) in that country.
Consumption Emissions	Recommended (should)	● GHG emissions that are emitted by production processes relating to products and services used within the country's realm.

Source: made by Sumi Trust AM based on PCAF report, etc

PCAF also recommends disclosing the "consumption emissions" as the metrics corresponds to the production emissions. The “consumption emissions" are defined as "GHG emissions that are emitted by production processes relating to products and services used within the country's realm." For example, a country where its consumption scale is more significant than its production scale globally contributes to increasing GHG emissions through imported products and services, although that country's production emissions are relatively small. PCAF recommends disclosing the consumption emissions to visualize the transfer of GHG emissions from a GHG production country to a GHG consumption country.
The consumption emissions are calculated by adding the GHG emissions from the production process relating to imported products and services categorized by Scope 2 and 3 to the production emissions and by excluding the GHG emissions from the production process of products and services which are produced in the country and exported to other countries (exported emissions).
Besides, Scope 2 means "GHG emissions emitted when energy imported and consumed in that country was produced outside of that country, and Scope 3 means "GHG emissions emitted when products and services (excluding energy) produced overseas and consumed in that country were produced outside of that country. Also, exported emissions are "GHG emissions emitted in the country during the production of the said products and services (including energy) in the country" regarding the export goods.
Figure 26 shows these relationships. The category of sovereign GHG emissions is as a same term as GHG protocol, but we have to be careful that it is different by coverage from the scope of GHG emissions that companies use as Scope2 and Scope3.

Figure 26: Coverage of each scope regarding sovereign GHG emissions



*Consumption emissions = Production emissions (Scope1) + Imported emissions - Exported emissions

Source: made by Sumi Trust AM

(b)Calculation methodology of GHG emissions from sovereign bond portfolio

PCAF defines the methodology of GHG emissions from the sovereign bond portfolio below, being based on the calculation methodology of GHG emissions emitted from a portfolio of investee and loaned companies, so called financed emissions.

【Formula】

$$\text{Sovereign Financed Emissions} = \sum_{S} \frac{\text{Outstanding Amount to Sovereign Bonds of Country S}}{\text{PPP-adjusted GDP of Country S}^{※17}} \times \text{GHG emissions of Country S}$$

S=all countries included in portfolio measured

Attribution factor

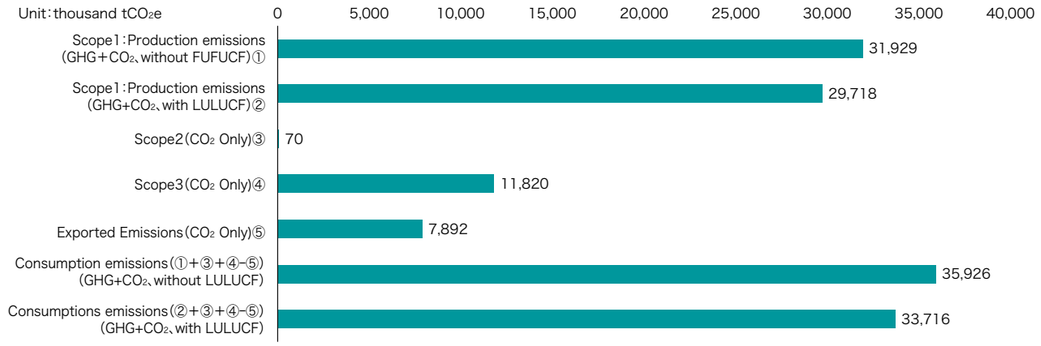
The sovereign financed emissions are derived by GHG emissions of each country issuing sovereign bonds invested (= GHG emissions of country S) multiplied by each country's attribution factor, which shows to what extent invested money to the bonds contributes to GHG emission of each country (= invested money to sovereign bonds of country S / PPP-adjusted GDP[※17]), and adding up derived numbers of emissions among countries belonging to the portfolio. The calculation methodology is as same as that for the portfolio of investee and loaned companies.
However, a different point of the calculation methodology of GHG emissions of sovereign bond portfolio from that of corporate stocks and bonds is the calculation methodology of the attribution factor. GHG emissions from the investment portfolio of corporate stocks and bonds are derived by making the investment exposure of investee companies the numerator while making the corporate value (EVIC) of investee companies the denominator; GHG emissions of sovereign bond portfolio are derived by making investment exposure of sovereign bonds of the invested country the numerator while nominal GDP adjusted by purchase power parity, the PPP-adjusted GDP[※17], the denominator.
PCAF explained “there was an option that the public debt of invested country should be the denominator based on the calculation methodology of the investment portfolio of corporate stocks and bonds, but we finally chose PPP-adjusted GDP, which had a higher

correlation with each country's emissions, as the denominator because the attribution factor of a country with large outstanding public debt could be underestimated."

(c)GHG emissions from our sovereign bond portfolio

Based on PCAF's recommended methodology, GHG emissions from our sovereign bond portfolio are shown in Figure 27. Our production emissions without LULUCF amount to 31.9 million tCO_2e, and those with LULUCF amount to 29.7 million tCO_2e; also, our consumption emissions without LULUCF amount to 35.9 million tCO_2e, and those with LULUCF amount to 33.7 million tCO_2e.

Figure 27: Sovereign GHG emissions by scope



Also, PCAF recommends portfolio analysis using two ways of carbon intensities: the production emissions intensity and the consumption emissions intensity. Emissions intensities by country are derived from the formula below.

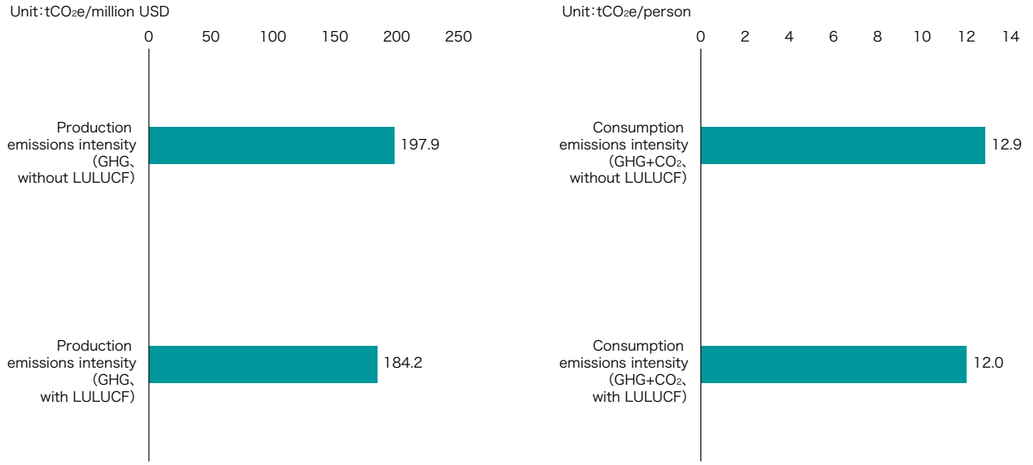
【Formula】

$$\text{Production emissions intensity of country S} = \frac{\text{Production emissions of country S}}{\text{PPP-adjusted GDP of country S}^{※17}}$$

$$\text{Consumption emissions intensity of country S} = \frac{\text{Consumption emissions of country S}}{\text{Population of country S}^{※18}}$$

Each invested country's emissions intensity is calculated based on the formula above. Then, based on the formula below, the portfolio-based emissions intensity is derived by weight-averaging each country's intensity using each country's investment weight of the portfolio, which is shown in Figure 28. The production emissions intensity of our sovereign bond portfolio (without LULUCF) is 197.9tCO_2e / million USD, and our consumption emissions intensity (without LULUCF) is 12.9tCO_2e per capita.

Figure 28: Our production emissions intensity and consumption emissions intensity



【Formula】

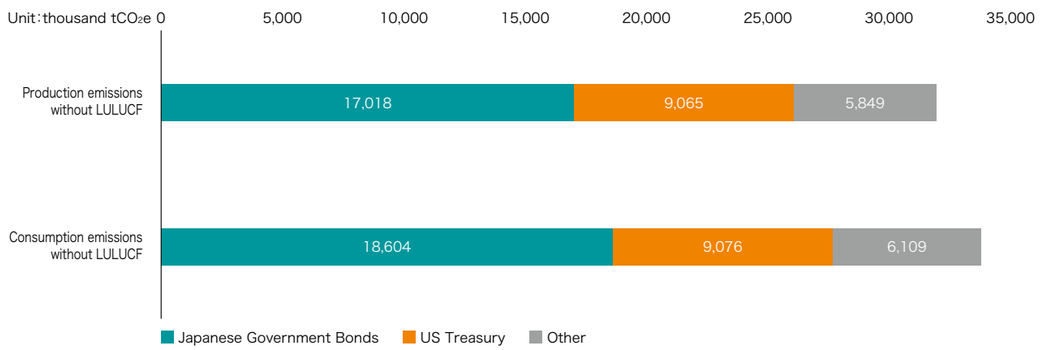
$$\text{Production emissions intensity of sovereign bonds portfolio} = \sum_{S} \left[\text{Production emissions intensity of country S} \times \text{Investment weight of sovereign bonds of country S} \right]$$

$$\text{Consumption emissions intensity of sovereign bonds portfolio} = \sum_{S} \left[\text{Consumption emissions intensity of country S} \times \text{Investment weight of sovereign bonds of country S} \right]$$

S=all countries included in portfolio measured
Investment weight of sovereign bonds of country S = investment value of country S's sovereign bonds / entire value of sovereign bonds portfolio

The result of the analysis of our contribution to production emissions and consumption emissions by country is shown in Figure 29. Japan Government Bonds and U.S. Treasury are largely contributing to both production emissions and consumption emissions. To align our sovereign bond portfolio with 1.5℃ scenario, it is indispensable that Japan and U.S. firmly reduce their GHG emissions. Therefore, intensively and actively engaging with companies in our major invested countries, including not only Japan but also the U.S., is crucial.

Figure 29: Country contribution to GHG emissions from our sovereign portfolio



(d)An analysis of forest absorption impact on our portfolio

Data that can derive the production emissions give us useful information relating to each country's GHG emissions profile. One of interesting information is LULUCF. Forest's role in absorbing and storing CO_2 is called "carbon sink." The importance has been recognized globally. On the other hand, the amount of CO_2 emitted by illegal lumbering and land use change associated with it, etc., is said to reach a significant scale.　Therefore, seeing the scale of forest absorption by country gives us some understanding of the degree of contribution of forest benefit or impact on global warming through the release of fixed CO_2 from land, etc, by deforestation.

Figure 30 shows three countries with the largest net positive absorption and three countries with the largest net negative absorption in our sovereign bond portfolio, under the definition that the net forest absorbion is a difference between the production emissions with gross forest absorption and without gross forest absorption, based on the production emissions data by country. Countries that most benefit from forest absorption are China and the U.S., which own large lands and enormous forest resource, while countries that have negative impact are unexpectedly Indonesia and Brazil. Both countries own large amounts of forest assets; however, it is thought that this fact indicates that the massive CO_2 emissions by decomposition of sludge and forest fire by influence of deforestation, etc., through plantation development and development to farmland and ranch is larger than the absorption capacity by the forest. The protection of tropical rainforests is an urgent matter internationally because the enormous amount of CO_2 emitted by deforestation can be a significant obstacle to achieving net zero by 2050 globally.

Figure 30: Comparison of net absorption by country in terms of sovereign bond portfolio

Ranking	The countries with significant net absorption	Absorption (thousand tCO_2)	The countries with negative net absorption	Absorption (thousand tCO_2)
1st	China	1,114,790	Indonesia	▲ 821,254
2nd	USA	754,225	Brazil	▲ 290,867
3rd	Malaysia	260,457	Peru	▲ 86,741

Next, the impact of forest absorption on our sovereign bond portfolio is considered. As shown in Figure 25, our production emissions with forest absorption are 29.7 million tCO_2e and 31.9 million tCO_2e without forest absorption; therefore, the net absorption of our sovereign bond portfolio is 2.2 million tCO_2e. The net absorption is equivalent to about 7% of our production emissions without forest absorption. Also, looking at the contribution to this net absorption country-by-county, countries that work negatively for this net absorption value, in other words, countries with significant CO_2 emissions by deforestation are Indonesia, Mexico, Ireland, Germany and Peru (Figure 31).

Figure 31: Impact by country on net absorption in our sovereign bond portfolio

Ranking	Country	Impact on forest absorption of our portfolio (thousand tCO_2e)
1st	Indonesia	▲ 16.2
2nd	Mexico	▲ 7.5
3rd	Ireland	▲ 4.4
4th	Germany	▲ 3.9
5th	Peru	▲ 3.6
(Reference) Forest absorption of our sovereign bond portfolio		2,211.1

We are collectively engaging in forest conservation and restoration activities with other investors through some global initiatives such as "The Investors Policy Dialogue on Deforestation (IPDD)" and "Financial Sector Deforestation Action (FSDA)." From these analyses, intensively engaging the Indonesian and Brazilian governments is very worthwhile because it substantially impacts reducing financed emissions from our portfolio.

(e)Next step regarding sovereign bond portfolio analysis

We calculated GHG emissions from our sovereign bond portfolio using the PCAF recommended methodology. Based on this calculation, GHG emissions by country come from OECD and UNFCCC statistics; it is noted that two statistics coverages differ in data coverage: OECD statistics is based on CO_2 emissions while UNFCCC statistics is based on GHG emissions. Also, there is much room for improvement in user-friendliness because updating GHG emissions data is slow, and data of some countries are unavailable.

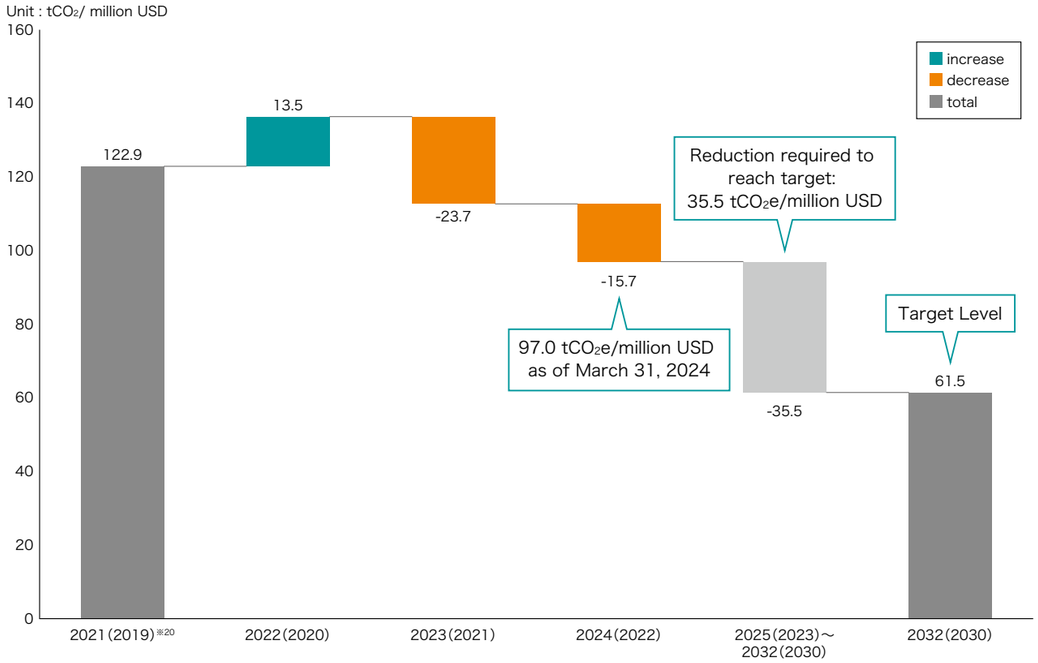
Despite such limitations, it is a significant progress for us to visualize GHG emissions from our sovereign bond portfolio in realizing net zero of our entire portfolio under management. Our sovereign bonds portfolio amounts to 24.4 trillion JPY*[19], and it is one of our major asset classes. We will make efforts to monitor our sovereign bonds' GHG emissions and reduce them by further improving analysis methodologies and through policy engagement.

※14 Calcuration of Scope1 uses GHG total data with and without LULUCF in 2021 of UNFCCC Annex I. Latest year's data from the non-Annex I list is used for non-Annex I countries. LULUCF is an abbreviation of land use, land use change, and forestry and shows the capacity for GHG emissions absorption. As to countries in which data is not available, GHG emissions are estimated based on a similar country's GDP intensity with a consideration of economic and geographical conditions. Unit is tCO_2 equivalent, including other GHGs like methane, etc.
※15 We use OECD statistics for the calculation of Scopes 2 and 3. Countries that have no emission data are treated as "no emissions." Only CO_2 emission data is available in these statistics. Data from 2018, which is the latest, is used for the analysis. The unit is tCO_2.
※16 Data used for calculating exported and imported emissions is from OECD statistics. Only CO_2 emission data is available in these statistics. Countries that have no emission data are treated as "no emissions." Data from 2018, which is the latest, is used for the analysis. The unit is tCO_2
※17 Data of PPP-adjusted GDP is from FY2022 of World Bank statistics.
※18 Data of Population is from FY2022 of World Bank statistics.
※19 Data of sovereign bond portfolio used for analysis is as of the end of March 2024. The total amount is 161.4 billion USD, which is calculated with the exchange rate at the end of March 2024 (151.41 yen/USD).

4. Metrics and targets

As a responsible institutional investor, we are promoting the reduction of GHG emissions by investee companies through our engagement and exercise of voting rights, collaboration with stakeholders such as asset owners and governmental agencies, improving investment strategies, and providing investment opportunities (products) to clients. The interim target committed by our participation in the NZAM is to halve emissions by 2030 compared to 2019 levels for approximately half of the balance of assets under management for which emissions can be calculated (excluding sovereign bonds, around 43 trillion yen) out of a total of approximately 85 trillion yen as of the end of June 2021. The ultimate goal is to achieve net zero for all assets under management by 2050.
We use WACI as an indicator to measure decarbonization progress in our target portfolio. Comparing the base year (2019) WACI of 122.9 tCO_2e/million USD with the WACI of 97.0 tCO_2e/million USD measured in 2024 (for 2022 data), we achieved a 21.1% reduction. To achieve our committed 2030 target of halving GHG emissions from our portfolio, a further reduction of 35.5 tCO_2e/million USD is required (Figure 32).
As for our own GHG emissions, we are also making efforts under the net zero realization framework of the Group-based CO_2 emissions (Scope 1+2) by 2030, which was set by the Sumitomo Mitsui Trust Group.

Figure 32: Progress in reducing WACI for NZAM target portfolios



*20 The year in parentheses indicates the data year for GHG emissions, two years before the base year of the portfolio balance.

Plans for the Future

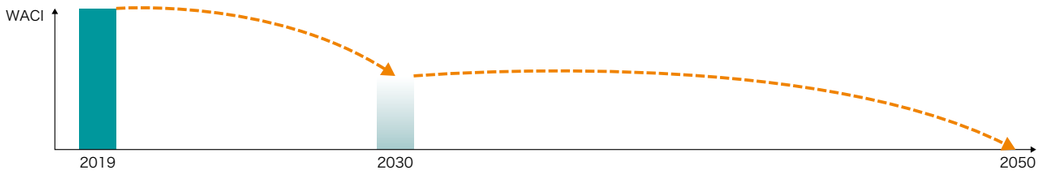
Under the supervision of the Board of Directors, we will continue to enhance our efforts and disclosures on climate change issues. In addition to reducing GHG emissions generated by investee companies through collaboration with stakeholders, such as engagement, exercise of voting rights, and policy advocacy activities, as well as optimizing capital allocation by providing investment strategies and investment products to address climate change issues, we aim to both maximize investment returns for clients and contribute to addressing climate change issues by engaging with clients and enhancing our organizational structures for climate-related responses. We remain committed to making tireless efforts to achieve these goals.

Our transition plan

A transition plan is defined by the TCFD as “an aspect of an organization’s overall business strategy to address climate-related risks and opportunities that lays out a set of targets and actions supporting its transition toward a low-carbon economy.” It refers to a business strategy that enables companies to achieve carbon neutrality by 2050. This transition plan is also required to be disclosed under IFRS SX, issued by the International Sustainability Standards Board (ISSB), and finalized in June 2023. The requirement applies not only to operating companies but also to financial institutions, including asset management companies.
Our transition plan is as shown in Figure 33. We aim to steadily implement the initiatives outlined thus far to achieve our interim 2030 targets (to halve GHG emissions from our investment portfolio compared to 2019 levels) and our ultimate 2050 goal (to achieve net-zero GHG emissions from our investment portfolio), as committed through NZAM.

Figure 33: Our transition plan

Governance	Strategy	Risk Management	Metrics and Targets
■The Board of Directors sets, approves, and discloses the 2030 interim targets for GHG emissions ■Establish a compensation KPI for the President including items related to GHG emissions reduction ■Report progress of the plan to the Sustainability Committee, management meeting, and Board of Directors ■Disclose performance in TCFD disclosures	■Participate in climate change initiatives like CA100+ and AIGCC ■Engage with the top 100 global companies with the highest GHG emissions (covering approximately 40% of our equity holdings) to monitor their reduction plans ■Strengthen connections between the Principles for Exercising Voting Rights and exercise policies ■Update knowledge on calculation methods and disclosure rules for GHG emissions	■Conduct annual monitoring of carbon budget consumption ■Measure and monitor transition VaR and physical VaR ■Discuss management impacts and the need for plan revisions and disclose if revisions are made	■2030 interim targets for GHG emissions reduction: Halve the WACI of 50% of asset under management (approximately 85 trillion yen as of the end of June 2021), which is equivalent to about 43 trillion yen, excluding sovereign bonds, from 2019 levels ■Set future targets for reducing GHG emissions from sovereign bonds, which are currently excluded



Participation and promotion of activities through initiatives like the NZAM
Promotion, enhancement, and pursuit of results through activities in initiatives like the NZAM
Disclosure of the 2030 interim targets for GHG emissions reduction
Review of reduction targets related to GHG emissions reductions
Disclosure of the 2050 targets for GHG emissions reduction
Focused engagement with the top 100 global companies with the highest GHG emissions
Strengthening connections between the Principles for Exercising Voting Rights and exercise policies concerning companies with the highest GHG emissions
Reducing WACI by half for half of assets under management by 2030, compared to 2019 levels, with a focus on GHG emissions
Redefining the criteria for companies with the highest GHG emissions, reviewing and strengthening connections between the Principles for Exercising Voting Rights and exercise policies
Reflecting climate change factors according to individual fund styles, taking climate change factors into account in investment decisions on individual securities, and supporting climate change responses through the provision of investment opportunities
Accumulating knowledge on calculating GHG emissions for sovereign bonds, among others, and setting reduction targets

Reference

1. Our carbon emissions data list

(1)Data related to asset class

Asset class	Target year	Total portfolio (Billion USD)	Portfolio / Reference index	Carbon emissions (Scope1+2) (million tCO_2e)	Total carbon emissions (million tCO_2e)	Carbon footprint (tCO_2e/ million USD)	Carbon intensity (tCO_2e/ million USD)	WACI (tCO2e/ million USD)	Temparature score (℃)	Transition VaR (%)	Physical VaR (%)
Japanese equity	2024	164.9	Portfolio	11.7	192.0	70.9	107.5	79.0	1.8	10	1.4
			Reference Index	12.5	200.2	76.1	110.4	82.7			
	2023	158.0	Portfolio	11.7	143.9	74.3	100.0	84.9	1.8	11	1.6
			Reference Index	12.7	152.1	80.4	103.1	88.5			
Japanese bonds	2024	7.5	Portfolio	1.3	7.1	173.2	285.1	192.2	2.1	17	1.9
			Reference Index	2.5	11.3	330.5	478.0	386.8			
	2023	7.4	Portfolio	1.3	5.5	172.1	275.9	226.8	2.0	17	2.1
			Reference Index	2.5	9.4	344.6	510.3	486.8			
Foreign equity	2024	163.7	Portfolio	7.2	74.5	43.8	141.5	111.7	2.8	5	0.6
			Reference Index	7.4	75.1	45.2	146.6	114.8			
	2023	147.9	Portfolio	7.6	65.7	51.4	160.2	139.4	2.8	5	0.7
			Reference Index	7.8	66.1	52.6	165.2	143.0			
Foreign bonds	2024	7.4	Portfolio	0.3	2.4	43.4	193.6	77.6	2.7	3	0.4
			Reference Index	0.5	4.1	69.8	195.9	154.0			
	2023	8.7	Portfolio	0.3	2.0	35.7	192.4	68.6	2.7	2	0.5
			Reference Index	0.7	4.2	76.5	217.4	171.5			
Overall portfolio	2024	343.5	Portfolio	20.5	276.0	59.6	123.6	97.0	2.2	7	1.0
	2023	321.9	Portfolio	20.9	217.0	65.0	122.3	112.7	2.1	8	1.1

(2)Data related to investment strategy

Investment strategy	Target year	Total portfolio (Billion USD)	Portfolio / Reference index	Carbon emissions (Scope1+2) (million tCO_2e)	Total carbon emissions (million tCO_2e)	Carbon footprint (tCO_2e/ million USD)	Carbon intensity (tCO_2e/ million USD)	WACI (tCO_2e/ million USD)	Temparature score (℃)	Transition VaR (%)	Physical VaR (%)
Passive investment strategy	2024	317.8	Portfolio	18.6	253.9	58.6	121.9	97.8	2.2	7	1
	2023	296.5	Portfolio	19.1	201.3	64.5	121.4	114.0	2.1	8	1
Active investment strategy	2024	24.0	Portfolio	1.8	20.8	73.2	145.4	88.9	2.0	10	1
	2023	24.0	Portfolio	1.7	15.1	72.5	135.3	99.4	1.9	10	1

(3)Sovereign Bond

(Unit: thousand tCO_2e (for GHG), thousand tCO_2 (for CO_2))

Scope 1: production emissions (GHG + CO_2, without LULUCF)	Scope 1: production emissions (GHG + CO_2, with LULUCF)	Scope 2 (CO_2 only)	Scope 3 (CO_2 only)	Export emissions (CO_2 only)	Consumption emissions (GHG + CO_2, without LULUCF)	Consumption emissions (GHG + CO_2, with LULUCF)
31,929	29,718	70	11,820	7,892	35,926	33,716

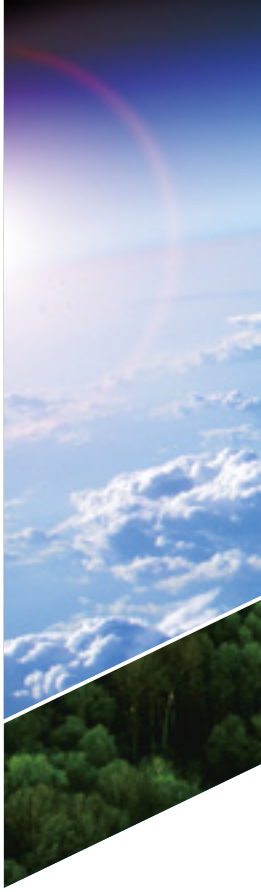
(Unit: production emissions intensity tCO_2e/million USD, consumption emissions intensity tCO_2e per capita)

Production emissions intensity (GHG, without LULUCF)	Production emissions intensity (GHG, with LULUCF)	Consumption emissions intensity (GHG + CO_2, without LULUCF)	Consumption emissions intensity (GHG + CO_2, with LULUCF)
197.9	184.2	12.9	12.0

2. Definition of main terms

Term	Description	Calculation formula
Total Carbon Emissions / Financed Emissions	・Portfolio GHG total emissions (Unit: CO_2 converted tons (tCO_2e)) ・GHG emissions for investee companies are based on Scope 1+2+3.	$\sum_{n}^{i}\left[\frac{\text{Investment market value i}}{\text{Investee company's EVIC i}^{※}} \times \text{Investee company's GHG emissions i}\right]$
Carbon Footprint	・Value that can be acquired by total carbon emissions over market value of portfolio(Unit: CO_2 converted tons (tCO_2e)) per million USD (present value of portfolio)) ・GHG emissions for investee companies in total carbon emissions are based on Scope 1+2.	$\frac{\text{Total Carbon Emissions}}{\text{Market Value of Portfolio}}$
Carbon Intensity	・Value that can be acquired by dividing the total carbon emissions by the total sales of each investee company in the portfolio (Unit: CO_2 converted tons (tCO_2e) per Million USD). ・GHG emissions for investee companies in total carbon emissions are based on Scope 1+2.	$\frac{\text{Total carbon emissions}}{\sum_{n}^{i}\left[\frac{\text{Investment market value i}}{\text{Investee company's EVIC i}^{※}} \times \text{Investee company's sales i}\right]}$
Weighted Average Carbon Intensity (WACI)	・Weighted average for carbon emissions per unit sales of each investee company using investment weight of each investee company (Unit: CO_2 converted tons (tCO_2e) per Million USD). ・GHG emissions for investee companies are based on Scope 1+2.	$\sum_{n}^{i}\left[\frac{\text{Investment market value i}}{\text{Portfolio market price}} \times \frac{\text{Investee company's GHG emissions i}}{\text{Investee company's sales i}}\right]$

※EVIC stands for Enterprise Value Including Cash and expresses corporate value including cash.
EVIC = Market capitalization (Class stocks such as common stocks and preferred stocks) + Interest-bearing debt (Book value) + Controlling stockholder equity (Book value).



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